



DENVER, COLORADO

# JSM2019

---

*The content in this book is accurate as of July 11, 2019*

JULY 27–AUGUST 1

# Table of Contents

## General Program

Sunday, July 28.....	3
Monday, July 29 .....	33
Tuesday, July 30 .....	91
Wednesday, July 31 .....	149
Thursday, August 1 .....	194

## Index

Index of Session Participants .....	217
-------------------------------------	-----

## Session Tag Descriptions

**We expect both theme and applied sessions to draw a diverse audience.**

### ● THEME

JSM theme sessions are directly relevant to the JSM 2019 theme, Statistics: Making an Impact. Theme sessions are designed to expand the frontiers of statistical thought, emphasize new directions, and promote interdisciplinary collaboration.

### ■ APPLIED

JSM applied sessions have applications at the heart of the presentations. Because these sessions are grounded in applications across many areas of science and engineering, they may involve interdisciplinary work and include presentations by nonstatisticians. Applied sessions vary in scope, ranging from presentations on state-of-the-art statistical methodology applied to real-world problems to those that are tutorial in nature.

# SUNDAY JULY 28

## Special Presentation 2:00 p.m.—3:50 p.m.

### 2 CC-Four Seasons 1

#### Introductory Overview Lecture: Forensic Statistics—Invited

##### JSM Partner Societies

Organizer(s): Hal Stern, University of California, Irvine

Chair(s): Alicia Carriquiry, Iowa State University

2:05 p.m. CSI at the JSM: Forensic Statistics and the Value of Scientific Evidence in Court—♦Hal Stern, University of California, Irvine

3:35 p.m. Floor Discussion

## Invited Sessions 2:00 p.m.—3:50 p.m.

### 3 CC-710

#### Recent Developments in Network Testing—Invited IMS

Organizer(s): Yi Yu, University of Bristol

Chair(s): Zongming Ma, University of Pennsylvania

2:05 p.m. A Full-Rank Spectral Algorithm for Graph Matching—♦Zhou Fan, Yale University; Cheng Mao, Yale University; Jiaming Xu, Duke Fuqua School of Business; Yihong Wu, Yale University

2:35 p.m. Matrix Means for Network Estimation with Applications to fMRI Data—♦Keith Levin, University of Michigan; Asad Lodhia, University of Michigan; Elizaveta Levina, University of Michigan

3:05 p.m. Change Point Detection for Self-Exciting Point Processes—♦Daren Wang, University of Chicago; Rebecca Willett, University of Chicago

3:35 p.m. Floor Discussion

### 4 CC-112

#### ● Recent Advance of Causal Inference in Failure Time Settings—Invited

##### ENAR, Biometrics Section, IMS

Organizer(s): Shu Yang, North Carolina State University

Chair(s): Linbo Wang, University of Toronto

2:05 p.m. Semiparametric Estimation of Continuous-Time Structural Failure Time Model—♦Shu Yang, North Carolina State University

2:30 p.m. The Choice to Define Competing Risk Events as Censoring Events and Implications for Causal Inference—♦Jessica Gerald Young, Harvard Medical School; Mats Julius Stensrud, Harvard School of Public Health; Eric Tchetgen Tchetgen, University of Pennsylvania; Miguel Hernan, Harvard University

2:55 p.m. Marginal Structural Models for a Continuous Outcome When the Risk of Death Depends on Treatment—♦Judith Lok, Boston University, Dept of Mathematics and Statistics

3:20 p.m. Disc: Daniel Scharfstein, Johns Hopkins School of Hygiene & Public Health

3:40 p.m. Floor Discussion

### 5 CC-607

#### New Developments in Modern Statistical Theory—Invited

##### IMS

Organizer(s): Bodhisattva Sen, Columbia University

Chair(s): Bodhisattva Sen, Columbia University

2:05 p.m. Locating Targets via Wireless Sensor Networks—♦Rohit Kumar Patra, University of Florida

2:35 p.m. Towards Demystifying Over-Parameterization in Deep Learning—♦Mahdi Soltanolkotabi, University of Southern California

3:05 p.m. Empirical Optimal Transport: Inference, Algorithms, Applications—♦Axel Munk, Inst. for Mathematical Stochastics, Göttingen University

3:35 p.m. Floor Discussion

### 6 CC-605

#### ■ Advocating, Implementing and Explaining Bayesian Analyzes in Statistical Consultations—Invited Section on Statistical Consulting, Section on Statistics and Data Science Education, Section on Bayesian Statistical Science

Organizer(s): Harry Dean Johnson, Washington State University

Chair(s): Bruce A. Craig, Purdue University

2:05 p.m. The Jury Is Out: Communicating Bayesian Statistics in a Courtroom Trial—♦Mark Glickman, Harvard University

2:30 p.m. Bayesian Clinical Trial Consulting—♦Scott Berry, Berry Consultants

2:55 p.m. The Primordial Soup for Bayesian Analysis in Collaborative Settings: Technical Skill, Communication, and Trust—♦Christopher Franck, Virginia Tech

3:20 p.m. Disc: Chris Holloman, Information Control Company

3:40 p.m. Floor Discussion

<p><b>7</b></p> <p><b>Fiber Bundles in Statistical Inference and Probability—Invited</b></p> <p><b>IMS, Statistical and Applied Mathematical Sciences Institute</b></p> <p>Organizer(s): Sayan Mukherjee, Duke University</p> <p>Chair(s): Sayan Mukherjee, Duke University</p>	<p><b>CC-709</b></p>	<p><b>■ ● Impact of Using Surrogate Endpoints on Drug Development—Invited</b></p> <p><b>WNAR, International Chinese Statistical Association, Biopharmaceutical Section</b></p> <p>Organizer(s): Ying Lu, Stanford University</p> <p>Chair(s): Ying Zhang, University of Nebraska Medical Center</p>
	<p>2:05 p.m. A Statistical Pipeline for Feature Selection and Association Mapping with 3D Shapes—♦Lorin Crawford, Brown University</p>	
	<p>2:30 p.m. Irreducible Representations and Multi-Frequency Phase Synchronization—♦Tingran Gao, University of Chicago; Zhizhen Zhao, University of Illinois at Urbana-Champaign</p>	
	<p>2:55 p.m. Gibbs Posterior Consistency and the Thermodynamic Formalism—♦Kevin McGoff, UNC Charlotte; Andrew B Nobel, University of North Carolina at Chapel Hill; Sayan Mukherjee, Duke University</p>	
	<p>3:20 p.m. Recovering Topology from the Bottom of the Well—♦Yuliy Baryshnikov, UIUC</p>	
	<p>3:45 p.m. Floor Discussion</p>	
	<p>2:05 p.m. Havrda and Charvat Entropy-Based Measures to Assess Longitudinal Surrogate Endpoints in Clinical Trials—♦María del Carmen Pardo, Complutense University; Ying Lu, Stanford University; Hua Jin, South China Normal University; Qian Zhao, Guangzhou Medical University</p>	
	<p>2:25 p.m. Statistical Considerations for Biomarker-Based Surrogate Endpoints—♦Marc Buyse, IDDI Inc.</p>	
	<p>2:45 p.m. An Information-Theoretic Approach for the Evaluation of Surrogate Endpoints Based on Causal Inference—♦Ariel Alonso Abad, KU Leuven</p>	
	<p>3:05 p.m. Model Free Approach to Quantifying the Proportion of Treatment Effect Explained by a Surrogate Marker—♦Lu Tian, Stanford University School of Medicine; Tianxi Cai, Harvard University; Xuan Wang, Harvard University; Layla Parast, RAND</p>	
<p><b>8</b></p> <p><b>■ ● Machine Learning Methods and Applications: Making an Impact in Biomedical Research—Invited</b></p> <p><b>Section on Statistical Learning and Data Science, Biometrics Section, Section on Statistical Computing</b></p> <p>Organizer(s): Juanjuan Fan, San Diego State University</p> <p>Chair(s): Xiangrong Yin, University of Kentucky</p>	<p><b>CC-207</b></p>	<p><b>3:25 p.m. Disc: Ying Lu, Stanford University</b></p> <p><b>3:45 p.m. Floor Discussion</b></p>
<p>2:05 p.m. Finite Mixture Clustering of Risk Behaviors for an Infectious Disease—♦Joseph Kang, Centers for Disease Control and Prevention (CDC)</p>		
<p>2:30 p.m. RELIEF-Based Feature Selection for Heterogeneous Treatment Effects with Massive Data—♦Xiaogang Su, University of Texas, El Paso</p>		
<p>2:55 p.m. Matching Methods for Observational Data with Small Group Sizes and Mising Covariates—♦Juanjuan Fan, San Diego State University; Afroz Jahedi, San Diego State University; Tristan Hillis, San Diego State University; Ralph-Axel Mueller, San Diego State University</p>		
<p>3:20 p.m. Post-Market Surveillance of Arthroplasty Device Components Using Machine Learning—♦Guy Cafri, Johnson &amp; Johnson</p>		
<p>3:45 p.m. Floor Discussion</p>		
<p><b>9</b></p>	<p><b>CC-111</b></p>	
<p>2:05 p.m. Bayesian Disaggregation of Spatio-Temporal Community Indicators Estimated via Surveys: An Application to the American Community Survey—♦Veronica J. Berrocal, University of Michigan</p>		
<p>2:30 p.m. A Model-Based Approach to Predict Employee Compensation Components—♦Andreea Erciulescu, Westat; Jean Opsomer, Westat</p>		
<p>2:55 p.m. Relationship Mining in Big Data from Surveys Using Penalization and the Bag-Of-Little-Bootstraps—♦Snigdhansu Chatterjee, University of Minnesota; Benjamin E. Bagozzi, University of Delaware; Ujjal Kumar Mukherjee, University of Illinois; Xuetong Sun, University of Minnesota</p>		
<p>3:20 p.m. Regression Composite Estimation for Current Population Survey—♦Yang Cheng, US Census Bureau; Daniel Bonney, University of Maryland and Maryland Longitudinal Data System Center; Partha Lahiri, University of Maryland, College Park</p>		
<p>3:45 p.m. Floor Discussion</p>		

11

**■ ● Recent Advances in Statistical Methods for Large-Scale Complex Biomedical Data—Invited**  
**Section on Statistics in Epidemiology, ENAR, Biometrics Section**  
Organizer(s): Kevin He, University of Michigan  
Chair(s): Jian Kang, University of Michigan

2:05 p.m. Uncertainty Quantification of Treatment Regime with High-Dimensional Covariates—♦Sijian Wang, Rutgers University; Minge Xie, Rutgers University; Yilei Zhan, Rutgers University

2:30 p.m. Testing Mediation Effect in Compositional Microbiome Data—♦Lei Liu, Washington University in St Louis; Haixiang Zhang, Tianjin University; Jun Chen, Mayo Clinic; Zhigang Li, University of Florida

2:55 p.m. Globally Adaptive Quantile Regression for Complex High-Dimensional Longitudinal Data—♦Limin Peng, Emory University; Huijuan Ma, East China Normal University; Qi Zheng, University of Louisville; Zhumin Zhang, University of Wisconsin-Madison; HuiChuan Lai, University of Wisconsin-Madison

3:20 p.m. Analysis of Multivariate Failure Time Data—♦Ross L. Prentice, Fred Hutchinson Cancer Research Center; Shanshan Zhao, National Institute of Environmental Health Sciences

3:45 p.m. Floor Discussion

CC-110

13

**■ ● Multinational, Multiregional, and Multicultural Surveys (3MC): a Burgeoning Sub-Discipline in Survey Research Methods—Invited**  
**Survey Research Methods Section**  
Organizer(s): Kristen Cibelli Hibben, University of Michigan  
Chair(s): Julie de Jong, University of Michigan

2:05 p.m. An Introduction to 3MC Surveys, the State-Of-The-Art, and Key Challenges—♦Johnson Timothy, University of Illinois at Chicago; Beth-Ellen Pennell, University of Michigan, Survey Research Center; Ineke Stoop, The Netherlands Institute for Social Research; Brita Dorer, GESIS

2:25 p.m. Error Sources and Quality Management in 3MC Surveys—♦Zeina Mneimneh, University of Michigan, Survey Research Center; Julie de Jong, University of Michigan; Kristen Cibelli Hibben, University of Michigan

2:45 p.m. Quality Procedures to Maximize Comparability -Experiences from the European Social Survey—♦Rory Fitzgerald, European Social Survey; Sarah Butt, European Social Survey

3:05 p.m. Making the Case for 3MC Surveys as a Subdiscipline in Survey Research—♦Lars Lyberg, Inizio; Frauke Kreuter, Joint Program in Survey Methodology

3:25 p.m. Disc: Brad Edwards, Westat

3:45 p.m. Floor Discussion

CC-504

12

**■ ● Statistical Methods in Mobile Health: New Directions and Innovation—Invited**  
**Mental Health Statistics Section, ENAR, WNAR**  
Organizer(s): Jane Kim, Stanford University School of Medicine  
Chair(s): Ying Kuen Ken Cheung, Columbia University

2:05 p.m. Forecasting Mood Scores for Medical Interns Using Data from Mobile Phones and Wearables—♦Ambuj Tewari, University of Michigan

2:30 p.m. Robust Tests in Online Decision-Making: Testing the Utility of Data Collected by Wearables—♦Jane Kim, Stanford University School of Medicine

2:55 p.m. A New Contextual Multi-Armed Bandit Algorithm for Semiparametric Reward Model.—♦Gi-Soo Kim, Seoul National University; Myunghee Cho Paik, Seoul National University

3:20 p.m. Stochastic Dynamics in Behavioral Mobile Health: Joint Modeling of Dynamic Health and Engagement Outcomes—♦Walter Dempsey, Harvard University

3:45 p.m. Floor Discussion

CC-201

14

**■ ● Novel Statistical Methods for Network-Based Studies Among People Who Use Drugs—Invited**  
**National Institute on Drug Abuse-NIH, American Public Health Association, ENAR**

Organizer(s): Ashley Buchanan, University of Rhode Island  
Chair(s): M Elizabeth Halloran, University of Washington and Fred Hutchinson Cancer Research Center

2:05 p.m. Inference from Multivariate Respondent-Driven Sampling Data—♦Krista Gile, University of Massachusetts; Isabelle Beaudry, Pontificia Universidad Católica de Chile; Dongah Kim, University of Massachusetts; Shuaimin Kang, University of Massachusetts

2:25 p.m. Regression Methods for Respondent-Driven Sampling Data—♦Miles Ott, Smith College

2:45 p.m. Toward Evaluation of Dissemination of HIV Prevention Interventions Among Networks of People Who Inject Drugs—♦Ashley Buchanan, University of Rhode Island; Natallia Katenka, University of Rhode Island; Ayako Shimada, University of Rhode Island; M Elizabeth Halloran, University of Washington and Fred Hutchinson

CC-705

SUNDAY

	Cancer Research Center; Samuel Friedman, National Development and Research Institutes, Inc.
3:05 p.m.	Bayesian Auto-G-Computation of Network Causal Effects: Incarceration and Infection in a High Risk Network—♦Isabel Fulcher, Harvard University; Eric Tchetgen Tchetgen, University of Pennsylvania; Ilya Shpitser, Johns Hopkins University; Caleb Lareau, Harvard Medical School
3:25 p.m.	Disc: Natallia Katenka, University of Rhode Island
3:45 p.m.	Floor Discussion

**Invited Panels 2:00 p.m.—3:50 p.m.**

SUNDAY

**15 CC-503****● Artificial Intelligence for Data Science—Invited Council of Chapters**

Organizer(s): Jason H Moore, University of Pennsylvania

Chair(s): Rebecca Hubbard, University of Pennsylvania

Panelists:	♦Jason H Moore, University of Pennsylvania ♦Larry Hunter, University of Colorado Denver ♦Joel Dudley, Icahn School of Medicine at Mount Sinai
3:40 p.m.	Floor Discussion

**16 CC-205****● To the Point: Critical Skills and Knowledge to Be Successful in Academia, Industry and the Government—Invited**

Committee on Career Development, Section on Statistical Consulting, Section on Statistics and Data Science Education

Organizer(s): Adin-Cristian Andrei, Northwestern University

Chair(s): Adin-Cristian Andrei, Northwestern University

Panelists:	♦John Bailer, Miami University ♦Joan Chmiel, Northwestern University, Chicago, IL ♦Mary J Kwasny, Northwestern University ♦David Morganstein, Westat ♦Jeri Metzger Mulrow, Bureau of Justice Statistics, Department of Justice, Washington, DC
3:45 p.m.	Floor Discussion

**Topic Contributed Sessions 2:00 p.m.—3:50 p.m.****17 CC-104****■ ● New Frontiers in Adaptive Clinical Trial Designs—Topic Contributed****Biopharmaceutical Section, Biometrics Section, International Chinese Statistical Association**

Organizer(s): Lei Gao, Vertex Pharmaceuticals

Chair(s): Lei Gao, Vertex Pharmaceuticals

2:05 p.m.	A Case Study of Phase II/III Seamless Adaptive Design—♦Hui Quan, Sanofi US; Yi Xu, Sanofi; Yixin Chen, Sanofi; Lei Gao, Vertex Pharmaceuticals; Xun Chen, Sanofi
2:25 p.m.	Bayesian Adaptive Approach for Neoadjuvant/Adjuvant Oncology Trial—♦Jing Zhao, Merck Research Labs
2:45 p.m.	Sample Size Re-Estimation in Action: Design Consideration, Charter Development, and Implementation of Analyzes in a Trial with Survival Endpoints—♦Adam Hamm, Cytel, Inc.
3:05 p.m.	Similarity-Based Artificial Intelligence for Adaptive Clinical Trial and Beyond—♦Mark Chang, Veristat
3:25 p.m.	An Efficient Sample Size Adaptation Strategy with Adjustment of Randomization Ratio—♦Yijie Zhou, Vertex
3:45 p.m.	Floor Discussion

**18 CC-203****■ ● CURRENT and FUTURE DIRECTIONS of INTENSIVE LONGITUDINAL DATA ANALYSIS—Topic Contributed**

Health Policy Statistics Section, Biometrics Section

Organizer(s): Trent L Lalonde, University of Northern Colorado

Chair(s): Joey Zhou, Q2

2:05 p.m.	Current and Future Directions of Intensive Longitudinal Data Analysis—♦Summer Frank-Pearce, ; Michael Businelle, Oklahoma Tobacco Research Center, The University of Oklahoma Health Sciences Center; Darla Kendzor, Oklahoma Tobacco Research Center, The University of Oklahoma Health Sciences Center; Emily Hébert, Oklahoma Tobacco Research Center, The University of Oklahoma Health Sciences Center
2:25 p.m.	The Role of Time-Dependent Covariates in Models for the Risk of Repeated Events—♦Trent L Lalonde, University of Northern Colorado
2:45 p.m.	Shared Parameter Mixed-Effects Location Scale Models for Intensive Longitudinal Data—♦Donald Hedeker, University of Chicago; Robin Mermelstein, University of Illinois at Chicago
3:05 p.m.	Disc: Jeffrey Wilson, W. P. Carey School of Business, ASU
3:25 p.m.	Disc: Saul Shiffman, University of Pittsburgh
3:45 p.m.	Floor Discussion

**19**

**■ ● Statistical Computing and Statistical Graphics: Student Paper Award and Chambers Statistical Software Award—Topic Contributed**  
**Section on Statistical Computing, Section on Statistical Graphics**  
Organizer(s): Jun Yan, University of Connecticut  
Chair(s): Jun Yan, University of Connecticut

**CC-301**

2:05 p.m.	Vecchia-Laplace Approximations of Generalized Gaussian Processes for Big Non-Gaussian Spatial Data—♦Daniel Zilber, ; Matthias Katzfuss, Texas A & M University
2:25 p.m.	Online Decentralized Leverage Score Sampling for Streaming Multidimensional Time Series—♦Rui Xie, University of Georgia; Zengyan Wang, University of Georgia; Shuyang Bai, University of Georgia; Ping Ma, University of Georgia; Wenxuan Zhong, University of Georgia
2:45 p.m.	The R Conf Package for Plotting Likelihood-Ratio Based Confidence Regions for Two-Parameter Univariate Probability Models—♦Christopher Weld, William & Mary; Andrew Loh, William & Mary; Lawrence Leemis, William & Mary
3:05 p.m.	Computing High-Dimensional Normal and Student-T Probabilities with Tile-Low-Rank Quasi-Monte Carlo and Block Reordering—♦Jian Cao, King Abdullah University of Science and Technology; Marc Genton, King Abdullah University of Science and Technology; David Keyes, King Abdullah University of Science and Technology; George Turkiyyah, American University of Beirut
3:25 p.m.	A New Tidy Data Structure to Support Exploration and Modeling of Temporal Data—♦Earo Wang, Monash University; Dianne Cook, Monash University; Rob J Hyndman, Monash University
3:45 p.m.	Floor Discussion

3:05 p.m.

Nonparametric Survival Analysis with Dirichlet Processes Mixtures and Heteroskedastic Bayesian Additive Regression Trees—♦Rodney Sparapani, Medical College of Wisconsin; Robert McCulloch, Arizona State University; Matthew Pratola, ; Brent R. Logan, Medical College of Wisconsin; Prakash Laud, Medical College of Wisconsin

3:25 p.m.

Adaptive Splitting Bayesian Regression Tree Models for Image Analysis—♦Matthew Pratola, ; David Higdon, Virginia Tech

3:45 p.m.

Floor Discussion

**21**

**■ ● Aligning Data Normalization with Analysis Goals for Reproducible Research—Topic Contributed**

**Biometrics Section, ENAR, Section on Statistics in Genomics and Genetics**

Organizer(s): Li-Xuan Qin, Memorial Sloan Kettering Cancer Center  
Chair(s): Yize Zhao, Weill Cornell Medical College

**CC-109**

2:05 p.m.	On the Off-Label Use of Data Normalization for Sample Classification and Prognostication—♦Li-Xuan Qin, Memorial Sloan Kettering Cancer Center; Ai Ni, The Ohio State University; Mengling Liu, New York University
2:25 p.m.	Batch Effects Correction with Unknown Subtypes with Application to Paired MicroRNA Data Sets—♦Yingying Wei, The Chinese University of Hong Kong; Li-Xuan Qin, Memorial Sloan Kettering Cancer Center
2:45 p.m.	Multiple Testing Under Dependence and Non-Sparsity with Applications in Genomics and Toxicology—♦Hongyuan Cao, Florida State University; Shyamal Peddada, University of Pittsburgh; Li-Xuan Qin, Memorial Sloan Kettering Cancer Center
3:05 p.m.	Disc: Lisa McShane, National Cancer Institute
3:25 p.m.	Disc: George Tseng, University of Pittsburgh
3:45 p.m.	Floor Discussion

**20**

**CC-708**

**■ ● Bayesian Additive Regression Trees: Making an Impact—Topic Contributed**  
**International Society for Bayesian Analysis (ISBA), Section on Bayesian Statistical Science, Royal Statistical Society**  
Organizer(s): Rodney Sparapani, Medical College of Wisconsin  
Chair(s): Robert McCulloch, Arizona State University

2:05 p.m.	On Theory for BART—♦Enakshi Saha, University of Chicago; Veronika Rockova, University of Chicago
2:25 p.m.	Bayesian Tree Models for Continuous Treatment Effects—♦Jared S Murray, University of Texas at Austin
2:45 p.m.	XBART: Accelerated Bayesian Additive Regression Trees—♦P. Richard Hahn, Arizona State University; Jingyu He, Chicago Booth

**22**

**■ ● Testing and Evaluation of High-Dimensional Models—Topic Contributed**

**Section on Bayesian Statistical Science, Section on Nonparametric Statistics, Section on Statistical Learning and Data Science**  
Organizer(s): Steve MacEachern, The Ohio State University  
Chair(s): Juhee Lee, University of California, Santa Cruz

**CC-707**

2:05 p.m.	Detection of Common-Variance Subspace and Its Application to Classification—♦Jiae Kim, The Ohio State University; Steve MacEachern, The Ohio State University
2:25 p.m.	Horseshoes, Shape Mixing, and Ultra-Sparse Locally Adaptive Shrinkage—♦Andrew Womack, Indiana University

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

2:45 p.m.	Comparing and Combining Forecast Distributions Having Different Dimensions—♦Catherine Forbes, Monash University
3:05 p.m.	Inconvenient Diagnostics and Corrections for Convenience Samples—♦Eloise Kaizar, Ohio State University
3:25 p.m.	Model Misspecification and Familial Null Hypotheses—♦Steve MacEachern, The Ohio State University
3:45 p.m.	Floor Discussion

## Topic Contributed Panels 2:00 p.m.—3:50 p.m.

SUNDAY

### 23 CC-703

#### ● Worldwide Statistics Without Borders: Community Service Impact on Client Decision Making—Topic Contributed

Statistics Without Borders, Caucus for Women in Statistics

Organizer(s): Michelle Vanchu-Orosco, Statistics Without Borders

Chair(s): Steve Pierson, American Statistical Association

Panelists: ♦Gary Shapiro, Statistics Without Borders  
♦Cathy Furlong, Statistics Without Borders  
♦David A. Marker, Westat

3:40 p.m. Floor Discussion

### 24 CC-102

#### ■ ● Emerging Opportunities for Utilizing Real-World Evidence to Impact Drug Development and Regulatory Decision-Making—Topic Contributed

Biopharmaceutical Section, Health Policy Statistics Section, Section on Statistics in Epidemiology

Organizer(s): Joo-Yeon Lee, U.S Food and Drug Administration

Chair(s): Hana Lee, U.S Food and Drug Administration

Panelists: ♦Weili He, AbbVie  
♦David Martin , FDA  
♦Jessica M Franklin, Brigham and Women's Hospital and Harvard Medical School  
♦David Benkeser, Emory

3:40 p.m. Floor Discussion

### 25 CC-704

#### ● What Contributes to a Successful Data Visualization Project?—Topic Contributed

Section on Statistical Graphics, Social Statistics Section

Organizer(s): Nola du Toit, NORC at the University of Chicago

Chair(s): Nola du Toit, NORC at the University of Chicago

Panelists:	♦Michael Lattner, NORC at the University of Chicago ♦Laura Fingerson, Institutional Insights, Strategic Education, Capella University   Strayer Univ ♦Jessica R Hullman, Northwestern University ♦Naomi Robbins, NBR-Graphs ♦Sam Tyner, Iowa State University
3:40 p.m.	Floor Discussion

### 26 CC-603

#### ■ ● Data for Social Good: Opportunities and New Directions—Topic Contributed

Social Statistics Section, Committee on Career Development, Stats. Partnerships Among Academe Indust. & Govt. Committee

Organizer(s): David Corliss, Peace-Work

Chair(s): Redouane Betrouni, U.S. Census Bureau

Panelists: ♦David Corliss, Peace-Work  
♦Trevor Butterworth, Sense About Science USA

3:40 p.m. Floor Discussion

### 27 CC-103

#### SPEED: Causal Inference and Related Methodology Part 1—Contributed

Section on Statistics in Epidemiology

Chair(s): Te-Ching Chen, CDC/NCHS

2:05 p.m. Instrumental Variable Estimation of Weighted Local Average Treatment Effects—♦Byeong Yeob Choi, University of Texas Health Science Center at San Antonio

2:10 p.m. Two-Stage Residual Inclusion Under the Additive Hazards Model - an Instrumental Variable Approach with Application to SEER-Medicare Linked Data—♦Andrew Ying, University of California, San Diego; Ronghui Xu, University of California, San Diego; James Murphy, University of California, San Diego

2:15 p.m. Xtgeebcv: a Stata Command for Bias-Corrected Sandwich Variance Estimation for GEE Analyzes of Cluster Randomized Trials—♦John A Gallis, Duke University; Fan Li, Duke University; Elizabeth L Turner, Duke University

2:20 p.m. Sensitivity Analysis and the Odds Ratio—♦Julian Chan, Weber State University

2:25 p.m. On the Identification of Individual Principal Stratum Direct, Natural Direct and Pleiotropic Effects Without Cross-World Independence Assumptions—♦Jaffer Zaidi, Tyler VanderWeele, Harvard University

2:30 p.m. Mediation Analysis with a Censored Mediator in a Case-control Study—♦Jian Wang, UT MD Anderson Cancer Center; Jing Ning, The University of Texas MD Anderson Cancer Center; Sanjay Shete, UT MD Anderson Cancer Center

2:35 p.m.	Conditional Process Analysis: Moderated Mediation Model of Perceived Ethnic Discrimination and Binge Drinking Among Recent Latino Immigrant Youth—♦Zoran Bursac, Florida International University; Miguel Angel Cano, Florida International University; Seth J Schwartz, University of Miami	3:25 p.m.	Medical Center; Robert Greevy, Vanderbilt University
2:40 p.m.	A Modified Partial Likelihood Score Method for Cox Regression with Covariate Error Under the Internal Validation Design—♦Xin Zhou, Yale School of Public Health; David Zucker, The Hebrew University of Jerusalem; Xiaomei Liao, AbbVie; Yi Li, University of Michigan School of Public Health; Donna Spiegelman, Yale School of Public Health	3:30 p.m.	Person as Population: a Longitudinal View of Single-Subject Causal Inference for Analyzing Self-TRACKED Health Data—♦Eric J. Daza, Stanford Prevention Research Center, Stanford University School of Medicine
2:45 p.m.	Multivariate One-Sided Testing in Matched Observational Studies as an Adversarial Game—♦Peter Lucas Cohen, Massachusetts Institute of Technology; Matt A. Olson, The Voleon Group; Colin B. Fogarty, Massachusetts Institute of Technology	3:35 p.m.	Causal Mediation Analysis Using Gradient Boosting Machines: Developing Methods and Software—♦Brian G. Vegetable, RAND Corporation; Donna L. Coffman, Temple University; Daniel F. McCaffrey, Educational Testing Service
2:50 p.m.	Permutation Weighting—♦Drew Dimmery, Facebook; David Arbour, Adobe Research	3:40 p.m.	Hypothesis Testing in Nonlinear Function on Scalar Regression with Application to Child Growth Study—♦Mitali Biswas, NC State Univ
3:00 p.m.	A Calibrated Sensitivity Analysis for Matched Observational Studies with Application to the Effect of Second-Hand Smoke Exposure on Blood Lead Levels in U.S. Children—♦Bo Zhang, Univ of Pennsylvania; Dylan Small, University of Pennsylvania	3:45 p.m.	Identify Consensus Among Match Makers: a Clustering Aggregation Perspective—♦Yumin Zhang, Purdue University; Arman Sabbaghi, Purdue University
3:05 p.m.	Estimation of Mediation Effect for High-Dimensional Omics Mediators with Application to the Framingham Heart Study—♦Tianzhong Yang, The University of Minnesota Twin Cities; Jingbo Niu, Baylor College of Medicine; Han Chen, the University of Texas Health Science Center at Houston; Peng Wei, The University of Texas MD Anderson Cancer Center		Floor Discussion
3:10 p.m.	Bias and Efficiency in a Matched Observational Study with Varying Cluster Size—♦Eric KH Chow, Quantitative Sciences Unit, Stanford University School of Medicine; Rajani Kaimal, Quantitative Sciences Unit, Stanford University School of Medicine; Vedant Pargaonkar, Interventional Cardiology, Stanford University School of Medicine; Sara Bouajila, Stanford University School of Medicine; Katharine Sears-Edwards, Cardiovascular Medicine, Stanford University School of Medicine; Jennifer Tremmel, Interventional Cardiology, Stanford University School of Medicine; Manisha Desai, Stanford University Quantitative Sciences Unit	2:05 p.m.	Interactive Visualization of Housing Condition Changes in NYC—♦Qi Qi, University of Connecticut; Jun Yan, University of Connecticut
3:15 p.m.	Testing for Weak Instruments in Two Sample Summary Data Multivariable Mendelian Randomisation—♦Eleanor Sanderson, University of Bristol; Jack Bowden, University of Bristol	2:10 p.m.	Immigration Generation Status to Quality of Life Over Time—♦Alison Tuiyott, Miami University of Ohio; Thomas J Fisher, Miami University; Karsten Maurer, Miami University
3:20 p.m.	Estimating Uncertainty in Weighted Competing Risk Analyzes—♦Amber Hackstadt, Vanderbilt University Medical Center; Jonathan Chipman, Vanderbilt University; Christianne L. Rounie, Vanderbilt University Medical Center, Veteran Administration Tennessee Valley VA Health; Adriana M. Hung, Vanderbilt University Medical Center; Jea Young Min, Vanderbilt University Medical Center; Carlos G Grijalva, Vanderbilt University Medical Center; Marie R Griffin, Vanderbilt University	2:15 p.m.	An Analysis of Rent-Control Policy on Housing Quality—♦Benjamin Schweitzer, Miami University; Thomas J Fisher, Miami University; Karsten Maurer, Miami University
		2:20 p.m.	An Analysis of Immigrants and House Condition in New York City—♦Xiang Shen, George Washington University; Mingze Zhang, George Washington University
		2:25 p.m.	Comparing NYCHVS Responses About Housing Issues to NYC 311 Complaint Records—♦Letisha Smith,
		2:30 p.m.	Correlates and Changes in New York City Housing Densities from 2002 to 2017—♦Elizabeth Pirraglia, NYU School of Medicine; Matthias Altwicker, NYIT; Andrea Troxel, NYU School of Medicine
		2:35 p.m.	Data Challenge Expo—♦Darcy Hille, Merck & Company Inc; Ellen Snyder, Merck
		2:40 p.m.	University of Virginia Undergraduate Competition Winner Entry for Data Challenge Expo 2019—♦Jordan Rodu, University of Virginia
		2:50 p.m.	Statistical Analysis of the Association Between Housing

**28**

**SPEED: Data Challenge Part 1—Contributed  
Government Statistics Section, Section on Statistical Consulting, Section on Statistical Graphics**

Chair(s): Wendy L Martinez, Bureau of Labor Statistics

2:05 p.m.	Interactive Visualization of Housing Condition Changes in NYC—♦Qi Qi, University of Connecticut; Jun Yan, University of Connecticut
2:10 p.m.	Immigration Generation Status to Quality of Life Over Time—♦Alison Tuiyott, Miami University of Ohio; Thomas J Fisher, Miami University; Karsten Maurer, Miami University
2:15 p.m.	An Analysis of Rent-Control Policy on Housing Quality—♦Benjamin Schweitzer, Miami University; Thomas J Fisher, Miami University; Karsten Maurer, Miami University
2:20 p.m.	An Analysis of Immigrants and House Condition in New York City—♦Xiang Shen, George Washington University; Mingze Zhang, George Washington University
2:25 p.m.	Comparing NYCHVS Responses About Housing Issues to NYC 311 Complaint Records—♦Letisha Smith,
2:30 p.m.	Correlates and Changes in New York City Housing Densities from 2002 to 2017—♦Elizabeth Pirraglia, NYU School of Medicine; Matthias Altwicker, NYIT; Andrea Troxel, NYU School of Medicine
2:35 p.m.	Data Challenge Expo—♦Darcy Hille, Merck & Company Inc; Ellen Snyder, Merck
2:40 p.m.	University of Virginia Undergraduate Competition Winner Entry for Data Challenge Expo 2019—♦Jordan Rodu, University of Virginia
2:50 p.m.	Statistical Analysis of the Association Between Housing

<p>2:55 p.m.</p> <p>3:00 p.m.</p> <p>3:05 p.m.</p> <p>3:10 p.m.</p> <p>3:15 p.m.</p> <p>3:20 p.m.</p> <p>3:25 p.m.</p>	<p>Quality/Gentrification and Resident Behaviors in New York City—♦ Hon Keung Tony Ng, Southern Methodist University; Leqi Chen, Southern Methodist University; Jingzhou Liu, Southern Methodist University; Lynne Stokes, Southern Methodist University; Lang Xu, Southern Methodist University; Greg Guggenmos, Southern Methodist University; Madeline Hamilton, Southern Methodist University</p> <p>Measuring Gentrification Over Time with the NYCHVS—♦ Robert Montgomery, NORC; Quentin Brummet, NORC; Nola du Toit, NORC at the University of Chicago; Peter Herman, NORC at the University of Chicago; Edward Mulrow, NORC at the University of Chicago</p> <p>Measuring Gentrification: a Data Driven Approach—♦ Steven Stier, ; Hend Aljobaily, University of Northern Colorado; Kofi Wagya, University of Northern Colorado; Michael Oduro-Safo, University of Northern Colorado</p> <p>Changes in Quality Housing Index in New York City—♦ Tuan Nguyen, University of Evansville; Mark Mozina, University of Evansville; Colton Albin, University of Evansville; Xianrui She, University of Evansville; Andrew Moore, University of Evansville</p> <p>New York City: Is the City Under an Affordability Crisis? a Multi Layer Analysis—♦ Jhonatan Medri, Utah State University; Braden Probst,</p> <p>NYCHVS in the ASA Data Challenge Expo: An Attempt to Assess the Housing Quality and Price—♦ Younouss Ouata, University of Central Arkansas; Sharif Mahmood, ; Siata Coulibaly, UCA</p> <p>Findings from Analysis and Visualization of the New York City Housing and Vacancy Survey Data—Nels Grevstad, Metropolitan State University of Denver; ♦ Rachel Rosebrook, Metropolitan State University of Denver; Lance Barto, Metropolitan State University of Denver; Gil Leibovich, Metropolitan State University of Denver; Elizabeth Foster, Metropolitan State University of Denver; ThienNgo Le, Metropolitan State University of Denver; Kelsey Smith, Metropolitan State University of Denver; Nathanael Whitney, Metropolitan State University of Denver; Zoe Girkin, Metropolitan State University of Denver; Ahern Nelson, Metropolitan State University of Denver; Karan Bhargava, Metropolitan State University of Denver; Alex Whalen-Wagner, Metropolitan State University of Denver; Gemma Hoeppner, Metropolitan State University of Denver; Larry Breeden, Metropolitan State University of Denver; Ayako Zrust, Metropolitan State University of Denver; Travis Rebhan, Metropolitan State University of Denver; Anayeli Ochoa, Metropolitan State University of Denver</p> <p>Floor Discussion</p>	<p><b>29</b></p> <p><b>SPEED: Survey Methods, Transportation Studies, SocioEconomics, and General Statistical Methods Part 1—Contributed</b></p> <p><b>Survey Research Methods Section, Transportation Statistics Interest Group, Quality and Productivity Section, Business and Economic Statistics Section, IMS</b></p> <p>Chair(s): Georgiy Bobashev, Research Triangle Institute</p>	<p><b>CC-502</b></p>
	<p>2:05 p.m. Frame Development and Sample Design for the 2018 National Survey of Children's Health—♦ Emilee Sizemore, US Census Bureau; Tracy Mattingly, US Census Bureau; Antoinette Lubich, US Census Bureau</p>		
	<p>2:10 p.m. A Modeling Approach to Compensate for Nonresponse and Selection Bias in Surveys—♦ Tien-Huan Lin, Westat; Ismael Flores Cervantes, Westat</p>		
	<p>2:15 p.m. A Comparison of Clustering Criteria for Evaluating Multivariate Stratifications of Primary Sampling Units—♦ Padraig Murphy, U.S. Census Bureau</p>		
	<p>2:20 p.m. Statistical Data Integration and Inference via Multilevel Regression and Poststratification—♦ Yajuan Si, University of Michigan</p>		
	<p>2:25 p.m. Achieving Sample Efficiency by Using Both a List Frame and an ABS Frame—♦ Karol Krotki, RTI International</p>		
	<p>2:30 p.m. Comparing the Performance of Machine Learning and Semiparametric Regression Methods for Prediction of Travel Times and Flows on Urban Mass Transit Systems—♦ Daniel Graham, Imperial College London</p>		
	<p>2:35 p.m. The Relationship Between Driver Performance and Driver Workload Using Functional Data Analysis—♦ Jundi Liu, University of Washington; Erika Miller, Colorado State University; Linda Ng Boyle, University of Washington</p>		
	<p>2:40 p.m. Causal Impacts of New Urban Transit Provision on Air Quality: a Case Study of Jubilee Line Extension in London—♦ Liang Ma, Imperial College London; Marc E. J. Stettler, Imperial College London; Daniel Graham, Imperial College London</p>		
	<p>2:45 p.m. Comparing the Quality of Online to Interviewer-Gathered Survey Data: Preliminary Results from the 2019 Survey of Consumer Finances Web Experiment—♦ Richard Windle, Federal Reserve Board</p>		
	<p>2:50 p.m. Cluster-Stratified Outcome-Dependent Sampling in Resource-Limited Settings: Inference and Small-Sample Considerations—♦ Sara Sauer, Harvard School of Public Health; Bethany Hedd-Gauthier, Harvard Medical School; Claudia Rivera-Rodriguez, University of Auckland; Sébastien Haneuse, Harvard T.H. Chan School of Public Health</p>		
	<p>3:00 p.m. Bayesian Uncertainty Estimation Under Complex Sampling—♦ Matthew Williams, National Science Foundation; Terrance Savitsky, Bureau of Labor Statistics</p>		

3:05 p.m.	How Hard Is it to Remove Mode Effects in Multimode Surveys? Basic Weighting V. Three Model-Based Methods—♦Matt Jans, Randy ZuWallack, ICF; Kelly Martin, ICF; Thomas Brassell, ICF; James Dayton, ICF; Stephen Immerwahr, NYC DOHMH; Amber Levanon Seligson, NYC DOHMH; Sahnah Lim, NYU	2:35 p.m.	Empirical and Conditional Likelihoods for Two-Phase Studies with Response-Dependent Samples—♦Menglu Che, University of Waterloo; Jerry Lawless, University of Waterloo; Peisong Han, University of Michigan
3:10 p.m.	Successive Difference Replication Applications—♦Timothy Trudell, Khoa Dong, U.S. Census Bureau; Eric Slud, U.S. Census Bureau; Robert Ashmead, U.S. Census Bureau	2:50 p.m.	Approaches to Bias Correction When Using Propensity Scores Estimated from Imperfect EHR-Derived Covariates—♦Joanna Harton, University of Pennsylvania; Nandita Mitra, University of Pennsylvania; Rebecca Hubbard, University of Pennsylvania
3:15 p.m.	Use of an Artificial Realistic Dataset to Compare the Performance of Different Cross-Sectional Methods for Estimating Crash Modification Factors—♦Bo Lan, University of North Carolina; Raghavan Srinivasan, University of North Carolina Highway Safety Research Center	3:05 p.m.	Causal Methods to Adjust for Confounding When Air Pollution Exposure Is Measured with Error—♦Danielle Braun, Harvard University; Xiao Wu, Harvard University; Marianthi-Anna Kioumourtzoglou, Mailman School of Public Health, Columbia University; Francesca Dominici, Harvard T.H. Chan School of Public Health
3:20 p.m.	Use of Matching Algorithms to Determine Unit Eligibility—♦Brandon Hopkins, RTI International; Kimberly Ault, RTI International	3:20 p.m.	Alzheimer's Disease Risk Prediction with Multidimensional Biomarkers—♦Zheyu Wang, Johns Hopkins University
3:25 p.m.	DOE Optimization of Managing Trip in Europe—♦Charles Chen, Applied Materials; Mason Chen, Mission San Jose High School, Stanford OHS; Brianna Zheng, BASIS School	3:35 p.m.	Analysis of Big and Complex Data in National Cotton Variety Test—♦Qian Zhou,
3:30 p.m.	Does Location Matter? a Case-Study of the Influence of Geography in Measurement of Gasoline Price Inflation—♦David Popko, Bureau of Labor Statistics; Ilmo Sung, U.S. Bureau of Labor Statistics	<b>31 CC-108</b> <b>Personalized/Precision Medicine II—Contributed Biometrics Section</b> Chair(s): Tai Xie, Brightech International	
3:35 p.m.	Estimating Generalized Linear Models with the Pseudo-Marginal Metropolis-Hastings Algorithm—♦Taylor Brown, University of Virginia; Tim McMurry, University of Virginia School of Medicine	2:05 p.m.	Statistical Considerations for Trials That Study Multiple Indications—♦Alexander Kaizer, University of Colorado Anschutz Medical Campus; Joseph Koopmeiners, University of Minnesota; Nan Chen, University of Texas M.D. Anderson Cancer Center; Brian Hobbs, Taussig Cancer Institute, Cleveland Clinic
3:40 p.m.	Two-Step Estimation for Time Varying ARCH Models—♦Yuanyuan Zhang, ; Rong Liu, University of Toledo; Qin Shao, University of Toledo; Lijian Yang, Tsinghua University	2:20 p.m.	Estimating Dynamic Treatment Regimes in Long-Term Observational Studies Using Infinite-Horizon Partially Observable Markov Decision Process—♦Zekun Xu, North Carolina State University; Eric B Laber, NC State University; Ana-Maria Staicu, North Carolina State University
3:45 p.m.	Shortest Median Length Confidence Interval for the Power of the T-Test—♦Harrison Watts, ; Subhabrata Chakraborti, University of Alabama	2:35 p.m.	Domain Adaption Machine Learning for Optimizing Treatment Strategies in Randomized Trials by Leveraging Electronic Health Records—♦Peng Wu, Columbia University; Yuanjia Wang, Columbia University
<b>30 CC-107</b> <b>Missing Data and Measurement Error—Contributed Biometrics Section</b> Chair(s): John Rice, Colorado School of Public Health		2:50 p.m.	A PRECISION MEDICINE APPROACH to DETERMINE OPTIMAL TREATMENTS for OVERWEIGHT and OBESE ADULTS with KNEE OSTEOARTHRITIS—♦Xiaotong Jiang, University of North Carolina at Chapel Hill; Amanda Nelson, University of North Carolina at Chapel Hill; Becki Cleveland, University of North Carolina; Daniel Beavers, Wake Forest School of Medicine; Todd Schwartz, University of North Carolina; Liubov Arbeeva, University of North Carolina; Carolina Alvarez, University of North Carolina; Leigh
2:05 p.m.	Exploring RNA-Protein Interactions at Amino-Acid Level via a Multinomial Logistic Regression Model with Latent Responses—♦Linxi Liu, Columbia University; Huijuan Feng, Columbia University; Chaolin Zhang, Columbia University		
2:20 p.m.	Threshold Regression in Presence of Missing Covariate—♦Tao Yang, Fred Hutchinson Cancer Research Center; Ying Huang, Fred Hutchinson Cancer Research Center; Youyi Fong, Fred Hutchinson Cancer Research Center		

**32**

**Statistical Methods in Dose-Finding Studies—Contributed**

**Biopharmaceutical Section, International Society for Bayesian Analysis (ISBA), Section on Bayesian Statistical Science**

Chair(s): Kevin Gan, GlaxoSmithKline

2:05 p.m.

Flexible Bayesian Semiparametric Designs for Dose-Finding with Multiple Populations—♦Jianchang Lin, Takeda Pharmaceuticals; Mo Li, Yale University; Rachael Liu, Takeda Pharmaceuticals ;Veronica Bunn, Takeda Pharmaceuticals; Hongyu Zhao, Yale

2:20 p.m.

Design Consideration in Phase 2 Dose Response Trial in the Presence of Possible Non-Monotonicity—Comparison of Bayesian Emax and NDLM Model—♦Feng Liu, AstraZeneca; Stephen Walters, University of Sheffield; Steven Julious, University of Sheffield

2:35 p.m.

Bayesian Hierarchical EMAX Model for Dose-Response in Early Phase Efficacy Clinical Trials—♦Byron Gajewski, University of Kansas Medical Center, The University of Kansas Cancer; Caitlyn Meinzer, Medical University of South Carolina; Scott Berry, Berry Consultants; Gayland L Rockswold, Hennepin County Medical Center; William G Barsan, University of Michigan; Frederick K Korley, University of Michigan; Renee' H Martin, Medical University of South Carolina

2:50 p.m.

Bayesian Method Based Dose Escalation in Clinical Trials with Combination Therapy—♦Shanmei Liao, BeiGene; Theis Lange, University of Copenhagen, section of biostatistics

3:05 p.m.

A Comparison of the Up-And-Down or Biased Coin Design to the Continual Reassessment Method for Phase I Dose Finding Studies—♦Robert A. Perera, VCU Department of Biostatistics; Roy T Sabo, Virginia Commonwealth University; Adam Sima, Virginia Commonwealth University

3:20 p.m.

Bayesian Dose-Finding Model with Adaptive Time-To-Event Weight Incorporating Cycle Information for

**CC-106**

**33**

**Statistical Methods in Public Health Research—Contributed**

**International Chinese Statistical Association**

Chair(s): Delong Liu, NHLBI/NIH

2:05 p.m.

Toward Automatic Segmentation, Tracking and Classification by Machine Learning for Medical Images—♦Henry Lu, National Chiao Tung University

2:20 p.m.

Scheduling of the Upcoming Screening Exam Using CT in Lung Cancer—♦Dongfeng Wu, University of Louisville; Karen Kafadar, University of Virginia

2:35 p.m.

Path-Tracked Spatial-Temporal Prediction of PM2.5—♦Lei Chen, Peking University

2:50 p.m.

A Cluster-Adjusted Rank-Based Test for a Clinical Trial Concerning Multiple Endpoints with Application to Dietary Intervention Assessment—♦Aiyi Liu, Eunice Kennedy Shriver National Institute of Child Health and Human Development, NIH; Wei Zhang, Eunice Kennedy Shriver National Institute of Child Health and Human Development, NIH; Larry Tang, George Mason University; Qizhai Li, Academy of Mathematics and Systems Science, Chinese Academy of Science

3:05 p.m.

Loss and Gain in Power Due to Correlation Between Co-Primary Endpoints in Clinical Trials—♦Zhiying You, University of Colorado Anschutz Medical Campus, Qing Li, San Diego State University ; Xiaolan You, Duke University

3:20 p.m.

Likelihood-Based Analysis of the Statistical Effects of a Treatment on an Outcome—♦Kai Wang, University of Iowa

3:35 p.m.

Lower Bounds for Accuracy of Estimation in High Angular Resolution Diffusion Imaging Data—♦Chitrak Banerjee, Michigan State University; Lyudmila Sakhnenko, Michigan State University

**34**

**Foundations in Bayesian Statistics—Contributed**

**Section on Bayesian Statistical Science**

Chair(s): Xinyi Li, SAMSI

2:05 p.m.

Posterior Consistency of Tail Index for Bayesian Kernel Mixture Models—♦Cheng Li, National University of

**CC-701**

**Immuno-Oncology Studies—♦Zhaowei Hua, Alnylam Pharmaceuticals, Inc.; Yutong Li, University of Illinois at Urbana-Champaign; Ying Yuan, Takeda Pharmaceutical Company Ltd ; Dan Zhao, Takeda Pharmaceutical Company Ltd**

3:35 p.m.

Floor Discussion

2:20 p.m.	Singapore; Lizen Lin, University of Notre Dame; David Dunson, Duke University	3:05 p.m.	Narayanaswamy Balakrishnan, McMaster University
	Bayesian Double Feature Allocation for Phenotyping with Electronic Health Records—◆ Yang Ni, Texas A&M University; Peter Müller, University of Texas Austin; Yuan Ji, The University of Chicago		Some Depth-Based Approaches to Statistical Regions—◆Derek Young, University of Kentucky
2:35 p.m.	The Scale Transformed Power Prior with Applications to Studies with Different Endpoints—◆Brady Nifong, UNC Department of Biostatistics; Matthew A. Psioda, University of North Carolina at Chapel Hill; Joseph G Ibrahim, UNC	3:20 p.m.	Measuring Causal Impacts on Multifaceted Outcomes with Missingness, with an Application to Welfare Impacts of Mobile Credit—◆Jacqueline Mauro, Joshua Blumenstock, University of California Berkeley; Katherine Yen, UC Berkeley; Andrew Linxie, UC Berkeley
2:50 p.m.	Interpreting P-Values and Confidence Intervals Using Well-Calibrated Null Preference Priors—◆ Michael Fay, National Institute of Allergy and Infectious Diseases; Michael Proschan, National Institute of Allergy and Infectious Diseases; Erica Brittain, National Institute of Allergy and Infectious Diseases; Ram Tiwari, CDRH, FDA	3:35 p.m.	Nonparametric Regression with Responses Missing Not at Random—◆Dipnil Chakraborty, The University of Texas at Dallas; Sam Efromovich, The University of Texas at Dallas
3:05 p.m.	Quantification of Borrowing of Strength in Hierarchical Bayes Models—◆Prasenjit Ghosh, Texas A & M University; Anirban Bhattacharya, TAMU; Debdeep Pati, Texas A&M University		
3:20 p.m.	A Unified Treatment of Posterior Asymptotics in Sparse Regression Models—◆Seonghyun Jeong, North Carolina State University; Subhashis Ghosal, North Carolina State University	2:05 p.m.	Weibull-Normal Distribution and Its Applications—◆Felix Famoye, Central Michigan University
3:35 p.m.	Bayesian Inference of Non-Probability Samples—◆ZHIQING XU, Worcester Polytechnic Institute; Balgobin Nandram, Worcester Polytechnic Institute	2:20 p.m.	Uncertainty Quantification for Parallel Discrete Event Simulation—◆Kevin Quinlan, Lawrence Livermore National Laboratory; Jim Leek, Lawrence Livermore National Laboratory ; Charles Tong, Lawrence Livermore National Laboratory ; Joshua Sherfield, Lawrence Livermore National Laboratory
35	<b>CC-712</b> <b>Applications of Nonparametric Methods—Contributed</b> <b>Section on Nonparametric Statistics</b> Chair(s): Anna Plantinga, Williams College	2:35 p.m.	Convergence and Asymptotic Normality for Identification of Systems with Subsystems—◆Long Wang, Johns Hopkins University; Jingyi Zhu, Johns Hopkins University; James C. Spall, Applied Physics Laboratory
2:05 p.m.	Kolmogorov-Smirnov Simultaneous Confidence Bands for Time Series Distribution Function—◆Jie Li, Tsinghua University; Jiangyan Wang, Nanjing Audit University; Lijian Yang, Tsinghua University	2:50 p.m.	An Overview of Statistical Methods Used in Nuclear Safeguards—◆Thomas Burr, Los Alamos National Laboratory; Elisa Bonner, Colorado State University; Sarah Michalak, Los Alamos National Labs; Claude Norman, IAEA
2:20 p.m.	Randomized Allocation with Nonparametric Estimation for Contextual Multi-Armed Bandits with Delayed Rewards—◆Sakshi Arya, University of Minnesota; Yuhong Yang, University of Minnesota	3:05 p.m.	Spectral Model Selection for Electronic Measurement of the Boltzmann Constant—◆Kevin J Coakley, National Institute of Standards and Technology
2:35 p.m.	Sufficient Dimension Reduction for Feasible and Robust Estimation of Average Causal Effect—◆Trinetti Ghosh, Pennsylvania State University; Yanyuan Ma, The Pennsylvania State University; Xavier de Luna, Umeå School of Business,Economics and Statistics at Umeå University	3:20 p.m.	Planning Gamma Accelerated Degradation Tests with Two Accelerating Variables—◆Hung Ping Tung, National Tsing Hua University (Taiwan); Sheng-Tsaing Tseng, National Tsing Hua university
2:50 p.m.	Meta-Analysis of Quantile Intervals from Different Studies—◆Omer Ozturk, Ohio State University;	3:35 p.m.	Floor Discussion
36	<b>CC-507</b> <b>Statistical Theory and Uncertainty Quantification in Physical Sciences—Contributed</b> <b>Section on Physical and Engineering Sciences</b> Chair(s): Wenjia Wang, SAMSI		
37	<b>CC-702</b> <b>■● Object-Oriented Analysis of Imaging Data—Contributed</b> <b>Section on Statistics in Imaging</b> Chair(s): Daniel Rowe, Marquette University		

2:05 p.m.	Nonparametric Model for a Tensor Field Based on HARDI—♦Lyudmila Sakhnenko, Michigan State University; Michael DeLaura, Michigan State University; David Zhu, Michigan State University
2:20 p.m.	Radiologic Image-Based Statistical Shape Analysis of Brain Tumors—♦Sebastian Kurtek, Ohio State University; Karthik Bharath, University of Nottingham; Arvind Rao, University of Michigan; Veera Baladandayuthapani, University of Michigan
2:35 p.m.	Simultaneous Confidence Corridors for Mean Functions in Functional Data Analysis of Imaging Data—♦Yueying Wang, Iowa State University; Guannan Wang, College of William and Mary; Li Wang, Iowa State University; Todd Ogden, Columbia University
2:50 p.m.	Investigations on Shape Proportions and Encircled Image-Histograms—♦William Lamberti, George Mason University; Jason M Kinser, George Mason University
3:05 p.m.	Semiparametric Elastic Shape Bootstrap Regions—♦Justin Strait, University of Georgia
3:20 p.m.	Analyzing Spatial Variation Using Bayesian Functional Alignment—♦Guoqing Wang, Johns Hopkins Bloomberg School of Public Health; Abhi Datta, Johns Hopkins Bloomberg School of Public Health; Martin Lindquist, Johns Hopkins University
3:35 p.m.	Scalable, Powerful and Robust Basis Space Testing for High-Dimensional Data—♦Ruijin Lu, Virginia Tech; Hongxiao Zhu, Virginia Tech

<b>38</b>	<b>CC-210/212</b>
<b>Advances in Variable Selection—Contributed</b>	
<b>Section on Statistical Learning and Data Science</b>	
Chair(s): Joanne C Beer, University of Pennsylvania	

2:05 p.m.	Simultaneous Confidence Regions for Coefficients in High-Dimensional Linear Models—♦Xiaorui Zhu, University of Cincinnati; Peng Wang, University of Cincinnati; Yichen Qin, University of Cincinnati
2:20 p.m.	Functional Variable Selection with Correlated Functional Covariates and Longitudinal Responses—♦Rebecca North, NCSU Statistics; Jonathan Stallrich, North Carolina State University; Ana-Maria Staicu, North Carolina State University; Helen Huang, NCSU Biomedical Engineering; Dustin Crouch, University of Tennessee, Knoxville; Mechanical, Aerospace, and Biomedical Engineering
2:35 p.m.	Feature Selection in Large Data with Heteroscedastic Errors—♦Yiying Fan, Cleveland State University
2:50 p.m.	A New Information Criterion for Model Selection—♦Jie Ding, University of Minnesota; Vahid Tarokh, Duke University; Yuhong Yang, University of Minnesota
3:05 p.m.	Floor Discussion

<b>39</b>	<b>CC-302</b>
<b>Recent Advancements in the Analysis of Extremes—Contributed</b>	
<b>Section on Statistics and the Environment</b>	
Chair(s): Andrew Zammit-Mangion, University of Wollongong	
2:05 p.m.	Hierarchical Scale Mixtures for Flexible Spatial Modeling—♦Likun Zhang, Penn State University; Benjamin Shaby, Pennsylvania State University
2:20 p.m.	Flexible Sub-Asymptotic Modeling of Threshold Exceedances Using Hierarchical Ratio Models—♦Rishikesh Yadav, King Abdullah University of Science and Technology (KAUST); Raphaël Huser, King Abdullah University of Science and Technology; Thomas Opitz, INRA
2:35 p.m.	Extremes of the Spatial Impact of Heat Waves—♦Shrijita Bhattacharya, Michigan State University; Stilian Stoev, University of Michigan
2:50 p.m.	Return Level Estimation for Large Spatial Extremes—♦Danielle Sass, University of Illinois at Urbana-Champaign; Bo Li, University of Illinois at Urbana-Champaign; Brian Reich, North Carolina State University
3:05 p.m.	Trend Analysis of Extreme Coastal Sea Levels from a Semi-Global Tide Gauge Data Set—♦Mintaek Lee, Boise State University; Jaechoul Lee, Boise State University
3:20 p.m.	A Semiparametric Bayesian Spatiotemporal Model for Extreme Value Analysis with Big Data—♦Arnab Hazra, King Abdullah University of Science and Technology; Raphaël Huser, King Abdullah University of Science and Technology
3:35 p.m.	Using Climate Model Data to Predict the Distribution of Extreme Weather Events—♦Thomas Jagger, Florida State University
<b>40</b>	<b>CC-101</b>
<b>■ Statistical Methods for Microbiome and Tumor Data—Contributed</b>	
<b>Section on Statistics in Genomics and Genetics</b>	
Chair(s): Zhigang Li, University of Florida	
2:05 p.m.	Discriminative Factor Model for Microbiome Analysis—Yiwen Liu, Duke University; ♦Peter Merrill, Duke Clinical Research Institute; Noelle Younge, Duke University School of Medicine; C. Michael Cotten, Duke University School of Medicine; Ricardo Henao, Duke University
2:20 p.m.	A Novel Normalization and Differential Abundance Test Framework for Microbiome Data—♦Yuanjing Ma, ; Yuan Luo, Northwestern University ; Hongmei Jiang, Northwestern University
2:35 p.m.	A Bayesian Framework for Uncovering Association Between Microbial Composition and Host Phenotypes—

	♦Subhajit Sengupta, NorthShore University HealthSystem; Riten Mitra, University of Louisville; Robert Butler III, NorthShore University HealthSystem; Abhishek Bhattacharjee, University of Northern Colorado; Pablo Gejman, NorthShore University HealthSystem
2:50 p.m.	A Hidden Markov Modeling Approach for Identifying Tumor Subclones in Next-Generation Sequencing Studies—♦BIN ZHU, NIH/NCI; HYOYOUNG CHOO-WOSOBA, NCI; Paul Albert, National Cancer Institute
3:05 p.m.	Predicting Cancer Immunotherapy Treatment Response with Neoantigen Burden—♦Laura Zhou, University of North Carolina at Chapel Hill; Fei Zou, University of North Carolina at Chapel Hill; Wei Sun, Fred Hutchinson Cancer Research Center
3:20 p.m.	Predictive Models for Detecting Association Between MiRNAs and Lympho Vascular Invasion—♦Moumita Karmakar, Texas A&M University; Pei-chun Lai, Texas A&M University; Samiran Sinha, Texas A&M University; Sanjukta Chakraborty, Texas A&M University
3:35 p.m.	A Mixed-Model Approach for Powerful Testing of Genetic Associations with Cancer Risk Incorporating Tumor Characteristics—♦Haoyu Zhang, Johns Hopkins University; Ni Zhao, Johns Hopkins University; Thomas U. Ahearn, National Cancer Institute; William Wheeler, Information Management Services, Inc.; Montserrat Garcia-Closas, National Cancer Institute; Nilanjana Chatterjee, Johns Hopkins University
<b>41</b>	<b>CC-506</b>
	<b>Non-Probability Sample and Probability Sample Matters Under What Context?—Contributed</b>
	<b>Survey Research Methods Section</b>
	Chair(s): Samantha Robinson, University of Arkansas
2:05 p.m.	The Impact of Independence Assumption Violation in Capture Recapture Estimators of Catch from Electronic Reporting Systems—♦Shalima Zalsha, Southern Methodist University; S. Lynne Stokes, Southern Methodist University; Benjamin M. Williams, University of Denver; Ryan P.A. McShane, Southern Methodist University
2:20 p.m.	Bayesian Doubly Robust Adjustment for Finite Population Inference Using Big Data: Application to Naturalistic Driving Studies—♦Ali Rafei, Institute for Social Research, University of Michigan; Michael Elliott, University of Michigan; Carol A.C. Flannagan, University of Michigan, Transport Research Institute
2:35 p.m.	A Modified Two-Stage Sampling Scheme with Integrated Second Stage Sample—♦Chia-Liang Weng, ; Chang-Tai Chao, National Cheng Kung University
2:50 p.m.	Optimal Sample Design for Estimation of Catch from Electronically Reported Data—♦Zhaoce Liu, Southern Methodist University; Lynne Stokes, Southern Methodist

	University
3:05 p.m.	Weighting Matters: a Practical Application—♦Diane Hindmarsh, Bureau of Health Information NSW Australia; Carol Birrell, NIASRA; David Steel, NIASRA
3:20 p.m.	Floor Discussion
<b>42</b>	<b>CC-113</b>
	<b>■ Novel Statistical Methods with a Biostatistics Leaning—Contributed</b>
	<b>ENAR</b>
	Chair(s): Appanna Kalyanee, Novartis Pharmaceutical Corporation
2:05 p.m.	Applying Markov Methodology to Investigate Disease Progression in Multiple Sclerosis—♦Anastasia M. Hartzes, University of Alabama at Birmingham, Department of Biostatistics; Charity J. Morgan, University of Alabama at Birmingham, Department of Biostatistics; Stacey S. Cofield, University of Alabama at Birmingham, Department of Biostatistics
2:20 p.m.	Nonparametric Conditional Density Estimation for Pooled Biomarker Data—♦Dewei Wang, University of South Carolina; Xichen Hou, University of South Carolina; Joshua Tebbs, University of South Carolina
2:35 p.m.	On Performing Generalized Inferences for the Burr XII Reliability Function Based on Progressively Censored Data—♦Danush Wijekularathna, Troy University; Sumith Gunasekera, The University of Tennessee - Chattanooga
2:50 p.m.	Side Effect Reduction of Prior and Processed Information on Survey Design (Parts 1 and 2)—♦Abdellatif Demnati, Independent Researcher
3:05 p.m.	Confronting Mental-Health-Mediated Harassment in a University Workplace: a Case Study—♦Thomas Belin, UCLA
3:20 p.m.	Estimating Median Regression for Clustered Interval Censored Survival Data—♦Piyali Basak, Florida State University; Stuart Lipsitz, Brigham and Women's Hospital; Debajyoti Sinha, FLORIDA STATE UNIVERSITY
3:35 p.m.	Floor Discussion
<b>43</b>	<b>CC-105</b>
	<b>SPEED: Statistics in Sports; Physical Activity/Sleep Studies, and Nonparametrics Part 1—Contributed</b>
	<b>Section on Statistics in Sports, Biometrics Section, Survey Research Methods Section, Section on Bayesian Statistical Science, Section on Nonparametric Statistics</b>
	Chair(s): Andrew Swift, University of Nebraska at Omaha

# JSM 2019 | SUNDAY GENERAL PROGRAM SCHEDULE

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

SUNDAY		2:05 p.m.	Preference Probability Based on Ranks—a New Approach Using Logistic Regression with Zero Intercept—♦Oluwagbenga Agboola, University of Northern Colorado	3:25 p.m.	Information Theoretic Measures of Diversity—♦Nikhil S Padhye, University of Texas Health Science Center at Houston; Marcia C de Oliveira Otto, University of Texas Health Science Center at Houston
		2:10 p.m.	Quantifying the Deception of an MLB Pitch—♦Jason Wilson, Biola University	3:30 p.m.	Bayesian Semiparametric ROC Surface Estimation Under Verification Bias—♦Rui Zhu, North Carolina State University; Subhashis Ghosal, North Carolina State University
		2:15 p.m.	Application of Data Analytics and Visualization in NCAA Division III Men's Basketball—♦Thomas Rhomberg,	3:35 p.m.	Statistical Inference for L-Moments of Specific, Common Distributions—♦Timothy Shawn Anderson, Air Force Institute of Technology; Christine Schubert Kabban, Air Force Institute of Technology; Fairul Mohd-Zaid, Air Force Research Labs
		2:20 p.m.	Devaluing the Yurchenko Full: The Effect of NCAA Women's Gymnastics Code Modifications on Event and Total Scores—♦Elizabeth Jewell, University of Michigan	3:40 p.m.	Floor Discussion
		2:25 p.m.	Faint Galaxies Detection: An Example of Guided Follow-Up with Imbalanced Data Sets—♦Niccolò Dalmasso, Carnegie Mellon University; Ann B. Lee, Carnegie Mellon University; Rafael Izbicki, Federal University of São Carlos		
		2:30 p.m.	Is There Racial Bias in NFL Roughing the Passer Calls?—♦Nilesh Shah, University of Pittsburgh		
		2:35 p.m.	Longevity of NFL Players—♦Masaru Teramoto, University of Utah; Chad Cross, University of Nevada, Las Vegas; Daniel Cushman, University of Utah; Stuart Willick, University of Utah		
		2:40 p.m.	Determining Optimal Skills for Beach Volleyball Partners—♦Jacob Eliason, Brigham Young University; Gil Fellingham, Brigham Young University; Matthew Oehler, Brigham Young University		
		2:45 p.m.	A SHINY Markov Machine for Decision-Making in Major League Baseball—♦Jason Osborne, North Carolina State University		
		2:50 p.m.	The Effect Analytics Has on Canadian Basketball—♦Bruce Liska, Park View High School		
		3:00 p.m.	Meta-Analysis to Quantify Properties of Quarterback Metrics—♦Julia Stiller, Michael Lopez, Skidmore College		
		3:05 p.m.	Weighted Regression with Covariates Derived from Discrepancies Between High-Dimensional Predictors—♦Lucia Tabacu, Old Dominion University; Andrew Leroux, JHU; Ciprian Crainiceanu, Johns Hopkins University		
		3:10 p.m.	Predicting the Success of Kickstarter Campaigns: a Bayesian Semiparametric Analysis—♦Michael Oduro-Safo, University of Northern Colorado; Han Yu, University of Northern Colorado		
		3:15 p.m.	Minute-By-Minute Sleep Data: a SAS Macro to Create Summary Sleep Variables—♦Laura Grau, University of Colorado-Biostatistics; Jaron Arbet, University of Colorado; Danielle Ostendorf, University of Colorado; Edward L Melanson, University of Colorado; Jill L Kaar, University of Colorado; Victoria A Catenacci, University of Colorado; Seth A. Creasy, University of Colorado		
		3:20 p.m.	Interpretable Localized Time-Frequency Analysis via Penalized Reduced Rank Regression—♦Marie Tuft, University of Pittsburgh; Rob Krafty, University of Pittsburgh		

## Special Presentation 4:00 p.m.—5:50 p.m.

### 44 CC-Four Seasons 1 Introductory Overview Lecture: The ABC of Approximate Bayesian Computation—Invited JSM Partner Societies

Chair(s): Antonietta Mira, Università della Svizzera italiana and Università dell'Insubria

4:05 p.m.	The ABC of Approximate Bayesian Computation—♦Christian Robert, Ceremade - Université Paris-Dauphine
5:35 p.m.	Floor Discussion

## Invited Sessions 4:00 p.m.—5:50 p.m.

### 45 CC-709 ● Emerging Methods for Network Testing and Related Problems—Invited

IMS, Section on Statistical Learning and Data Science, Section on Statistics in Defense and National Security

Organizer(s): Eric Kolaczyk, Boston University

Chair(s): Elizabeth Upton, Boston University

4:05 p.m.	Goodness-of-Fit Tests for 3 Variants of the Stochastic Block Model—Vishesh Karwa, Temple University; Debdeep Pati, Texas A&M University; ♦Sonja Petrović, Illinois Institute of Technology; Liam Solus, KTH, Sweden; Mateja Raic, University of Illinois at Chicago; Dane Wilburne, ICERM, Brown University; Nikita Alexeev, unknown; Robert Williams, Texas A&M University; Bowei Yan, University of Texas
4:30 p.m.	A Broad Perspective on Network Testing—♦Sofia C Olhede, University College London; Patrick J Wolfe, Purdue University

4:55 p.m.	Signal Detection in Spiked Random Matrix and Network Models—♦Zongming Ma, University of Pennsylvania; Debapratim Banerjee, University of Pennsylvania
5:20 p.m.	Disc: Daniel L Sussman, Boston University
5:40 p.m.	Floor Discussion

<b>46</b>	<b>CC-103</b>
■ ● Recent Developments in Novel Clinical Trial Design and Analysis for Precision Medicine—Invited	
ENAR, Biometrics Section, Biopharmaceutical Section	
Organizer(s): Yingqi Zhao, Fred Hutchinson Cancer Research Center	
Chair(s): Yingqi Zhao, Fred Hutchinson Cancer Research Center	

4:05 p.m.	Bayesian Clinical Trial Designs to Evaluate Subgroup-Specific Treatment Effects—♦Peter Thall, U.T. M.D. Anderson Cancer Center; Juhee Lee, University of California, Santa Cruz; Thomas Murray, University of Minnesota; Andrew Chapple, Louisiana State University
4:30 p.m.	Adaptive Contrast Weighted Learning and Tree-Based Reinforcement Learning for Multi-Stage Multi-Treatment Decision-Making—♦Lu Wang, University of Michigan; Yebin Tao, Google; Daniel Almirall, University of Michigan
4:55 p.m.	Designing Precision Medicine Trials in Oncology to Yield Greater Population Impact—♦Michael LeBlanc, Fred Hutchinson Cancer Research Center; Yingqi Zhao, Fred Hutchinson Cancer Research Center
5:20 p.m.	Online Experimentation and Learning Algorithms in a Clinical Trial—♦Susan Murphy, Harvard University
5:45 p.m.	Floor Discussion

<b>47</b>	<b>CC-708</b>
● Highlights from Bayesian Analysis—Invited	
Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA)	

Organizer(s): Bruno Sanso, University of California Santa Cruz  
Chair(s): Bruno Sanso, University of California Santa Cruz

4:05 p.m.	Bayesian Method for Causal Inference in Spatially Correlated Multivariate Time Series—♦Bo Ning, Yale University
4:30 p.m.	Big Data Bayesian Linear Regression and Variable Selection by Normal-Inverse-Gamma Summation—♦Hang Qian, The MathWorks, Inc.
4:55 p.m.	Bayesian Analysis of Dynamic Linear Topic Models—♦Christopher Glynn, University of New Hampshire; Surya Tokdar, Duke University; David Banks, SAMSI/Duke University; Brian Howard, Sciome, LLC

5:20 p.m.	Variational Message Passing for Elaborate Response Regression Models—♦Matt Paul Wand, University of Technology Sydney; Matt McLean, University of Technology Sydney
5:45 p.m.	Floor Discussion

<b>48</b>	<b>CC-104</b>
■ ● New Frontiers in High-Dimensional and Complex Data analyses—Invited	
Biometrics Section, International Chinese Statistical Association, Section on Nonparametric Statistics	

Organizer(s): Yichuan Zhao, Georgia State University  
Chair(s): Lexin Li, University of California at Berkeley

4:05 p.m.	Statistical Inference for High-Dimensional Models via Recursive Online-Score Estimation—♦Runze Li, Penn State University
4:30 p.m.	Dimension Reduction for High-Dimensional Censored Data—Shanshan Ding, University of Delaware; Wei Qian, University of Delaware; ♦Lan Wang, University of Minnesota
4:55 p.m.	Network Response Regression for Modeling Population of Networks with Covariates—♦Emma Jingfei Zhang, University of Miami; Will Wei Sun, Purdue University; Lexin Li, University of California at Berkeley
5:20 p.m.	Penalized Empirical Likelihood for the Sparse Cox Model—Dongliang Wang, SUNY Upstate Medical University; Tong Tong Wu, University of Rochester; ♦Yichuan Zhao, Georgia State University
5:45 p.m.	Floor Discussion

<b>49</b>	<b>CC-207</b>
● Creating a Diverse and Inclusive Field One Student at a Time—Invited	
Section on Statistics and Data Science Education, ENAR, Section on Teaching of Statistics in the Health Sciences, Caucus for Women in Statistics	

Organizer(s): Brianna Heggeseth, Macalester College  
Chair(s): Brittney Bailey, Amherst College

4:05 p.m.	Cultivating an Equitable and Inclusive Classroom Dynamic—♦Brianna Heggeseth, Macalester College
4:25 p.m.	Cultivating Diversity by Encouraging Deeper Learning of Fundamental Concepts—♦Gretchen Falk Martinet, University of Virginia; Jeffrey J. Holt, University of Virginia
4:45 p.m.	Equity for Underprepared Intro Stat Students: Complex Instruction and Corequisite Design—♦Alana Unfried, California State University, Monterey Bay
5:05 p.m.	Breaking Down Barriers: a Cohort Model for Broadening

# JSM 2019 | SUNDAY GENERAL PROGRAM SCHEDULE

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

SUNDAY

<p>5:25 p.m. Participation in STEM—♦Jessica Chapman, St. Lawrence University</p> <p>5:45 p.m. Bridging the Gap: Increasing Underrepresented Minority Representation in the Statistical Sciences—♦Felicia R Simpson, Winston-Salem State University</p> <p>5:45 p.m. Floor Discussion</p>	<p>5:45 p.m. Series of Counts—♦Refik Soyer, George Washington University</p> <p>5:45 p.m. Floor Discussion</p>
<p><b>50 CC-201</b></p> <p><b>■ Statistical Methods Applied to Discrimination: Recent Contributions from the Journal—Invited</b></p> <p><b>Statistics and Public Policy, Social Statistics Section</b></p> <p>Organizer(s): Mike L. Cohen, Committee on National Statistics</p> <p>Chair(s): Jerry Reiter, Duke University</p> <p>4:05 p.m. Salary Differentials by Gender and Discipline—♦Lynne Billard, University of Georgia</p> <p>4:30 p.m. Assessing the Impact of Voter ID Laws—♦Kelly McConville, Reed College; S. Lynne Stokes, Southern Methodist University; Mary Gray, American University</p> <p>4:55 p.m. Data Bias, Algorithmic Fairness and Evaluating Discriminatory Impacts in Predictive Policing—♦P. Jeffrey Brantingham, UCLA Department of Anthropology; George Mohler, Indiana University -Perdue University Indianapolis</p> <p>5:20 p.m. Disc: David Banks, SAMS/ Duke University</p> <p>5:45 p.m. Floor Discussion</p>	<p><b>52 CC-501</b></p> <p><b>■● The 2018 Statistical Computing and Graphics Award—Invited</b></p> <p><b>Section on Statistical Computing, Section on Statistical Graphics</b></p> <p>Organizer(s): Jun Yan, University of Connecticut</p> <p>Chair(s): Michael Kane, Yale</p> <p>4:05 p.m. Some Thoughts on Languages for Statistical Computing and Graphics—♦Luke Tierney, University of Iowa</p> <p>4:30 p.m. Visible and Invisible: Statistical Graphics and Computing Infrastructure—♦Thomas Lumley, University of Auckland</p> <p>4:55 p.m. Lessons Learned in Interactive and Dynamic Graphics—♦Heike Hofmann, Iowa State University</p> <p>5:20 p.m. The Estimable Luke Tierney—and Estimability in R—♦Russell V. Lenth, University of Iowa</p> <p>5:45 p.m. Floor Discussion</p>
<p><b>51 CC-210/212</b></p> <p><b>■● Making Sense of Discrete Data: Challenges, Inferences and Applications—Invited</b></p> <p><b>Social Statistics Section, Business and Economic Statistics Section, Section on Statistics in Marketing</b></p> <p>Organizer(s): Dungang Liu, University of Cincinnati</p> <p>Chair(s): Chris Wild, University of Auckland</p> <p>4:05 p.m. Clustering Language Features: Scaling up from Micro to Macro Variation—♦Ivy Liu, Victoria University of Wellington; Richard Arnold, Victoria University of Wellington; Miriam Meyerhoff, Victoria University of Wellington; Shirley Pledger, Victoria University of Wellington; Lingyu Li, Victoria University of Wellington</p> <p>4:30 p.m. Assessing Partial Association Between Ordinal Variables: A General Framework—♦Dungang Liu, University of Cincinnati; Shaobo Li, University of Kansas; Yan Yu, University of Cincinnati</p> <p>4:55 p.m. Mediation Analysis via Copula Structural Equation Models for Variables of Mixed Types—♦Peter X.K. Song, School of Public Health, University of Michigan ; Wei Hao, University of Michigan</p> <p>5:20 p.m. Bayesian Modeling of Univariate and Multivariate Time-</p>	<p><b>53 CC-607</b></p> <p><b>■● Medallion Lecture I—Invited</b></p> <p><b>IMS</b></p> <p>Organizer(s): Rajen D Shah, University of Cambridge</p> <p>Chair(s): Sonia Petrone, Università commerciale Luigi Bocconi</p> <p>4:05 p.m. On Statistical Thinking in Deep Learning—♦Yee Whye Teh, University of Oxford</p> <p>5:45 p.m. Floor Discussion</p>
<p>4:05 p.m. Missingness by Design -Split Questionnaire Designs and Synthetic Data—♦Joerg Drechsler, Institute for Employment Research; Florian Meinfelder, Universit%ot Bamberg</p> <p>4:30 p.m. Multiple Imputation of Non-Ignorable Missing Survey Data—♦Angelina Hammon, University of Bamberg</p> <p>4:55 p.m. Data Fusion, Multiple Imputation for Clustered Data, and Split Questionnaire Designs: Research Inspired by Our</p>	<p><b>54 CC-704</b></p> <p><b>● Memorial Session for Susanne R%ossler: Missing and Missed—Invited</b></p> <p><b>Memorial</b></p> <p>Organizer(s): Florian Meinfelder, Universit%ot Bamberg</p> <p>Chair(s): Hans Kiesl, OTH Regensburg</p> <p>4:05 p.m. Missingness by Design -Split Questionnaire Designs and Synthetic Data—♦Joerg Drechsler, Institute for Employment Research; Florian Meinfelder, Universit%ot Bamberg</p> <p>4:30 p.m. Multiple Imputation of Non-Ignorable Missing Survey Data—♦Angelina Hammon, University of Bamberg</p> <p>4:55 p.m. Data Fusion, Multiple Imputation for Clustered Data, and Split Questionnaire Designs: Research Inspired by Our</p>

Collaborations with Susie—♦Trivellore Raghunathan, University of Michigan; Nathaniel Schenker, Retired	Lancaster University, UK; Euan McGonigle, Lancaster University; Matthew Nunes, University of Bath
5:20 p.m. Disc: Donald B. Rubin, Tsinghua University; Temple University; Harvard University	4:45 p.m. Testing for Stationarity of Functional Time Series in the Frequency Domain—♦Alexander Aue, University of California, Davis; Anne Van Delft, Ruhr-Universität Bochum
5:45 p.m. Floor Discussion	5:05 p.m. Autoregressive Models for Large Matrix Series—♦Han Xiao, Rutgers University
55	CC-110
■ ● Recent Evaluations of Methods for Handling Noncompliance/Dropouts in Clinical Trials for Better Guidance Driven Application—Invited Biopharmaceutical Section	5:25 p.m. Disc: Katherine Ensor, Rice University
Organizer(s): Xiang Zhang, Eli Lilly and Company	5:45 p.m. Floor Discussion
Chair(s): Xiang Zhang, Eli Lilly and Company	
4:05 p.m. Principal Component Causal Estimands for Equivalence Trials in the Presence of Intercurrent Events—♦Wanjie Sun, FDA	57
4:25 p.m. An Evaluation of the Trimmed Mean Approach in Clinical Trials with Dropout—♦Ming-Dauh Wang, Regeneron; Craig Mallinckrodt, Biogen; Jiajun Liu, Biogen	CC-205
4:45 p.m. Principal Stratification Approach for Bayesian Sequential Monitoring Design to Address Noncompliance in Clinical Trials—♦Weining Shen, University of California at Irvine	■ ● Women Transitioning into Leadership—Invited Caucus for Women in Statistics
5:05 p.m. Test of Treatment Effect for Binary Composite Endpoint with Missing Components in Clinical Trials—♦Yanyao Yi, University of Wisconsin at Madison; Ting Ye, University of Wisconsin at Madison; Xiang Zhang, Eli Lilly and Company; Junxiang Luo, Sanofi-Aventis	Organizer(s): Kathy Panageas, Memorial Sloan Kettering Cancer Center
5:25 p.m. Disc: Ilya Lipkovich, Eli Lilly and Company	Chair(s): Kathy Panageas, Memorial Sloan Kettering Cancer Center
5:45 p.m. Floor Discussion	Panelists: ♦Melissa Begg, Columbia University ♦Marcy Abate Hoover, Sandia National Laboratories ♦Stacy Lindborg, Biogen ♦Nancy Geller, National Institutes of Health, NHLBI ♦Janet Wittes, Statistics Collaborative, Inc
56	CC-102
■ ● Modern Methods for Structured and Dynamically Dependent Data—Invited	5:45 p.m. Floor Discussion
Business and Economic Statistics Section, JBES-Journal of Business & Economic Statistics, Business Analytics/Statistics Education Interest Group	58
Organizer(s): Daniel R Kowal, Rice University	■ ● Artificial Intelligence (AI) in Healthcare and Medical Research in the Big Data Era—Invited
Chair(s): Daniel R Kowal, Rice University	Section on Statistics in Genomics and Genetics, WNAR, International Chinese Statistical Association
4:05 p.m. Structural-Factor Modeling of High-Dimensional Time Series: Another Look at Approximate Factor Models with Diverging Eigenvalues—♦Ruey S Tsay, University of Chicago, Booth School of Business; Zhaoxing Gao, University of Chicago	Organizer(s): Haiyan Huang, University of California, Berkeley
4:25 p.m. Introducing the Mean Locally Stationary Wavelet Process and Its Application to Business Data—♦Rebecca Killick,	Chair(s): Ruixiao Lu, Genomic Health, Inc.
	Panelists: ♦Ying Lu, Stanford University ♦Bin Chen, Michigan State University ♦Jean Yee Hwa Yang, University of Sydney, Australia ♦Jing Huang, Veracyte Inc. ♦Haoda Fu, Eli Lilly and Company
	5:45 p.m. Floor Discussion

## Topic Contributed Sessions 4:00 p.m.—5:50 p.m.

59

CC-605

### ■● Deep Learning in Statistics: Really?!—Topic Contributed

Section on Statistical Learning and Data Science, Section on Statistical Computing, Biometrics Section, Text Analysis Interest Group

Organizer(s): Wei Pan, University of Minnesota

Chair(s): Wei Pan, University of Minnesota

4:05 p.m. Embedding Learning—♦ Ben Dai, University of Minnesota; Xiaotong Shen, University of Minnesota

4:25 p.m. Deep Learning in Pathological Image Analysis—♦ Guanghua Xiao, UT Southwestern Medical Center; Shidan Wang, UT Southwestern Medical Center

4:45 p.m. Complex Disease Risk Prediction via a Deep Learning Method—♦ Chong Wu, Florida State University

5:05 p.m. Incorporating Biological Network to Build Deep Learning Models for Gene Expression Data—♦ Tianwei Yu, Emory University; Yunchuan Kong, Emory University

5:25 p.m. Graph Convolutional Neural Networks for Multiple Gene Networks—♦ HU Yang, Central University of Finance and Economics; Wei Pan, University of Minnesota

5:45 p.m. Floor Discussion

60

CC-105

### ■● Statistical Analysis of Massive Neuronal Data Sets—Topic Contributed

ENAR, Section on Statistics in Imaging, Biometrics Section

Organizer(s): Giuseppe Vinci, Rice University

Chair(s): Raquel Prado, UC Santa Cruz-Baskin School of Engineering

4:05 p.m. Torus Graphs for Multivariate Phase Coupling Analysis—Robert E. Kass, Carnegie Mellon University; ♦Josue Orellana, Carnegie Mellon University; Natalie Klein, Carnegie Mellon University

4:25 p.m. Hierarchical Recurrent Models of Neural Activity and Natural Behavior—♦ Scott W. Linderman, Stanford University

4:45 p.m. Neuronal Functional Connectivity Graph Estimation from Nonsimultaneous Recordings—♦ Giuseppe Vinci, Rice University; Gautam Dasarathy, Arizona State University; Genevera Allen, Rice University

5:05 p.m. Probabilistic Models of Neural Responses Measured in Calcium Imaging—♦ Ding Zhou, Columbia University

5:25 p.m. Floor Discussion

61

CC-506

### ■● Advancing Career Development with Interdisciplinary Skills—Topic Contributed

Section on Statistical Consulting, Section on Teaching of Statistics in the Health Sciences, Section on Statistics and Data Science Education, Caucus for Women in Statistics

Organizer(s): Shuyan Wan, Merck & Co., Inc

Chair(s): Xiaofei Hu, Abbvie

4:05 p.m. Persuade or Influence a Non-Statistician Collaborator—♦ Shuyan Wan, Merck & Co., Inc

4:25 p.m. Practical Statistical Application and Communication in Financial Industry—♦ Weijian Liang, Vanguard

4:45 p.m. How to Talk Variable Selection to Investigators Without Mentioning LASSO—♦ Yixin Fang,

5:05 p.m. How to Talk Statistics to Clinicians—♦ Christine Gause, Merck & Co., Inc

5:25 p.m. Role of Biostatisticians in Transnational Researches in the Era of Big Data—♦ Hua Zhong, New York University

5:45 p.m. Floor Discussion

62

CC-702

### ■● Data Fusion: An Exploration of Practical Aspects—Topic Contributed

Section on Physical and Engineering Sciences, Section on Statistical Learning and Data Science, Section on Statistics in Defense and National Security

Organizer(s): Emily Casleton, Los Alamos National Laboratory

Chair(s): Kimberly Kaufeld, Los Alamos National Laboratory

4:05 p.m. Bayesian Analysis of Multivariate One-Way ANOVA Model—♦ Zhuoqiong He,

4:25 p.m. Data Fusion with Transition-Constrained Diarization—♦ Goran Konjevod, Lawrence Livermore National Laboratory; Jason Lenderman, LLNL

4:45 p.m. Computational and Interpretational Considerations for Multivariate Analytics in Nuclear Nonproliferation Multisensor Arrays—Marylesa Howard, Nevada National Security Site; Aaron Luttmann, Nevada National Security Site; Bethany Goldblum, University of California Berkeley; Christopher Stewart, University of California Berkeley; Zoe Gastelum, Sandia National Laboratories; Boian Alexandrov, Los Alamos National Laboratory; Margaret Hoeller, Nevada National Security Site; ♦ Daniel J. Champion, Nevada National Security Site

5:05 p.m. Data Fusion and Feature Selection to Inform the State of a Nuclear Reactor—♦ Nidhi Parikh, Los Alamos National Laboratory; Garrison Flynn, Los Alamos National Laboratory; Adin Egid, Los Alamos National Laboratory; Emily Casleton, Los Alamos National Laboratory

5:25 p.m. Integrated Statistical Learning and Feature Selection for Improved Biomarker Discovery—♦Lisa Bramer, Pacific Northwest National Laboratory; Bobbie-Jo Webb-Robertson, Pacific Northwest National Laboratory; Sarah Reehl, Pacific Northwest National Laboratory

5:45 p.m. Floor Discussion

**63**

**CC-113**

**■ Cryptocurrency Surveys: Challenges and Results from Central Banks—Topic Contributed**

Survey Research Methods Section, Business and Economic Statistics Section, Government Statistics Section

Organizer(s): Kevin M. Foster, Federal Reserve Bank of Atlanta

Chair(s): Marcin M. Hitczenko, Federal Reserve Bank of Atlanta

4:05 p.m. Measuring Consumer Cryptocurrency Adoption and Use in the United States—♦Kevin M. Foster, Federal Reserve Bank of Atlanta

4:25 p.m. Ownership and Purchase Intention of Crypto-Assets -Results from an Austrian Survey—♦Helmut Stix, Oesterreichische Nationalbank

4:45 p.m. Economic Networks with Incentives: The Mobile Money Case in Ecuador—♦Ivan Rivadeneira, University of Hawaii - Manoa; Daniel Suthers, University of Hawaii - Manoa; Ruben Juarez, University of Hawaii - Manoa

5:05 p.m. Bubbles in My Bitcoin: Results from the 2018 Bitcoin Omnibus Survey—♦Grandon Nicholls, Bank of Canada; Christopher Henry, Bank of Canada; Kim Huynh, Bank of Canada; Mitchell Nicholson, Bank of Canada

5:25 p.m. Disc: Kim Huynh, Bank of Canada

5:45 p.m. Floor Discussion

**64**

**CC-705**

**■ Modeling Uncertainty in Energy Systems—Topic Contributed**

Section on Statistics and the Environment, Section on Statistical Computing

Organizer(s): Stefano Castruccio, University of Notre Dame

Chair(s): Stefano Castruccio, University of Notre Dame

4:05 p.m. A High Resolution Ensemble to Quantify Wind Energy Resources in Saudi Arabia—♦Paolo Giani, University of Notre Dame; Wanfang Chen, King Abdullah University of Science and Technology; Felipe Tagle, University of Notre Dame; Stefano Castruccio, University of Notre Dame; Marc Genton, King Abdullah University of Science and Technology; Paola Crippa, University of Notre Dame

4:25 p.m. A Stochastic Generator of Global Wind Ensembles—♦Jaehong Jeong, University of Maine

4:45 p.m. Incorporating Photovoltaic and Load Uncertainty into Remote Microgrid Design Optimization—♦Amanda S Hering, Baylor University; David Morton, Northwestern University; Alexander Zolan, University of Texas at Austin; Alexandra Newman, Colorado School of Mines

5:05 p.m. Modeling and Prediction of Non-Stationary Gaussian Fields with Application to Wind Data in Saudi Arabia—♦Amanda Lenzi, King Abdullah University of Science and Technology; Marc Genton, King Abdullah University of Science and Technology; Stefano Castruccio, University of Notre Dame; Håvard Rue, King Abdullah University of Science and Technology

5:25 p.m. Assessing Wind Energy Resources in the New Mega-City NEOM—♦Marc Genton, King Abdullah University of Science and Technology

5:45 p.m. Floor Discussion

**65**

**CC-706**

**■ ● New Methods for Identifying and Testing Heterogeneous Treatment Effects in One or a Pair of Studies—Topic Contributed**

Health Policy Statistics Section, Social Statistics Section, Section on Statistics in Epidemiology

Organizer(s): Amelia M Haviland, Carnegie Mellon University - Heinz College

Chair(s): Amelia M Haviland, Carnegie Mellon University - Heinz College

4:05 p.m. Inference for the Smoothed Proportion Whose Average Treatment Effect Exceeds a Threshold—♦Jonathan Levy,

4:25 p.m. Proposing and Testing Sub-Groups with Heterogeneous Treatment Effects: a Sequence of Two Studies—♦Rahul Ladhania, Carnegie Mellon University; Amelia M Haviland, Carnegie Mellon University - Heinz College; Neeraj Sood, University of Southern California; Ateev Mehrotra, Harvard Medical School

4:45 p.m. Discovering Heterogeneous Exposure Effects in Air Pollution Studies—♦Kwonsang Lee, Harvard University; Dylan Small, University of Pennsylvania; Francesca Dominici, Harvard T.H. Chan School of Public Health

5:05 p.m. Best Practices for Detecting Treatment Effect Heterogeneity in Multisite Trials—♦Luke Miratrix, Harvard University

5:25 p.m. Floor Discussion

**66**

**CC-301**

**■ ● Improving Data Collection: Challenges in Survey Practice—Topic Contributed**

Government Statistics Section, Social Statistics Section, Survey

## Research Methods Section

Organizer(s): Daniel Yang, U.S. Bureau of Labor Statistics  
Chair(s): Phil Kott, RTI

4:05 p.m.	Leveraging Auxiliary Information on Marginal Distributions in Nonignorable Models for Item and Unit Nonresponse in Surveys—♦Olanrewaju Michael Akande, Duke University; Gabriel Madson, Duke University; D. Sunshine Hillygus, Duke University; Jerry Reiter, Duke University
4:25 p.m.	Improving Employer Data Collection- the Journey to Modernization of the U.S Equal Opportunity Commission's Employer Information EEO-1 Survey—♦Rashida Dorsey, US EEOC; Margaret Noonan, U.S. Equal Employment Opportunity Commission
4:45 p.m.	Assessing How a Household Survey Is Perceived by Respondents—♦Daniel Yang, U.S. Bureau of Labor Statistics
5:05 p.m.	Identifying Data Quality Outliers with Web Survey Response Times: Evaluation and Best Practices—♦Y. Patrick Patrick Hsieh, RTI International; Joe Murphy, RTI International
5:25 p.m.	Multivariate Unit-Level Models for Non-Gaussian Survey Data Under Informative Sampling Designs—♦Paul Parker, University of Missouri; Scott H. Holan, University of Missouri/ U.S. Census Bureau; Ryan Janicki, U.S. Census Bureau
5:45 p.m.	Floor Discussion

67

CC-203

## ● Believable Big Bayes: Large-Scale Bayesian Inference with Finite-Data Guarantees—Topic Contributed

SSC, International Society for Bayesian Analysis (ISBA), Section on Bayesian Statistical Science, Section on Statistical Computing

Organizer(s): Trevor Campbell, University of British Columbia  
Chair(s): Tamara Broderick, Massachusetts Institute of Technology

4:05 p.m.	Variational Inference You Can Trust: a New Approach to Boosting—♦Trevor Campbell, University of British Columbia
4:25 p.m.	A Scalable, Robust Bayesian Approach to Finding Mutational Signatures in Human Cancer—♦Jonathan Huggins, Harvard School of Public Health
4:45 p.m.	Detecting Anomalous Structure in Multivariate Data Streams—♦Alexander Fisch, Lancaster University; Idris Eckley, Lancaster University; Paul Fearnhead, Lancaster University
5:05 p.m.	Diffusion-Stein Sample Quality Measures for Distributions in Finite and Infinite Dimensions—♦Andrew Duncan, Imperial College London
5:25 p.m.	Generalized Bilinear Models for Bias Correction in Large-

Scale Genomics Data—♦Jeffrey Miller, Harvard TH Chan School of Public Health

5:45 p.m. Floor Discussion

68

CC-107

## ■ ● Advancements in Seasonality Modeling in the Era of Complex Data—Topic Contributed

Section on Statistics in Epidemiology, Section on Teaching of Statistics in the Health Sciences, Committee on Women in Statistics

Organizer(s): Elena N Naumova, Tufts University  
Chair(s): Vyacheslav Lyubchich, University of Maryland Center for Environmental Science

4:05 p.m.	Harmonization of Global and Local Calendars: What, When and Where?—♦Elena N Naumova, Tufts University
4:25 p.m.	Assessing Seasonality in Cohort Studies, Hospitalization Records, and Surveillance Systems—♦Tania Alarcon Falconi, Tufts University; Elena N Naumova, Tufts University
4:45 p.m.	The Use of Mathematical and Computational Models to Guide the Healthcare-Associated Infection Prevention Strategies—♦Eric Lofgren, Washington State University
5:05 p.m.	Seasonality Highlights Trends and Conditions Associated with Shellfish-Borne Vibrio Parahaemolyticus—♦Meghan Hartwick, UNH; Stephen Jones, UNH
5:25 p.m.	Disc: Al Ozonoff, Harvard Medical School
4:45 p.m.	Floor Discussion

## Topic Contributed Panels 4:00 p.m.—5:50 p.m.

69

CC-603

## ■ ● Deming's Statistical Legacy—Topic Contributed

History of Statistics Interest Group, Committee on Applied Statisticians

Organizer(s): Joyce N Orsini, Fordham University Gabelli School of Business

Chair(s): John L. Eltinge, United States Census Bureau

Panelists: ♦Joyce N Orsini, Fordham University Gabelli School of Business  
♦Ronald Snee, Snee Associates  
♦Ronald Moen, API

5:40 p.m. Floor Discussion

**70**

**■ Science of Test and Advancements in Reliability Modeling—Topic Contributed**

**Section on Statistics in Defense and National Security, Government Statistics Section, Committee on Applied Statisticians**

Organizer(s): Raymond Hill, Air Force Institute of Technology

Chair(s): Laura Freeman,

Panelists: ♦ Raymond Hill, Air Force Institute of Technology  
♦ Douglas Montgomery, ASU  
♦ G. Geoff Vining, Va Tech  
♦ Eric Chicken, Florida State University  
♦ Edward Pohl, University of Arkansas  
♦ Susan Sanchez, Naval Postgraduate School

5:40 p.m. Floor Discussion

**CC-703**

Equations (GEE) in the Phenome -Wide Association

Study (PheWAS) Setting—♦ Minh Chau Nguyen, University of Colorado Denver; Erin Austin, University of Colorado Denver

5:35 p.m.

Estimation and Inference of Heteroskedasticity Models with Latent Semiparametric Factors for Multivariate Time Series—♦ Lyuou Zhang,

**Contributed Sessions 4:00 p.m.—5:50 p.m.**

**71**

**■ ● Longitudinal/Correlated Data—Contributed**

**Biometrics Section**

Chair(s): Zheyu Wang, Johns Hopkins University

4:05 p.m. Empirical Frequency Band Analysis of Nonstationary Time Series—♦ Scott Alan Bruce, George Mason University; Cheng Yong Tang, Temple University; Martica Hall, University of Pittsburgh; Rob Krafty, University of Pittsburgh  
4:20 p.m. Methods for Analyzing Continuous Outcome from Stratified Cluster Randomized Trials—♦ Sayem Borhan, McMaster University; Lehana Thabane, McMaster University  
4:35 p.m. Detecting Treatment Differences in Group Sequential Multivariate Longitudinal Studies with Covariate Adjustment—♦ Neal Jeffries, National Heart, Lung, and Blood Institute, NIH; Nancy Geller, National Institutes of Health, NHLBI; James Troendle, National Institutes of Health  
4:50 p.m. Statistical Inference for Crossover Design with Functional Responses—♦ Salil Koner, North Carolina State University; Arnab Maity, North Carolina State University; Ana-Maria Staicu, North Carolina State University

5:05 p.m. Identification of Disease Subtypes Using Multivariate Longitudinal Data: a Comparison of Growth Curve Mixture Models and a Two-Stage Cluster Analysis Approach—♦ Benjamin E. Leiby, Thomas Jefferson University; Md Jobayer Hossain, Nemours Childrens Healthcare Systems; Ayako Shimada, Thomas Jefferson University

5:20 p.m. A Comparison of the Power of Generalized Linear Regressions (GLM) and Generalized Estimating

**CC-106**

**72**

**Semiparametric Modeling—Contributed**

**Biometrics Section**

Chair(s): John E Kolassa, Rutgers, the State University of New Jersey

4:05 p.m.

A Fast Score Test for Generalized Mixture Models—♦ Rui Duan, University of Pennsylvania; Yang Ning, Cornell University; Shuang Wang, Columbia University; Bruce Lindsay, Pennsylvania State University; Raymond J. Carroll, Texas A & M University; Yong Chen, University of Pennsylvania

4:20 p.m.

Semiparametric Spatial Mixed Effects Change Points Single Index Model—♦ Hamdy F. F. Mahmoud, Virginia Tech; Inyoung Kim, Virginia Tech

4:35 p.m.

Location Estimation for Symmetric Log-Concave Densities—♦ Nilanjana Laha,

4:50 p.m.

Double Deep Learning for Adjusting Complex Confounding Structures—♦ Xinlei Mi, Columbia University

5:05 p.m.

Semiparametric Maximum Likelihood for Logistic Regression with Misclassified Response and Covariate Measurement Error—♦ Sarah Lotspeich, Vanderbilt University; Bryan E Shepherd, Vanderbilt University School of Medicine; Pamela Shaw, University of Pennsylvania; Ran Tao, Vanderbilt University Medical Center

5:20 p.m.

Semiparametric Sufficient Dimension Reduction for Populations with Structured Heterogeneity—♦ Jared Davis Huling, The Ohio State University; Menggang Yu, University of Wisconsin-Madison

5:35 p.m.

Identification and Estimation of a Semiparametric Single Index Transformation Model—♦ Yingqian Lin, Guanghua School of Management; Yundong Tu, Peking University, Guanghua School of Management and Center for Statistical Science

**73**

**CC-112 Alternative Designs and Related Topics—Contributed**

**Biopharmaceutical Section**

Chair(s): John Han,

4:05 p.m.

Estimating Responder Status in Sequential Multiple Assignment Randomized Trials (SMARTs)—♦ Keighly

SUNDAY

# JSM 2019 | SUNDAY GENERAL PROGRAM SCHEDULE

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

SUNDAY

<p><b>74</b> <span style="float: right;"><b>CC-507</b></span></p> <p><b>Statistical Methods and Applications: Domestic and International—Contributed</b></p> <p><b>Business and Economic Statistics Section</b></p> <p>Chair(s): Emily Lei Kang, University of Cincinnati</p>	<p><b>75</b> <span style="float: right;"><b>CC-710</b></span></p> <p><b>Probability and Statistics—Contributed</b></p> <p><b>IMS</b></p> <p>Chair(s): Mohamad Kazem Shirani Faradonbeh, University of Florida</p>
<p>4:05 p.m. Impacting Policy by Estimating Causal Links—♦Hrishikesh Vinod, Fordham University, NY</p>	<p>4:05 p.m. The New Bivariate Lomax-Lomax and Other Similar Distributions and Related Applications Including Big Data Analytics—♦Makarand Vishnu Ratnaparkhi, Wright State University; Akanksha S Kashikar, Savitribai Phule Pune University</p>
<p>4:20 p.m. Asymptotically Unbiased Inference for a Panel VAR Model with P Lags—♦Luis Melo, Banco De La Republica; Juan Sebastian Cubillos, Banco de la Republica</p>	<p>4:20 p.m. Conditions on Identifiability of Finite Mixtures of Truncated Poisson Distributions—♦Mozhdeh Forghani, University of Northern Colorado; Khalil Shafie, University of Northern Colorado</p>
<p>4:35 p.m. Nonparametric Estimation and Testing for Positively Quadrant Dependent Copula—♦Lu Lu, North Carolina State University; Sujit Ghosh, North Carolina State Univ.</p>	<p>4:35 p.m. A New Approach to the Expected Euler Characteristic—♦Khalil Shafie, University of Northern Colorado</p>
<p>4:50 p.m. Statistical Identification of Productivity Changes: Railroads, 1946-1979—♦Robert Reynolds, Brattle Group; Sarah Wolfolds, Cornell University</p>	<p>4:50 p.m. Frequentist Inference Without Repeated Sampling—♦Paul Vos, East Carolina University</p>
<p>5:05 p.m. ANALYSIS of TRENDS and DETERMINANTS of MORTALITY in the KINGDOM of SAUDI ARABIA—♦Ashraf Ahmed, Morgan State University-Institute for Urban Research; Samar Al Abbas, Morgan State University</p>	<p>5:05 p.m. Estimation in the Popularity Adjusted Block Model—♦Ramchandra Rimal, Univ. of Central Florida; Marianna Pensky, University of Central Florida</p>
<p>5:20 p.m. On the Use of Incomplete Moments for Measuring Income Inequalities—♦Sayed A Mostafa, North Carolina A&amp;T State University; Ibrahim A Ahmad, Oklahoma State University</p>	<p>5:20 p.m. Cross-Validation Nonparametric Bootstrap Study of the Linhart-Volkers-Zucchini Out-Of-Sample Prediction Error Formula for Logistic Regression Modeling—♦Richard Golden, University of Texas At Dallas; Shaurabh Nandy, Foxbat Research; Vishal Patel, Foxbat Research</p>
<p>5:35 p.m. Floor Discussion</p>	<p>5:35 p.m. Statistical Inference for Online Decision-Making: In a Contextual Bandit Setting—♦Haoyu Chen, North Carolina State University; Wenbin Lu, North Carolina State University; Rui Song, North Carolina State University</p>
<p><b>76</b> <span style="float: right;"><b>CC-504</b></span></p> <p><b>To Open Source, or Not—Contributed</b></p> <p><b>Section for Statistical Programmers and Analysts</b></p> <p>Chair(s): Joshua Hewitt, Colorado State University</p>	<p><b>76</b> <span style="float: right;"><b>CC-504</b></span></p> <p><b>To Open Source, or Not—Contributed</b></p> <p><b>Section for Statistical Programmers and Analysts</b></p> <p>Chair(s): Joshua Hewitt, Colorado State University</p>
<p>4:05 p.m. Doubly Distributed and Integrated Inference for Correlated Data with Heterogeneous Parameters—♦Emily Charlotte Hector, University of Michigan; Peter X.K. Song , School of Public Health, University of Michigan</p>	<p>4:05 p.m. Doubly Distributed and Integrated Inference for Correlated Data with Heterogeneous Parameters—♦Emily Charlotte Hector, University of Michigan; Peter X.K. Song , School of Public Health, University of Michigan</p>
<p>4:20 p.m. A Bayesian Approach to the Measurement Error Problem in Regression—♦Ananda Jayawardhana, Pittsburg State University</p>	<p>4:20 p.m. A Bayesian Approach to the Measurement Error Problem in Regression—♦Ananda Jayawardhana, Pittsburg State University</p>
<p>4:35 p.m. Histogram Principal Component Analysis in R Shiny—♦Sun Makosso-kallyth, SM Analytics; Brahim Brahim, InfoVisuCA</p>	<p>4:35 p.m. Histogram Principal Component Analysis in R Shiny—♦Sun Makosso-kallyth, SM Analytics; Brahim Brahim, InfoVisuCA</p>
<p>4:50 p.m. TensorFlow Versus H20, Predicting the SandP500—♦Kenneth Davis,</p>	<p>4:50 p.m. TensorFlow Versus H20, Predicting the SandP500—♦Kenneth Davis,</p>
<p>5:05 p.m. Model-Based Clustering Using Adjacent-Categories Logit Models via Finite Mixture Model—♦Lingyu Li, Victoria University of Wellington; Ivy Liu, Victoria University</p>	<p>5:05 p.m. Model-Based Clustering Using Adjacent-Categories Logit Models via Finite Mixture Model—♦Lingyu Li, Victoria University of Wellington; Ivy Liu, Victoria University</p>

of Wellington; Richard Arnold, Victoria University of Wellington	4:35 p.m.	Spectral Estimation Using Multitaper Whittle Methods with a Lasso Penalty—♦Shuhan Tang, The Ohio State University; Peter F. Craigmile, The Ohio State University; Yunzhang Zhu, The Ohio State University
5:20 p.m. Report Building: SAS and Microsoft Word VBA Made Easy—♦Scott Kreider,	4:50 p.m.	A Smooth Block Bootstrap for Quantile Regression with Time Series—♦Karl Gregory, University of South Carolina; Daniel J. Nordman, Iowa State University; Soumendra N Lahiri, North Carolina State University
5:35 p.m. Floor Discussion	5:05 p.m.	Nonparametric Bayes Estimation of the Reliability Function of a Coherent System—♦AKM Fazlur Rahman, University of Alabama At Birmingham; Edsel A Pena, University of South Carolina
<b>77</b> <b>Complex Designs and Composite Endpoints of Medical Device Clinical Studies and Benefit-Risk Analysis of Diagnostic Tests—Contributed</b> Section on Medical Devices and Diagnostics Chair(s): Jianjin Xu, FDA/CDRH	5:20 p.m.	The Stationary Jackknife—♦Weilian Zhou, North Carolina State University; Soumendra N Lahiri, North Carolina State University
4:05 p.m. Survey of Composite Endpoints in Therapeutic PMA Submissions—♦Rajesh Nair, CDRH/FDA; Natasha Sahr, St. Jude's Children's Hospital; Ja-An Lin, FDA/CDRH	5:35 p.m.	Targeted Learning of the Population Size Based on Capture-Recapture Designs—♦Yue You, Biostatistics, UC Berkeley; Mark van der Laan, UC Berkeley; Nicholas Jewell, Biostatistics, UC Berkeley; Robin Mejia, Carnegie Mellon University
4:20 p.m. A Simulation of Various Missing Data Imputation Methods in the Application of Composite Endpoint—♦Ja-An Lin, FDA/CDRH; Rajesh Nair, CDRH/FDA; Natasha Sahr, St. Jude's Children's Hospital		
4:35 p.m. A Practical Perspective: Application of the Generalized Approach for Adaptive Design—♦Jin Wang, Abbott Vascular; juanjuan li, abbott; Yu Shu, Abbott; xiaolu su, abbott		
4:50 p.m. Survival Analysis of Hierarchical Learning Curves in Assessment of Cardiac Device and Procedural Safety—♦Usha Govindarajulu, SUNY Downstate Medical Center; Sandeep Bedi, SUNY Downstate; Aaron Kluger, Baylor University; Frederic Resnic, Lahey Hospital and Medical Center		
5:05 p.m. Proposing How to Establish Analytical Measuring Range When the Comparator's Range Is Shorter in Method Comparison Studies—♦Kyungsook Kim, FDA; Meijuan Li, FDA		
5:20 p.m. Benefit-Risk (BR) Evaluation for Diagnostic Tests—♦Jeng Mah, Beckman Coulter		
5:35 p.m. Floor Discussion		
<b>78</b> <b>Nonparametric Modeling—Contributed</b> Section on Nonparametric Statistics Chair(s): Richard Payne, Eli Lilly & Company		
4:05 p.m. Efficient Nonparametric Estimation of Population Size from Incomplete Lists—♦Manjari Das, Carnegie Mellon University; Edward Kennedy, Carnegie Mellon University	4:05 p.m.	Hypothesis Testing in Functional Linear Concurrent Regression—♦Rahul Ghosal, North Carolina State University; Arnab Maity, North Carolina State University
4:20 p.m. Statistical Estimation of Context Set Models—♦Zsolt Talata, University of Kansas	4:20 p.m.	Multivariate Functional Data Clustering with Variable Selection and an Application to Sensory Data—♦Zhongnan Jin, Virginia Tech; Yili Hong, Virginia Tech
<b>CC-111</b>	4:35 p.m.	Estimating Plant Growth Curves and Derivatives by Modeling Crowdsourced Imaged-Based Data—♦Haozhe Zhang, Iowa State University; Dan Nettleton, Iowa State University; Stefan Hey, Iowa State University; Talukder Jubery, Iowa State University; Patrick Schnable, Iowa State University
	4:50 p.m.	Historical and Restricted Function-On-Function Regression Models—♦Ruiyan Luo, Georgia State University; Xin Qi, Georgia State University
	5:05 p.m.	Statistical Analysis of Partially Observed Shapes in Two Dimensions with Applications in Biological Anthropology—♦Gregory Matthews, ; Ofer Harel, Dept of Statistics, U of Connecticut; Juliet Brophy, Louisiana State University ; George Thiruvathukal, Loyola University Chicago
	5:20 p.m.	Functional Regression for Highly Densely Observed Data with Novel Regularization—♦Xin Qi, Georgia State University; Ruiyan Luo, Georgia State University
<b>CC-712</b>		

<p><b>80</b></p> <p><b>Graphical Models and Causal Inference—Contributed Section on Statistical Learning and Data Science</b></p> <p>Chair(s): Sai Kumar Popuri, Demand Forecasting Group at Walmart Labs</p>	<p>5:35 p.m. A Novel Nonparametric Clustering Method for Longitudinal Data—♦Junyi Zhou, Indiana University; Ying Zhang, University of Nebraska Medical Center</p>	<p>5:20 p.m. GAMLSS—♦William Aeberhard, Stevens Institute of Technology; Eva Cantoni, University of Geneva; Giampiero Marra, University College London; Rosalba Radice, University of London</p>
	<p>4:05 p.m. Learning Latent Network Structure from High-Dimensional Multivariate Point Processes—♦Biao Cai, University of Miami; Emma Jingfei Zhang, University of Miami; Yongtao Guan, University of Miami</p>	<p>5:35 p.m. Uniformly Consistently Estimating the Proportion of False Null Hypotheses via Lebesgue-Stieltjes Integral Equations—♦Xiongshi Chen, Washington State University</p>
	<p>4:20 p.m. Causal Inference Under Network Interference with Noise—♦Wenrui Li, Boston University; Eric Kolaczyk, Boston University; Daniel L Sussman, Boston University</p>	<p>Factor and Idiosyncratic Empirical Processes—♦Jiangyan Wang, Nanjing Audit University; Xinbing Kong, Nanjing Audit University; Jinbao Xing, Soochow University; Chao Xu, Nanjing Audit University; Chao Ying, Soochow University</p>
	<p>4:35 p.m. Gaussian DAGs on Network Data—♦Hangjian Li, UCLA; Qing Zhou, UCLA</p>	
	<p>4:50 p.m. Per-Family Error Rate Control for Gaussian Graphical Model via Knockoffs—♦Siliang Gong, University of Pennsylvania; Qi Long, University of Pennsylvania; Weijie Su, University of Pennsylvania</p>	
	<p>5:05 p.m. Using Cyclic Structure to Improve Inference on Networks—♦Behnaz Moradjamei, Kansas State University; Michael Higgins, Kansas State University</p>	
	<p>5:20 p.m. Estimation in Additive Exposure Models—♦Kelly Kung, Boston University; Daniel L Sussman, Boston University</p>	
	<p>5:35 p.m. Bayesian Framework for Predictive and Causal Modeling Using BART—♦Yizhen Xu, Brown University; Tao Liu, Brown University; Rami Kantor, Brown University; Ann Mwangi, Moi University; Michael Daniels, University of Florida; Joseph Hogan, Brown University</p>	
		<p><b>82</b></p> <p><b>Statistical Methods for Disease Prevention and Prediction—Contributed Section on Statistics in Epidemiology</b></p> <p>Chair(s): Yujia Pan, University of Michigan</p>
		<p>4:05 p.m. A Proposed Tail Probability Model to Complement the 2000 CDC Growth Charts—♦Rong Wei, National Center for Health Statistics; Van Parsons, National Center for Health Statistics</p>
<p><b>81</b></p> <p><b>Regression, Distribution and Inference—Contributed International Indian Statistical Association</b></p> <p>Chair(s): Saonli Basu, University of Minnesota, Biostatistics SPH</p>	<p>4:05 p.m. Cholesky Normal Distribution in the Space of Symmetric Positive-Definite Matrices—♦Benoit Ahanda, Texas Tech University/Bradley University</p>	<p>4:20 p.m. Determinants of Inter-Individual Variation in Nevus Counts Among Children—♦Jaya M Satagopan, Memorial Sloan Kettering Cancer Center; Ariel Chernofsky, Boston University; Qin Zhou, Memorial Sloan Kettering Cancer Center; Stephen W Dusza, Memorial Sloan Kettering Cancer Center; Allan Halpern, Memorial Sloan Kettering Cancer Center; Irene Orlow, Memorial Sloan Kettering Cancer Center</p>
	<p>4:20 p.m. On Two Normal Mixture Models of the Classical Method of Moments—♦Ray-Shine Lee, Shine-In Quantitative Research</p>	<p>4:35 p.m. Frailty Model to Account for Unmeasured Heterogeneity in SEER Registry Data: An Illustration to Estimate Race-Ethnic Mortality Risk in Pediatric Acute Myeloid Leukemia—♦Hacene Boukari, Delaware State University; Fatima Boukari, Delaware State University; Md Jobayer Hossain, Nemours Childrens HealthCare Systems</p>
	<p>4:35 p.m. Tolerance Limits for Normal Mixtures—♦Shin-Fu Tsai, National Taiwan University</p>	<p>4:50 p.m. BMI, Alcohol, and Prostate Cancer—♦Negasi Beyene, CDC/NCHS</p>
	<p>4:50 p.m. General Linear Regression Model Approach to Estimate Location and Scale Parameters of Burr Type III Distribution—♦Woosuk Kim, Slippery Rock University</p>	<p>5:05 p.m. Predicting Ovarian Cancer Risk Using Longitudinal Prognostic Methods—♦Yongli Han, National Cancer Institute; Danping Liu, National Cancer Institute</p>
	<p>5:05 p.m. Robust Fitting and Smoothing Parameter Selection for</p>	<p>5:20 p.m. Bayesian Semiparametric Approach to Constrained ROC Curves Using Placement Values—♦Soutik Ghosal, Eunice Kennedy Shriver National Institute of Child Health and Human Development; Zhen Chen, Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)</p>
		<p>5:35 p.m. Floor Discussion</p>

**83**

**Applications in Surveys and Social Science—Contributed**  
**Government Statistics Section, Social Statistics Section**  
 Chair(s): Ashley Clark, Indiana University

4:05 p.m.	Measures of Variance Across CPI Populations—♦Joshua Klick, U.S. Bureau of Labor Statistics; Owen Shoemaker, U.S. Bureau of Labor Statistics
4:20 p.m.	A Multivariate Spatio-Temporal Model of Opioid Overdose Deaths in Ohio—♦Staci Hepler, Wake Forest University; David Kline, The Ohio State University; Lance Waller, Emory University
4:35 p.m.	Adaptive Log-Linear Zero-Inflated Generalized Poisson Autoregressive Model with Applications to Crime Counts Data—♦Xiaofei Xu, National University of Singapore-Faculty of Science; Ying Chen, National University of Singapore; Xian-cheng Lin, University of Science and Technology of China; Cathy W. S. Chen, Feng Chia University, Taichung, Taiwan
4:50 p.m.	Using Paradata to Inform Methodological Improvements to Survey Programs—♦Jeffrey Gonzalez, Bureau of Labor Statistics
5:05 p.m.	Causal Inference for Policy Analysis: When Programs for Some Affect Outcomes for Others—♦Daniel Wilmoth, U.S. Small Business Administration
5:20 p.m.	Floor Discussion

**CC-302**

5:20 p.m.

Connecting Disconnected Designs—♦Yanming Di, Oregon State University

5:35 p.m.

A Sandwich Smoother for Spatio-Temporal Arrays and Time Series—♦Joshua French, University of Colorado Denver; Piotr Kokoszka, Colorado State University

**84**

**Environmental Applications—Contributed**  
**Section on Statistics and the Environment**  
 Chair(s): Julia Benoit, University of Houston

4:05 p.m.	Hyperbolic Property of Earthquake Networks—♦Karla Henricksen, Ilya Zaliapin, University of Nevada, Reno
4:20 p.m.	A Glimpse into the iElectricity Initiative" at the U.S. Energy Information Administration—♦Greg Lawson, U.S. Energy Information Administration; April Lee, U.S. Energy Information Administration
4:35 p.m.	Transitioning to a New Publication Standard for Official Crops County Estimates—♦Nathan Cruze, USDA National Agricultural Statistics Service; Linda J Young, USDA National Agricultural Statistics Service
4:50 p.m.	Uncertainty Quantification for Glacier Mass Balance Measurement—♦Laura Boehm Vock, Gustavus Adolphus College; Jeff La Frenierre, Gustavus Adolphus College
5:05 p.m.	Revisiting Environmental Kuznets Curve in China: a Spatial Dynamic Panel Data Approach—♦Hsuan-Yu CHANG, Peking University, Guanghua School of Management; Jihai Yu, Peking University, Guanghua School of Management

**CC-707**

5:05 p.m.

The Impact of Rater Characteristics on Agreement and Association Using Ordinal Scales—♦Don Edwards, University of South Carolina; Kerrie Nelson, Boston University

4:20 p.m.

Missing Data Imputation for Classification Problems—♦Arkopal Choudhury, University of North Carolina at Chapel Hill; Michael Kosorok, University of North Carolina at Chapel Hill

4:35 p.m.

Title: Structure Penalized Trees for Ensemble Methods -Robust Prediction for Annual Outcome Data—♦Grant D Brown, University of Iowa

4:50 p.m.

Classification with Imperfect Training Labels—♦Timothy I. Cannings, University of Edinburgh; Yingying Fan, University of Southern California; Richard Samworth, University of Cambridge

5:20 p.m.

Confidence Intervals for the Performance of a Sequence of Diagnostic Tests—Beau Nunnally, Air Force Institute of Technology; ♦Christine Schubert Kabban, Air Force Institute of Technology

5:35 p.m.

Assessment of Classifier Performance Using a Reference Classifier with Known Performance and an Unlabeled Dataset—♦Alexej Gossmann, U.S. Food and Drug Administration, Center for Devices and Radiological Health; Weijie Chen, Food and Drug Administration; Berkman Sahiner, U.S. Food and Drug Administration, Center for Devices and Radiological Health

5:50 p.m.

Sensitivity Testing: Issues and Solutions—♦David H. Collins, Los Alamos National Laboratory; Kimberly Kaufeld, Los Alamos National Laboratory; Michael S. Hamada, Los Alamos National Laboratory; Richard Warr, Brigham Young University

**Contributed Poster Presentations 4:00 p.m.—4:45 p.m.**

**86**

**SPEED: Data Challenge Part 2—Contributed**  
**Government Statistics Section, Section for Statistical Programmers and Analysts, Section on Statistical Computing**

**CC-101**

**Machine Learning in Biomedical Data—Contributed**  
**ENAR, WNAR**

Chair(s): Yuchen Yang, Johns Hopkins University

SUNDAY

Chair(s): Wendy L Martinez, Bureau of Labor Statistics

**Government Statistics Section**

- 1 Measuring Gentrification Over Time with the NYCHVS—  
♦ Robert Montgomery, NORC; Quentin Brummet, NORC; Nola du Toit, NORC at the University of Chicago; Peter Herman, NORC at the University of Chicago; Edward Mulrow, NORC at the University of Chicago
- 2 Data Challenge Expo—♦ Darcy Hille, Merck & Company Inc; Ellen Snyder, Merck
- 3 Interactive Visualization of Housing Condition Changes in NYC—♦ Qi Qi, University of Connecticut; Jun Yan, University of Connecticut
- 4 Findings from Analysis and Visualization of the New York City Housing and Vacancy Survey Data—Nels Grevstad, Metropolitan State University of Denver; ♦ Rachel Rosebrook, Metropolitan State University of Denver; Lance Barto, Metropolitan State University of Denver; Gil Leibovich, Metropolitan State University of Denver; Elizabeth Foster, Metropolitan State University of Denver; ThienNgo Le, Metropolitan State University of Denver; Kelsey Smith, Metropolitan State University of Denver; Nathanael Whitney, Metropolitan State University of Denver; Zoe Girkin, Metropolitan State University of Denver; Ahern Nelson, Metropolitan State University of Denver; Karan Bhargava, Metropolitan State University of Denver; Alex Whalen-Wagner, Metropolitan State University of Denver; Gemma Hoepfner, Metropolitan State University of Denver; Larry Breeden, Metropolitan State University of Denver; Ayako Zrust, Metropolitan State University of Denver; Travis Rebhan, Metropolitan State University of Denver; Anayeli Ochoa, Metropolitan State University of Denver
- 5 NYCHVS in the ASA Data Challenge Expo: An Attempt to Assess the Housing Quality and Price—♦ Younouss Ouata, university of Central Arkansas; Sharif Mahmood, ; Sista Coulibaly, UCA
- 6 Measuring Gentrification: a Data Driven Approach—♦ Steven Stier, ; Hend Aljobaily, University of Northern Colorado; Kofi Wagya, University of Northern Colorado; Michael Odoro-Safo, University of Northern Colorado
- 7 Changes in Quality Housing Index in New York City—♦ Tuan Nguyen, University of Evansville; Mark Mozina, University of Evansville; Colton Albin, University of Evansville; Xianrui She, University of Evansville; Andrew Moore, University of Evansville
- 8 New York City: Is the City Under an Affordability Crisis? a Multi Layer Analysis—♦ Jhonatan Medri, Utah State University; Braden Probst,
- 9 Statistical Analysis of the Association Between Housing Quality/Gentrification and Resident Behaviors in New York City—♦ Hon Keung Tony Ng, Southern Methodist University; Leqi Chen, Southern Methodist University; Jingzhou Liu, Southern Methodist University; Lynne Stokes, Southern Methodist University; Lang Xu, Southern Methodist University; Greg Guggenmos, Southern Methodist University; Madeline Hamilton, Southern Methodist University
- 10 University of Virginia Undergraduate Competition Winner Entry for Data Challenge Expo 2019—♦ Jordan Rodu, University of

Virginia

**Section on Statistical Computing**

- 11 Comparing NYCHVS Responses About Housing Issues to NYC 311 Complaint Records—♦ Letisha Smith,

**Government Statistics Section**

- 12 Immigration Generation Status to Quality of Life Over Time—  
♦ Alison Tuiyott, Miami University of Ohio; Thomas J Fisher, Miami University; Karsten Maurer, Miami University

**Section for Statistical Programmers and Analysts**

- 13 An Analysis of Rent-Control Policy on Housing Quality—  
♦ Benjamin Schweitzer, Miami University; Thomas J Fisher, Miami University; Karsten Maurer, Miami University

**Government Statistics Section**

- 14 An Analysis of Immigrants and House Condition in New York City—♦ Xiang Shen, George Washington University; Mingze Zhang, George Washington University
- 15 Correlates and Changes in New York City Housing Densities from 2002 to 2017—♦ Elizabeth Pirraglia, NYU School of Medicine; Matthias Altwicker, NYIT; Andrea Troxel, NYU School of Medicine

**87****CC-Hall C****SPEED: Statistics in Sports; Physical Activity/Sleep Studies, and Nonparametrics Part 2—Contributed****Section on Statistics in Sports, Biometrics Section, Survey Research Methods Section, Section on Bayesian Statistical Science, Section on Nonparametric Statistics**

Chair(s): Wendy Meiring, University of California At Santa Barbara

**Section on Statistics in Sports**

- 16 Preference Probability Based on Ranks -a New Approach Using Logistic Regression with Zero Intercept—♦ Oluwagbenga Agboola, University of Northern Colorado
- 17 Quantifying the Deception of an MLB Pitch—♦ Jason Wilson, Biola University
- 18 Application of Data Analytics and Visualization in NCAA Division III Men's Basketball—♦ Thomas Rhomberg,
- 19 Devaluing the Yurchenko Full: The Effect of NCAA Women's Gymnastics Code Modifications on Event and Total Scores—  
♦ Elizabeth Jewell, University of Michigan
- 20 Is There Racial Bias in NFL Roughing the Passer Calls?—♦ Nilesh Shah, University of Pittsburgh
- 21 Longevity of NFL Players—♦ Masaru Teramoto, University of Utah; Chad Cross, University of Nevada, Las Vegas; Daniel Cushman, University of Utah; Stuart Willick, University of Utah
- 22 Determining Optimal Skills for Beach Volleyball Partners—  
♦ Jacob Eliason, Brigham Young University; Gil Fellingham, Brigham Young University; Matthew Oehler, Brigham Young University

23 A SHINY Markov Machine for Decision-Making in Major League Baseball—♦Jason Osborne, North Carolina State University

24 The Effect Analytics Has on Canadian Basketball—♦Bruce Liska, Park View High School

25 Meta-Analysis to Quantify Properties of Quarterback Metrics—♦Julia Stiller, ; Michael Lopez, Skidmore College

### Biometrics Section

26 Weighted Regression with Covariates Derived from Discrepancies Between High-Dimensional Predictors—♦Lucia Tabacu, Old Dominion University; Andrew Leroux, JHU; Ciprian Crainiceanu, Johns Hopkins University

### Survey Research Methods Section

27 Minute-By-Minute Sleep Data: a SAS Macro to Create Summary Sleep Variables—♦Laura Grau, University of Colorado-Biostatistics; Jaron Arbet, University of Colorado; Danielle Ostendorf, University of Colorado; Edward L Melanson, University of Colorado; Jill L Kaar, University of Colorado; Victoria A Catenacci, University of Colorado; Seth A. Creasy, University of Colorado

### Biometrics Section

28 Interpretable Localized Time-Frequency Analysis via Penalized Reduced Rank Regression—♦Marie Tuft, University of Pittsburgh; Rob Krafty, University of Pittsburgh

### Survey Research Methods Section

29 Information Theoretic Measures of Diversity—♦Nikhil S Padhye, University of Texas Health Science Center at Houston; Marcia C de Oliveira Otto, University of Texas Health Science Center at Houston

### Section on Bayesian Statistical Science

30 Bayesian Semiparametric ROC Surface Estimation Under Verification Bias—♦Rui Zhu, North Carolina State University; Subhashis Ghosal, North Carolina State University

### Section on Nonparametric Statistics

31 Predicting the Success of Kickstarter Campaigns: a Bayesian Semiparametric Analysis—♦Michael Odudo-Safo, University of Northern Colorado; Han Yu, University of Northern Colorado

32 Statistical Inference for L-Moments of Specific, Common Distributions—♦Timothy Shawn Anderson, Air Force Institute of Technology; Christine Schubert Kabban, Air Force Institute of Technology; Fairul Mohd-Zaid, Air Force Research Labs

33 Faint Galaxies Detection: An Example of Guided Follow-Up with Imbalanced Data Sets—♦Niccolò Dalmasso, Carnegie Mellon University; Ann B. Lee, Carnegie Mellon University; Rafael Izbicki, Federal University of São Carlos

### Contributed Poster Presentations 5:05 p.m.—5:50 p.m.

#### 88 CC-Hall C SPEED: Causal Inference and Related Methodology Part 2—Contributed

##### Section on Statistics in Epidemiology

Chair(s): Te-Ching Chen, CDC/NCHS  
Section on Statistics in Epidemiology

1 Instrumental Variable Estimation of Weighted Local Average Treatment Effects—♦Byeong Yeob Choi, University of Texas Health Science Center at San Antonio

2 Two-Stage Residual Inclusion Under the Additive Hazards Model - an Instrumental Variable Approach with Application to SEER-Medicare Linked Data—♦Andrew Ying, University of California, San Diego; Ronghui Xu, University of California, San Diego; James Murphy, University of California, San Diego

3 Xtgeebcv: a Stata Command for Bias-Corrected Sandwich Variance Estimation for GEE Analyses of Cluster Randomized Trials—♦John A Gallis, Duke University; Fan Li, Duke University; Elizabeth L Turner, Duke University

4 Sensitivity Analysis and the Odds Ratio—♦Julian Chan, Weber State University

5 On the Identification of Individual Principal Stratum Direct, Natural Direct and Pleiotropic Effects Without Cross-World Independence Assumptions—♦Jaffer Zaidi, ; Tyler VanderWeele, Harvard University

6 Mediation Analysis with a Censored Mediator in a Case-control Study—♦Jian Wang, UT MD Anderson Cancer Center; Jing Ning, The University of Texas MD Anderson Cancer Center; Sanjay Shete, UT MD Anderson Cancer Center

7 Conditional Process Analysis: Moderated Mediation Model of Perceived Ethnic Discrimination and Binge Drinking Among Recent Latino Immigrant Youth—♦Zoran Bursac, Florida International University; Miguel Angel Cano, Florida International University; Seth J Schwartz, University of Miami

8 A Modified Partial Likelihood Score Method for Cox Regression with Covariate Error Under the Internal Validation Design—♦Xin Zhou, Yale School of Public Health; David Zucker, The Hebrew University of Jerusalem; Xiaomei Liao, AbbVie; Yi Li, University of Michigan School of Public Health; Donna Spiegelman, Yale School of Public Health

9 Multivariate One-Sided Testing in Matched Observational Studies as an Adversarial Game—♦Peter Lucas Cohen, Massachusetts Institute of Technology; Matt A. Olson, The Voleon Group; Colin B. Fogarty, Massachusetts Institute of Technology

10 Permutation Weighting—♦Drew Dimmery, Facebook; David Arbour, Adobe Research

- 11 A Calibrated Sensitivity Analysis for Matched Observational Studies with Application to the Effect of Second-Hand Smoke Exposure on Blood Lead Levels in U.S. Children—♦ Bo Zhang, Univ of Pennsylvania; Dylan Small, University of Pennsylvania
- 12 Estimation of Mediation Effect for High-Dimensional Omics Mediators with Application to the Framingham Heart Study—♦ Tianzhong Yang, The University of Minnesota Twin Cities; Jingbo Niu, Baylor College of Medicine; Han Chen, the University of Texas Health Science Center at Houston; Peng Wei, The University of Texas MD Anderson Cancer Center
- 13 Bias and Efficiency in a Matched Observational Study with Varying Cluster Size—♦ Eric KH Chow, Quantitative Sciences Unit, Stanford University School of Medicine; Rajani Kaimal, Quantitative Sciences Unit, Stanford University School of Medicine; Vedant Pargaonkar, Interventional Cardiology, Stanford University School of Medicine; Sara Bouajila, Stanford University School of Medicine; Katharine Sears-Edwards, Cardiovascular Medicine, Stanford University School of Medicine; Jennifer Tremmel, Interventional Cardiology, Stanford University School of Medicine; Manisha Desai, Stanford University Quantitative Sciences Unit
- 14 Testing for Weak Instruments in Two Sample Summary Data Multivariable Mendelian Randomisation—♦ Eleanor Sanderson, University of Bristol; Jack Bowden, University of Bristol
- 15 Estimating Uncertainty in Weighted Competing Risk Analyzes—♦ Amber Hackstadt, Vanderbilt University Medical Center; Jonathan Chipman, Vanderbilt University; Christianne L. Roumie, Vanderbilt University Medical Center, Veteran Administration Tennessee Valley VA Health; Adriana M. Hung, Vanderbilt University Medical Center; Jea Young Min, Vanderbilt University Medical Center; Carlos G Grijalva, Vanderbilt University Medical Center; Marie R Griffin, Vanderbilt University Medical Center; Robert Greevy, Vanderbilt University
- 16 Person as Population: a Longitudinal View of Single-Subject Causal Inference for Analyzing Self-TRACKED Health Data—♦ Eric J. Daza, Stanford Prevention Research Center, Stanford University School of Medicine
- 17 Causal Mediation Analysis Using Gradient Boosting Machines: Developing Methods and Software—♦ Brian G. Vegetable, RAND Corporation; Donna L. Coffman, Temple University; Daniel F. McCaffrey, Educational Testing Service
- 18 Hypothesis Testing in Nonlinear Function on Scalar Regression with Application to Child Growth Study—♦ Mityl Biswas, NC State Univ
- 19 Identify Consensus Among Match Makers: a Clustering Aggregation Perspective—♦ Yumin Zhang, Purdue University; Arman Sabbaghi, Purdue University

89

CC-Hall C

## SPEED: Survey Methods, Transportation Studies, SocioEconomics, and General Statistical Methods Part 2—Contributed

**Survey Research Methods Section, Transportation Statistics Interest Group, Quality and Productivity Section, Business and Economic Statistics Section, IMS**

**Chair(s): Georgiy Bobashev, Research Triangle Institute**

### Survey Research Methods Section

- 20 Frame Development and Sample Design for the 2018 National Survey of Children's Health—♦ Emilee Sizemore, US Census Bureau; Tracy Mattingly, US Census Bureau; Antoinette Lubich, US Census Bureau
- 21 A Modeling Approach to Compensate for Nonresponse and Selection Bias in Surveys—♦ Tien-Huan Lin, Westat; Ismael Flores Cervantes, Westat
- 22 A Comparison of Clustering Criteria for Evaluating Multivariate Stratifications of Primary Sampling Units—♦ Padraig Murphy, U.S. Census Bureau
- 23 Statistical Data Integration and Inference via Multilevel Regression and Poststratification—♦ Yajuan Si, University of Michigan
- 24 Achieving Sample Efficiency by Using Both a List Frame and an ABS Frame—♦ Karol Krotki, RTI International

### Transportation Statistics Interest Group

- 25 Comparing the Performance of Machine Learning and Semiparametric Regression Methods for Prediction of Travel Times and Flows on Urban Mass Transit Systems—♦ Daniel Graham, Imperial College London
- 26 The Relationship Between Driver Performance and Driver Workload Using Functional Data Analysis—♦ Jundi Liu, University of Washington; Erika Miller, Colorado State University; Linda Ng Boyle, University of Washington

### Business and Economic Statistics Section

- 27 Causal Impacts of New Urban Transit Provision on Air Quality: a Case Study of Jubilee Line Extension in London—♦ Liang Ma, Imperial College London; Marc E. J. Stettler, Imperial College London; Daniel Graham, Imperial College London

### Survey Research Methods Section

- 28 Comparing the Quality of Online to Interviewer-Gathered Survey Data: Preliminary Results from the 2019 Survey of Consumer Finances Web Experiment—♦ Richard Windle, Federal Reserve Board
- 29 Cluster-Stratified Outcome-Dependent Sampling in Resource-Limited Settings: Inference and Small-Sample Considerations—♦ Sara Sauer, Harvard School of Public Health; Bethany Hedd-Gauthier, Harvard Medical School; Claudia Rivera-Rodriguez, University of Auckland; Sebastien Haneuse, Harvard T.H. Chan School of Public Health

30 Bayesian Uncertainty Estimation Under Complex Sampling—♦Matthew Williams, National Science Foundation; Terrance Savitsky, Bureau of Labor Statistics

31 How Hard Is it to Remove Mode Effects in Multimode Surveys? Basic Weighting V. Three Model-Based Methods—♦Matt Jans, Randy ZuWallack, ICF; Kelly Martin, ICF; Thomas Brassell, ICF; James Dayton, ICF; Stephen Immerwahr, NYC DOHMH; Amber Levanon Seligson, NYC DOHMH; Sahnah Lim, NYU

32 Successive Difference Replication Applications—♦Timothy Trudell, ; Khoa Dong, U.S. Census Bureau; Eric Slud, U.S. Census Bureau; Robert Ashmead, U.S. Census Bureau

33 Use of Matching Algorithms to Determine Unit Eligibility—♦Brandon Hopkins, RTI International; Kimberly Ault, RTI International

#### Transportation Statistics Interest Group

34 Use of an Artificial Realistic Dataset to Compare the Performance of Different Cross-Sectional Methods for Estimating Crash Modification Factors—♦Bo Lan, University of North Carolina; Raghavan Srinivasan, University of North Carolina Highway Safety Research Center

#### Business and Economic Statistics Section

35 Does Location Matter? a Case-Study of the Influence of Geography in Measurement of Gasoline Price Inflation—♦David Popko, Bureau of Labor Statistics; Ilmo Sung, U.S. Bureau of Labor Statistics

#### Quality and Productivity Section

36 DOE Optimization of Managing Trip in Europe—♦Charles Chen, Applied Materials; Mason Chen, Mission San Jose High School, Stanford OHS; Brianna Zheng, Basis School

#### Transportation Statistics Interest Group

37 Estimating Generalized Linear Models with the Pseudo-Marginal Metropolis-Hastings Algorithm—♦Taylor Brown, University of Virginia; Tim McMurry, University of Virginia School of Medicine

#### IMS

38 Two-Step Estimation for Time Varying ARCH Models—♦Yuanyuan Zhang, ; Rong Liu, University of Toledo; Qin Shao, University of Toledo; Lijian Yang, Tsinghua University

#### Quality and Productivity Section

39 Shortest Median Length Confidence Interval for the Power of the T-Test—♦Harrison Watts, ; Subhabrata Chakraborti, University of Alabama

Through Data Science—♦Mark Glickman, Harvard University

#### Invited Poster Presentations 8:30 p.m.—10:30 p.m.

**90**

**CC-Hall C**

#### Invited EPoster Session—Invited ASA

Chair(s): Wendy Meiring, University of California At Santa Barbara

#### Section on Statistics in Imaging

1 A Geometric Approach to Pairwise Bayesian Alignment of Functional Data Using Importance Sampling—♦Sebastian Kurtek, Ohio State University

#### ASA

2 Radiomic Analysis of Computed Tomography (CT) of the Lung -- Useful Biomarker for Lung Diseases?—Nichole E Carlson, University of Colorado Anschutz; ♦Sarah Ryan, ; Tasha Fingerlin, National Jewish Health; Lisa Maier, National Jewish Health

3 Does Simulation-Based Inference Improve Student Understanding/Retention/Attitudes?—♦Beth Chance, Cal Poly - San Luis Obispo; Nathan Tintle, Dordt College

4 Object Data Analysis—♦Seunghee Choi, Florida State University; Victor Patrangenaru, Florida State University; Rob L. Paige, Missouri S & T

5 Black-Box Inference: Efficient, Scalable, Model-Free Tests for Variable Importance—♦Timothy Coleman, University of Pittsburgh; ♦Lucas Mentch, University of Pittsburgh

6 Neuroconductor: An R Platform for Medical Imaging Analysis—♦Ciprian Crainiceanu, Johns Hopkins University

7 A Data Driven Approach to Promoting Innovation and Excellence in Teaching at Higher Education Institutions—♦Kameryn Denaro, University of California, Irvine

8 Storm Surge Model Emulation and Sensitivity Analysis Using Bayesian Adaptive Splines—♦Devin Francom, Los Alamos

9 Calibrating Imperfect Geophysical Models by Fusing Data from Multiple Sources—♦Mengyang Gu, Johns Hopkins University

10 Distributed Bayesian Inference for Massive Scale Spatial/Spatio-Temporal Data—♦Rajarshi Guhaniyogi, University of California, SC

11 Data Science Through Data Visualization in the Intro Course—♦Stacey Hancock, Montana State University

12 A Case Study Comparison of Predictive Accuracy and Uncertainty Quantification Among Methods for Analyzing Large Spatial Data—♦Matthew Heaton, Brigham Young University

13 Uncertainty Quantification and Bayesian Model Calibration Applied to Stochastic Systems—♦David Higdon, Virginia Tech

#### Special Presentation 6:00 p.m.—7:00 p.m.

#### CC-Four Seasons 1

#### 2019 JSM Public Lecture—Invited

##### ASA

6:05 p.m. Data Tripper: Distinguishing Authorship of Beatles Songs

14	Estimating Heat Diffusion in the Firn of the Greenland Ice Sheet—Darren Gemoets, West Virginia University; Dylan Griffith, West Virginia University; ♦Snehalata Huzurbazar, West Virginia University; Neil Humphrey, University of Wyoming	28	An Overview of Functional Magnetic Resonance Imaging: Big Data Meets the Brain—♦Nicole Lazar, University of Georgia
29	Locally Stationary Interpolation of Argo Float Data for Improved Estimates of Ocean Climate—♦Mikael Kuusela, Carnegie Mellon University	30	Practical Heteroskedastic Gaussian Process Modeling for Large Simulation Experiments—♦Robert Gramacy, Virginia Tech
<b>Section on Statistical Learning and Data Science</b>			
15	Making an Impact in an Institutional Research Office: On Data Champions and Machine Learning—♦Richard Levine, San Diego State University; Juanjuan Fan, San Diego State University; Joshua Beemer, San Diego State University; Jeanne Stronach, San Diego State University	31	Inference in the Fréchet Regression Model for Random Objects—♦Alexander Petersen, University of California, Santa Barbara
<b>ASA</b>			
16	Switching Regimes High-Dimensional Time Series Models with Application to Dynamic Brain Connectivity—♦Hernando Ombao, King Abdullah University of Science and Technology (KAUST)		
17	Assessing Internal Variability with Few Ensemble Runs—♦Dorit Hammerling, National Center for Atmospheric Research		
18	A Simple and Consistent Estimator of Variance Explained for Vertex-Wide Structural Brain Imaging—♦Wesley Kurt Thompson, University of California, San Diego		
19	Deep Pixel-To-Pixel Learning for Single-Stage Nucleus Recognition in Digital Pathology Images—♦Fuyong Xing, University of Colorado Anschutz Medical Campus		
20	A Spatio-Temporal Model for Ecological Colonization, Growth, and Regulation—♦Perry J. Williams, University of Nevada, Reno; Xinyi Lu, Colorado State University; Mevin Hooten, Colorado Cooperative Fish and Wildlife Research Unit, Colorado State University; Jamie Womble, National Park Service, Southeast Alaska Inventory and Monitoring Network; Michael Bower, National Park Service, Southeast Alaska Inventory and Monitoring Network; George Esslinger, Alaska Science Center, U.S. Geological Survey		
21	Discovering Linear Biosignatures for Treatment Response: a Convexity-Based Clustering Approach—♦Thaddeus Tarpey, New York University		
22	Estimating High Mountain Snow Cover by Blending Satellite Data Products—♦William Kleiber, University of Colorado		
23	Educational Fun at Your Fingertips!—♦Dennis Pearl, Penn State University; ♦Lawrence M Lesser, The University of Texas at El Paso		
24	A New Approach to Bayesian Image Analysis—♦John Kornak, University of California, San Francisco		
25	Nonparametric Anomaly Detection on Time Series of Graphs—♦Dorcas Ofori-Boateng,		
26	Object Oriented Data Analysis—♦Steve Marron, University of North Carolina at Chapel Hill		
27	How to Lie with fMRI—♦Martin Lindquist, Johns Hopkins University		

# MONDAY JULY 29

## Special Presentation 8:30 a.m.—10:20 a.m.

**97** CC-Four Seasons 1  
**Introductory Overview Lecture: Likelihood Principle—Invited**  
**JSM Partner Societies**

Chair(s): Richard Levine, San Diego State University

8:35 a.m. Assessing Procedures vs. Assessing Evidence—♦ Michael Lavine, University of Massachusetts, Amherst

## Invited Sessions 8:30 a.m.—10:20 a.m.

**98** CC-607  
**■ The Multiple Adaptations of Multiple Imputation—Invited**

Survey Research Methods Section, Government Statistics Section, Social Statistics Section

Organizer(s): Joerg Drechsler, Institute for Employment Research

Chair(s): Joerg Drechsler, Institute for Employment Research

8:35 a.m. Multiple Imputation for Privacy Protection: Where Are We and Where Are We Going?—♦ Jerry Reiter, Duke University

9:00 a.m. Multiple Imputation Procedure for Record Linkage and Causal Inference to Estimate the Effects of Home-Delivered Meals—♦ Mingyang Shan, Brown University; Kali Thomas, Brown University; Roee Gutman, Brown University

9:25 a.m. Application of Multiple Imputation Methodology to Address Measurement Error Problems—♦ Trivellore Raghunathan, University of Michigan

9:50 a.m. Disc: Donald B. Rubin, Tsinghua University; Temple University; Harvard University

10:10 a.m. Floor Discussion

**99** CC-111  
**■ ● Causal Inference with Non-Traditional Designs—Invited**

IMS, Section on Statistics in Epidemiology, American Public Health Association

Organizer(s): Maya B Mathur, Harvard University

Chair(s): Maya B Mathur, Harvard University

8:35 a.m. Propensity Score Methods for Merging Observational and Experimental Data Sets—♦ Evan Rosenman, Stanford University; Art Owen, Stanford University; Michael Baiocchi, Stanford University; Hailey Banack, University at Buffalo

8:55 a.m. The Trend-In-Trend Research Design for Causal Inference—♦ Ashkan Ertefaie, University of Rochester; Dylan Small, University of Pennsylvania; Sean Hennessy, University of Pennsylvania; Xinyao Ji, University of Pennsylvania; Charles Leonard, University of Pennsylvania

9:15 a.m. Design and Analysis of Two-Stage Randomized Experiments—♦ Kosuke Imai, Harvard University; Zhichao Jiang, Harvard University

9:35 a.m. Using Individual Patient (N-Of-1) Trials for Treatment Decision-Making.—♦ Deborah Zucker, Tufts (Adjunct)

9:55 a.m. Disc: Dylan Small, University of Pennsylvania

10:15 a.m. Floor Discussion

**100** CC-709  
**■ ● Pragmatic Randomized Clinical Trials: Challenges and Impact on Clinical Practice and Health Policies—Invited**

Health Policy Statistics Section, Biopharmaceutical Section, Section on Statistics in Marketing

Organizer(s): Valentina Bayer, Boehringer Ingelheim

Chair(s): Victoria Gamerman, Boehringer Ingelheim

8:35 a.m. Key Elements in the Design of Pragmatic Randomized Clinical Trials—♦ Valentina Bayer, Boehringer Ingelheim

9:00 a.m. Estimating the Per-Protocol Effect in Pragmatic Trials—♦ Miguel Hernan, Harvard University

9:25 a.m. Generalization of Randomized Trial Results with Latent Motivation Effect—♦ Andrea B Troxel, NYU School of Medicine; Chenxiang Li, NYU School of Medicine

9:50 a.m. Data Sources Used in Pragmatic Clinical Trials: How Do the Puzzle Pieces Fit Together?—♦ Vincent Willey, HealthCore

10:15 a.m. Floor Discussion

**101** CC-706  
**● Making an Impact in Neuroscience: Advances in Statistical Methods for Brain Imaging—Invited**

SSC, Section on Statistics in Imaging, Canadian Statistical Sciences Institute

Organizer(s): Farouk Nathoo, University of Victoria  
 Chair(s): Bei Jiang, University of Alberta

8:35 a.m. Nonparametric Matrix Response Regression with Application to Calcium Imaging—♦Dehan Kong, University of Toronto

9:00 a.m. Geostatistical Modeling of Positive Definite Matrices with Applications to Diffusion Tensor Imaging—♦Dipankar Bandyopadhyay, Virginia Commonwealth University; Brian Reich, North Carolina State University; Zhou Lan, North Carolina State University; Joseph Guinness, Cornell University

9:25 a.m. Optimal Estimation in Quantile Functional Regression with Application in Imaging Genetics—♦Linglong Kong, University of Alberta

9:50 a.m. Disc: Farouk Nathoo, University of Victoria

10:10 a.m. Floor Discussion

**102** **CC-110**  
 ■● Challenges and Developments in Microbiome Data Science—Invited  
 ENAR, Section on Statistics in Genomics and Genetics, WNAR  
 Organizer(s): Zhengzheng Tang, University of Wisconsin-Madison  
 Chair(s): Long Wang, Johns Hopkins University

8:35 a.m. It's Just a Matter of Perspective - Robust Regression for Microbiome Data via Perspective M-Estimation—♦Christian Lorenz Mueller, Flatiron Institute, Simons Foundation

9:00 a.m. Modeling Evolutionary Dynamics of Bacteria in the Human Microbiome—♦Katherine S. Pollard, ASA

9:25 a.m. Beta-Diversity Discriminatory Power: Comparison of PERMANOVA, Mirkat, and Using Standard Microbiome Reference Groups—♦Mitchell Henry Gail, National Cancer Institute, Division of Cancer Epidemiology and Genetics; Yunhu Wan, National Cancer Institute, Division of Cancer Epidemiology and Genetics

9:50 a.m. Robust and Powerful Differential Composition Tests on Clustered Microbiome Data—♦Zhengzheng Tang, University of Wisconsin-Madison; Guanhua Chen, University of Wisconsin-Madison

10:15 a.m. Floor Discussion

**103** **CC-205**  
 ● New Developments on Statistical Machine Learning—Invited

IMS, Section on Statistical Learning and Data Science, International Chinese Statistical Association  
 Organizer(s): Jianqing Fan, Princeton University  
 Chair(s): Yingying Fan, University of Southern California

8:35 a.m. Deep Knockoffs Machines—♦Emmanuel Candes, Stanford University; Yaniv Romano, Stanford University; Matteo Sesia, Stanford University

9:00 a.m. Statistical and Computational Guarantees of EM with Random Initialization—♦Harrison H. Zhou, Yale University; Yihong Wu, Yale University

9:25 a.m. Single-Index Thresholding in Quantile Regression—♦Huixia Judy Wang, The George Washington University; Yingying Zhang, Fudan University; Zhongyi Zhu, Fudan University

9:50 a.m. Transfer Learning for Nonparametric Classification—♦T. Tony Cai, The Wharton School, University of Pennsylvania

10:15 a.m. Floor Discussion

**104** **CC-710**  
 ■ Communicating Teaching Through Peer-Reviewed Publication—Invited

Section on Teaching of Statistics in the Health Sciences, Section on Statistics and Data Science Education, Caucus for Women in Statistics

Organizer(s): Laila Poisson,  
 Chair(s): Laila Poisson,

8:35 a.m. Writing Statistics Tutorials for Biologists—Martin Krzywinski, Michael Smith Genome Sciences Centre; ♦Naomi S Altman, Pennsylvania State University

8:55 a.m. Statistics Education in the Health Sciences: Opportunities for Scholarship—♦Matthew Jason Hayat, Georgia State University

9:15 a.m. Creative Scholarly Works for the Statistical Educator: Teaching Resources—♦Amy Sue Nowacki, Cleveland Clinic

9:35 a.m. Opportunities to Publish in Statistics in Medicine—♦Joel B Greenhouse, Carnegie Mellon University

9:55 a.m. Disc: Felicity Enders, Mayo Clinic

10:15 a.m. Floor Discussion

**105**

■ ● **Medallion Lecture II—Invited**

IMS

Organizer(s): Rajen D Shah, University of Cambridge

Chair(s): Marina Vannucci, Rice University

8:35 a.m. Learning and Exploiting Low-Dimensional Structure in High-Dimensional Data—♦ David Dunson, Duke University

10:15 a.m. Floor Discussion

**CC-207**

to a Stochastic Solar Dynamo Model—♦ Carlo

Albert, Swiss Federal Institute of Aquatic Science and Technology (Eawag)

9:00 a.m. ABC and Forests: Where We Are and Where We Are Going—♦ Louis Raynal, Alexander Grothendieck Montpellier Institute, University of Montpellier; Alice Cleynen, Alexander Grothendieck Montpellier Institute, University of Montpellier; Jean-Michel Marin, Alexander Grothendieck Montpellier Institute, University of Montpellier

9:25 a.m. Loss-Based Bayesian Prediction—♦ David Frazier, Monash University; Gael Martin, Monash University; Ruben Loaiza-Maya, Monash University

9:50 a.m. Disc: Kerrie Mengersen, Queensland University of Technology

10:15 a.m. Floor Discussion

**106**

**CC-705**

■ ● **Administrative Income Data, Survey Data and Inequality—Invited**

Business and Economic Statistics Section, Government Statistics Section, Survey Research Methods Section

Organizer(s): Bruce D Meyer, University of Chicago

Chair(s): Marina Gindelsky, Bureau of Economic Analysis

8:35 a.m. Using Survey and Tax Data to Evaluate the Distribution of Personal Income—♦ David S. Johnson, University of Michigan; Marina Gindelsky, Bureau of Economic Analysis; Dennis Fixler, Bureau of Economic Analysis

9:00 a.m. Evaluating the Success of President Johnson's War on Poverty: Revisiting the Historical Record Using a Full-Income Poverty Measure—♦ Richard Burkhauser, Council of Economic Advisers; Kevin Corinth, Council of Economic Advisers; James Elwell, Cornell University; Jeff Larrimore, Federal Reserve Board

9:25 a.m. Estimating the Extent of Individual Income Tax Filing Noncompliance—♦ Alan H Plumley, Internal Revenue Service; Patrick Langetieg, Internal Revenue Service; Mark Payne, Internal Revenue Service

9:50 a.m. New Estimates of Poverty from the Comprehensive Income Data Set—♦ Bruce D Meyer, University of Chicago; Derek Wu, University of Chicago

10:15 a.m. Floor Discussion

**107**

**CC-203**

● **The ABC of Making an Impact—Invited**

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA), IMS

Organizer(s): Antonietta Mira, Università della Svizzera italiana and Università dell'Insubria

Chair(s): Christian Robert, Ceremade - Université Paris-Dauphine

8:35 a.m. Simulated Annealing ABC (SABC) and Its Application

108

**CC-704**

**Multivariate Extremes: Theory and Applications—Invited**

Section on Risk Analysis, IMS

Organizer(s): John P Nolan, American University

Chair(s): Aric LaBarr, Elder Research Inc.

8:35 a.m. Testing the Multivariate Regular Variation Model—♦ Chen Zhou, Erasmus University Rotterdam

8:55 a.m. Why Model the Growth of Networks?—♦ Sidney Ira Resnick, Cornell

9:15 a.m. Semiparametric Estimation for Multivariate Extremes—♦ John P Nolan, American University; Anne-Laure Fougeres, University of Lyon; Cecile Mercadier, University of Lyon

9:35 a.m. Multiple Testing and Extremes: Exact Signal Support Recovery in High Dimensions—Zheng Gao, University of Michigan; ♦ Stilian Stoev, University of Michigan

9:55 a.m. Modeling Extreme Wind Speeds Using Max-Infinity Divisible Spatial Processes—♦ Raphaël Huser, King Abdullah University of Science and Technology; Thomas Opitz, INRA; Emeric Thibaud, EPFL

10:15 a.m. Floor Discussion

**109**

**CC-703**

■ ● **Maximizing the Impact of Statistical Collaboration—Invited**

Section on Statistical Consulting, Committee on Applied Statisticians

Organizer(s): Eric Vance, LISA-University of Colorado Boulder

Chair(s): Amanda Koepke, National Institute of Standards and Technology

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

<p><b>MONDAY</b></p> <p>8:35 a.m. Essential Technical Skills for Collaborative Statisticians and Data Scientists—♦Brian Zaharatos, ; Zachary Mullen, University of Colorado Boulder</p> <p>9:00 a.m. Essential Professional Skills for Collaborative Statisticians and Data Scientists—♦Heather S Smith, Cal Poly, San Luis Obispo</p> <p>9:25 a.m. How Stat Labs Can Transform Evidence to Action for Maximum Impact—♦Eric Vance, LISA-University of Colorado Boulder</p> <p>9:50 a.m. Disc: David Morganstein, Westat</p> <p>10:10 a.m. Floor Discussion</p>	<p><b>110 CC-605</b></p> <p><b>■● Data in the 21st Century: Corporate and Non-Profit Decision Making in the Digital Age—Invited</b></p> <p>Business Analytics/Statistics Education Interest Group, Section on Statistics and Data Science Education, Business and Economic Statistics Section</p> <p>Organizer(s): Michael William Kotarinos, University of South Florida &amp; Solarbeam Capital LLC</p> <p>Chair(s): Jennifer Lewis Priestley, Kennesaw State University</p> <p>8:35 a.m. From Statistics to Artificial Intelligence: The Evolution of Data Science—♦Robert J McGrath, University of New Hampshire</p> <p>8:50 a.m. New Statistical Approaches to Financial Time Dependent Information—♦Doo Young Kim, Sam Houston State University</p> <p>9:05 a.m. New Approaches to Old Problems: Interdisciplinary Approaches to Fighting Cancer in the 21st Century—♦Ke Meng, UNC Chapel Hill</p> <p>9:20 a.m. 21st Century Equity Markets: Evaluating, Assimilating, and Integrating Information in Real-Time—♦Michael William Kotarinos, University of South Florida &amp; Solarbeam Capital LLC</p> <p>9:35 a.m. Crafting Manifolds: Application Lifecycle Analysis in a Mobile World—♦Julius D'souza, Google</p> <p>9:50 a.m. Data in the 21st Century: Corporate and Non-Profit Decision Making in the Digital Age—♦Ryan Kania, Advocates for World Health</p> <p>10:05 a.m. Floor Discussion</p>	<p><b>Chair(s): Chava Zibman, FDA Center for Devices and Radiological Health</b></p> <p>8:35 a.m. Recent Statistical Developments in Considering Real World Evidence for Regulatory Decision Making—♦Martin Ho, FDA; Weili He, AbbVie</p> <p>8:55 a.m. Propensity Score-Integrated Approaches for Incorporating Real-World Evidence in Clinical Studies—♦Chenguang Wang, John Hopkins University</p> <p>9:15 a.m. External Evidence: Latest Developments from the Eponymous Medical Device Innovation Consortium Working Group—♦Theodore Lystig, Medtronic</p> <p>9:35 a.m. Use of Past Control Observations Within a Perpetual Platform Trial—♦Kert Viele, Berry Consultants; Scott Berry, Berry Consultants</p> <p>9:55 a.m. Disc: Telba Irony, FDA CBER</p> <p>10:15 a.m. Floor Discussion</p>	
<p><b>111 CC-102</b></p> <p><b>■● Evidence Beyond Traditional Clinical Trials—Invited</b></p> <p>Section on Medical Devices and Diagnostics, Biopharmaceutical Section, Health Policy Statistics Section</p> <p>Organizer(s): Martin Ho, FDA</p>	<p><b>112 CC-109</b></p> <p><b>Statistical Challenges in the Processing and Analysis of Mobile Health Data—Invited</b></p> <p>Section on Statistics in Epidemiology, Section on Statistical Learning and Data Science, Biometrics Section</p> <p>Organizer(s): Joseph Rigdon, Stanford University</p> <p>Chair(s): Summer Han, Stanford University</p> <p>8:35 a.m. SMART for Health App Recommenders—♦Ying Kuen Ken Cheung, Columbia University</p> <p>8:55 a.m. Precision Medicine in Mobile Health Using V-Learning—Daniel Luckett, University of North Carolina at Chapel Hill; Eric B Laber, NC State University; Anna Kahkoska, University of North Carolina at Chapel Hill; David Maahs, Stanford University; Elizabeth Mayer-Davis, University of North Carolina at Chapel Hill; ♦Michael Kosorok, University of North Carolina at Chapel Hill</p> <p>9:15 a.m. Design and Sample Size Considerations for Multi-Level Motivational Messages in Micro-Randomized Trials—♦Bibhas Chakraborty, Duke-National University of Singapore Medical School</p> <p>9:35 a.m. Parameterizing Exploration—♦Jesse Clifton, NC State University; Lili Wu, North Carolina State University; Eric B Laber, NC State University</p> <p>9:55 a.m. Statistical Challenges in the Processing and Analysis of Accelerometer Data—♦Manisha Desai, Stanford University Quantitative Sciences Unit</p> <p>10:15 a.m. Floor Discussion</p>		

**Topic Contributed Sessions 8:30 a.m.—10:20 a.m.**

<b>113</b> ■● <b>New Developments on Data Integration and Data Fusion—Topic Contributed</b> Section on Statistical Learning and Data Science, Biometrics Section, ENAR Organizer(s): Gen Li, Columbia University Chair(s): Gen Li, Columbia University	<b>CC-702</b>	Pharmaceuticals; Yuanbo Song, Novartis Pharmaceutical Corporation; Ekkehard Glimm, Novartis Pharma AG	
		9:35 a.m.	Lessons Learned from Implementing ICH E9 in Phase 2 Trials Across Multiple Therapeutic Areas—♦Jared Christensen, Pfizer Research
		9:55 a.m.	Disc: Craig Mallinckrodt, PhD, Biogen
		10:15 a.m.	Floor Discussion
<b>114</b> ■● <b>Applying the ICH E9(R1) Addendum: Practical Considerations in Choosing Estimands, Estimators, and Sensitivity Analyses—Topic Contributed</b> Biopharmaceutical Section, ENAR, WNAR Organizer(s): Pilar Lim, PhD, Janssen Research & Development, LLC Chair(s): Pilar Lim, PhD, Janssen Research & Development, LLC	<b>CC-108</b>	<b>115</b> ■● <b>Novel Statistical Methods for Emerging Problems in Modern Clinical Trials and Drug Development—Topic Contributed</b> Biopharmaceutical Section, International Chinese Statistical Association, Biometrics Section Organizer(s): Yuan Ji, The University of Chicago Chair(s): Inna Perevozskaya, GSK	<b>CC-201</b>
		8:35 a.m.	Optimal Selection Procedures and Adaptive Designs for Seamless Phase 2/3 Clinical Trials—♦Vladimir Dragalin, Janssen R&D
		8:55 a.m.	Master Protocol and Designs for Setting Where Randomized Controlled Trials Are Not Feasible*—♦Sue-Jane Wang, Center for Drug Evaluation and Research U.S. Food and Drug Administration
		9:15 a.m.	A Unified Framework for Time-To-Toxicity Dose-Finding Designs in Immune and Non-Immune Clinical Trials—♦Yuan Ji, The University of Chicago; Tianjian Zhou, The University of Chicago
		9:35 a.m.	Bayesian Models for Precision Oncology Clinical Trials—♦Peter M. J. Iyer, University of Texas Austin; Yanxun Xu, Johns Hopkins University; Don Berry, MDACC; Apostolia Tsimberidou, MDACC
		9:55 a.m.	Robust Clinical Trial Design and Analysis When Non-Proportional Hazards Are Likely—♦Keaven Anderson, Merck & Company, Inc.
		10:15 a.m.	Floor Discussion
<b>116</b> ■● <b>Recent Advances in Cure Rate Models for Long-Term Survivors—Topic Contributed</b> Biometrics Section, ENAR, Lifetime Data Science Section Organizer(s): Wei-Wen Hsu, Kansas State University Chair(s): KyungMann Kim, University of Wisconsin-Madison	<b>CC-104</b>	<b>116</b> ■● <b>Recent Advances in Cure Rate Models for Long-Term Survivors—Topic Contributed</b> Biometrics Section, ENAR, Lifetime Data Science Section Organizer(s): Wei-Wen Hsu, Kansas State University Chair(s): KyungMann Kim, University of Wisconsin-Madison	<b>CC-104</b>
		8:35 a.m.	Marginal Mean Hazard Rate Models for Long-Term Survivors with High-Dimensional Covariates—♦Wei-Wen Hsu, Kansas State University; Jianfeng Chen, Kansas State University; David Todem, Michigan State University; KyungMann Kim, University of Wisconsin-Madison

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

8:55 a.m.	Nonparametric Scanning Tests for Homogeneity with Continuous Covariates in Cure Rate Models—♦David Todem, Michigan State University
9:15 a.m.	Testing for Homogeneity in Two-Component Mixture Models: a Bayesian Model Comparison Approach—♦Gyuhyeong Goh, Kansas State University; Wei-Wen Hsu, Kansas State University; David Todem, Michigan State University
9:35 a.m.	Destructive Cure Rate Models and Associated Inference—♦Narayanaswamy Balakrishnan, McMaster University
9:55 a.m.	Applying Cure Models with Competing Risks and Complex Censoring Patterns—♦Jeremy Taylor, University of Michigan; Lauren Beesley, University of Michigan
10:15 a.m.	Floor Discussion

**117**

**● Teaching and Displaying Social Statistics—Topic Contributed**

Section on Statistics and Data Science Education, International Statistical Institute, Text Analysis Interest Group

Organizer(s): Milo A Schield, Augsburg University

Chair(s): Christine A Franklin, American Statistical Association and University of Georgia

8:35 a.m.	Quantitative Literacy Should Not Be Optional—♦Gail Burrill, Michigan State University
8:55 a.m.	Serving up Tasty Morsels: Mapping from Literacy to Capability—♦Chris Wild, University of Auckland
9:15 a.m.	Statistical Literacy, Confounding and Standardization—♦Milo A Schield, Augsburg University
9:35 a.m.	Creating a Learning Progression to Support Secondary Mathematics Teachers to Develop a Critical Statistical Literacy—♦Travis Weiland,
9:55 a.m.	Data Visualization: Modernizing the ASA Poster Competition for Grades K-12—♦Jamis Perrett, Bayer U.S.- Crop Science
10:15 a.m.	Floor Discussion

**118**

**■● Emerging Challenges in Precision Medicine—Topic Contributed**

Biometrics Section, Biopharmaceutical Section, ENAR

Organizer(s): Li Ma, Duke University

Chair(s): David Banks, SAMS/ Duke University

8:35 a.m.	Knockoff Assisted Outcome Adaptive Lasso for Doubly
-----------	---

8:55 a.m.	Robust Treatment Effect Estimation—♦Guanhua Chen, University of Wisconsin-Madison
9:15 a.m.	Variable Selection and Estimation in Causal Inference Using Bayesian Spike and Slab Priors—♦David Michael Vock, University of Minnesota; Brandon Koch, University of Nevada Reno; Julian Wolfson, University of Minnesota
9:35 a.m.	Sparse Learning and Structure Identification for Ultra-High-Dimensional Image-On-Scalar Regression—♦Xinyi Li, SAMS/; Li Wang, Iowa State University; Huixia Judy Wang, The George Washington University
9:55 a.m.	Characterizing Outcome Distributions of Dynamic Treatment Regimes—♦Daniel Lizotte, The University of Western Ontario
10:15 a.m.	Single-Cell Analyzes for Developing HIV Vaccine—♦Lynn Lin, Penn State University
	Floor Discussion

**119**

**■● Statistical Data Editing Modernisation—Topic Contributed**

Government Statistics Section, Survey Research Methods Section, Committee on Applied Statisticians

Organizer(s): Katie Davies, Office for National Statistics

Chair(s): Charlotte Gaughan, Office for National Statistics

8:35 a.m.	A Generalized Framework to Evaluate Imputation Strategies: Early Results on Business Survey Data—♦Darren Gray, Statistics Canada
8:55 a.m.	Evaluating Imputation Methods for the Agricultural Resource Management Survey—♦Darcy Miller, National Agricultural Statistics Service; Andrew Dau, National Agricultural Statistics Service; Audra Zakeski, National Agricultural Statistics Service
9:15 a.m.	Improving Edit and Imputation Strategies Through Feature Selection—♦Andrew Stelmack, Statistics Canada
9:35 a.m.	Improving Efficiency of Imputation Using Machine Learning—♦Katie Davies, Office for National Statistics; Vinayak Anand-Kumar, Office for National Statistics
9:55 a.m.	Incorporating Administrative Data into Population Census 2020—♦Jeslyn Tan, Ministry of Manpower; Jeremy Heng, Ministry of Manpower
10:15 a.m.	Floor Discussion

**120**

**■● Learn Something New: Techniques for Broadening Your Statistical Skillset—Topic Contributed**

Committee on Applied Statisticians, Section on Statistical Consulting, Section on Statistical Computing

Organizer(s): Lauren Hund, Sandia National Laboratories  
 Chair(s): Adah Zhang, Sandia National Laboratories

8:35 a.m. Statistical Thinking and Analysis for Large and Complex Data—♦ Joanne Wendelberger, Los Alamos National Laboratory

8:55 a.m. Sharpening the Tools in Your Data Science Toolbox—♦ Jessica Minnier, Oregon Health & Science University

9:15 a.m. What's Your Point? Flipping the Paradigm for Communication in Statistical Science—♦ Elizabeth Mannshardt, US Environmental Protection Agency

9:35 a.m. Lessons Learned from Collecting and Analyzing High-Dimensional GPS Data on Adolescent Activity Patterns—♦ Catherine A. Calder, The Ohio State University; Christopher R. Browning, The Ohio State University; Bethany Boettner, The Ohio State University; Kori Khan, The Ohio State University

9:55 a.m. Disc: Gabriel Huerta, University of New Mexico

10:15 a.m. Floor Discussion

**121** CC-708  
**■ Handling Large Dimensionality, Skewness and Non-Stationarity Through Multi-Resolution Spatial Modeling—Topic Contributed**  
**Section on Statistics and the Environment, Section on Bayesian Statistical Science, Section on Statistical Computing**  
 Organizer(s): Veronica J. Berrocal, University of Michigan  
 Chair(s): Veronica J. Berrocal, University of Michigan

8:35 a.m. Models for Large Multivariate Spatial Data—♦ Soutir Bandyopadhyay, Colorado School of Mines

8:55 a.m. A Bi-Resolution Spatial Model Based on the Skew-T Distribution—♦ Stefano Castruccio, University of Notre Dame; Felipe Tagle, University of Notre Dame; Marc Genton, King Abdullah University of Science and Technology

9:15 a.m. Using the MRA Approximation to Integrate Multiple Data Sources on Temperature—♦ Colin Lewis-Beck, ; Veronica J. Berrocal, University of Michigan; Joon Jin Song, Baylor University

9:35 a.m. Multi-Scale Models for Large Non-Stationary Spatial Data Sets—♦ Bruno Sanso, University of California Santa Cruz; Daniel Kirsner, University of California Santa Cruz; Rajarshi Guhaniyogi, University of California, SC

9:55 a.m. Conjugate Nearest Neighbor Gaussian Process Models for Efficient Statistical Interpolation of Large Spatial Data—♦ Andrew Finley, Michigan State University; Shinichiro Shiota, University of California, Los Angeles; Sudipto Banerjee, UCLA

10:15 a.m. Floor Discussion

**122** CC-603  
**● Novel Statistical Methods in the Analysis of Big Data—Topic Contributed**

**Section on Statistical Computing, International Chinese Statistical Association, Section on Statistical Learning and Data Science**

Organizer(s): Elizabeth Schifano, University of Connecticut  
 Chair(s): Ming-Hui Chen, University of Connecticut

8:35 a.m. Online Updating of Survival Analysis—♦ Elizabeth Schifano, University of Connecticut; Jing Wu, University of Rhode Island; Ming-Hui Chen, University of Connecticut; Jun Yan, University of Connecticut

8:55 a.m. Optimal Subsampling: Sampling with Replacement Vs Poisson Sampling—♦ HaiYing Wang, University of Connecticut; Jiahui Zou, Academy of Mathematics and Systems Science, Chinese Academy of Sciences

9:15 a.m. Leverage Score Sampling for Multidimensional Streaming Time Series—♦ Shuyang Bai, University of Georgia; Rui Xie, University of Georgia; Ping Ma, University of Georgia; Wenzuan Zhong, University of Georgia; Zengyan Wang, University of Georgia

9:35 a.m. Subsampled Information Criterion for Bayesian Model Selection in Big Data Setting—♦ Guanyu Hu, University of Connecticut; Lijiang Geng, University of Connecticut ; Yishu Xue, University of Connecticut

9:55 a.m. Modified Multidimensional Scaling—♦ Qiang Sun, University of Toronto

10:15 a.m. Floor Discussion

**123** CC-301

**■ ● New Challenges and Opportunities in Nonparametric Statistics—Topic Contributed**

**Section on Nonparametric Statistics, IMS, International Chinese Statistical Association**

Organizer(s): Lingzhou Xue, Penn State University and National Institute of Statistical Sciences  
 Chair(s): Derek Young, University of Kentucky

8:35 a.m. High-Dimensional Robust Covariance Matrix Estimation for Compositional Microbiome Data—♦ Arun Srinivasan, Pennsylvania State University; Lingzhou Xue, Penn State University and National Institute of Statistical Sciences; Xiang Zhan, Penn State University

8:55 a.m. Two Sample High-Dimensional Covariance Test—♦ Danning Li, Penn State University; Lingzhou Xue, Penn State University and National Institute of Statistical Sciences; Xiufan Yu, Penn State University

9:15 a.m. A General Framework for Sparse Sufficient Dimension Reduction—♦ Wei Luo, Zhejiang University

9:35 a.m. On Dual Model-Free Variable Selection with Two Groups of Variables—♦ Yuexiao Dong, Temple University;

9:55 a.m.	Ahmad Alothman, Kuwait University; Andreas Artemiou, Cardiff University	8:50 a.m.	Creating Labs to Solve an Investigative Question Using Both Individual and Team Components—♦Megan Mocko, University of Florida
10:15 a.m.	Temporal Exponential-Family Random Graph Models with Time-Evolving Latent Block Structure for Dynamic Networks—♦Kevin Lee, Western Michigan University; Amal Agarwal, The Pennsylvania State University; Lingzhou Xue, Penn State University and National Institute of Statistical Sciences	8:55 a.m.	Transition from Education to Profession: Experiences of Statisticians—♦Layla Guyot, Texas State University
10:15 a.m.	Floor Discussion	9:00 a.m.	Successful and Sustainable Undergraduate Research in Statistics Through Vertical Integration of Experience and Horizontal Integration of Disciplines—♦Audrey E Hendricks, University of Colorado Denver
		9:05 a.m.	Statistics Races and Jeopardy Games—♦David DiMarco, ; Ryan Savitz, Neumann University
		9:10 a.m.	Service Learning in Analytics Courses: a Case Study of the Benefits of Teaching Through Helping Others—♦Kathleen Garwood, Saint Joseph's University; Vipul Gupta, Saint Joseph's University
		9:15 a.m.	Active-Learning for Bayesian Inference: An Introductory Exercise Using MandM's Candy—♦Gwendolyn Marie Eadie, University of Washington; Daniela Huppenkothen, University of Washington; Aaron Springford, Weyerhaeuser; Tyler McCormick, University of Washington
10:10 a.m.	Floor Discussion	9:20 a.m.	Undergraduate Statistics Research: a Viewpoint from a Non-Statistician—♦Ryan Scherenberg, ; Megan Sorenson, University of Colorado Denver; Audrey E Hendricks, University of Colorado Denver
		9:30 a.m.	Digital Metaphors: a Tool to Provide Insights into Introductory Statistics Studentsí Motivation and Success—♦Ginger Holmes Rowell, Middle Tennessee State University; Ameneh Kassaee, Middle Tennessee State University
		9:35 a.m.	Studying the Relationship Between Studentsí Perception of the Mean and Their Understanding of Variance—♦Robert Sigley, Texas State University; Layla Guyot, Texas State University; Alexander White, Texas State University
		9:40 a.m.	Online Learning and Student Experienceá Study of the Impact of Non-Traditional Learning Environments on the Development of Studentsí Relationships and Academic Performance—♦Alicia Lamere, Bryant University; Kristin Kennedy, Bryant University
		9:45 a.m.	Making an Impact - Take-Aways from Creating a Student-Driven Statistical Consulting Group for Non-Profits—♦Kristin Kennedy, Bryant University; Alicia Lamere, Bryant University; Rick Gorrett, Bryant University; Son Nguyen, Bryant University
		9:50 a.m.	Using Think-Aloud Interviews and Cognitive Task Analysis to Identify Misconceptions in Undergraduate Statistics Education—♦Mikaela Meyer, Carnegie Mellon University; Josue Orellana, Carnegie Mellon University; Alex Reinhart, Carnegie Mellon University
		9:55 a.m.	Incorporating Real-Time Clustering of Student Responses into an E-Learning System—♦Philipp Burckhardt, Carnegie Mellon University; Christopher Genovese, Statistics, CMU; Rebecca Nugent, Carnegie Mellon University; Ronald J. Yurko, Carnegie Mellon University

**Topic Contributed Panels 8:30 a.m.—10:20 a.m.**

**124 CC-503**

**■● Implementing the 2018 Standard Occupational Classification System in the Federal Statistical System—Topic Contributed**

Social Statistics Section, Government Statistics Section, Business and Economic Statistics Section

Organizer(s): Lynda Laughlin, U.S. Census Bureau

Chair(s): Heide Jackson, U.S. Census Bureau

Panelists: ♦Lynda Laughlin, U.S. Census Bureau  
♦Laurie Salmon, Bureau of Labor Statistics  
♦Kerrie Leslie,  
♦Stella Fayer, Bureau of Labor Statistics

10:10 a.m. Floor Discussion

**Contributed Sessions 8:30 a.m.—10:20 a.m.**

**125 CC-502**

**SPEED: Modernization of What, How, and Where We Teach Statistics Part 1—Contributed**

Section on Statistics and Data Science Education

Chair(s): Kameryn Denaro, University of California, Irvine

8:35 a.m. Causal Inference in Introductory Statistics Courses—♦Kevin Cumminskey, West Point; Bryan Adams, West Point; James Pleuss, West Point; Dusty Turner, West Point; Nicholas Clark, West Point; Krista Watts, West Point

8:40 a.m. Facilitating Online Project Discussions Among Students in an Elementary Statistics Course—♦Sherry Hix, University of North Georgia

8:45 a.m. Studentsí Understanding of Definitional and Relational Characteristics of Confidence Intervals: Initial Results—♦Kristen E. Roland, University of Georgia; Jennifer J. Kaplan, University of Georgia

10:00 a.m.	Paradox Problems as a Tool for Understanding Statistical Reasoning—♦ Andrew Neath, SIU Edwardsville
10:05 a.m.	Computational Workshops to Facilitate Implementation of Statistics in Scientific Research—♦ Allison Theobold, Montana State Univ; Stacey Hancock, Montana State University
10:10 a.m.	Interactive Examples in Statistics Courses Using R Shiny—♦ Ryne VanKrevelen, Elon University
10:15 a.m.	Teaching Data Intuition: a Book—♦ Rebecca Barter, University of California Berkeley; Bin Yu, UC Berkeley

126

CC-105

**SPEED: New Methods in Statistical Genomics and Genetics Part 1—Contributed****Section on Statistics in Genomics and Genetics**

Chair(s): Tianzhong Yang, The University of Minnesota Twin Cities

8:35 a.m.	Comparing Performance of Gene Set Test Methods Using Biologically Relevant Simulated Data—♦ Richard Lambert, Utah State University; John Stevens, Utah State University
8:40 a.m.	A Bottom-Up Approach to Testing Hypotheses That Have a Branching Tree Dependence Structure, with False Discovery Rate Control—♦ Yunxiao Li, Emory University; Yijuan Hu, Emory University; Glen Alan Satten, Centers for Disease Control and Prevention
8:45 a.m.	A Generalized Multi-Response Permutation Procedure to Evaluate Associations of Multivariate Data with Quantitative and Censored-Event Time Variables—♦ Stanley Pounds, St. Jude Children's Research Hospital; Natasha Sahr, St. Jude's Children's Hospital; Xueyuan Cao, University of Tennessee Health Science Center
8:50 a.m.	The Robust Kernel Association Test—♦ Kara Martinez, North Carolina State University
8:55 a.m.	Regularized Regression by Graph Propagation for Genomic Data Analysis—♦ Han Yu, Roswell Park Comprehensive Cancer Center; Rachael Hageman Blair, The State University of New York at Buffalo
9:00 a.m.	Assessing Exposure Effects on Gene Expression Using Inverse Probability Weighting and the Parametric G-Formula—♦ Sarah Reifeis, University of North Carolina at Chapel Hill; Michael Hudgens, University of North Carolina at Chapel Hill; Michael Love, UNC-Chapel Hill; Karen Mohnke, University of North Carolina at Chapel Hill; Melissa Troester, University of North Carolina at Chapel Hill
9:05 a.m.	Methods for Handling Correlated Covariates in Integrative Genomics Analysis—♦ Lauren Spirk-Burns, Karthik Devarajan, Fox Chase Cancer Center; Camille Ragin, Fox Chase Cancer Center

9:10 a.m.	OncoCast: An Improved Interface for Survival Analysis Using Genomic Data—♦ Axel Martin, Memorial Sloan Kettering Cancer Center
9:15 a.m.	Identifying Appropriate Probabilistic Models for Sparse Discrete Omics Data—♦ Hani Aldirawi, UIC
9:20 a.m.	Bayesian Inference for Reconstructing Intra-Tumor Phylogeny—♦ Tingting of Zhai, University of Kentucky; Jinpeng of Liu, University of Kentucky; Chi of Wang, University of Kentucky
9:30 a.m.	PasLINCS: Pathway Activity Signatures from LINCS L1000 Consensus Gene Signatures—♦ Yan Ren, University of Cincinnati; Siva Sivaganesan, University of Cincinnati; Nicholas Clark, University of Cincinnati; David Plas, University of Cincinnati; Mario Medvedovic, University of Cincinnati
9:35 a.m.	Efficient Estimation of Ancestry Proportions Using Genotype Frequencies—♦ Jordan Hall, University of Colorado Denver; Megan Sorenson, University of Colorado Denver; Ryan Scherenberg, ; Alexandria Ronco, University of Colorado Denver; Yinfai Wu, University of Colorado Denver; James Vance, University of Colorado Denver; Jinyan Lyu, University of Colorado Denver; Christopher Gignoux, University of Colorado Denver; Audrey E Hendricks, University of Colorado Denver
9:40 a.m.	Likelihood Based Mixture Modeling of Genetic Regulatory Networks—♦ David S. Burton, University of Rochester Biostatistics; Matthew N McCall, University of Rochester Medical Center
9:45 a.m.	Selection of Genesets from a Cox Model with Higher-Order Interaction of Covariate Genes—♦ Delong Liu, NHLBI/NIH; Colin O. Wu, National Heart, Lung and Blood Institute, National Institutes of Health; Beth Kozel, NHLBI/NIH; Neal Young, NHLBI/NIH
9:50 a.m.	A Powerful and Versatile Colocalization Test—♦ Yangqing Deng, University of Minnesota
9:55 a.m.	The Rabl Configuration Limits Topological Entanglement of Chromosomes in Budding Yeast—♦ Maxime Poukam, UC Davis Statistics Club
10:00 a.m.	OASW Clustering—♦ Fatima Batool,
10:05 a.m.	Comparing Methods for Familial Relationship Inference in Populations with Complex Demographic History—♦ Daniel Yorgov, Purdue University Fort Wayne
10:10 a.m.	On Simulating Ultra High-Dimensional Multivariate Data—♦ Alfred Schissler, University of Nevada, Reno
10:15 a.m.	Control Confounding by Familial Relatedness in Genome-Wide Association Studies—♦ Annie J Lee, Columbia University; Donglin Zeng, UNC Chapel Hill; Badri N Varadarajan, Columbia University; Karen Marder, Columbia University ; Yuanjia Wang, Columbia University

MONDAY

**127**

**SPEED: Statistical Learning and Data Science Speed**

**Session 1, Part 1—Contributed**

**Section on Statistical Learning and Data Science**

Chair(s): Ali Shojaie, University of Washington

8:35 a.m.	Comparing Time Series Graphical Lasso and Sparse VAR Algorithms—♦Aramayis Dallakyan, Texas A&M University; Rakheon Kim, Texas A&M University; Mohsen Pourahmadi, Texas A&M University
8:40 a.m.	Using Factor Analysis in Variable Selection and Clustering of US Mass Shooting Incidents—♦John McMorris, ; Yew-Meng Koh, Hope College
8:45 a.m.	Model Selection for Mixture of Experts Using Group Fused Lasso—♦Tuan Do, University of South Carolina; Karl Gregory, University of South Carolina
8:50 a.m.	Deep Learning and MARS: a Connection—♦Sophie Langer, Technische Universitaet Darmstadt; Michael Kohler, Technische Universitaet Darmstadt; Adam Krzyzak, Concordia University
8:55 a.m.	Distance and Kernel Measures of Conditional Independence—♦Tianhong Sheng, The Pennsylvania State University; Bharath Sriperumbudur, The Pennsylvania State University
9:00 a.m.	Sparse Functional Principal Component Analysis in High Dimensions—♦Xiaoyu Hu, peking university; Fang Yao, peking university
9:05 a.m.	Activation Adaptation in Neural Networks—♦Vahid Partovi Nia, Huawei Technologies, Ecole Polytechnique de Montreal; Farnoush Farhadi, Ericsson ; Andrea Lodi, Ecole Polytechnique de Montreal
9:10 a.m.	Multiple Imputation Versus Machine Learning: Predictive Models to Facilitate Analyzes of Association Between Contemporaneous Medicaid/CHIP Enrollment Status and Health Measures—♦Jennifer Rammon, National Center for Health Statistics/CDC; Yulei He, CDC; Jennifer Parker, CDC/NCHS/OAE/SPB
9:15 a.m.	A Greedy-Type Variable Selection Procedure for Selecting High-Dimensional Cox Models—♦Chien-Tong Lin, Yu-Jen Cheng, National Tsing Hua University; Ching-Kang Ing, National Tsing Hua University
9:20 a.m.	Cross-Validation for Correlated Data—♦Assaf Rabinowicz, Tel-Aviv University; Saharon Rosset, Tel Aviv University
9:30 a.m.	Inference for Measurement Error Model Under High-Dimensional Settings—♦Mengyan Li, Penn State University; Yanyuan Ma, The Pennsylvania State University
9:35 a.m.	Does T-SNE Identify False Structure? Implications of Clusterability on T-SNE Maps—♦Paul Harmon, Montana State University; Mark Greenwood, Montana State University; Tristan Anacker, Montana State University

**CC-501**

9:40 a.m.

Visual Diagnostics of a Model Explainer: Tools for the Assessment of LIME Explanations from Random Forests—♦Katherine Goode, Iowa State University; Heike Hofmann, Iowa State University

9:45 a.m.

Quantile Regression Under Memory Constraint—♦Yichen Zhang, New York University; Xi Chen, New York University; Weidong Liu, Shanghai Jiaotong University

9:50 a.m.

Equilibrium Metrics for Dynamic Supply-Demand Networks—♦Fan Zhou, University of North Carolina at Chapel Hill; Hongtu Zhu, DiDi Chuxing and UNC-Chapel Hill; Jieping Ye, Didi Chuxing

9:55 a.m.

Topological Survival Analysis for the Comparison of Random Fields—♦Hollie Johnson,

10:00 a.m.

Curve Registration to Identify Circadian Rhythm Chronotypes in Accelerometer Data—♦Erin McDonnell, Columbia University; Julia Wrobel, Columbia University; Jeff Goldsmith, Columbia University; Vadim Zipunnikov, Johns Hopkins University

10:05 a.m.

Mallows Model Averaging of Support Vector Machine Classifiers and Regressors—♦Francis Kiwon, McMaster University

10:10 a.m.

To Select or Not to Select? Variable Selection in the Estimation of Drug Use Prevalence in Denmark—♦Anne Helby Petersen, University of Copenhagen; Niels Keiding, University of Copenhagen

10:15 a.m.

Efficient Randomized Algorithms for Continuous Space Reinforcement Learning—♦Mohamad Kazem Shirani Faradonbeh, University of Florida; Ambuj Tewari, University of Michigan; George Michailidis, University of Florida

**128**

**CC-103**

**SPEED: Biometrics and Biostatistics Part 1—Contributed**

**Biometrics Section, Section on Statistics in Epidemiology, Biopharmaceutical Section, Section on Bayesian Statistical Science**

Chair(s): Caroline Ledbetter, University of Colorado

8:35 a.m.

Oversampling and Replacement Strategies in Propensity Score Matching: a Critical Review Focused on Small Samples—♦Daniele Bottigliengo, University of Padova; Ileana Baldi, University of Padova; Corrado Lanera, University of Padova; Jonida Bejko, University of Brescia; Tomaso Bottio, University of Padova; Vincenzo Tarzia, University of Padova; Massimiliano Carrozzini, University of Padova; Gino Gerosa, University of Padova; Paola Berchialla, University of Torino; Dario Gregori, University of Padova

8:40 a.m.

A Concordance Statistic for Survival Analysis with a Censored Predictor—♦Kai Ding, University of Oklahoma Health Sciences Center; Justin Dvorak, University of Oklahoma Health Sciences Center

8:45 a.m.

Meta-Analysis of Binary Outcomes Combining Individual Patient Data and Aggregate Data—♦Neha

8:50 a.m.	Agarwala, University of Maryland - Baltimore County; Anindya Roy, University of Maryland - Baltimore County  <b>Multiplicity Adjustment in Clinical Trials</b> —♦ Michael Proschan, National Institute of Allergy and Infectious Diseases; Erica Brittain, National Institute of Allergy and Infectious Diseases	10:00 a.m.	Bayesian Modeling of Rare Events with Informative Censoring in Meta-Analysis—♦ Xinyue Qi, UT MD Anderson Cancer Center; Yucai Wang, Mayo Clinic; Chan Shen, College of Medicine, Penn State University; Michael Wang, The University of Texas MD Anderson Cancer Center; Shouhao Zhou, PennState College of Medicine
9:00 a.m.	Hierarchical Likelihood Approach for Joint Models of Longitudinal Non-Survival Responses and Survival Data: a Semiparametric Model with Gamma Shared Random Effects—♦ Karl Stessy Bisselou, University of Nebraska Medical Center; Hongying Dai, University of Nebraska Medical Center; Gleb Haynatzki, University of Nebraska Medical Center	10:05 a.m.	Bayesian Analysis of Mixed Continuous and Time-To-Event Outcomes with Latent Variables—♦ Xinyuan Song, The Chinese University of Hong Kong; Deng Pan, Huazhong University of Science and Technology
9:05 a.m.	A Scalable Algorithm for Joint Modeling of Longitudinal and Competing Risks Time-To-Event Data—♦ Shanpeng Li, UCLA Department of Biostatistics; Eric Kawaguchi, UCLA Department of Biostatistics; Gang Li, UCLA	10:10 a.m.	A Bayesian Approach with Propensity Score for Confounding Control with Case Study in Non-Medical Switch Real World Observational Studies—♦ Zhenyi Xue, AbbVie; Hongwei Wang, AbbVie Inc.
9:10 a.m.	Synthetic Data Method to Incorporate External Information into a Current Study—♦ Tian Gu, University of Michigan; Jeremy Taylor, University of Michigan; Bhramar Mukherjee, University of Michigan	10:15 a.m.	Quantitative Decision Making (QDM) in Phase I/II Studies—♦ Kevin Gan, GlaxoSmithKline; Jonathan Haddad, GlaxoSmithKline
9:15 a.m.	Predicting the Cross-Validated Penalty Parameter in Nodewise Lasso Regression—♦ Mo Huang, University of Pennsylvania; Nancy Zhang, University of Pennsylvania	<b>129</b> <span style="float: right;">CC-106</span>	
9:20 a.m.	Statistical Assessment of Bovine Body Weight via Functional Gait Data—♦ Andrew Raim, US Census Bureau; Nagaraj Neerchal, University of Maryland, Baltimore County; Dan Tasch, Step Analysis LLC; Uri Tasch, Step Analysis LLC	<b>● High-Dimensional Data and Inference—Contributed Biometrics Section</b>	
9:30 a.m.	Adaptive Design with Biomarker Population Deselection and Enrichment for Oncology Trials—♦ Pingye Zhang, ; Yue Shentu, Merck & Co., Inc.; Qi Liu, Merck & Co., Inc.	Chair(s): Sharon Lutz, Harvard Medical School	
9:35 a.m.	Unblinded Sample Size Re-Estimation for Ordinal Data—♦ Huaihou Chen, Biogen; Ray Zhang, Biogen; Weihua Tang, Biogen; Li Zhu, Biogen; Chunlei Ke, Biogen	8:35 a.m.	Simultaneous Confidence Bands for Functional Regression Models—♦ Chung Chang, ; Xuejing Lin, Columbia University; Todd Ogden, Columbia University
9:40 a.m.	Optimal Design and Analysis of Efficacy Expansion in Phase I Oncology Trials—♦ Iris Wu, Merck & Co.; Fang Liu, Merck; Heng Zhou, Merck & Co., Inc; Cong Chen, Merck & Co., Inc	8:50 a.m.	Group Regularization for Zero-Inflated Count Regression Models—♦ Shrabanti Chowdhury, Icahn School of Medicine at Mount Sinai; Saptarshi Chatterjee, Northern Illinois University; Himel Mallick, Merck & Co., Inc.; Prithish Banerjee, JP Morgan Chase & Co; Broti Garai, NBCUniversal
9:45 a.m.	A Natural Lead-In Approach to Response-Adaptive Allocation—♦ Erin Donahue, Virginia Commonwealth University; Roy T Sabo, Virginia Commonwealth University	9:05 a.m.	Non-Nested Hypothesis Testing for Threshold Regression: a Non-Nested Hypothesis Testing Problem for Threshold Regression Models—♦ Zonglin He, Fred Hutchinson Cancer Research Center; Youyi Fong, Fred Hutchinson Cancer Research Center
9:50 a.m.	Survival Analyzes in the Presence of Un adjudicated Events—♦ Rakhi Kilaru, Pharmaceutical Product Development; Andrew Montgomery Hartley, Pharmaceutical Product Development	9:20 a.m.	Projection Inference Using Penalized Regression Estimators—♦ Biyue Dai, University of Iowa; Patrick Breheny, University of Iowa
9:55 a.m.	A Comparison of Stacked and Pooled Multiple Imputation—♦ Paul Bernhardt, Villanova University	9:35 a.m.	A Novel Approach on Multiple-Traits Genetic Association Tests for Flexible Pleiotropy Structures—♦ Han Hao, University of North Texas
9:55 a.m.	Design of a Phase 3 Trial for an Acute Treatment of a Rare Disease with Episodic Attacks—♦ Sharon Murray,	9:50 a.m.	A Generalized Framework for High-Dimensional Inference Using Leave-One-Covariate-Out LASSO Path—♦ Xiangyang Cao, University of South Carolina; Karl Gregory, University of South Carolina; Dewei Wang, University of South Carolina
		10:05 a.m.	Structural Modeling by Using Overlapped Penalties for Discovering Predictive Biomarkers—♦ Chong Ma, Yale University; Wenxuan Deng, Yale University; Shuangge Ma, Yale University; Ray Liu, Takeda Pharmaceuticals; Kevin Galinsky , Takeda Pharmaceuticals

**130**

**Statistical Methods for Time-To-Event Data and Applications—Contributed**

Biopharmaceutical Section

Chair(s): Ruvie Martin, Novartis Pharmaceuticals

8:35 a.m. Tools to Compare Restricted Mean Survival Times in Randomized Controlled Studies with Small Sample Data—♦Miki Horiguchi, Kitasato University; Hajime Uno, Dana-Farber Cancer Institute

8:50 a.m. Survival Analysis in the Absence of Proportional Hazards: Defining the Relevant Null Hypothesis—♦Steven Snapinn, Alder Biopharmaceuticals; Qi Jiang, Seattle Genetics

9:05 a.m. Modeling the Impact of Dose Intervention on Time-To-Event Outcomes—♦Amir Nikooinejad, Eli Lilly and Company; Yongming Qu, Eli Lilly and Company

9:20 a.m. A Flexible Parametric Survival Model for Fitting Time-to-Event Data in Clinical Trials—♦Jason Liao, Merck & Co. Inc.; Frank G Liu, Merck Sharp & Dohme Inc.

9:35 a.m. Teasing Out the Overall Survival Benefit with Adjustment for Treatment Switching to Other Therapies—♦Meijing Wu,

9:50 a.m. An Approach to Increase Power in Immuno-Oncology Trials When Non-Proportional Hazard Is Present—♦Nan Jia, Sanofi US

10:05 a.m. Evaluating Methods for Correcting the Impact of Treatment Switching on Overall Survival—♦Jin Zhang,

**CC-112**

9:05 a.m.

Challenges of Filing Externally Conducted Clinical Trials—♦Kenneth Liu, Merck & Co., Inc; Jonathan Hartzel, Merck & Co., Inc

9:20 a.m.

An Integrative Shrinkage Estimator for Random-Effects Meta-Analysis of Rare Binary Events—♦Lie Li, Merck & Co.; Xinlei Wang, Southern Methodist University; Ou Bai, NA

9:35 a.m.

Exploring Heterogeneity of Treatment Response: Assumptions, Logic, Algorithm, Computations—♦Lev Sverdlov, Redmond Analytics, LLC

9:50 a.m.

Dynamic Data Monitoring for On-Going Clinical Trials—♦Tai Xie, Brightech International; Ping Gao, Brightech International; Peng Zhang, Brightech International; Yue Tu, Brightech International; Joe Shih, Rutgers University

10:05 a.m.

Blinded Safety Monitoring in Clinical Trials and IND Safety Reporting: Challenges and Lessons Learned—♦Barbara Hendrickson, AbbVie

**131**

**Topics in Clinical Trials—Contributed**

Biopharmaceutical Section

Chair(s): Guanglei Yu, Eli Lilly and Company

**CC-101**

8:35 a.m. Methods for Evaluating Heterogeneity in Treatment Effects in a Randomized Clinical Trial—♦Alok Dwivedi, Texas Tech University Health Sciences Center El Paso; Muditha Perera, Texas Tech University Health Sciences Center El Paso; Sada Nand Dwivedi, All India Institute of Medical Sciences; Rakesh Shukla, University of Cincinnati

8:50 a.m. Estimation of Treatment Effect in a Multi-Regional Clinical Trial with Survival Endpoint—♦Hsiao-Hui Tsou, National Health Research Institutes; Yu-Chieh Cheng, National Health Research Institutes; Yuh-Jeng Wu, Chung Yuan Christian University; Chin-Fu Hsiao, National Health Research Institutes

**132**

**Functional Data and Time Series—Contributed**

IMS

Chair(s): Ruiyan Luo, Georgia State University

8:35 a.m.

Estimation and Inference for Functional Linear Regression Models with Varying Regression Coefficients—♦Guanqun Cao, Auburn University; Li Wang, Iowa State University; Shuoyang Wang, Auburn University

8:50 a.m.

Robust M-Estimation for Partially Observed Functional Data—♦Yeonjoo Park, University of Texas at San Antonio; Xiaohui Chen, University of Illinois at Urbana-Champaign; Douglas Simpson, University of Illinois at Urbana-Champaign

9:05 a.m.

Detecting Linear Trend Changes and Point Anomalies in Data Sequences—♦Hyeyoung Maeng, London School of Economics; Piotr Fryzlewicz, London School of Economics

9:20 a.m.

Two-Sample Mean Tests for High-Dimensional Time Series Data—♦Shuyi Zhang, Peking University; Yumou Qiu, Iowa State University; Song Xi Chen, Peking University

9:35 a.m.

On Some Estimation and Testing Problems for Distribution Functions Under Dependence—♦Sucharita Ghosh, Swiss Federal Research Institute WSL

9:50 a.m.

Functional Autoregressive Model Using Signal Compression—♦Husnarea Rahman, Georgia State University; Xin Qi, Georgia State University

10:05 a.m.

Fourier Methods for Estimating the Central Subspace and the Central Mean Subspace in Time Series—

♦Seyed Yaser Samadi, Southern Illinois University, Carbondale; Priyan Alwis, Southern Illinois University, Carbondale

**133** **CC-302**  
**Statistical Methods for Functional Data—Contributed Section on Nonparametric Statistics**  
Chair(s): Hyung Park, New York University

8:35 a.m.	Rank Dynamics for Functional Data—♦Yaqing Chen, University of California, Davis; Matthew Dawson, University of California, Davis; Hans Mueller, UC Davis
8:50 a.m.	Modeling Time-Varying Object Data—♦Paromita Dubey, University of California, Davis; Hans Mueller, UC Davis
9:05 a.m.	Covariance Function Estimation for Multidimensional Functional Data—♦Raymond Wong, Texas A&M University; Jiayi Wang, Texas A&M University; Xiaoke Zhang, George Washington University
9:20 a.m.	Covariance Based Low-Dimensional Registration for Function-On-Function Regression—♦Tobia Boschi, Pennsylvania State University; Francesca Chiaromonte, Pennsylvania State University and EMbeDS, Sant'Anna School of Advanced Studies; Piercesare Secchi, Politecnico di Milano, MOX Laboratory for Modeling and Scientific Computing; Bing Li, The Pennsylvania State University
9:35 a.m.	Benefits and Pitfalls of the Exponential Mechanism with Applications to Hilbert Spaces and Functional PCA—♦Jordan Awan, Penn State University; Ana Kenney, Pennsylvania State University; Matthew Reimherr, Penn State University; Aleksandra Slavkovic, Penn State University
9:50 a.m.	A New Metric for Estimating Noise in Functional Data—♦Subhrangshu Nandi, Amazon; Michael Abbott Newton, University of Wisconsin - Madison
10:05 a.m.	Nonlinear Function-On-Function Regression Model Using Reproducing Kernel Hilbert Spaces Method—♦Bahaeddine Taoufik, Saint Joseph's University; Matthew Reimherr, Penn State University; Bharath Sriperumbudur, The Pennsylvania State University

**134** **CC-707**  
■● **Design of Experiments: Case Studies and Advancements—Contributed Section on Physical and Engineering Sciences**  
Chair(s): Cora Allen-Coleman, University of Wisconsin - Madison

8:35 a.m.	A Practical Framework for the Design and Analysis of Crossover Experiments—♦Katherine Allen Moyer, North Carolina State University; Jonathan Stallrich, North Carolina State University
8:50 a.m.	Optimal Experimental Design for High-Dimensional Asymptotically Optimal Confidence Regions—♦Binjie Luo, University of Nebraska-Lincoln; Kent Eskridge, University of Nebraska-Lincoln
9:05 a.m.	Optimal Design for Estimating the Boltzmann-Enhanced Langmuir-Hinshelwood (BLH) Model for Graphite Oxidation Rates—♦Robert Mee, University of Tennessee; Cristian Contescu, Oak Ridge National Laboratory
9:20 a.m.	A Nonlinear Regression and Experimental Design Approach for Nuclear Waste Glass Properties—♦Bryan Stanfill, Pacific Northwest National Lab; Greg Piepel, PNNL; Scott Cooley, PNNL; Charmayne Lonergan, PNNL; Jared Kroll, PNNL; John Vienna, PNNL
9:35 a.m.	Iterative Design with Humans-In-The-Loop for Functional Data Analysis—♦Claire McKay Bowen, Los Alamos National Laboratory; Joanne Wendelberger, Los Alamos National Laboratory
9:50 a.m.	Sign-Informative Design and Analysis of Supersaturated Designs—♦Jonathan Stallrich, North Carolina State University; Maria Weese, Miami University; Byran Smucker, Miami University; David Edwards, Virginia Commonwealth University
10:05 a.m.	Augmenting Definitive Screening Designs for Prediction via the Full Quadratic Model—♦Abigail Nachtsheim, Arizona State University

MONDAY

**135** **CC-507**  
■● **Applications of Machine Learning Methods to Imaging Data Analysis—Contributed Section on Statistics in Imaging**  
Chair(s): Taylor Brown, University of Virginia

8:35 a.m.	Detecting fMRI Brain Activation via Neural Networks—♦Daniel Rowe, Marquette University
8:50 a.m.	On Predictability and Reproducibility of Individual Functional Connectivity Networks from Clinical Characteristics—♦Emily Morris, University of Michigan; Jian Kang, University of Michigan
9:05 a.m.	Machine Learning Algorithms for Automatic Identification of Limnonectes Species Using Image Data—♦Li Xu, Virginia Tech; Eric Smith, Virginia Tech; Yili Hong, Virginia Tech; David McLeod, James Madison University

9:20 a.m.	Group Non-Gaussian Component Analysis for Neuroimaging—♦Yuxuan Zhao, Cornell University; David Matteson, Cornell University; Mary Beth Nebel, Center for Neurodevelopmental and Imaging Research, Kennedy Krieger Institute; Benjamin Risk, Emory University
9:35 a.m.	Using Constrained Clustering to Partition Functional MRI Signals Spatiotemporally to Recognize Brain Pattern and BOLD Signals—♦Aixin Zhang, University of Colorado Denver; Erin Austin, University of Colorado Denver
9:50 a.m.	Statistical Analysis of Data Reproducibility Measures—♦Zeyi Wang, Johns Hopkins University; Joshua Vogelstein, Johns Hopkins University; Brian Caffo, Johns Hopkins Bloomberg School of Public Health
10:05 a.m.	Bayesian Spatial Variable Selection Methods for Improved Detection of Neural Activation in fMRI—♦Somak Dutta, Iowa State University; Ranjan Maitra, Iowa State University
<b>136</b> <span style="float: right;"><b>CC-701</b></span>	
<b>Recent Advances in Dimension Reduction—Contributed</b>	
<b>Section on Statistical Learning and Data Science</b>	
Chair(s): Linda Ng Boyle, University of Washington	
8:35 a.m.	Signal-Plus-Noise Matrix Models: Eigenvector Deviations and Fluctuations—♦Joshua Cape, Johns Hopkins University; Minh Tang, Johns Hopkins University; Carey E Priebe, Johns Hopkins University
8:50 a.m.	Representative Approach for Big Data Dimension Reduction with Binary Responses—♦Xuelong Wang, University of Illinois at Chicago
9:05 a.m.	A Sufficient Dimension Reduction Method via Expectation of Conditional Difference—♦Qingcong Yuan, Miami University; Wenhui Sheng, Marquette University; Xiangrong Yin, University of Kentucky
9:20 a.m.	GMDR: Generalized Matrix Decomposition Regression—♦Yue Wang, Fred Hutchinson Cancer Center; Ali Shojaie, University of Washington; Timothy Randolph, Fred Hutchinson Cancer Research Center; Jing Ma, Fred Hutchinson Cancer Center
9:35 a.m.	Matrix-Free Likelihood Methods for Exploratory Factor Analysis with High-Dimensional Gaussian Data—♦Fan Dai, Iowa State University; Somak Dutta, Iowa State University; Ranjan Maitra, Iowa State University
9:50 a.m.	Principal Component-Guided Sparse Regression—♦Kenneth Tay, Stanford University; Jerome Friedman, Stanford University; Robert Tibshirani, Stanford University
10:05 a.m.	High-Dimensional Prediction with Sparse Principal Components—♦Lei Ding, Indiana University Bloomington; Daniel McDonald, Indiana University Bloomington

137	<b>CC-113</b>
■ Statistical Methods for Analyzing Genetic Variants and QTLs—Contributed	
<b>Section on Statistics in Genomics and Genetics</b>	
Chair(s): Zheng Xu, University of Nebraska-Lincoln	
8:35 a.m.	Cross-Tissue EQTL Calling via Surrogate Expression Analysis—♦Zachary R McCaw, Harvard T.H. Chan School of Public Health; Sheila Gaynor, Harvard T.H. Chan School of Public Health; Ryan Sun, Harvard T.H. Chan School of Public Health; Xihong Lin, Harvard
8:50 a.m.	Phylogenetic Derivative: a Tool for Assessing Local Tree Reconstruction—♦Katherine Thompson, University of Kentucky; Jacque Kane, Hobart and William Smith Colleges; Haixin Liu, Hobart and William Smith Colleges; Joseph Rusinko, Hobart and William Smith Colleges
9:05 a.m.	Delineating Finer Population-Substructure with Rare Variants—♦Divy Kangeyan, Harvard University; Christoph Lange, Harvard University
9:20 a.m.	Omnibus Weighting Incorporating Multiple Functional Annotations for Whole Genome Sequencing Rare Variant Association Studies—♦Xihao Li, Harvard T.H. Chan School of Public Health; Zilin Li, Harvard T.H. Chan School of Public Health; Hufeng Zhou, Harvard University; Sheila Gaynor, Harvard T.H. Chan School of Public Health; Yaowu Liu, Harvard T.H. Chan School of Public Health; Han Chen, the University of Texas Health Science Center at Houston; Alanna C. Morrison, University of Texas School of Public Health; Eric Boerwinkle, University of Texas School of Public Health; Xihong Lin, Harvard
9:35 a.m.	Flexible Approach for Gene-Level Genetic Analysis via Combinations of Summary Statistics—♦Dmitri Zaykin, National Institute of Environmental Health Sciences; Olga Vsevolozhskaya, University of Kentucky
9:50 a.m.	Statistical Inference for Gene-Level Analysis Based on Functional Linear Models—Olga Vsevolozhskaya, University of Kentucky; ♦Adam Dugan, University of Kentucky; David Fardo, University of Kentucky; Dmitri Zaykin, National Institute of Environmental Health Sciences
10:05 a.m.	Pathway Association Analysis Under High Dimensions—♦Yang Liu, Wright State University; Qianchuan He, Fred Hutchinson Cancer Research Center
<b>138</b> <span style="float: right;"><b>CC-504</b></span>	
<b>Modeling Applications for Backcasting, Nowcasting and Forecasting—Contributed</b>	
<b>Survey Research Methods Section</b>	
Chair(s): Andrew A White, National Center for Education Statistics	

8:35 a.m.	Using American Community Survey Data to Improve Estimates from Smaller Surveys Through Bivariate Small Area Estimation Models—♦Carolina Franco, U.S. Census Bureau; William Bell, U.S. Census Bureau	11:25 a.m.	A Sparse Random Projection-Based Test for Overall Qualitative Treatment Effects—♦Chengchun Shi, North Carolina State University; Wenbin Lu, North Carolina State University; Rui Song, North Carolina State University
8:50 a.m.	Small Area Estimation with Small Sample Size National Household Surveys: a Multilevel Regression and Poststratification Approach with FoodAPS—♦Xingyou Zhang, Economic Research Service, USDA; Alisha Coleman-Jensen, Economic Research Service, USDA; Shelly Ver Ploeg, Economic Research Service, USDA; Mark Denbaly, Economic Research Service, USDA	11:50 a.m.	Disc: Eric B Laber, NC State University
9:05 a.m.	Model-Assisted Estimation of Mixed-Effect Model Parameters in Complex Surveys—♦Eric Slud, U.S. Census Bureau	12:10 p.m.	Floor Discussion
9:20 a.m.	Consideration of Unsupervised Learning in the Detection of Systemic Errors Within the Current Employment Statistics Survey—♦Matthew Corrigan, Bureau of Labor Statistics		
9:35 a.m.	Model-Based Crop Yield Forecasting; Covariate Selection and Related Issues—♦Habtamu Benecha, NASS/USDA; Luca Sartore, National Institute of Statistical Sciences; Nathan Cruze, USDA National Agricultural Statistics Service		
9:50 a.m.	Variable Selection for Multinomial Logistic Regression Modeling to Assign One of Six Census Mindsets to Database Records—♦Mary H. Mulry, U.S. Census Bureau; Yazmín A. García Trejo, U.S. Census Bureau; Nancy Bates, U.S. Census Bureau	10:35 a.m.	Weighted Hypothesis Testing Accounting for Correlated Predictors—♦Li Hsu, Fred Hutchinson Cancer Research Center, USA
10:05 a.m.	Mode Effect, Patient-Mix Adjustment, and Nonresponse Analysis in the Consumer Assessment of Healthcare Providers and Systems Outpatient and Ambulatory Surgery Survey (OAS CAHPS)—♦Patrick Chen, RTI International; Shampa Saha, RTI International; Marjorie Hinsdale-Shouse, RTI International	11:00 a.m.	Scalable and Accurate Association Analysis for Big Biobank Data—♦Seunggeun Lee, University of Michigan
		11:25 a.m.	Mediation Analyzes for Dissecting the Role of DNA Methylation in Epidemiologic Studies—♦James Dai, Fred Hutchinson Cancer Research Center
		11:50 a.m.	Predictive Modeling of Transcriptomics in Ancestrally Diverse Populations—♦Timothy Thornton, University of Washington; Anya Mikhaylova, University of Washington
		12:15 p.m.	Floor Discussion

**Invited Sessions 10:30 a.m.—12:20 p.m.**

139	CC-707
<b>● Precision Medicine in High-Dimensional Settings—Invited</b>	
Association of Health Services Research, Section on Statistical Learning and Data Science, Academy for Health Services Research and Health Policy	
Organizer(s): Ashkan Ertefaie, University of Rochester	
Chair(s): Ashkan Ertefaie, University of Rochester	
10:35 a.m.	Adaptive Designs for Learning Optimal Individualized Treatment Rules—♦Mark van der Laan, UC Berkeley
11:00 a.m.	Minimax Optimal Causal Inference in a High-Dimensional Discrete Model—♦Edward Kennedy, Carnegie Mellon University

**140 CC-203**

**■ ● Frontiers of Statistical Genetics: Genomics, Transcriptomics, and PheWAS—Invited**  
WNAR, Section on Statistics in Genomics and Genetics, Biometrics Section

Organizer(s): Wei Sun, Fred Hutchinson Cancer Research Center

Chair(s): Wei Sun, Fred Hutchinson Cancer Research Center

10:35 a.m. Weighted Hypothesis Testing Accounting for Correlated Predictors—♦Li Hsu, Fred Hutchinson Cancer Research Center, USA

11:00 a.m. Scalable and Accurate Association Analysis for Big Biobank Data—♦Seunggeun Lee, University of Michigan

11:25 a.m. Mediation Analyzes for Dissecting the Role of DNA Methylation in Epidemiologic Studies—♦James Dai, Fred Hutchinson Cancer Research Center

11:50 a.m. Predictive Modeling of Transcriptomics in Ancestrally Diverse Populations—♦Timothy Thornton, University of Washington; Anya Mikhaylova, University of Washington

12:15 p.m. Floor Discussion

**141 CC-607**

**■ ● Statistical Understanding of Deep Learning—Invited**

Section on Statistical Learning and Data Science, International Chinese Statistical Association

Organizer(s): Will Wei Sun, Purdue University

Chair(s): Will Wei Sun, Purdue University

10:35 a.m. Stein Neural Sampler—♦Guang Cheng, Purdue Statistics; Tianyang Hu, Purdue Statistics; Zixiang Chen, Tsinghua Statistics; Hanxi Sun, Purdue Statistics; Jincheng Bai, Purdue Statistics; Mao Ye, Purdue Statistics

11:00 a.m. ALMOND: Adaptive Latent Modeling and Optimization via Neural Networks and Langevin Diffusion—♦Xiao Wang, Purdue University; Yixuan Qiu, Carnegie Mellon University

11:25 a.m. Some Statistical Insights into Deep Learning—♦Hao Wu, University of Southern California; Yingying Fan, University of Southern California; Jinchi Lv, University of Southern California

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

11:50 a.m.	Data-Dependent Regularization and Generalization Bounds of Deep Neural Networks—♦Tengyu Ma, Stanford University
12:15 p.m.	Floor Discussion

**142** CC-205

● **Memorial Session for Lawrence D. Brown—Invited Memorial, Caucus for Women in Statistics**  
Organizer(s): T. Tony Cai, The Wharton School, University of Pennsylvania  
Chair(s): T. Tony Cai, The Wharton School, University of Pennsylvania

10:35 a.m.	Brown's Impact on the Foundations of Statistics: Conditioning and Unification—♦James Berger, Duke University
11:05 a.m.	Linking Brown Identities to Variational Inequalities of Hardy and Kolmogorov—♦Anirban Dasgupta, Purdue University
11:35 a.m.	Model Selection Under Model Lean Framework—♦Linda Zhao, University of Pennsylvania
12:05 p.m.	Floor Discussion

**143** CC-507

■ ● **Critical Role of Statistics in Evaluating Real World Evidence for Legal and Regulatory Applications—Invited Stats. Partnerships Among Academe Indust. & Govt. Committee, Advisory Committee on Forensic Science, Health Policy Statistics Section**

Organizer(s): Pamela McGovern, U.S. Department of Agriculture  
Chair(s): Ying Ding, University of Pittsburgh

10:35 a.m.	Statistics and the Fair Administration of Justice—♦Hal Stern, University of California, Irvine; Alicia Carriquiry, Iowa State University; Bill Eddy, Carnegie Mellon University; Karen Kafadar, University of Virginia
11:00 a.m.	How Appropriate Analysis Can Improve the Legal System's Appreciation of the Strength of Statistical Evidence Submitted in EEO Cases—♦Joseph Lewis Gastwirth, George Washington University
11:25 a.m.	Critical Role of Statistics in Leveraging Real World Data and Evidence for Regulatory Decision-Making—♦Lilly Yue, U.S. Food and Drug Administration
11:50 a.m.	Disc: Barry Nussbaum
12:10 p.m.	Floor Discussion

**144**

■ ● **Digital Phenotyping—Invited Mental Health Statistics Section, American Association for the Advancement of Science, Academy for Health Services Research and Health Policy**

Organizer(s): Paul Dagum, Mindstrong Health  
Chair(s): Robert Dougherty, Mindstrong Health

10:35 a.m.	Digital Biomarkers in CNS Drug Development—♦Jane Tiller, BlackThorn Therapeutics
10:50 a.m.	Digital phenotyping as a pathway to targeted treatment in CNS Disorders—♦Isaac Galatzer-Levy, New York University
11:05 a.m.	Supervised Kernel PCA for Longitudinal Data in Mental Health—Gregory Ryslik, Mindstrong Health; ♦Patrick Staples, Mindstrong Health; Min Ouyang, Mindstrong Health; Paul Dagum, Mindstrong Health
11:20 a.m.	The Statistical Challenges of Integrating Data Across Multiple Brain Biomarker Sensors in the AURORA Study—♦Xinming An, Institute for Trauma Recovery, University of North Carolina; Samuel A McLean, Institute for Trauma Recovery, University of North Carolina; Donglin Zeng, UNC Chapel Hill; Ron Kessler, Harvard Medical School
11:35 a.m.	Digital Phenotypes of Psychiatric Morbidity—♦Paul Dagum, Mindstrong Health
11:50 a.m.	Disc: Amit Etkin, Stanford University
12:10 p.m.	Floor Discussion

**145**

● **Causal Inference—Invited IMS**

Organizer(s): Peter Bühlmann, ETH Zurich  
Chair(s): Alberto Roverato, University of Padua

10:35 a.m.	Bracketing in the Comparative Interrupted Time-Series Design to Address Concerns About History Interacting with Group: Evaluating Missouri's Handgun Purchaser Law—Raiden Hasegawa, University of Pennsylvania; Daniel Webster, Johns Hopkins University; ♦Dylan Small, University of Pennsylvania
11:05 a.m.	Anchor Regression: Heterogeneous Data Meets Causality—♦Dominik Rothenhäusler, UC Berkeley; Nicolai Meinshausen, ETH Zürich; Peter Bühlmann, ETH Zurich; Jonas Peters, University of Copenhagen
11:35 a.m.	Rerandomization and ANCOVA—♦Peng Ding, University of California, Berkeley; Xinran Li, Wharton Statistics
12:05 p.m.	Floor Discussion

**146**

**Scaling up Bayesian Inference for Massive Data Sets—Invited**

**IMS, International Society for Bayesian Analysis (ISBA), Section on Bayesian Statistical Science**

Organizer(s): Jonathan Huggins, Harvard University; David Dunson, Duke University

Chair(s): Jonathan Huggins, Harvard University

**CC-605**

10:35 a.m.	Continuous-Time Monte Carlo and Scalable Bayesian Inference—♦Paul Fearnhead, Lancaster University
11:00 a.m.	Scalable Gaussian Process Inference with Finite-Data Mean and Variance Guarantees—♦Tamara Broderick, Massachusetts Institute of Technology
11:25 a.m.	Gaussian Variational Approximation for High-Dimensional State Space Models—♦Robert Kohn, University of New South Wales
11:50 a.m.	Some Applications of Approximate MCMC—♦Anirban Bhattacharya, TAMU
12:15 p.m.	Floor Discussion

**147**

**■ ● Wald Lecture I—Invited**

**IMS**

Organizer(s): Piotr Fryzlewicz, London School of Economics

Chair(s): Robert Tibshirani, Stanford University

**CC-Four Seasons 1**

10:35 a.m.	Wald I: Statistical Learning with Sparsity—♦Trevor J Hastie, Stanford University
12:15 p.m.	Floor Discussion

**148**

**■ ● Statistical Methods, Challenges and Impacts on Early Phase Trials—Invited**

**ENAR, Biopharmaceutical Section, Statistics in Biopharmaceutical Research Journal**

Organizer(s): Yu Du, Eli Lilly and Company

Chair(s): Pandurang Kulkarni, Eli Lilly & Company

**CC-201**

10:35 a.m.	Model-Based Phase I Designs for Immuno-Oncology—♦Jun Yin, Mayo Clinic; Yu Du, Eli Lilly and Company; Sumithra Mandrekar, Mayo Clinic
10:55 a.m.	The Use of Bayesian Basket Design in Early Phase Trials—♦Shiling Ruan, Novartis; Matt Whiley, Novartis
11:15 a.m.	Advancing Pharmacogenomics Analysis of Drug Response in Early-Phase Clinical Trials—Judong Shen, Merck & Co., Inc.; ♦Hong Zhang, Merck & Co., Inc.;

Devan Mehrotra, Merck & Co., Inc

11:35 a.m.	Revolutionizing the Early Drug Development—♦Yongming Qu, Eli Lilly and Company
11:55 a.m.	Disc: Ying Yuan, University of Texas M.D. Anderson Cancer Center
12:15 p.m.	Floor Discussion

**149**

**CC-702**

**■ ● Government Cybersecurity Research: Statistical Challenges and Opportunities—Invited**  
**Section on Statistics in Defense and National Security, Section on Statistical Learning and Data Science, Government Statistics Section**

Organizer(s): Justin Newcomer, Sandia National Laboratories

Chair(s): Lyndsay Shand, Sandia National Laboratories

10:35 a.m.	A Broad Overview of AI/ML and Cybersecurity—♦Adam Cardinal-Stakenas, National Security Agency
11:00 a.m.	Latent Feature Models for Network Link Prediction with Labelled Nodes—♦Melissa Turcotte, Los Alamos National Laboratory
11:25 a.m.	Analyzing Cyber Networks Using Spectral Embedding and a Kernel-Based Procrustes Algorithm—♦David Marchette, NSWCDD
11:50 a.m.	Dynamic Model Updating for Streaming Classification and Clustering—♦Alexander Foss, Sandia National Laboratories
12:15 p.m.	Floor Discussion

**MONDAY**

**150**

**■ ● Recent Advances in Nonparametric Statistical Methods for Complex Data—Invited**

**Section on Nonparametric Statistics, IMS, Section on Statistical Learning and Data Science**

Organizer(s): Lingzhou Xue, Penn State University and National Institute of Statistical Sciences

Chair(s): Danning Li, Penn State University

10:35 a.m.	Statistical Approach to Topological Data Analysis—♦Kenji Fukumizu, Institute of Statistical Mathematics
11:00 a.m.	Dimension Reduction for Functional Databased on Weak Conditional Moments—♦Bing Li, The Pennsylvania State University; Jun Song, University of North Carolina at Charlotte
11:25 a.m.	Nonconvex Statistical Learning for the Dimensionality Reduction of High-Dimensional Data—♦Lingzhou

Xue, Penn State University and National Institute of Statistical Sciences; Shiqian Ma, University of California, Davis; Hui Zou, University of Minnesota

11:50 a.m. Detecting Rare and Weak Spikes in Large Covariance Matrices—♦Zheng Tracy Ke, Harvard University

12:15 p.m. Floor Discussion

**151**

**CC-505**

**■ ● Beyond the VAR: Advances in Spatial and Spatio-Temporal Modeling for Climate and Environmental Data—Invited**

Section on Statistics and the Environment, Section on Physical and Engineering Sciences, National Research Center for Statistics for the Environment

Organizer(s): Laura L Tupper, Williams College

Chair(s): Hannah Director, University of Washington

10:35 a.m. Spatial Extreme Value Analysis—♦Eric Gilleland, National Center for Atmospheric Research

11:00 a.m. Modeling Spatio-Temporal Clustering Behavior for Climate Data—♦Laura L Tupper, Williams College

11:25 a.m. Hybrid Statistical/Machine Learning Deep Dynamical Spatio-Temporal Models for Evaluating Climate Impacts—♦Christopher K. Wikle, University of Missouri

11:45 a.m. Understanding Urban Pollution Through Spatial-Temporal Modeling—♦Katherine Ensor, Rice University

12:15 p.m. Floor Discussion

**152**

**CC-106**

**■ ● Making an Impact in Statistics Education: Waller Award Winner Perspectives—Invited**

Section on Statistics and Data Science Education

Organizer(s): Stacey Hancock, Montana State University

Chair(s): Stacey Hancock, Montana State University

10:35 a.m. Is the Act All That Matters in Active Learning?—♦James Cochran, University of Alabama

10:50 a.m. Technology for Teaching Statistics - Can it Get Any Better Than This?—♦Robin Lock, St. Lawrence University

11:05 a.m. Roles of Statistics Educators Beyond the Classroom—♦Rebecca Nugent, Carnegie Mellon University

11:20 a.m. Teaching with Simulation-Based Inference Methods in 2020 and Beyond—♦Nathan Tintle, Dordt College

11:35 a.m. Recognizing Human Progress—♦Allan Rossman, Cal Poly - San Luis Obispo

11:50 a.m. Incorporating Community-Based Learning into the Classroom—♦Lynne Steuerle Schofield, Swarthmore College

12:05 p.m. Floor Discussion

**153**

**CC-101**

**■ ● Developing Multi-Purpose Imputed or Synthetic Data for Official Statistics—Invited**

Government Statistics Section, Survey Research Methods Section, Business and Economic Statistics Section

Organizer(s): Katherine J Thompson, U.S. Census Bureau

Chair(s): Demetra Lytras, U.S. Census Bureau

10:35 a.m. Finding a Flexible Hot Deck Imputation Method for Multinomial Data—♦Rebecca Andridge, The Ohio State University College of Public Health; Laura Bechtel, U.S. Census Bureau; Katherine J Thompson, U.S. Census Bureau

10:55 a.m. Calibrated Imputation Under Edit Restrictions—♦Ton De Waal, Statistics Netherlands; Jacco Daalmans, Statistics Netherlands

11:15 a.m. MLDS Synthetic Data Project: An Evaluation—♦Mark Lachowicz, University of Maryland, College Park; Daniel Bonnery, University of Maryland and Maryland Longitudinal Data System Center ; Yi Feng, University of Maryland, College Park; Angela Henneberger, University of Maryland, Baltimore; Tessa Johnson, University of Maryland, College Park; Bess Rose, University of Maryland, Baltimore; Terry Shaw, University of Maryland, Baltimore; Laura Stapleton, University of Maryland, College Park; Michael Woolley, University of Maryland, Baltimore; Yating Zheng, University of Maryland, College Park

11:35 a.m. Developing Synthetic Data from the Economic Census Under Edit and Calibration Restrictions—♦Katherine J Thompson, U.S. Census Bureau; Hang Joon Kim, University of Cincinnati

11:55 a.m. Disc: Jeffrey Gonzalez, Bureau of Labor Statistics

12:15 p.m. Floor Discussion

**154**

**CC-207**

**JASA TandM Invited Session—Invited**

**JASA, Theory and Methods**

Organizer(s): Regina Liu, Rutgers University; Hongyu Zhao, Yale

Chair(s): Regina Liu, Rutgers University

10:35 a.m.	The Blessings of Multiple Causes—♦David Blei, Columbia University; Yixin Wang,
11:10 a.m.	Disc: Susan Murphy, Harvard University
11:25 a.m.	Disc: Guido Imbens, Stanford University
11:40 a.m.	Disc: Kosuke Imai, Harvard University
11:55 a.m.	Disc: Alexander D'Amour, Google Brain
12:10 p.m.	Floor Discussion

**Topic Contributed Sessions 10:30 a.m.—12:20 p.m.**

**155 CC-107**

**■ ● Research Reproducibility for Precision Medicine: From Controlled Experiments to Real-World Evidence—Topic Contributed**

**Biopharmaceutical Section, Biometrics Section, Government Statistics Section**

Organizer(s): Wei Vivian Zhuang, U.S. Food and Drug Administration; Dong Wang, FDA National Center for Toxicological Research (NCTR)

Chair(s): Dong Wang, FDA National Center for Toxicological Research (NCTR)

10:35 a.m.	Make Genomics Reproducible Again -MAQC and Beyond—Weida Tong, FDA National Center for Toxicological Research (NCTR); ♦Zhihua Xu, U.S. Food and Drug Administration
10:55 a.m.	On Randomized Controlled Trials with Integrated Real World Evidence for Drug Development in Gene Therapy Trials—♦Qing Liu, Quantitative and Regulatory Medical Science, LLC
11:15 a.m.	Reproducible Evidence: Practices to Enhance and Achieve Transparency of "Real World" Evidence from "Real World" Databases—♦Shirley Wang,
11:35 a.m.	A Nonparametric Statistical Method for More Reproducible Biomarker Detection—♦Wei Zhuang, NCTR/U.S. FDA; Luisa Camacho, NCTR/U.S. FDA; Camila Silva, NCTR/U.S. FDA; Huixiao Hong, NCTR/U.S. FDA
11:55 a.m.	R Markdown: a Software Ecosystem for Reproducible Publications—♦Yihui Xie, RStudio, Inc.
12:15 p.m.	Floor Discussion

**156 CC-709**

**■ ● Statistical Interactions -Making an Impact in Health Science—Topic Contributed**

**Section on Risk Analysis, International Indian Statistical Association, Section on Statistics in Epidemiology, Section on Statistics in**

**Genomics and Genetics**

Organizer(s): Jaya M Satagopan, Memorial Sloan Kettering Cancer Center

Chair(s): Jaya M Satagopan, Memorial Sloan Kettering Cancer Center

10:35 a.m.	Identification of Gene-Gene and Gene-Environment Interactions in Genetic Association Studies—♦Charles Kooperberg, Fred Hutchinson Cancer Research Center
10:55 a.m.	Detection of Set-Based Gene-Environment Interactions for Substance Use Disorders—♦Saonli Basu, University of Minnesota, Biostatistics SPH; Brandon Coombes, Mayo Clinic; Matt McGue, University of Minnesota
11:15 a.m.	Test for Gene (G)-Environment (E) Interaction Based on the Trend Effect of Genotype Under an Additive Risk Model Using an Empirical Bayes-Type Shrinkage Estimator—♦Summer Han, Stanford University; Matthieu de Rochemonteix, Stanford University; Nilanjan Chatterjee, Johns Hopkins University
11:35 a.m.	Statistical Interaction and Mendelian Randomization: What They Have in Common?—♦Mariza de Andrade,
11:55 a.m.	Estimating Additive Interaction Effect in Stratified Two-Phase Case-Control Design—♦Ai Ni, The Ohio State University; Jaya M Satagopan, Memorial Sloan Kettering Cancer Center
12:15 p.m.	Floor Discussion

**157 CC-102**

**■ Big Survey Meets Big Data: Integrating Administrative Data into the American Community Survey—Topic Contributed**

**Survey Research Methods Section, Government Statistics Section, Social Statistics Section**

Organizer(s): Victoria A Velkoff, U.S. Census Bureau

Chair(s): Victoria A Velkoff, U.S. Census Bureau

10:35 a.m.	Broad Roles for Administrative and Third-Party Data in the ACS—♦Jennifer Ortman, U.S. Census Bureau
10:55 a.m.	Preliminary Research Investigating the Use of Administrative Records in the American Community Survey (ACS)—♦Nikolas Pharris-Ciurej, U.S. Census Bureau
11:15 a.m.	Simulating ACS Housing Estimates Using Administrative Data—♦Robert Sawyer, U.S. Census Bureau
11:35 a.m.	Measuring Income Using Administrative Data—♦Jonathan L. Rothbaum, U.S. Census Bureau
11:55 a.m.	Incorporating Administrative Data in ACS Editing and Imputation Procedures—♦Sandra Clark, U.S. Census Bureau
12:15 p.m.	Floor Discussion

**158**

**CC-104**

**Inference with Non-Probability Sample Through Data Integration—Topic Contributed**

**Survey Research Methods Section, SSC, Korean International Statistical Society**

Organizer(s): Sixia Chen, University of Oklahoma Health Sciences Center

Chair(s): Jae-kwang Kim, Iowa State University

10:35 a.m.	Nonparametric Mass Imputation for Data Integration— ♦Sixia Chen, University of Oklahoma Health Sciences Center; Jae-kwang Kim, Iowa State University; Shu Yang, North Carolina State University
10:55 a.m.	A Data-Driven Approach to Cell Ratio Estimation for Item Nonresponse in Survey Sampling—♦Danhyang Lee, Iowa State University; Jae-kwang Kim, Iowa State University
11:15 a.m.	A Kernel Weighting Approach to Improve Population Representativeness for Association Estimation— ♦Lingxiao Wang, ; Barry Graubard, National Cancer Institute; Hormuzd Katki, US National Cancer Institute; Yan Li, University of Maryland at College Park
11:35 a.m.	General Purpose Multiply Robust Data Integration Procedure for Combining Probability and Non-Probability Samples—♦David Haziza, Universitéde Montréal; Sixia Chen, University of Oklahoma Health Sciences Center
11:55 p.m.	Disc: Phil Kott, RTI
12:15 p.m.	Floor Discussion

**159**

**CC-302**

**■ ● Novel Approaches for Diagnostics and Prediction with Complex Data—Topic Contributed**

**International Chinese Statistical Association, Biometrics Section, Section on Medical Devices and Diagnostics**

Organizer(s): Wei Zhang, Eunice Kennedy Shriver National Institute of Child Health and Human Development, NIH

Chair(s): Aiyi Liu, Eunice Kennedy Shriver National Institute of Child Health and Human Development, NIH

10:35 a.m.	Assessing the Incremental Value of New Biomarkers Based on or Rules—♦Ying Huang, Fred Hutchinson Cancer Research Center; Lu Wang, Fred Hutchinson Cancer Research Center; Alex R. Luedtke, Dept. of Statistics- University of Washington
10:55 a.m.	Statistical Monitoring of Hemodialysis Treatments via Raman Spectral Analysis—♦Pang Du, Virginia Tech; Yunnan Xu, Virginia Tech
11:15 a.m.	Recent Advances in Statistical Methods for Biomarker Evaluation: NaÔve Pooling Vs Umbrella Ordering—♦Lili Tian, SUNY at Buffalo; Yingdong Feng, SUNY at

Buffalo; Dan Wang, Eli Lilly

11:35 a.m.	A Resample-Replace Lasso Procedure for Combining High-Dimensional Markers with Limit of Detection— ♦Yunpeng Zhao, Arizona State Univ; Jinjuan Wang, University of Chinese Academy of Sciences; Larry Tang, George Mason University; Claudius Mueller, George Mason University; Qizhai Li, Academy of Mathematics and Systems Science, Chinese Academy of Science
11:55 a.m.	A Joint Prediction Model with Partial Network Data with Informative Cluster Size—♦Danping Liu, National Cancer Institute
12:15 p.m.	Floor Discussion

**160**

**CC-110**

**■ Editor's Choice: Papers Published in the American Statistician During 2018—Topic Contributed**

**Biometrics Section, Section on Bayesian Statistical Science, Section on Statistical Learning and Data Science**

Organizer(s): Daniel Jeske, University of California, Riverside

Chair(s): Daniel Jeske, University of California, Riverside

10:35 a.m.	Abandon Statistical Significance—♦Blakeley McShane, Northwestern University; Andrew Gelman, Columbia University; Christian Robert, Ceremade - UniversitéParis-Dauphine ; David Gal, University of Illinois at Chicago; Jennifer Tackett, Northwestern University
10:55 a.m.	On Mixture Alternatives and Wilcoxon's Signed-Rank Test—♦Jonathan Rosenblatt, Ben Gurion University of the Negev; Yoav Benjamini, Tel Aviv University
11:15 a.m.	A Bayesian Survival Analysis of a Historical Dataset: How Long Do Popes Live?—♦Luciana Dalla Valle, University of Plymouth; Julian Stander, University of Plymouth; Mario Cortina-Borja, UCL GOS Institute of Child Health
11:35 a.m.	Guns and Suicides—♦Danilo Santa Cruz Coelho, Instituto de Pesquisa Econômica Aplicada; Daniel Cerqueira, Instituto de Pesquisa Econômica Aplicada; Marcelo Fernandes, São Paulo School of Economics, FGV; Jony Pinto Junior, Universidade Federal Fluminense
11:55 a.m.	Forecasting at Scale—♦Sean Taylor , Facebook
12:15 p.m.	Floor Discussion

**161**

**CC-301**

**■ ● Dynamic Interactive Data Visualization and Utilization—Topic Contributed**

**Section on Statistical Graphics, Section on Physical and Engineering Sciences, Quality and Productivity Section**

Organizer(s): Blanton Godfrey, North Carolina State University

Chair(s): Blanton Godfrey, North Carolina State University

10:35 a.m. Visual Analytics for Effective Human-Computer Collaborative Decision Making to Solve Global Challenges—♦David S. Ebert, Purdue

10:55 a.m. Data Visualization Challenges in Reducing Maternal and Child Mortality in Support of the UN's Sustainable Development Goal 3—♦Shaghayegh Arangdad, Blanton Godfrey, North Carolina State University

11:15 a.m. Applying Dynamic Interactive Visualization for Statistical Discovery in JMP—♦Boyd Alexander Gregg, III, SAS Institute, Inc.

11:35 a.m. Using Leaflet.Js to Interactively Map the Opioid Crisis—♦Peter Herman, NORC at the University of Chicago; Ned English, NORC at the University of Chicago

11:55 a.m. Disc: Lori H. Rothenberg, North Carolina State Un.

12:15 p.m. Floor Discussion

**162**

**SBSS Student Paper Award Session - I—Topic Contributed**

**Section on Bayesian Statistical Science**

Organizer(s): Surya Tokdar, Duke University

Chair(s): Surya Tokdar, Duke University

**CC-705**

10:35 a.m. A Hierarchical Spatio-Temporal Statistical Model Motivated by Glaciology—♦Giri Gopalan, University of Iceland; Birgir Hrafnelsson, University of Iceland; Christopher K. Wikle, University of Missouri; Håvard Rue, King Abdullah University of Science and Technology; Guðfinna Th Aðalgeirs Þóttir, University of Iceland; Alexander H. Jarosch, University of Innsbruck; Finnur Pálsson, University of Iceland

10:55 a.m. Bayesian Hierarchical Modeling on Covariance Valued Data—♦Satwik Acharyya, Texas A&M University; Zhengwu Zhang, University of Rochester Medical Center; Anirban Bhattacharya, TAMU; Debdeep Pati, Texas A&M University

11:15 a.m. A New Class of Unimodal, Asymmetric, Heavy-Tailed Densities with Applications to Regression and Time-Series Models—♦Li Kang, University of Texas At Austin

11:35 a.m. Maximum Entropy Based Probabilistic Mass-Radius Relation of Exoplanets—♦Qi Ma, North Carolina State University; Sujit Ghosh, North Carolina State Univ.

11:55 a.m. Survival Average Causal Effects for Continuous Time: a Principal Stratification Approach to Causal Inference with Semicompeting Risks—♦Leah Comment, Harvard Biostatistics

12:15 p.m. Floor Discussion

**163**

**■ ● Methods for Complex Data: The Next Generation—Topic Contributed**

**Business and Economic Statistics Section, Section on Statistical Learning and Data Science, Business Analytics/Statistics Education Interest Group, IMS**

Organizer(s): David Matteson, Cornell University

Chair(s): Ines Wilms, Maastricht University

10:35 a.m. Structured Shrinkage Priors—♦Maryclare Griffin, Cornell University Center for Applied Mathematics; Peter Hoff, Duke University

10:55 a.m. High-Dimensional Causal Discovery with Non-Gaussian Data—♦Y. Samuel Wang, University of Chicago; Mathias Drton, University of Washington

11:15 a.m. Non-Gaussian Dimensionality Reduction—♦Sven Serneels, BASF Corp.

11:35 a.m. Learning Local Dependence in Ordered Data—♦Guo Yu, University of Washington; Jacob Bien, University of Southern California

11:55 a.m. Sequential Change-Point Detection for High-Dimensional and Non-Euclidean Data—♦Lynna Chu, University of California, Davis; Hao Chen, University of California, Davis

12:15 p.m. Floor Discussion

**CC-708**

**■ ● FDA Adaptive Designs and Master Protocols Guidance for Clinical Trials -Reflection and Outlook—Topic Contributed**

**Biopharmaceutical Section, Section on Bayesian Statistical Science, Biometrics Section**

Organizer(s): Shiling Ruan, Novartis; Fanni Natanegara, Eli Lilly and Company; Aijun Gao, Covance/Chiltern

Chair(s): Aijun Gao, Covance/Chiltern

**164**

**■ ● FDA Adaptive Designs and Master Protocols Guidance for Clinical Trials -Reflection and Outlook—Topic Contributed**

**Biopharmaceutical Section, Section on Bayesian Statistical Science, Biometrics Section**

Organizer(s): Shiling Ruan, Novartis; Fanni Natanegara, Eli Lilly and Company; Aijun Gao, Covance/Chiltern

Chair(s): Aijun Gao, Covance/Chiltern

**CC-112**

**■ ● FDA Adaptive Designs and Master Protocols Guidance for Clinical Trials -Reflection and Outlook—Topic Contributed**

**Biopharmaceutical Section, Section on Bayesian Statistical Science, Biometrics Section**

Organizer(s): Shiling Ruan, Novartis; Fanni Natanegara, Eli Lilly and Company; Aijun Gao, Covance/Chiltern

Chair(s): Aijun Gao, Covance/Chiltern

10:35 a.m. How the 2018 FDA Adaptive Design Draft Guidance Can Help to Increase the Use of Adaptive Designs in Industry—♦David Manner, Eli Lilly & Company

10:55 a.m. Increasing Efficiency of Oncology POC Studies Using Bayesian Adaptive Approach—♦Rong Liu, Celgene Co.

11:15 a.m. Finding a Balance of Synergy and Flexibility in Master Protocols—♦Melanie Quintana, Berry Consultants; Scott Berry, Berry Consultants

11:35 a.m. Points to Consider in the Design of Adaptive Platform Clinical Trials in Non-Alcoholic Steatohepatitis—♦Peter Mesenbrink, Novartis Pharmaceuticals

11:55 a.m. Disc: Telba Irony, FDA CBER

12:15 p.m. Floor Discussion

**Topic Contributed Panels 10:30 a.m.—12:20 p.m.**

**165 CC-503**

**■● Assessing Climate Risks: The Actuaries Climate Index, the Actuaries Climate Risk Index, and the Australian Actuaries Climate Index—Topic Contributed Casualty Actuarial Society**

Organizer(s): Steve Jackson, American Academy of Actuaries

Chair(s): Lucas Joppa, Microsoft

Panelists: ♦ Steve Jackson, American Academy of Actuaries  
♦ Rade Musulin, FBAlliance Insurance  
♦ Peter Sousounis, AIR Worldwide  
♦ Michael Wehner, Lawrence Berkeley National Laboratory

12:10 p.m. Floor Discussion

**166 CC-703**

**■● New Developments for Using R in the Biopharmaceutical Industry—Topic Contributed Section for Statistical Programmers and Analysts, Biopharmaceutical Section, Section on Statistical Learning and Data Science**

Organizer(s): Kuolung Hu, Ionis Pharmaceuticals, Inc.

Chair(s): Marianne Miller, Eli Lilly and Company

Panelists: ♦ Jeremy Wildfire, RHO, Inc  
♦ Min Lee, Amgen  
♦ Satha Thill, AbbVie  
♦ Eric Nantz, Eli Lilly  
♦ Paul Schuette, FDA

12:10 p.m. Floor Discussion

**167 CC-502**

**SPEED: Missing Data and Causal Inference Methods, Part 1—Contributed**

**Health Policy Statistics Section**

Chair(s): Donna L. Coffman, Temple University

10:35 a.m. Developing and Evaluating Methods to Impute Race/Ethnicity in an Incomplete Dataset—♦ Gabriella Silva, Brown University; Amal N. Trivedi, Brown University; Roee Gutman, Brown University

10:40 a.m. Impact of Missing Data on Bias and Precision When Estimating Change in Patient-Reported Outcomes from a Clinical Registry—♦ Olawale Fatai Aiyilara, University of Manitoba; Lixia Zhang, University of Manitoba; Tolulope T Sajobi, University of Calgary; Richard Sawatzky, School of Nursing, Trinity Western University; Eric

Bohm, University of Manitoba; Lisa M Lix, University of Manitoba

10:45 a.m. Comparison of Missing Data Imputation Methods in Longitudinal Study of ADRD Patients—♦ Yi Cao, Brown University; Roee Gutman, Brown University; Heather Allore, Yale University; Brent Vander Wyk, Yale University

10:50 a.m. Latent Class Analysis for Classification of Latent Policy Environments: a Case Study—♦ Bryan Blette, University of North Carolina at Chapel Hill; Leah Frerichs, University of North Carolina at Chapel Hill; Annie Green Howard, The University of North Carolina at Chapel Hill

10:55 a.m. Measuring Hospital Acquired Infection Rates Under Incomplete Sampling—♦ Derek Sonderegger, Northern Arizona University

11:00 a.m. Developing a Generalizable Algorithm for Classifying COPD Using Electronic Health Record Data: Combining Expert Medical Curation and Surrogate-Assisted Feature Extraction—♦ Su Chu, Harvard Medical School; Jessica Lasky-Su, Brigham and Women's Hospital and Harvard Medical School; Michael Cho, Brigham and Women's Hospital and Harvard Medical School; Emily Wan, Brigham and Women's Hospital and Harvard Medical School; Scott Weiss, Brigham and Women's Hospital and Harvard Medical School; Elizabeth Karlson, Brigham and Women's Hospital and Harvard Medical School

11:05 a.m. Clustering of Longitudinal Trajectories with Multinomial EM Algorithm Based on State-Transition Templates—♦ John Rice, Colorado School of Public Health; Elizabeth Juarez-Colunga, University of Colorado Denver; James Feinstein, University of Colorado, Denver

11:10 a.m. Bayesian Inference of Separable Covariance Models for Health Care Quality Measures—♦ Judith Law, Harvard Medical School; Laura A Hatfield, Harvard Medical School; Alan M. Zaslavsky, Harvard Medical School

11:15 a.m. HIV Prevalence in Key Populations: a Semiparametric Bayesian Hierarchical Model for Scarce and Imbalanced Data—♦ Amy Zhang, Pennsylvania State University; Le Bao, Pennsylvania State University; Michael Daniels, University of Florida

11:20 a.m. Using a Combination of Nearest Matching and Synthetic Control Methods in Causal Inference Study—♦ Zhiyuan Dong,

11:30 a.m. Sensitivity to Unmeasured Confounders: Percutaneous Coronary Intervention (PCI) vs. Coronary Artery Bypass Grafting (CABG) in Patients with Stable Ischemic Heart Disease—♦ Lewei Duan, Kaiser Permanente

11:35 a.m. Heterogeneous Treatment Effects with Subgroups via the Overlap Weights—♦ Elizabeth Lorenzi,

11:40 a.m. Generalizing Health Insurance Plan Effects on Medicaid Spending with Randomized and Observational Data—♦ Irina Degtiar, Harvard T.H. Chan School of Public Health; Francesca Dominici, Harvard T.H. Chan School of Public Health; Sherri Rose, Harvard Medical School

11:45 a.m. The Impact of Covariance Priors on Arm-Based Bayesian Network Meta-Analyzes with Binary Outcomes—

11:50 a.m.	◆ Zhenxun Wang, University of Minnesota, Lifeng Lin, Florida State University; JIM HODGES, UNIVERSITY OF MINNESOTA; Haitao Chu, University of Minnesota	11:00 a.m. Statistical Postprocessing for Seasonal Weather Forecasts—♦ Claudio Heinrich,
11:55 a.m.	A Tutorial on Applying Propensity Score Methods for Characterization of Treatment Effects on Patient Outcomes Using a Medical Claims Database—♦ Ryan Ross, University of Michigan; Megan Caram, Institute for Health Policy and Innovation, University of Michigan Medical School; Paul Lin, Institute for Health Policy and Innovation, University of Michigan Medical School; Min Zhang, University of Michigan; Bhramar Mukherjee, University of Michigan	11:05 a.m. Reconstruction of <i>Alnus Viridis</i> Glacial Refugia Through Data Integration—♦ Mauricio Campos, University of Illinois at Urbana Champaign; Bo Li, University of Illinois at Urbana-Champaign; Shreya Khurana, University of Illinois at Urbana Champaign; Joseph Napier, University of Illinois at Urbana Champaign; Guillaume deLafontaine, Université du Québec à Rimouski, UQAR; Feng Sheng Hu, University of Illinois at Urbana Champaign
12:00 p.m.	Variable Selection in Causal Inference—♦ Tingting Zhou, University of Michigan School of Public Health; Michael Elliott, University of Michigan; Roderick J Little, University of Michigan School of Public Health	11:10 a.m. Characterization of Spatial and Temporal Trends of Extreme Precipitation Using Functional Principal Component Analysis—♦ Miyabi Ishihara, UC Berkeley; Christopher Paciorek, University of California; Mark Risser, Lawrence Berkeley National Laboratory; Michelle Yu, University of California, Berkeley
12:05 p.m.	True Trend or Just Pretend? Alternative Loss Functions to Reduce Overfitting in Synthetic Controls—♦ Alyssa Bilinski, Laura A Hatfield, Harvard Medical School	11:15 a.m. Impact of ENSO and NAO on Extreme Monthly Precipitation of the USA—♦ BHIKHARI THARU, Spelman College
12:10 p.m.	Hospital Report Cards: Matched Design Versus Machine Learning—♦ Frank Yoon,	11:20 a.m. Predictive Model Checking of a Wildlife Occupancy Model with a Partially-Known Stopping Rule—♦ Aaron Springford, Weyerhaeuser; Jay Jones, Weyerhaeuser
12:15 p.m.	A Generalized Interrupted Time Series Model for Assessing Complex Health Care Interventions—♦ Maricela Cruz, University of California, Irvine; Daniel L. Gillen, University of California, Irvine; Hernando Ombao, King Abdullah University of Science and Technology (KAUST)	11:30 a.m. Prenatal Exposure to PM2.5 Species and DNA Methylation in Newborns: a Novel Statistical Framework—♦ Jenny Lee, Harvard School of Public Health; Tamar Sofer, Brigham and Women's Hospital, Harvard Medical School; Andres Cardenas, University of California, Berkeley - School of Public Health; Brent A. Coull, Harvard T. H. Chan School of Public Health
	Floor Discussion	11:35 a.m. Benefits of Monte Carlo Imputation of Non-Detects in Environmental Data—♦ Kirk Cameron, Macstat Consulting, Ltd.
		11:40 a.m. Trend Assessment for Daily Snow Depths with Changepoints Considerations—♦ Jaechoul Lee, Boise State University; Robert Lund, Clemson University; Jonathan Woody, Mississippi State University; Yang Xu, Mississippi State University
		11:45 a.m. Classifying Geographic Regions with Imperfect Labels—♦ Forrest Paton, McMaster University; Paul D McNicholas, McMaster University
		11:50 a.m. Temporal Effects Comparison Across Four Treatments Applied to Ponderosa Pine for the Suppression and Prevention of Elytroderma Needle Disease—♦ Ekaterina Smirnova, Virginia Commonwealth University; Joel M Egan, US Forest Service; Leonid Kalachev, University of Montana; John Goodburn, University of Montana; Kathleen McKeever, US Forest Service
		11:55 a.m. A Daily Rainfall Model for Multiple Sites for Use in Statistical Downscaling—♦ Yiming Liu, University of New Hampshire; Ernst Linder, University of New Hampshire

**168**

**CC-501**

**SPEED: Environmental Statistics Methods and Applications, Part 1—Contributed**  
**Section on Statistics and the Environment, Section on Bayesian Statistical Science**  
Chair(s): Trevor Hefley, Kansas State University

10:35 a.m.	Bias Correction of Bounded Location Error in Binary Data—♦ Nelson Walker, Kansas State University; Trevor Hefley, Kansas State University; Daniel Walsh, US Geological Survey
10:40 a.m.	Marked Determinantal Point Processes—♦ Yiming Feng, Florida State University; Fred Huffer, Florida State University
10:45 a.m.	Meta-Analysis Accounting for Spatial and Temporal Studies: Bald and Golden Eagle Productivity—♦ Mark Otto, Fish and Wildlife Service
10:50 a.m.	Multi-Scale Vecchia Approximations of Gaussian Processes—♦ Jingjie Zhang, Texas A&M University; Matthias Katzfuss, Texas A & M University
10:55 a.m.	Yield Forecasting Based on Short Time Series with High Spatial Resolution Data—♦ Sayli Pokal, University of Nebraska-Lincoln; Yuzhen Zhou, University of Nebraska Lincoln; Trenton Franz, University of Nebraska Lincoln

12:00 p.m.	Uncertainty Quantification for Joint Retrieval of Temperature, Humidity, and Cloud States from Satellite Data—♦ Jonathan Hobbs, Jet Propulsion Laboratory
12:05 p.m.	Spatially Informed Aggregation of Orbiting Carbon Observatory Measured XCO <sub>2</sub> for Global Flux Inversion—♦ Joaquim Teixeira, NASA Jet Propulsion Laboratory
12:10 p.m.	Bayesian Analysis of Multifidelity Computer Models with Local Features and Non-Nested Experimental Designs—♦ Bledar Konomi, University of Cincinnati; Georgios Karagiannis, Durham University
12:15 p.m.	Floor Discussion

**169** **CC-103**  
**SPEED: Improving Survey Data Quality with Multiple Data Sources, Administrative Data, and Nonresponse Bias Control—Contributed**  
**Survey Research Methods Section**

Chair(s): Karol Krotki, RTI International

10:35 a.m.	Accessing and Exploring NCES Survey and Administrative Data Through Self-Guided Online Training Modules—♦ Andrew A White, National Center for Education Statistics
10:40 a.m.	Hot Deck Imputation Cells for the American Housing Survey—♦ Chrystine Tadler, Insight Policy Research; Richard Griffiths, Insight Policy Research
10:45 a.m.	Calibration Weighting for Nonreporting Agencies in FBI's National Incident Based Reporting System—♦ Philip Lee, RTI; Dan Liao, RTI International; Marcus Berzofsky, RTI; Alexia Cooper, Bureau of Justice Statistics
10:50 a.m.	HIGHER ORDER CALIBRATED ESTIMATOR in TWO STAGE SAMPLING—♦ Veronica Salinas,
10:55 a.m.	Nurse Effects on Nonresponse to Survey-Based Biomeasures—♦ Joseph Sakshaug, Institute for Employment Research / University of Mannheim; Alexandru Cernat, University of Manchester; Tarani Chandola, University of Manchester; James Nazroo, University of Manchester; Natalie Shlomo, University of Manchester
11:00 a.m.	Carry Forward Imputation for Unit Non-Response After a Survey Redesign—♦ Kimberly Ault, RTI International
11:05 a.m.	Effect of Monetary Incentives on Response Rates and Data Quality in a Survey of the U.S. Military—♦ David McGrath, Department of Defense (DOD)
11:10 a.m.	Impact of Spatial Sampling on Survey Development and Analysis—♦ Atisha Amin, Ipsos; Beatrice Abiero, Ipsos
11:15 a.m.	Comparison of Alternative Variance Estimators for Raking in the Presence of Nonresponse—♦ Daifeng

11:20 a.m.	Han, Westat; Richard Valliant, University of Maryland and University of Michigan
11:30 a.m.	Proper Variance Estimation When Adjusting for Both Unknown Eligibility and Unit Nonresponse—♦ Dhuly Chowdhury, RTI International; Phil Kott, RTI
11:35 a.m.	Coverage Error in Administrative Data: An Assessment of the National Incident Based Reporting System—♦ Sarah Zimmermann, RTI International; Dan Liao, RTI International; Marcus Berzofsky, RTI; Alexia Cooper, Bureau of Justice Statistics
11:40 a.m.	A Smooth Pseudo-Population Bootstrap Approach in Survey Sampling with Applications to Quantile Estimators—♦ Christian Léger, Université de Montréal; Vanessa McNealis, Université de Montréal
11:45 a.m.	Doubly Robust Imputation in Complex Surveys Under Informative and Noninformative Sampling with Application to NHANES 2015-16 Data—♦ Michael Machiorlatti, ; Sixia Chen, University of Oklahoma Health Sciences Center
11:50 a.m.	Measures for Identifying Highly Associated Categorical Variables in Survey Data—♦ Natalia Weil, Westat; Ismael Flores Cervantes, Westat
11:55 a.m.	Oversampling Minority Populations in a Dual-Frame Telephone Survey—♦ Alexander Stubblefield, University of Oklahoma Health Sciences Center; Sixia Chen, University of Oklahoma Health Sciences Center; Julie Stoner, University of Oklahoma Health Sciences Center
12:00 p.m.	Likelihood Based Estimation of Finite Population Mean with Post-Stratification Information Under Nonignorable Nonresponse—♦ Sahar Zangeneh, Fred Hutchinson Cancer Research Center; Roderick J Little, University of Michigan School of Public Health
12:05 p.m.	Exploring Hybrid Methods for Estimation with Combined Probability and Nonprobability Samples—♦ Qiao Ma, NORC at University of Chicago; Edward Mulrow, NORC at the University of Chicago
12:10 p.m.	PRIOR DISTRIBUTIONS for FULLY BAYESIAN MRP: INSERTING INFORMATION USING INFORMATIVE PRIORS on COMPLEX MODEL STRUCTURES—♦ Alexa DiBenedetto, Ipsos; Luke Vaicunas, Ipsos Public Affairs; Robert Petrin, Ipsos Public Affairs
12:15 p.m.	An Evaluation of Traditional and Machine Learning Imputation Methods for Sampling Frame Construction for the American Voices Project—♦ Cong Ye, Variance Estimation for Nearest Neighbor Imputed Data—♦ Xiaofei Zhang, Iowa State Univ; Wayne Fuller, Iowa State University

**170** **CC-105**  
**SPEED: Biopharmaceutical Methods and Application I, Part 1—Contributed**  
**Biopharmaceutical Section**

Chair(s): Sarah Ryan,

10:35 a.m. Bayesian Leveraging of Historical and Concurrent Data to Assess the Contribution of a New Molecular Entity with a Delayed Effect in a Combination Survival Trial—♦Samson Ghebremariam, Novartis Pharmaceutical Corporation; Lisa Hampson, Novartis Pharmaceutical Corporation; Amy Racine-Poon, Novartis Pharmaceutical Corporation; Beat Neuenschwander, Novartis Pharmaceutical Corporation; Bharani Dharan, Novartis Pharmaceuticals; Kalyanee Appanna, Novartis Pharmaceutical Corporation

10:40 a.m. Design of Clinical Trials for Bivariate Endpoints—♦Junxiao Hu, University of Colorado; Patrick Blatchford, University of Colorado; John Kittelson, University of Colorado

10:45 a.m. Bayesian Modeling in Historical Data Borrowing on Controls in Clinical Trials—♦Zhuqing Yu, AbbVie Inc.; Zailong Wang, AbbVie Inc.; Lanju Zhang,

10:50 a.m. Analysis Methods for Skewed Data Distributions—♦Annpey Pong,

10:55 a.m. Identification of Potential Predictive Biomarker Candidates Through Strategic Analysis of Cytokine Profiles Across Multiple Anti-PD-1 Clinical Trials—♦Jeea Choi, Novartis; Ying Amanda Wang, Novartis; John Millholland, Novartis; Albert Reising, Novartis; Jan Christoph Bräse, Novartis; Xiaoshan Wang, Novartis; Connie Wong, Novartis; Kitty Wan, Novartis; Yiqun Yang, Novartis; Gullu Gorgun, Novartis; Parul Patel, Novartis; Hemant Patel, Novartis

11:00 a.m. Precise and Accurate Power of the Rank-Sum Test for a Continuous Variable—♦Katie Rose Mollan, University of North Carolina Chapel Hill; Ilana Trumble, University of Colorado Denver; Sarah Reifeis, University of North Carolina at Chapel Hill; Orlando Ferrer, University of North Carolina Chapel Hill; Camden P Bay, Harvard Medical School; Pedro L. Baldoni, University of North Carolina At Chapel Hill; Michael Hudgens, University of North Carolina at Chapel Hill

11:05 a.m. Reducing Misclassification Effect on Dynamic Treatment Regimen (DTR) of Sequential Multiple Assignment Randomized Trial Designs (SMART)—♦Jun He, Virginia Commonwealth University; Roy T Sabo, Virginia Commonwealth University; Donna McClish, VCU

11:10 a.m. Simple Adjustment for Bias Due to Unobserved Confounding—♦Yiran (Bonnie) Hu, AbbVie; Hui Xie, University of Illinois at Chicago

11:15 a.m. Umbrella and Platform Trials: Statistical Considerations on Efficiencies and a Case Study—♦Xiaoyun (Nicole) Li, Merck; Cong Chen, Merck & Co., Inc; Fang Liu, Merck; Wen Li, Merck

11:20 a.m. Event Prediction with a Maximum Enrollment—♦Lei Hua, Agios Pharmaceuticals; Junyi Zhou, Indiana University

11:30 a.m. Evaluating the "One-Model Fits All" Approach for Modeling Clinical Trial Adverse Events—♦Stephanie Pan,

11:35 a.m. How Many Imputations Are Enough When Reporting Clinical Trials?—♦Anders Gorst-Rasmussen, Novo Nordisk A/S

11:40 a.m. Meta-Analysis of Longitudinal Preclinical Efficacy Screens—♦William Forrest, Genentech, Inc; Bruno Alicke, Genentech; Magdalena Osinska, Genentech; Shannon Ruppert, Genentech; Michal Jakubczak, Roche; Paweł Piatkowski, Roche

11:45 a.m. The Application of Beta Regression for Modeling a Covariate Adjusted ROC—♦Xing Meng, Baylor University; Jack D. Tubbs, Baylor University

11:50 a.m. Examining the Replication Crisis: The Effect of Underpowered Studies and Publication Bias—♦Christine M. Orndahl, Virginia Commonwealth University Dept of Biostatistics; Robert A. Perera, VCU Department of Biostatistics

11:55 a.m. Comparison of Bayesian Network Meta-Analysis Models for Survival Data—♦Purvi Prajapati, Baylor University; James D Stamey, Baylor University; John Seaman, Baylor University; Michael Sonksen, Eli Lilly & Co.; Min-Hua Jen, Eli Lilly & Co.

12:00 p.m. Advantages of Parallel Design Over Crossover Design in the Study on Effects of Cannabis on Driving in Healthy Adults—♦Anya Umlauf, UC San Diego; Barth Wilsey, UC San Diego; Thomas Marcotte, UC San Diego; Florin Vaida, UC San Diego

12:05 p.m. Probability of Undetectable Error in Independent Dual Programming Validation for Analysis Results in Clinical Trials—♦Long Zheng, Takeda Pharmaceutical

12:10 p.m. An Extension of Cohen's Kappa for Clustered Data and Group Sequential Testing—♦Mary Ryan, University of California, Irvine; Daniel L. Gillen, University of California, Irvine

12:15 p.m. Flexible Semiparametric Bayesian Hierarchical Model for Basket Trials—♦Veronica Bunn, Takeda Pharmaceuticals; Jianchang Lin, Takeda Pharmaceuticals; Rachael Liu, Takeda Pharmaceuticals

MONDAY

171

CC-108

### Missing Data—Contributed Biometrics Section

Chair(s): Stephanie Shipp, University of Virginia, Biocomplexity Institute & Initiative, Social & Decision Analytics

10:35 a.m. Evaluation of Imputation Approaches for Disease Diagnosis When Risk Factors Have Missing Values—♦Katherine E Irimata, National Center for Health Statistics; Guangyu Zhang, National Center for Health Statistics

10:50 a.m.	Bayesian Analysis of Longitudinal Quality of Life Measures with Informative Missing Data Using a Selection Model—♦Jaeil Ahn, Georgetown University
11:05 a.m.	Marginal Indirect Standardization Using Latent Clustering on Multiple Reference Hospitals—♦Yifei Wang, University of California, San Francisco; Daniel Tancredi, University of California, Davis; Diana Miglioretti, University of California, Davis
11:20 a.m.	Weighting Estimators for Cox Regression for Studying Etiological Heterogeneity with Partially Observed Multiple Markers—♦Jooyoung Lee, Harvard T.H. Chan School of Public Health; Molin Wang, Harvard T.H. Chan School of Public Health
11:35 a.m.	Comparison of Sampling Designs for the Selection of a Validation Subset to Address Correlated Covariate and Failure-Time Outcome Error—♦Eric Oh, University of Pennsylvania; Thomas Lumley, University of Auckland; Bryan E Shepherd, Vanderbilt University School of Medicine; Pamela Shaw, University of Pennsylvania
11:50 a.m.	Contrasting a Longitudinal Factor Model with a Linear Mixed-Effects Model to Address Incomplete Data on Repeated Measures in an AIDS Prevention Study—♦Panteha Hayati Rezvan, University of California Los Angeles; Xiang Lu, University of California Los Angeles; Thomas Belin, UCLA
12:05 p.m.	Multiple Imputation for Censored Covariate Using Fully Conditional Specification Method—♦Jingyao Hou, ; Jing Qian, University of Massachusetts Amherst

MONDAY

<b>172</b>	<b>CC-109</b>
<b>Quantitative Decision Making in Clinical Trials—Contributed</b>	
Biopharmaceutical Section	

Chair(s): Xiao Fang, Merck

10:35 a.m.	Defensive Efficacy Interim Design: Dynamic Benefit/Risk Ratio View Using Probability of Success—♦Zhongwen Tang, Abbvie
10:50 a.m.	In Silico Clinical Trials†: a Way to Improve Clinical Development?—♦Nicolas SAVY, Toulouse Institute of Mathematics; Philippe SAINT-PIERRE, Toulouse Institute of Mathematics ; Stephanie SAVY, ESTRIALS; Emmanuel PHAM, IPSEN Innovation SAS
11:05 a.m.	Single-Arm Two- and Three-Stage Phase 2 Clinical Trials with Go/No-Go/Inconclusive Outcomes with Handling of Overrunning/Under-Running—♦Bob Zhong, Johnson and Johnson; Wenchuan Guo, Bristol-Myers Squibb Company; Jianan Hui, Boehringer Ingelheim Pharmaceuticals Inc.
11:20 a.m.	Quantitative Decision-Making for Single Arm POC Studies in Early Phase Oncology—♦Zhuqing Tina Liu, Eli Lilly and Company; Jingyi Liu, Eli Lilly and Company

11:35 a.m.	Quantitative Decision Making in Early Clinical Development -Some Statistical Considerations—♦Weidong Zhang, Pfizer
11:50 a.m.	Bayesian Interim Prediction of Probability of Clinical Trial Success—♦Ying Grace Li, Eli Lilly and Company
12:05 p.m.	Infusing Bayesian Strategies for Pharmaceutical Manufacturing and Development—♦Bill Pikounis, Johnson & Johnson; Dwaine Banton, Janssen R&D; John Oleynick, Johnson & Johnson; Jyh-Ming Shoung, Janssen R&D

<b>173</b>	<b>CC-113</b>
<b>Bayesian Methods Applied to Biometric Problems—Contributed</b>	
ENAR	

Chair(s): Guoqing Wang, Johns Hopkins Bloomberg School of Public Health

10:35 a.m.	High-Dimensional Association Detection in Large Scale Genomic Data—♦Hillary Koch, Pennsylvania State University; Qunhua Li, Penn State University
10:50 a.m.	A Bayesian Semiparametric Approach to Wild-Type Distribution Estimation: Accounting for Contamination and Measurement Error (BayesACME)—♦Will A. Eagan, Purdue University; Bruce A. Craig, Purdue University
11:05 a.m.	From Mutation Signatures to Patient Subgroups: An Application of Latent Dirichlet Allocation Relating Mutational Signatures to Patient Characteristics—♦LiJin Joo, Yale University/Takeda Pharmaceutical; Seyoung Park, Sungkyunkwan University; Hongyu Zhao, Yale
11:20 a.m.	Bayesian Hierarchical Latent Variable Model for Time-Varying Connectivity Analysis of Local Field Potentials—♦Dustin Pluta, University of California Irvine; Lingge Li, University of California, Irvine; Klaus Telkmann, University of California Irvine; Gabriel Elias, University of California, Irvine; Norbert Fortin, University of California, Irvine; Hernando Ombao, King Abdullah University of Science and Technology (KAUST); Babak Shahbaba, University of California Irvine
11:35 a.m.	Time-to-Event Prediction Based on Longitudinal Biomarkers Using Bayesian Hierarchical Changepoint Mixture Models—♦Lynette Smith, University of Nebraska Medical Center; Yeongjin Gwon, University of Nebraska Medical Center; Morshed Alam, University of Nebraska Medical Center; Sukhwinder Kaur, University of Nebraska Medical Center
11:50 a.m.	Statistical Methods for Correcting Bias in Attributable Risk Estimates—♦Benedict Wong, Food and Drug Administration
12:05 p.m.	Statistical Consideration in Interim Analysis Timing Optimization for Sample Size Re-Estimation—♦Yang Zhang, AtaraBio, Inc.

**174**

**■● Statistical Methods to Assess the Performance of Health Providers—Contributed**  
Health Policy Statistics Section

Chair(s): Jason Brinkley, Abt Associates Inc

10:35 a.m. Using the MBISG 2.0 to Estimate Racial/Ethnic/Language Differences in Voluntary Health Plan Disenrollment—♦Marc Elliott, RAND

10:50 a.m. Predicting 30-Day Hospital Readmissions Using Deep Learning—♦Wenshuo Liu, University of Michigan-Ann Arbor; Ji Zhu, University of Michigan; Brahmajee Nallamothu, University of Michigan-Ann Arbor; Akbar Waljee, University of Michigan-Ann Arbor; Karandeep Singh, University of Michigan-Ann Arbor; Andrew Ryan, University of Michigan-Ann Arbor; Devraj Sukul, University of Michigan-Ann Arbor; Elham Mahmoudi, University of Michigan-Ann Arbor

11:05 a.m. Effects of Risk Adjustment for Groups of Variables: Sicker, Poorer, Readmitted to the Hospital—♦Alan M. Zaslavsky, Harvard Medical School; Eric T. Roberts, University of Pittsburgh; J. Michael McWilliams, Harvard University Medical School

11:20 a.m. Measuring Value-Added Quality in Medicare Advantage Contracts—♦Matthew Brault, Harvard University; Alan M. Zaslavsky, Harvard Medical School; Bruce E. Landon, Harvard University Medical School

11:35 a.m. A Comparison of Provider Profiling Approaches with Respect to Low-Volume Providers—♦Jessica Lavery, Memorial Sloan Kettering Cancer Center; Allison Lipitz-Snyderman, Memorial Sloan Kettering Cancer Center; Diane G Li, Memorial Sloan Kettering Cancer Center; Peter B Bach, Memorial Sloan Kettering Cancer Center; Kathy Panageas, Memorial Sloan Kettering Cancer Center

11:50 a.m. Implementing Template Matching for Hospital Benchmarking in a Diverse Multi-Hospital System—♦Daniel Molling, United States Department of Veterans Affairs; Hallie Prescott, VA CCMR; Sarah Seelye, VA CCMR; Brenda Vincent, VA CCMR

12:05 p.m. Hospital-Specific Template Matching for Benchmarking Performance in the Veterans Affairs Health System—♦Brenda Vincent, VA CCMR; Daniel Molling, United States Department of Veterans Affairs; Sarah Seelye, VA CCMR; Hallie Prescott, VA CCMR

**CC-504**

10:35 a.m. Random Rotations for High-Dimensional Outlier Detection—♦Hee Cheol Chung, University of Georgia; Jeongyoun Ahn, University of Georgia

10:50 a.m. Convex Clustering Analysis for Histogram-Valued Data—♦Cheolwoo Park, University of Georgia; Hosik Choi, Kyonggi University; Chris Delcher, University of Florida; Yanning Wang, University of Florida; Youngjoo Yoon, Korea National University of Education

11:05 a.m. Sparse Canonical Correlation Analysis via Iterative Thresholding—♦Joseph Poythress, University of Georgia; Jeongyoun Ahn, University of Georgia; Cheolwoo Park, University of Georgia

11:20 a.m. Global Point Matching Peak Alignment Algorithms Using Distance and Similarity Measures for Two-Dimensional Mass Spectrometry Data—♦Seongho Kim, Wayne State University; Zeyu Li, Wayne State University; Xiang Zhang, University of Louisville

11:35 a.m. High-Dimensional Changepoint Detection via a Geometrically Inspired Mapping—♦Thomas Grundy, STOR-i Centre for Doctoral Training, Lancaster University; Rebecca Killick, Lancaster University, UK; Gueorgui Mihaylov, Royal Mail/GBI Data Science Group

11:50 a.m. Graph-Based Change-Point Detection for Data with Repeated Observations—♦Hoseung Song, ; Hao Chen, University of California, Davis

12:05 p.m. Inference for Change Points in High-Dimensional Data via Self-Normalization—♦Runmin Wang,

MONDAY

**175**

**■ Clustering and Changepoint Analysis—Contributed**  
Korean International Statistical Society

Chair(s): Dongjun Chung, Medical University of South Carolina

**CC-706**

**176**

**Bayesian Mixture Modeling, Clustering and Unsupervised Learning—Contributed**  
Section on Bayesian Statistical Science

Chair(s): Mengyang Gu, Johns Hopkins University

10:35 a.m. Mixed Bayesian Additive Regression Trees for Random Effects—♦Charles Spanbauer, Medical College of Wisconsin; Rodney Sparapani, Medical College of Wisconsin

10:50 a.m. Divide and Conquer Algorithm of Bayesian Density Estimation—♦Ya Su, University of Kentucky

11:05 a.m. A Bayesian Nonparametric Approach to Clustering Data at Multiple Resolutions—♦Cecilia Balocchi, University of Pennsylvania; Shane T. Jensen, University of Pennsylvania

11:20 a.m. Nonparametric Bayesian Functional Clustering for Breast Cancer Disparities—♦Wenyu Gao, Virginia Tech; Wonil Nam, Bradley Department of Electrical and Computer Engineering, Virginia Tech; Inyoung Kim, Virginia Tech; Wei Zhou, Bradley Department of Electrical and Computer Engineering, Virginia Tech

11:35 a.m. Multivariate Functional Factor Models with Time-Varying Clustering—♦Philip Andrew White, Duke

	University; Alan E Gelfand, Duke University	10:50 a.m.	Graph-Based Dependency Criterion with Applications in Biology—♦Salimeh Yasaei Sekeh, University of Michigan; Alfred O. Hero, University of Michigan
11:50 a.m.	Bayesian Subgroup Analysis in Regression Using Mixture Models—♦Yunju Im, University of Iowa; Aixin Tan, University of Iowa	11:05 a.m.	Bi-Orthogonal Tensor Decomposition for Image Style Matching—♦Yutong Li, University of Illinois at Urbana-Champaign; Ruqiang Zhu, University of Illinois Urbana-Champaign; Annie Qu, University of Illinois at Urbana-Champaign
12:05 p.m.	Mixtures of Multivariate Skew Normal Generalised Hyperbolic Factor Analyzer Models in a Bayesian Framework—♦Darren Wraith, Queensland University of Technology; Mohsen Maleki, Shiraz University, Iran	11:20 a.m.	Learning Attribute Patterns in High-Dimensional Structured Latent Attribute Models—♦Yuqi Gu, University of Michigan; Gongjun Xu, University of Michigan
<b>177</b>	<b>CC-710</b>	11:35 a.m.	Sparse Generalized Principal Component Analysis: Algorithms and Their Applications—♦Jianhao Zhang, Ohio State University; Yoonkyung Lee, Ohio State University
<b>Big Data and Computationally Intensive Methods—Contributed</b> <b>Section on Statistical Computing</b> Chair(s): Yafeng Zhang, Google		11:50 a.m.	Tensor on Tensor Regression with Various Low-Rank Regression Parameters and Elliptically Contoured Distributed Errors—♦Carlos Llosa, Iowa State University; Ranjan Maitra, Iowa State University
10:35 a.m.	Multiple Treatment Assessment via Propensity Scores in Heavy Censoring Multivariate Settings: Application to Organ Transplantation—♦Jonathan Yu, Virginia Commonwealth University; Dipankar Bandyopadhyay, Virginia Commonwealth University; Le Kang, Virginia Commonwealth University	12:05 p.m.	Application of Personalized Growth Curve in Customer Life Time Value Estimation via Embedding—♦Liang Xie, Didi Chuxing
10:50 a.m.	Hybrid Ridge-Lasso Regression—♦Saeed Aldahmani, UAE University; Taoufik Zoubeidi, UAE University	<b>179</b>	<b>CC-111</b>
11:05 a.m.	A Data-Driven Multiple Testing Procedure—♦Nasrine Bendjilali, Rowan University; Boualem Bendjilali, RVCC; Wei-Min Huang, Lehigh University	<b>Statistical Methods for Measurement Error and Missing Data in Covariates/Exposures—Contributed</b> <b>Section on Statistics in Epidemiology</b> Chair(s): Hengshi Yu, University of Michigan, Ann Arbor	
11:20 a.m.	Damped Anderson Acceleration with Restarts and Monotonicity Control for Accelerating EM and EM-Like Algorithms—♦Nicholas Henderson, Johns Hopkins University; Ravi Varadhan, Johns Hopkins University	10:35 a.m.	New Insights into Modeling Exposure Measurements Below the Limit of Detection—♦Ana Maria Ortega-Villa, National Institutes of Health; Danping Liu, National Cancer Institute; Mary H Ward, National Institutes of Health; Albert S Paul, National Institutes of Health
11:35 a.m.	Comparison of Bootstrapping Techniques in Multivariate Time Series—♦Daniel Cirkovic, University of Miami-Oxford; Jing Zhang, Miami University; Thomas J Fisher, Miami University	10:50 a.m.	Berkson Error with Outcome Model Misspecification: Bias When Using Predicted Values in Place of Observed Covariates—♦Gregory Haber, National Cancer Institute; Joshua Sampson, National Cancer Institute; Barry Graubard, National Cancer Institute
11:50 a.m.	Sampling Distribution of Pattern Statistics in Sparse Markov Models—♦Donald Martin, NC State University	11:05 a.m.	A Semiparametric Approach to Analyzing Error-Prone Failure Time Outcomes and Exposures—♦Lillian Boe, University of Pennsylvania; Pamela Shaw, University of Pennsylvania
12:05 p.m.	A Sequential Boostrap/Resampling Method—♦Silvia Sharna, Ball State University; Mian Adnan, Indiana University	11:20 a.m.	Design and Analysis of Two-Phase Samples in Discrete-Time Survival Analysis with Error-Prone Exposures—♦Kyunghee Han, University of Pennsylvania; Thomas Lumley, University of Auckland; Bryan E Shepherd, Vanderbilt University School of Medicine; Pamela Shaw, University of Pennsylvania
<b>178</b>	<b>CC-712</b>	11:35 a.m.	Matched Cohort Studies and Missing Data in Electronic Health Record Data—♦Alexander Levis, Harvard School of Public Health; Sebastien Haneuse, Harvard T.H. Chan School of Public Health
<b>Novel Applications and Extensions of Dimension Reduction Methods—Contributed</b> <b>Section on Statistical Learning and Data Science</b> Chair(s): Timothy I. Cannings, University of Edinburgh			
10:35 a.m.	Comparison of Simple and Complex Predictive Models Applied to the National Surveys on Drug Use and Health—♦Georgiy Bobashev, Research Triangle Institute; Emily Hadley, RTI International		

11:50 a.m. Relative Risk Estimation Using Multiple Imputation with Logistic Regression and Discretization—♦Jay Xu, University of California, Los Angeles; Thomas Belin, UCLA

12:05 p.m. A Doubly Robust Method to Handle Missing Multilevel Outcome Data with Application to a Cluster-Sampled Population-Based Study—♦Nicole Butera, The University of North Carolina at Chapel Hill; Donglin Zeng, UNC Chapel Hill; Annie Green Howard, The University of North Carolina at Chapel Hill; Penny Gordon-Larsen, The University of North Carolina at Chapel Hill; Jianwen Cai, The University of North Carolina at Chapel Hill

**180 CC-210/212**

**■ Statistical Methods for Functional Genomic and Epigenomic Data—Contributed**

**Section on Statistics in Genomics and Genetics**

Chair(s): Weiqiang Zhou, Johns Hopkins Bloomberg School of Public Health

10:35 a.m. Detection and Classification of Changes in Protein-DNA Binding Activity with Applications in Diffuse ChIP-Seq Data—♦Pedro L. Baldoni, University of North Carolina At Chapel Hill; Naim U. Rashid, University of North Carolina at Chapel Hill; Joseph G Ibrahim, UNC

10:50 a.m. Cross-Platform Prediction of Regulatory Activities—♦Runzhe Li, Johns Hopkins Bloomberg School of Public Health; Weiqiang Zhou, Johns Hopkins Bloomberg School of Public Health; Hongkai Ji, Johns Hopkins Bloomberg School of Public Health

11:05 a.m. A Change-Point Approach to Identify Hierarchical Organization of Topologically Associated Domains in Hi-C Data—♦Yingru Wu, SUNY Stony Brook; Haipeng Xing, SUNY Stony Brook; Yong Chen, UT Dallas; Michael Q. Zhang, UT Dallas

11:20 a.m. SpectraTAD: Defining Hierarchy of Topologically Associated Domains Using Graph Theoretical Clustering—♦Mikhail Dozmorov, Virginia Commonwealth University; Kellen Cresswell, Virginia Commonwealth University; John Stansfield, Virginia Commonwealth University

11:35 a.m. Exploring Functional Data Analysis to Identify Differentially Methylated Regions in Plants—♦Mohamed Milad, Arkansas State University , Jonesboro; Gayla Olbricht, Missouri Science and Technology University

11:50 a.m. Identifying Patterns of Multi-Genetic/Epigenetic Factors via Non-Parametric Clustering—♦Meredith Ray, University of Memphis; Lauren Sobral, University of Memphis; S. Hasan Arshad, University of Southampton; John Holloway, University of Southampton; Wilfried JJ Karmaus, University of Memphis; Hongmei Zhang, University of Memphis

12:05 p.m. Multiple-Gene Targeting and Mismatch Tolerance Can Confound Analysis of Genome-Wide Pooled CRISPR Screens—♦Jean-Philippe Fortin, Genentech; Jenille

Tan, Genentech; Karen Gascoigne, Genentech; Peter Haverty, Genentech; William Forrest, Genentech, Inc; Michael Costa, Genentech; Scott Martin, Genentech

**Contributed Poster Presentations 10:30 a.m.—11:15 a.m.**

**181 CC-Hall C**

**SPEED: Statistical Learning and Data Science Speed Session 1, Part 2—Contributed**

**Section on Statistical Learning and Data Science**

Chair(s): Ali Shojaie, University of Washington

**Section on Statistical Learning and Data Science**

- 1 Comparing Time Series Graphical Lasso and Sparse VAR Algorithms—♦Aramayis Dallakyan, Texas A&M University; Rakheon Kim, Texas A&M University; Mohsen Pourahmadi, Texas A&M University
- 2 Using Factor Analysis in Variable Selection and Clustering of US Mass Shooting Incidents—♦John McMorris, ; Yew-Meng Koh, Hope College
- 3 Model Selection for Mixture of Experts Using Group Fused Lasso—♦Tuan Do, University of South Carolina; Karl Gregory, University of South Carolina
- 4 Deep Learning and MARS: a Connection—♦Sophie Langer, Technische Universitaet Darmstadt; Michael Kohler, Technische Universitaet Darmstadt; Adam Krzyzak, Concordia University
- 5 Distance and Kernel Measures of Conditional Independence—♦Tianhong Sheng, The Pennsylvania State University; Bharath Sriperumbudur, The Pennsylvania State University
- 6 Sparse Functional Principal Component Analysis in High Dimensions—♦Xiaoyu Hu, peking university; Fang Yao, peking university
- 7 Activation Adaptation in Neural Networks—♦Vahid Partovi Nia, Huawei Technologies, Ecole Polytechnique de Montreal; Farnoush Farhadi, Ericsson ; Andrea Lodi, Ecole Polytechnique de Montreal
- 8 Multiple Imputation Versus Machine Learning: Predictive Models to Facilitate Analyzes of Association Between Contemporaneous Medicaid/CHIP Enrollment Status and Health Measures—♦Jennifer Rammon, National Center for Health Statistics/CDC; Yulei He, CDC; Jennifer Parker, CDC/NCHS/OAE/SPB
- 9 A Greedy-Type Variable Selection Procedure for Selecting High-Dimensional Cox Models—♦Chien-Tong Lin, ; Yu-Jen Cheng, National Tsing Hua University; Ching-Kang Ing, National Tsing Hua University
- 10 Cross-Validation for Correlated Data—♦Assaf Rabinowicz, Tel-Aviv University; Saharon Rosset, Tel Aviv University

**MONDAY**

<p>11 Inference for Measurement Error Model Under High-Dimensional Settings—♦ Mengyan Li, Penn State University; Yanyuan Ma, The Pennsylvania State University</p> <p>12 Does T-SNE Identify False Structure? Implications of Clusterability on T-SNE Maps—♦ Paul Harmon, Montana State University; Mark Greenwood, Montana State University; Tristan Anacker, Montana State University</p> <p>13 Visual Diagnostics of a Model Explainer: Tools for the Assessment of LIME Explanations from Random Forests—♦ Katherine Goode, Iowa State University; Heike Hofmann, Iowa State University</p> <p>14 Quantile Regression Under Memory Constraint—♦ Yichen Zhang, New York University; Xi Chen, New York University; Weidong Liu, Shanghai Jiaotong University</p> <p>15 Equilibrium Metrics for Dynamic Supply-Demand Networks—♦ Fan Zhou, University of North Carolina at Chapel Hill; Hongtu Zhu, DiDi Chuxing and UNC-Chapel Hill; Jieping Ye, Didi Chuxing</p> <p>16 Topological Survival Analysis for the Comparison of Random Fields—♦ Hollie Johnson,</p> <p>17 Curve Registration to Identify Circadian Rhythm Chronotypes in Accelerometer Data—♦ Erin McDonnell, Columbia University; Julia Wrobel, Columbia University; Jeff Goldsmith, Columbia University; Vadim Zipunnikov, Johns Hopkins University</p> <p>18 Mallows Model Averaging of Support Vector Machine Classifiers and Regressors—♦ Francis Kiwon, McMaster University</p> <p>19 To Select or Not to Select? Variable Selection in the Estimation of Drug Use Prevalence in Denmark—♦ Anne Helby Petersen, University of Copenhagen; Niels Keiding, University of Copenhagen</p> <p>20 Efficient Randomized Algorithms for Continuous Space Reinforcement Learning—♦ Mohamad Kazem Shirani Faradonbeh, University of Florida; Ambuj Tewari, University of Michigan; George Michailidis, University of Florida</p> <p><b>182 CC-Hall C</b></p> <p><b>SPEED: New Methods in Statistical Genomics and Genetics Part 2—Contributed</b></p> <p><b>Section on Statistics in Genomics and Genetics</b></p> <p>Chair(s): Wendy Meiring, University of California At Santa Barbara</p> <p><b>Section on Statistics in Genomics and Genetics</b></p> <p>21 Comparing Performance of Gene Set Test Methods Using Biologically Relevant Simulated Data—♦ Richard Lambert, Utah State University; John Stevens, Utah State University</p> <p>22 A Bottom-Up Approach to Testing Hypotheses That Have a</p>	<p>Branching Tree Dependence Structure, with False Discovery Rate Control—♦ Yunxiao Li, Emory University; Yijuan Hu, Emory University; Glen Alan Satten, Centers for Disease Control and Prevention</p> <p>23 A Generalized Multi-Response Permutation Procedure to Evaluate Associations of Multivariate Data with Quantitative and Censored-Event Time Variables—♦ Stanley Pounds, St. Jude Children's Research Hospital; Natasha Sahr, St. Jude's Children's Hospital; Xueyuan Cao, University of Tennessee Health Science Center</p> <p>24 The Robust Kernel Association Test—♦ Kara Martinez, North Carolina State University</p> <p>25 Regularized Regression by Graph Propagation for Genomic Data Analysis—♦ Han Yu, Roswell Park Comprehensive Cancer Center; Rachael Hageman Blair, the State University of New York at Buffalo</p> <p>26 Assessing Exposure Effects on Gene Expression Using Inverse Probability Weighting and the Parametric G-Formula—♦ Sarah Reifeis, University of North Carolina at Chapel Hill; Michael Hudgens, University of North Carolina at Chapel Hill; Michael Love, UNC-Chapel Hill; Karen Mohlke, University of North Carolina at Chapel Hill; Melissa Troester, University of North Carolina at Chapel Hill</p> <p>27 Methods for Handling Correlated Covariates in Integrative Genomics Analysis—♦ Lauren Spirko-Burns, ; Karthik Devarajan, Fox Chase Cancer Center; Camille Ragin, Fox Chase Cancer Center</p> <p>28 OncoCast: An Improved Interface for Survival Analysis Using Genomic Data—♦ Axel Martin, Memorial Sloan Kettering Cancer Center</p> <p>29 Identifying Appropriate Probabilistic Models for Sparse Discrete Omics Data—♦ Hani Aldirawi, UIC</p> <p>30 Bayesian Inference for Reconstructing Intra-Tumor Phylogeny—♦ Tingting of Zhai, University of Kentucky; Jinpeng of Liu, University of Kentucky; Chi of Wang, University of Kentucky</p> <p>31 PasLINCS: Pathway Activity Signatures from LINCS L1000 Consensus Gene Signatures—♦ Yan Ren, University of Cincinnati; Siva Sivaganesan, University of Cincinnati; Nicholas Clark, University of Cincinnati; David Plas, University of Cincinnati; Mario Medvedovic, University of Cincinnati</p> <p>32 Efficient Estimation of Ancestry Proportions Using Genotype Frequencies—♦ Jordan Hall, University of Colorado Denver; Megan Sorenson, University of Colorado Denver; Ryan Scherenberg, ; Alexandria Ronco, University of Colorado Denver; Yinfai Wu, University of Colorado Denver; James Vance, University of Colorado Denver; Jinyan Lyu, University of Colorado Denver; Christopher Gignoux, University of Colorado Denver; Audrey E Hendricks, University of Colorado Denver</p> <p>33 Likelihood Based Mixture Modeling of Genetic Regulatory Networks—♦ David S. Burton, University of Rochester Biostatistics; Matthew N McCall, University of Rochester</p>
--	---

Medical Center

34 Selection of Genesets from a Cox Model with Higher-Order Interaction of Covariate Genes—♦Delong Liu, NHLBI/NIH; Colin O. Wu, National Heart, Lung and Blood Institute, National Institutes of Health; Beth Kozel, NHLBI/NIH; Neal Young, NHLBI/NIH

35 A Powerful and Versatile Colocalization Test—♦Yangqing Deng, University of Minnesota

36 The Rab1 Configuration Limits Topological Entanglement of Chromosomes in Budding Yeast—♦Maxime Pouokam, UC Davis Statistics Club

37 OASW Clustering—♦Fatima Batool,

38 Comparing Methods for Familial Relationship Inference in Populations with Complex Demographic History—♦Daniel Yorgov, Purdue University Fort Wayne

39 On Simulating Ultra High-Dimensional Multivariate Data—♦Alfred Schissler, University of Nevada, Reno

40 Control Confounding by Familial Relatedness in Genome-Wide Association Studies—♦Annie J Lee, Columbia University; Donglin Zeng, UNC Chapel Hill; Badri N Varadarajan, Columbia University; Karen Marder, Columbia University ; Yuanjia Wang, Columbia University

**Contributed Poster Presentations 10:30 a.m.—12:20 p.m.**

**183** CC-Hall C  
**Contributed Poster Presentations: ASA LGBT Concerns Committee—Contributed**  
**ASA LGBT Concerns Committee**  
 Chair(s): Wendy Meiring, University of California At Santa Barbara  
**ASA LGBT Concerns Committee**

1 Prevalence of Sexual Orientation and Gender Identity Behaviors: An Approach for State-Level and National Estimation Derived from the Behavioral Risk Factor Surveillance System—♦YangYang Deng, ICF Macro, Inc.; Ronaldo Iachan, ICF Macro, Inc.

**184** CC-Hall C  
**Contributed Poster Presentations: Korean International Statistical Society—Contributed**  
**Korean International Statistical Society**  
 Chair(s): Wendy Meiring, University of California at Santa Barbara  
**Korean International Statistical Society**

2 Joint Estimation and Regularized Aggregation of Brain Network in fMRI Data—♦Jongik Chung, ; Cheolwoo Park, University of Georgia; Jennifer McDowell, University of Georgia

3 Differentially Private Goodness-of-Fit Test for Continuous Random Variable—♦Seungwoo Kwak, ; Jeongyoun Ahn, University of Georgia; Cheolwoo Park, University of Georgia; Jaewoo Lee, University of Georgia

4 Estimation of Semiparametric Hidden Markov Model and Multiple Testing Under Dependent Strcuture—♦Joungyoun Kim, Chungbuk National University; Jong Soo Lee, Department of Mathematics, University of Massachusetts at Lowell; Johan Lim, Seoul National University

**185** CC-Hall C  
**Contributed Poster Presentations: IMS—Contributed**  
**IMS**

Chair(s): Wendy Meiring, University of California At Santa Barbara

**IMS**

5 Finite Mixture Regression Models for Stratified Sample—♦Abdelbaset Abdalla, South Dakota State University; Semhar Michael, South Dakota State University

6 Relative Accuracy of Multivariate Bootstrap Procedures—♦Dewei Zhong, 1992; John E Kolassa, Rutgers, the State University of New Jersey

7 Multiple Hypothesis Testing with Discrete Data: Minimally Discrete P-Values—♦Joshua Habiger, Oklahoma State University

**186** CC-Hall C  
**Contributed Poster Presentations: International Chinese Statistical Association—Contributed**  
**International Chinese Statistical Association**  
 Chair(s): Wendy Meiring, University of California at Santa Barbara

**International Chinese Statistical Association**

8 A Bayesian Approach to Factor Screening for Multivariate Responses—♦I-Tang Yu,

9 Sufficient Dimension Reduction via Fourier Transformation—♦Pei Wang, University of Kentucky; Xiangrong Yin, University of Kentucky

10 Sparse SIR: Optimal Rates and Adaptive Estimation—♦Kai Tan,

11 Unobserved Covariate Imbalance of Covariate-Adaptive Randomized Experiments—♦Yang Liu, George Washington University; Feifang Hu, George Washington University

12 A Rank-Based Regression Tree for Subgroup Identification—♦Xiang Peng, The George Washington University; Huixia Judy Wang, The George Washington University

13 Detecting Statistical Interactions via Additive Neural Network—♦Fan Wu, Purdue University; Tianyang Hu, Purdue Statistics

**187****CC-Hall C****Contributed Poster Presentations: Section on Nonparametric Statistics—Contributed****Section on Nonparametric Statistics**

Chair(s): Wendy Meiring, University of California At Santa Barbara

**Section on Nonparametric Statistics**

14 Generating Knockoffs Without Knowing the Distributions of the Covariates—♦Dongming Huang, Harvard University

15 A Nonparametric Comparison of Quantiles Test Between Two Populations—♦Matthew Arvanitis, Forest Product Laboratory

16 Strong Consistency of the Non-Parametric Maximum Likelihood Estimator of Correlated Normal Random Variables—♦Xiangjie Xue, University of Auckland

17 Improvement of the Accuracy in Testing the Effect in the Cox Proportional Hazards Model Using Higher Order Approximations—♦Silvie Belaskova, Fakultni Nemocnice U Sv. Anny V Brne; Eva Fiserova, St. Anne's University Hospital Brno, Czech Republic; Jay Mandrekar, Mayo Clinic, Rochester MN, USA

18 Exact Meta-Analysis Using a Permutation-Based Approach—♦Brinley Zabriskie, Utah State University; Chris Corcoran, Utah State University; Pralay Senchaudhuri, Cytel Software Corporation

19 A Robust Statistical Method to Estimate the Intervention Effect with Longitudinal Data—♦Erik Heiny, Utah Valley University; Mohammad Islam, Utah Valley University

20 Empirical Likelihood Ratio Tests with Power One—♦Li Zou, California State University, East Bay; Albert Vexler, The State University of New York at Buffalo

21 Nonparametric Estimation of Blood Alcohol Concentration from Transdermal Alcohol Measurements Using Alcohol Biosensor Devices—♦Bryan Vader, CSU Channel Islands; Alona Kryshchenko, CSU Channel Islands; Melike Sirlanci, California Technical University

22 Monotonic Nonparametric Dose Response Model—♦Faten Alamri, princess Nourah bint Abdulrahman University &Virginia Commonwealth University; Edward L Boone, Virginia Commonwealth University; David Edwards, Virginia Commonwealth University

23 A Data-Adaptive Targeted Learning Approach of Evaluating Viscoelastic Assay Driven Trauma Treatment Protocols—♦Linqing Wei, Univ of California - Berkeley, Biostatistics Department; Alan Hubbard, University of California, Berkeley; Lucy Zumwinkle Kornblith, University of California, San Francisco; Mitchell Jay Cohen, University of Colorado School of Medicine

24 Non Linear Functional Data Imputation—♦Aniruddha Rajendra Rao, Pennsylvania State University

25 Extension of Integral Curves Estimation to a Time-Dependent

Tensor Field Model—♦Juna Goo, Michigan State University, Department of Statistics and Probability; Lyudmila Sakhnenko, Michigan State University

26 Nonparametric Estimation of Multivariate Mixtures—♦Chaowen Zheng, North Carolina State University; Yichao Wu, The University of Illinois at Chicago

27 On the Rate of Convergence of a Neural Network Regression Estimate Learned by Gradient Descent—♦Alina Braun, Technische Universität Darmstadt; Michael Kohler, Technische Universität Darmstadt; Harro Walk, Universität Stuttgart

28 Model-Based Quantile Regression: Analyzing Excess-Zero Response—♦Erika Cunningham, Duke University

29 Sparse Function-On-Scalar Regression Using a Group Bridge Approach with Application to fEEG Data—♦Zhengjia Wang, Rice University; John Magnotti, Baylor College of Medicine; Michael Beauchamp, Baylor College of Medicine; Meng Li, Rice University

30 Semiparametric Approach to Optimal Sensor Location Design for a Photovoltaic Power Plant—♦Jane L Harvill, Baylor University; Justin R Sims, University of Tennessee at Martin; Nalini Ravishanker, University of Connecticut

31 Application of a Nonparametric Test for Comparing Transition Probabilities in Multi-State Models—♦Ying Zhang, Merck; Jun Park, Indiana University; Hong Wan, Merck; Valerie Teal, Merck; Robert Tipping, Merck; Giorgos Bakoyannis, Indiana University

32 Simultaneous Bootstrap Confidence Intervals for Scale Difference Using Deviances—♦Scott Richter, ; Melinda McCann, Oklahoma State University

33 Nonparametric Density Estimation Under Adversarial Losses—♦Shashank Singh, Carnegie Mellon University; Ananya Uppal, Carnegie Mellon University; Barnabas Poczos, Carnegie Mellon University

34 Soft Functional Alignment of Functional Data Using Landmark Information—♦Xiaoyang Guo, Florida State University; Wei Wu, Florida State University; Anuj Srivastava, Florida State University

35 Modeling Kidney Function Decline via Functional Principal Components Analysis (FPCA)—♦Brian Kwan, University of California, San Diego; Loki Natarajan, University of California, San Diego; Jing Zhang, Moores Cancer Center, University of California, San Diego; Tobias Fuhrer, Institute of Molecular Systems Biology, ETH Zurich; Daniel Montemayor, University of Texas Health Science Center at San Antonio

**188****CC-Hall C****Contributed Poster Presentations: Section on Physical and Engineering Sciences—Contributed****Section on Physical and Engineering Sciences**

Chair(s): Wendy Meiring, University of California At Santa Barbara

**Section on Physical and Engineering Sciences**

36 Evaluating Sensitivity of Beryllium Flyer Plate Simulations to Strength Parameterization—♦Eva Marie Tourangeau, Los Alamos National Laboratory; Kyle Hickmann, Los Alamos National Laboratory

37 Data Visualization for Oil and Gas Pipeline Anomalies and Repairs Using R Shiny—♦William Harper, DNV GL; Adriana V Nenciu, Otterbein University; Benjamin Hanna, DNV GL

38 The Fundamental Diagram and the Statistics of a Passageway—♦Guillermo Frank, Universidad de Buenos Aires; Ignacio Sticco, Universidad de Buenos Aires; Fernando Cornejo, Universidad de Buenos Aires; Claudio Dorso, Universidad de Buenos Aires

39 Comparing Variance-Based Versus Count Methods for Determining Variable Activity in Bayesian Additive Regression Trees—♦Akira Horiguchi, The Ohio State University

40 Examining Driver Risk Factors in Road Departure Accidents Using Longitudinal Data Collected for a Fixed Cohort of Drivers—♦Peter Hovey, University of Dayton; Deogratias Eustace, University of Dayton; Danah Alshatti, University of Dayton

41 An Expectation-Maximization (EM) Algorithm for Orbit Linkage and Determination—♦Jason Bernstein, Lawrence Livermore National Laboratory

42 Quantum Channel Probing with Indefinite Causal Ordering—♦Michael Frey, National Institute of Standards and Technology; Eric Johnson, University of Colorado

43 Vetting the Energy and Security of Smart Buildings with Data Science—♦Dinuka Gallaba, Southern Illinois University; Zhen Li, Purdue University; MyVan Vo, Purdue University

44 Statistical Modeling of Tropical Cyclone Intensity Change Using Satellite Imagery—♦Irwin McNeely, Carnegie Mellon University; Ann B. Lee, Carnegie Mellon University; Dorit Hammerling, National Center for Atmospheric Research; Kimberly Wood, Mississippi State University

45 Modeling Differences in Car-Following Behavior Between Driver Age Groups—♦Raul Avelar, Texas A&M Transportation Institute

46 Design of Experiments for High-Performance Computing Variability Management—♦Yueyao Wang, Virginia Tech; Li Xu, Virginia Tech

48 Correction in the Formula for Evaluating the Null Hypothesis—♦Donald R Taves, Univ of Wash

49 TEACHING INTRODUCTORY STATISTICS with WEB-BASED INTERACTIVE SONG ACTIVITIES—♦Dennis Pearl, Penn State University; Lawrence M Lesser, The University of Texas at El Paso; John Weber, Perimeter College at Georgia State University

50 Ensuring All Students Can Be Successful, Using Open Education Resources (OER)—♦Leah Dorazio, OpenIntro, SF University High School

51 Predicting Undergraduate Student Success Using Geographically Weighted Logistic Regression—♦James Roddy, University of Arkansas, Fayetteville; Samantha Robinson, University of Arkansas

52 "Why Am I Failing?": The Importance of Basic Quantitative Skills in a Business Statistics Course—♦Deborah Gougeon, Univ of Scranton

53 STATISTICAL MODELS to IDENTIFY STUDENT CHARACTERISTICS to TAILOR GRADUATION INITIATIVES—♦Ayona Chatterjee, California State University East Bay; Chinki Rai, CSUEB; Fanny Yeung, CSUEB

54 Development and Implementation of WISE (Workshop to Inspire Statistical Excellence) to Recruit Future Statisticians—♦Michelle Smith, Eastern Kentucky University; Amanda Rae Ellis, Eastern Kentucky University; Shane P Redmond, Eastern Kentucky University

55 Making an Impact on Undergraduates Through Experiential Learning in Statistics—♦Tracy Morris, University of Central Oklahoma; Tyler Cook, University of Central Oklahoma; Cynthia Murray, University of Central Oklahoma

56 Conditional Probability and SQL for Data Science—♦Eric Suess, CSU East Bay

57 Corequisite Support for an Introductory Statistics Course—♦Lisa Kay, Eastern Kentucky University

MONDAY

**189** **CC-Hall C**  
**Contributed Poster Presentations: Section on Statistical Education—Contributed**  
**Section on Statistics and Data Science Education**  
 Chair(s): Wendy Meiring, University of California at Santa Barbara

**Section on Statistics and Data Science Education**

47 Teaching Statistical Distributions Using Roulette Martingale Strategies—♦Peter Pflaumer,

**190** **CC-Hall C**  
**Contributed Poster Presentations: Section on Statistics and the Environment—Contributed**  
**Section on Statistics and the Environment**  
 Chair(s): Wendy Meiring, University of California At Santa Barbara

58 A Performance Comparison Between Empirical Variograms in Achieving the Best Valid Variogram—♦Esam Mahdi, Qatar University

59 The Nexus of Climate Data, Insurance, and Adaptive Capacity—♦Robert Erhardt, Wake Forest University

60 Applying Design of Experiments to Numerical Weather Prediction—♦Jeffrey Smith, U.S. Army Research Laboratory; Judah L. Cleveland, US Army Research Laboratory; John W. Raby, US Army Research Laboratory; Richard S. Penc, US Army Research Laboratory

<p><b>MONDAY</b></p> <p>61 Estimation and Selection for Spatial Regression When Fixed Effects and Random Effects Are Correlated—♦Chun-Shu Chen, National Changhua University of Education; Hong-Ding Yang, National Changhua University of Education; Yung-Huei Chiou, National Changhua University of Education</p> <p>62 Modeling and Regionalization of China's PM2.5 Using Spatial-Functional Mixture Model—♦Decai Liang, Peking University; Haozhe Zhang, Iowa State University; Xiaohui Chang, Oregon State University; Hui Huang, Sun Yat-sen University</p> <p>63 Bayesian Covariance Estimation for Large Spatial Data—♦Brian Kidd, Texas A&amp;M University; Matthias Katzfuss, Texas A&amp;M University</p> <p>64 An Adapted VAR-EM (AVAR-EM) Imputation Algorithm to Populate a Broken Historical Climate Record—♦Benjamin Washington, The University of Georgia; Lynne Seymour, University of Georgia</p> <p>65 Some Results on Use-Availability Models for Presence-Only Data from Multiple Species—♦Nels Johnson, US Forest Service, Pacific Southwest Research Station</p> <p>66 D-STEM Software for Analyzing Environmental Space-Time Variables—♦Yaqiong Wang, ; Francesco Finazzi, Bergamo University; Alessandro FassÚ, Bergamo University</p> <p>67 Validation and Uncertainty Quantification of Forecast Rainfall from Hurricanes and Tropical Storms—♦Stephen Walsh, Virginia Tech; Marco Ferreira, Virginia Tech; Stephanie Zick, Virginia Tech</p> <p>68 Measuring Increases in Fire Weather Severity and Its Risk to Human Populations—♦Geoffrey Peterson, U.S. Environmental Protection Agency</p> <p>69 A Penalized H-Likelihood Method for Gaussian Spatial Additive Model on Regular Lattice—♦Hao Sun, Iowa State University; Somak Dutta, Iowa State University</p> <p>70 Diversity of Forest Structure Across the United States—♦J. Gilbert, Purdue University; S. Fei, Purdue University; J. Knott, Purdue University; E. LaRue, Purdue University; K. Potter, North Carolina State University</p> <p>71 Modeling Air Pollution in Beijing with Meteorological Data—♦Ying Zhang, Pennsylvania State University; Song Xi Chen, Peking University; Le Bao, Pennsylvania State University</p> <p>72 Tail Dependence of Normal Mean-Variance Mixtures—♦Zhongwei Zhang, Raphaël Huser, King Abdullah University of Science and Technology</p> <p>73 Modeling Spatial Extremes with Max-Infinity Divisible Models—♦Peng Zhong, KAUST; Raphaël Huser, King Abdullah University of Science and Technology</p> <p>74 Mixed-Effect Model Using Shape-Constrained Regression Splines, with Application to Tree Height Estimation—♦Xiyue Liao, University of California, Santa Barbara; Mary C Meyer, Colorado State University</p>	<p>75 Modeling How Beach Characteristics, Predation, and Bird Tolerance of Humans Affect Piping Plovers (Charadrius Melodus)—♦Samantha Smock, Purdue University; Alex Cohen, Purdue University; Patrick Zollner, Purdue University</p> <p>76 Models and Inference for Spatial Extremes Based on Tree-Based Multivariate Pareto Distributions—♦Daniela Cisneros, ; Raphaël Huser, King Abdullah University of Science and Technology</p> <p>77 Split and Combine SIMEX Algorithm to Correct Geocoding Coarsening of Built Environment Exposures—♦Jung Yeon Won, Brisa Sánchez, Drexel University</p> <p>78 Exploratory Analysis of Hurricane Storm Surge—♦Qiuyi Wu, Whitney Huang, Statistical and Applied Mathematical Sciences Institute</p> <p>79 Extending Nearest-Neighbor GPs for Non-Gridded Data Imputation—♦Christopher Grubb, Virginia Tech; Shyam Ranganathan, Virginia Tech</p> <p>80 Scalable Smoother to Improve Particle Filtering of Spatially-Extended Data—♦Gregor Robinson, University of Colorado Boulder; Ian Grooms, University of Colorado Boulder; William Kleiber, University of Colorado</p> <p>81 Computational Advances for the Product-Sum Spatio-Temporal Model—♦Michael Dumelle, ; Jay Ver Hoef, National Oceanic and Atmospheric Administration; Claudio Fuentes, Oregon State University; Alix Gitelman, Oregon State University</p> <p>82 Wrestling with Sufficient Similarity—♦David Umbach, National Inst. of Environmental Health Sciences; Matthew F Bridge, Social &amp; Scientific Systems; Caroll A Co, Social &amp; Scientific Systems; Gregg E Dinse, Social &amp; Scientific Systems; Grace E Kissling, National Institute of Environmental Health Sciences; Keith Shockley, Ph.D., National Institute of Environmental Health Sciences; Marjo V Smith, Social &amp; Scientific Systems</p> <p>83 Covariate-Driven Non-Stationary Models in Stan with Application to Water Quality in North American Lakes—♦Pavel Chernyavskiy, University of Wyoming; Marie-Agnes Tellier, University of Wyoming; Sarah M Collins, University of Wyoming</p> <p>84 Statistical Modeling on Trichloroethylene Biodegradation in a Packed-Bed Biofilm Reactor Using Response Surface Methodology—♦Feng Yu, RTI International; Breda Munoz, RTI International</p> <p>85 A Latent Discrete Markov Field Approach for Identifying and Classifying Historical Forest Communities Based on Spatial Multivariate Tree Species Counts—♦Stephen Berg, ; Jun Zhu, University of Wisconsin - Madison; Murray Clayton, University of Wisconsin-Madison; Monika Shea, University of Wisconsin-Madison; David Mladenoff, University of Wisconsin-Madison</p> <p>86 Resource Use of Small Mammals on Prairies—♦Yilin Song, St. Olaf College; Lisa Fisher, St. Olaf College; Liz Wilson, St. Olaf College; Julie Legler, St. Olaf College; Diane Angel, St. Olaf College</p> <p>87 Random Forest Models for the Probable Biological Condition of Streams and Rivers in the USA—♦Eric Fox, Cal State East Bay, Department of Statistics</p>
--	---

**191****CC-Hall C****Contributed Poster Presentations: Section on Statistical Graphics—Contributed  
Section on Statistical Graphics**

Chair(s): Wendy Meiring, University of California At Santa Barbara

**Section on Statistical Graphics**88 A Visual Interpretation of a Linear Mixed Model—♦ Kevin Wright, Corteva**192****CC-Hall C****Contributed Poster Presentations:SSC—Contributed  
SSC**

Chair(s): Wendy Meiring, University of California At Santa Barbara

**SSC**89 Distribution-Free Reproducible Feature Selection—♦ Mehdi Rostamiforooshani, TD Bank Group  
90 A Time Series Based Point Estimation of Stop Signal Reaction Times—♦ Mohsen Soltanifar, University of Toronto, Dalla Lana School of Public Health; Keith Knight, University of Toronto, Department of Statistical Sciences; Annie Dupuis, University of Toronto, Dalla Lana School of Public Health; Russell Schachar, The Hospital for Sick Children; Michael Escobar, University of Toronto, Dalla Lana School of Public Health  
91 Continuum Centroid Classifier for Functional Data—♦ Zhiyang Zhou, Simon Fraser University; Peijun Sang, University of Waterloo**Section on Statistics in Genomics and Genetics**92 Feature Selection Bias in Assessing the Predictivity of SNPs for Alzheimer's Disease—♦ Mei Dong, University of Saskatchewan; Longhai Li, University of Saskatchewan**SSC**93 Randomized Survival Probability Residual for Assessing Parametric Survival Models—♦ Tingxuan Wu, University of Saskatchewan, Canada; Longhai Li, University of Saskatchewan**193****CC-Hall C****CANCELED: Contributed Poster Presentations: Statistics Without Borders—Contributed  
Statistics Without Borders****194****CC-Hall C****Contributed Poster Presentations: Section on Teaching of Statistics in the Health Sciences—Contributed****Section on Teaching of Statistics in the Health Sciences**

Chair(s): Wendy Meiring, University of California at Santa Barbara

**Section on Teaching of Statistics in the Health Sciences**94 Do Students Learn More from Their Mistakes? Comparing Student Performance and Preference in an Error-Free Versus an Error-Full SAS Programming Environment—♦ Heather Janel Hoffman, The George Washington University; Angelo F Elmi, The George Washington University  
95 Examples of Technology Used in a First Semester Calculus-Based Statistics Course—♦ Cathy Poliak, University of Houston**Contributed Poster Presentations 11:35 a.m.—12:20 p.m.****195****CC-Hall C****SPEED: Modernization of What, How, and Where We Teach Statistics Part 2—Contributed****Section on Statistics and Data Science Education**

Chair(s): Kameryn Denaro, University of California, Irvine

**Section on Statistics and Data Science Education**1 Causal Inference in Introductory Statistics Courses—♦ Kevin Cummiskey, West Point; Bryan Adams, West Point; James Pleuss, West Point; Dusty Turner, West Point; Nicholas Clark, West Point; Krista Watts, West Point  
2 Facilitating Online Project Discussions Among Students in an Elementary Statistics Course—♦ Sherry Hix, University of North Georgia  
3 Students' Understanding of Definitional and Relational Characteristics of Confidence Intervals: Initial Results—♦ Kristen E. Roland, University of Georgia; Jennifer J. Kaplan, University of Georgia  
4 Creating Labs to Solve an Investigative Question Using Both Individual and Team Components—♦ Megan Mocko, University of Florida  
5 Transition from Education to Profession: Experiences of Statisticians—♦ Layla Guyot, Texas State University  
6 Successful and Sustainable Undergraduate Research in Statistics Through Vertical Integration of Experience and Horizontal Integration of Disciplines—♦ Audrey E Hendricks, University of Colorado Denver  
7 Statistics Races and Jeopardy Games—♦ David DiMarco, Ryan Savitz, Neumann University  
8 Service Learning in Analytics Courses: a Case Study of the Benefits of Teaching Through Helping Others—♦ Kathleen Garwood, Saint Joseph's University; Vipul Gupta, Saint Joseph's University  
9 Active-Learning for Bayesian Inference: An Introductory

Exercise Using MandM's Candy—♦Gwendolyn Marie Eadie, University of Washington; Daniela Huppenkothen, University of Washington; Aaron Springford, Weyerhaeuser; Tyler McCormick, University of Washington

10 Undergraduate Statistics Research: a Viewpoint from a Non-Statistician—♦Ryan Scherenberg, ; Megan Sorenson, University of Colorado Denver; Audrey E Hendricks, University of Colorado Denver

11 Digital Metaphors: a Tool to Provide Insights into Introductory Statistics Students' Motivation and Success—♦Ginger Holmes Rowell, Middle Tennessee State University; Ameneh Kassaee, Middle Tennessee State University

12 Studying the Relationship Between Students' Perception of the Mean and Their Understanding of Variance—♦Robert Sigley, Texas State University; Layla Guyot, Texas State University; Alexander White, Texas State University

13 Online Learning and Student Experience—a Study of the Impact of Non-Traditional Learning Environments on the Development of Students' Relationships and Academic Performance—♦Alicia Lamere, Bryant University; Kristin Kennedy, Bryant University

14 Making an Impact - Take-Aways from Creating a Student-Driven Statistical Consulting Group for Non-Profits—♦Kristin Kennedy, Bryant University; Alicia Lamere, Bryant University; Rick Gorrett, Bryant University; Son Nguyen, Bryant University

15 Using Think-Aloud Interviews and Cognitive Task Analysis to Identify Misconceptions in Undergraduate Statistics Education—♦Mikaela Meyer, Carnegie Mellon University; Josue Orellana, Carnegie Mellon University; Alex Reinhart, Carnegie Mellon University

16 Incorporating Real-Time Clustering of Student Responses into an E-Learning System—♦Philipp Burckhardt, Carnegie Mellon University; Christopher Genovese, Statistics, CMU; Rebecca Nugent, Carnegie Mellon University; Ronald J. Yurko, Carnegie Mellon University

17 Paradox Problems as a Tool for Understanding Statistical Reasoning—♦Andrew Neath, SIU Edwardsville

18 Computational Workshops to Facilitate Implementation of Statistics in Scientific Research—♦Allison Theobold, Montana State Univ; Stacey Hancock, Montana State University

19 Interactive Examples in Statistics Courses Using R Shiny—♦Ryne VanKrevelen, Elon University

20 Teaching Data Intuition: a Book—♦Rebecca Barter, University of California Berkeley; Bin Yu, UC Berkeley

**196****CC-Hall C****SPEED: Biometrics and Biostatistics Part 2—****Contributed****Biometrics Section, Section on Statistics in Epidemiology, Bio-pharmaceutical Section, Section on Bayesian Statistical Science****Chair(s): Wendy Meiring, University of California At Santa Barbara****Biometrics Section**

21 Oversampling and Replacement Strategies in Propensity Score Matching: a Critical Review Focused on Small Samples—♦Daniele Bottigliengo, University of Padova; Ileana Baldi, University of Padova; Corrado Lanera, University of Padova; Jonida Bejko, University of Brescia; Tomaso Bottio, University of Padova; Vincenzo Tarzia, University of Padova; Massimiliano Carrozzini, University of Padova; Gino Gerosa, University of Padova; Paola Berchialla, University of Torino; Dario Gregori, University of Padova

22 A Concordance Statistic for Survival Analysis with a Censored Predictor—♦Kai Ding, University of Oklahoma Health Sciences Center; Justin Dvorak, University of Oklahoma Health Sciences Center

23 Meta-Analysis of Binary Outcomes Combining Individual Patient Data and Aggregate Data—♦Neha Agarwala, University of Maryland - Baltimore County; Anindya Roy, University of Maryland - Baltimore County

24 Multiplicity Adjustment in Clinical Trials—♦Michael Proschan, National Institute of Allergy and Infectious Diseases; Erica Brittain, National Institute of Allergy and Infectious Diseases

25 A Comparison of Stacked and Pooled Multiple Imputation—♦Paul Bernhardt, Villanova University

**Section on Statistics in Epidemiology**

26 Hierarchical Likelihood Approach for Joint Models of Longitudinal Non-Survival Responses and Survival Data: a Semiparametric Model with Gamma Shared Random Effects—♦Karl Stessy Bisselou, University of Nebraska Medical Center; Hongying Dai, University of Nebraska Medical Center; Gleb Hayatzki, University of Nebraska Medical Center

**Biometrics Section**

27 A Scalable Algorithm for Joint Modeling of Longitudinal and Competing Risks Time-To-Event Data—♦Shanpeng Li, UCLA Department of Biostatistics; Eric Kawaguchi, UCLA Department of Biostatistics; Gang Li, UCLA

28 Synthetic Data Method to Incorporate External Information into a Current Study—♦Tian Gu, University of Michigan; Jeremy Taylor, University of Michigan; Bhramar Mukherjee, University of Michigan

29 Predicting the Cross-Validated Penalty Parameter in Nodewise Lasso Regression—♦Mo Huang, University of Pennsylvania; Nancy Zhang, University of Pennsylvania

30 Statistical Assessment of Bovine Body Weight via Functional Gait Data—♦Andrew Raim, US Census Bureau; Nagaraj Neerchal, University of Maryland, Baltimore County; Dan Tasch, Step Analysis LLC; Uri Tasch, Step Analysis LLC

**Biopharmaceutical Section**

31 Adaptive Design with Biomarker Population Deselection and

Enrichment for Oncology Trials—♦Pingye Zhang, ; Yue Shentu, Merck & Co, Inc; Qi Liu, Merck & Co, Inc.

32 Unblinded Sample Size Re-Estimation for Ordinal Data—♦Huaihou Chen, Biogen; Ray Zhang, Biogen; Weihua Tang, Biogen; Li Zhu, Biogen; Chunlei Ke, Biogen

33 Optimal Design and Analysis of Efficacy Expansion in Phase I Oncology Trials—♦Iris Wu, Merck & Co; Fang Liu, Merck; Heng Zhou, Merck & Co, Inc; Cong Chen, Merck & Co, Inc

34 A Natural Lead-In Approach to Response-Adaptive Allocation—♦Erin Donahue, Virginia Commonwealth University; Roy T Sabo, Virginia Commonwealth University

35 Survival Analyzes in the Presence of Unadjudicated Events—♦Rakhi Kilaru, Pharmaceutical Product Development; Andrew Montgomery Hartley, Pharmaceutical Product Development

36 Design of a Phase 3 Trial for an Acute Treatment of a Rare Disease with Episodic Attacks—♦Sharon Murray,

**Section on Bayesian Statistical Science**

37 Bayesian Modeling of Rare Events with Informative Censoring in Meta-Analysis—♦Xinyue Qi, UT MD Anderson Cancer Center; Yucai Wang, Mayo Clinic; Chan Shen, College of Medicine, Penn State University; Michael Wang, The University of Texas MD Anderson Cancer Center; Shouhao Zhou, PennState College of Medicine

38 Bayesian Analysis of Mixed Continuous and Time-To-Event Outcomes with Latent Variables—♦Xinyuan Song, The Chinese University of Hong Kong; Deng Pan, Huazhong University of Science and Technology

39 A Bayesian Approach with Propensity Score for Confounding Control with Case Study in Non-Medical Switch Real World Observational Studies—♦Zhenyi Xue, AbbVie; Hongwei Wang, AbbVie Inc.

40 Quantitative Decision Making (QDM) in Phase I/II Studies—♦Kevin Gan, GlaxoSmithKline; Jonathan Haddad , GlaxoSmithKline

**Special Presentation 2:00 p.m.—3:50 p.m.**

**209** **CC-205**  
**Introductory Overview Lecture: Causal Inference in Modern Statistics—Invited**  
**JSM Partner Societies**

Chair(s): Richard Levine, San Diego State University

2:05 p.m. Foundations of Causal Inference—♦Jennifer L Hill, New York University

2:50 p.m. More Advanced Designs and Methods—♦Avi Feller, UC Berkeley

3:35 p.m. Floor Discussion

**210** **CC-207**  
**Late-Breaking Session: Statistics at a Crossroads: Who Is for the Challenge?—Invited**  
**JSM Partner Societies**

Organizer(s): Xuming He, University of Michigan

Chair(s): Nandini Kannan, National Science Foundation

2:05 p.m. Statistics at a Crossroads: Who Is for the Challenge?—♦Dylan Small, University of Pennsylvania; ♦David Banks, SAMSI/Duke University; ♦Bin Yu, UC Berkeley; ♦Xuming He, University of Michigan; ♦Michael Jordan, University of California at Berkeley; ♦David Madigan, Columbia University; ♦Marianthi Markatou, University of Buffalo

3:40 p.m. Floor Discussion

**Invited Sessions 2:00 p.m.—3:50 p.m.**

**211** **CC-605**  
**■● Getting to the Slope of Enlightenment with EHR Data—Invited**  
**Section on Statistical Computing, Section on Statistical Learning and Data Science, Biometrics Section**

Organizer(s): Jeffrey Leek, Johns Hopkins Bloomberg School of Public Health

Chair(s): Jeffrey Leek, Johns Hopkins Bloomberg School of Public Health

2:05 p.m. Handling Sampling and Selection Bias in Phenome-Wide Association Studies—♦Bhramar Mukherjee, University of Michigan

2:30 p.m. Complex Data in, Nuanced Answers Out: Lessons Learned Analyzing Electronic Health Record Data in Oncology—♦Sandra Griffith, Flatiron Health

2:55 p.m. Challenges in Augmenting Randomized Trials with Observational Health Records—♦Lucy D'Agostino McGowan, Johns Hopkins Bloomberg School of Public Health

3:20 p.m. Disc: Sherri Rose, Harvard Medical School

3:45 p.m. Floor Discussion

**212** **CC-505**  
**■● Scientifically and Clinically Motivated Statistical Methods for Human Brain Data Analysis—Invited**  
**Section on Statistics in Imaging, Mental Health Statistics Section, Section on Statistical Learning and Data Science**

Organizer(s): Tingting Zhang, University of Virginia

Chair(s): Dehan Kong, University of Toronto

2:05 p.m.	A Bayesian Stochastic-Blockmodel-Based Approach for Mapping Epileptic Brain Networks—♦Tingting Zhang, University of Virginia
2:25 p.m.	Covariate-Adjusted Region-Referenced Generalized Functional Linear Model for EEG Data—♦Damla Senturk, UCLA; Aaron Scheffler, UCLA; Donatello Telesca, UCLA; Catherine Sugar, UCLA; Shafali Jeste, UCLA; Abigail Dickinson, UCLA; Charlotte DiStefano, UCLA
2:45 p.m.	Characterizing the Longitudinal Behavior of Multiple Sclerosis Lesions on Structural Magnetic Resonance Images—♦Elizabeth Sweeney, Weill Cornell
3:05 p.m.	Using Neuroimaging to Study Pain—♦Martin Lindquist, Johns Hopkins University
3:25 p.m.	Brain Connectivity-Informed Adaptive Regularization for Generalized Outcomes—♦Jaroslaw Harezlak, Indiana University School of Public Health; Damian Brzyski, Wroclaw Technological University; Marta Karas, Johns Hopkins School of Public Health; Beau Ances, Washington University School of Medicine; Joaquin Goni, Purdue University; Mario Dzemidzic, Indiana University School of Medicine; Timothy Randolph, Fred Hutchinson Cancer Research Center
3:45 p.m.	Floor Discussion

<b>213</b>	<b>CC-104</b>
■● Sequential Decision Making and Causal Inference—Invited	
IMS, ENAR, Institute for Operations Research and the Management Sciences	
Organizer(s): Susan Murphy, Harvard University	

2:05 p.m.	Mostly Exploration-Free Algorithms for Contextual Bandits—♦Mohsen Bayati, Stanford University
2:30 p.m.	Truncated Thompson Sampling for Safe and Efficient Precision Public Health—♦Eric B Laber, NC State University; Jesse Clifton, NC State University
2:55 p.m.	Learning to Personalize from Observational Data Under Unobserved Confounding—♦Nathan Kallus, Cornell University and Cornell Tech
3:20 p.m.	Disc: Elizabeth Ginexi, National Institutes of Health
3:40 p.m.	Floor Discussion

<b>214</b>	<b>CC-203</b>
■● Combinatorial Testing: Using Covering Arrays to Maximize the Impact of Testing—Invited	
Section on Physical and Engineering Sciences, Quality and Productivity Section, Section on Statistics in Defense and National Security	
Organizer(s): Michael Crotty, SAS	
Chair(s): Michael Crotty, SAS	
2:05 p.m.	Factorial Experiments, Covering Arrays, and Combinatorial Testing—♦Raghuram Kacker, National Institute of Standards and Technology; Rick Kuhn, National Institute of Standards and Technology; Yu Lei, University of Texas at Arlington; Dimitris Simos, SBA-Research, Austria
2:30 p.m.	The Construction of $\ell$ -Bad Covering Arrays—♦Dennis Lin, The Pennsylvania State University; Kevin Quinlan, The Pennsylvania State University
2:55 p.m.	Analysis and Evaluation of Covering Arrays Using Prior Information—♦Ryan Lekivetz, JMP Division of SAS; Joseph Morgan, JMP Division of SAS
3:20 p.m.	Visualizing Covering Arrays Using Design Fractals—♦Caleb King, JMP Division of SAS; Joseph Morgan, JMP Division of SAS; Ryan Lekivetz, JMP Division of SAS
3:45 p.m.	Floor Discussion
<b>215</b>	<b>CC-603</b>
● Evolving Survey Inference in the Big Data Era: Challenges and Opportunities—Invited	
Survey Research Methods Section, Government Statistics Section, IMS	
Organizer(s): Yajuan Si, University of Michigan	
Chair(s): Yajuan Si, University of Michigan	
2:05 p.m.	Small Area Estimation to Correct for Measurement Errors in Big Population Registers—♦Dano Ben-Hur, Central Bureau of Statistics, Israel; Danny Pfeffermann, Central Bureau of Statistics and Hebrew University, Israel, University of Southampton, UK
2:30 p.m.	Revisiting Design-Based Inference—♦Jean Opsomer, Westat
2:55 p.m.	Novel Methods for Incorporating Sample Designs in Bayesian Inference—♦Michael Elliott, University of Michigan; Yuqi Zhai, University of Michigan; Trivellore Raghunathan, University of Michigan
3:20 p.m.	Combining Non-Probability and Probability Survey Samples Through Mass Imputation—♦Jae-kwang Kim, Iowa State University; Seho Park, Dartmouth University; Yilin Chen, University of Waterloo; Changbao Wu, University of Waterloo
3:45 p.m.	Floor Discussion

<p><b>216</b></p> <p>■ ● Promises and Pitfalls of Making Decisions with Real World Data—Invited</p> <p>Biometrics Section, ENAR, Health Policy Statistics Section</p> <p>Organizer(s): Yuanjia Wang, Columbia University</p> <p>Chair(s): Ying Liu, Medical College of Wisconsin</p>	<p><b>CC-704</b></p> <p>2:05 p.m. A Decision Theoretic Approach to Pre-Emptive Genotyping—♦ Jonathan Schildcrout, Vanderbilt University Medical Center</p> <p>2:25 p.m. Data Enriched Regression via Generalized Linear Models—♦ Ying Qing Chen, Fred Hutchinson Cancer Research Center; Sayan Dasgupta, Fred Hutchinson Cancer Research Center; Cheng Zheng, University of Wisconsin at Milwaukee; Yuxiang Xie, University of Washington</p> <p>2:45 p.m. Integrative Analysis of Multivariate Temporal Biomarkers in Electronic Health Records—♦ Donglin Zeng, UNC Chapel Hill</p> <p>3:05 p.m. Learning Treatment Strategies from Randomized Trials Supplemented by Information in Electronic Health Records—♦ Yuanjia Wang, Columbia University</p> <p>3:25 p.m. Risk Assessment with Imprecise EHR Data—♦ Tianxi Cai, Harvard University</p> <p>3:45 p.m. Floor Discussion</p>	<p><b>218</b></p> <p>■ ● Medallion Lecture III—Invited</p> <p>IMS</p> <p>Organizer(s): Rajen D Shah, University of Cambridge</p> <p>Chair(s): Steve Marron, University of North Carolina at Chapel Hill</p>
		<p>2:05 p.m. Breaking Curse of Dimensionality in Nonparametrics—♦ Helen Zhang, University of Arizona</p> <p>3:45 p.m. Floor Discussion</p>
<p><b>217</b></p> <p>● Computing Making Impact: The Best of JCGS—Invited</p> <p>JCGS-Journal of Computational and Graphical Statistics, Section on Statistical Computing, Section on Statistical Graphics</p> <p>Organizer(s): Dianne Cook, Monash University</p> <p>Chair(s): Tyler McCormick, University of Washington</p>	<p><b>CC-301</b></p> <p>2:05 p.m. Data Science: a Three Ring Circus or a Big Tent?—♦ Jennifer Bryan, RStudio, University of British Columbia; Hadley Wickham, RStudio</p> <p>2:25 p.m. Identifying Mixtures of Mixtures Using Bayesian Estimation—♦ Bettina Grün, Johannes Kepler Universität; Gertraud Malsiner-Walli, Wirtschaftsuniversität Wien; Sylvia Frühwirth-Schnatter, Wirtschaftsuniversität Wien</p> <p>2:45 p.m. Bayesian Fused Lasso Regression for Dynamic Binary Networks—♦ Brenda Betancourt, University of Florida</p> <p>3:05 p.m. Designing Modular Software: a Case Study in Introductory Statistics—♦ Andrea Kaplan, Duke University; Eric Hare, Omni Analytics</p> <p>3:25 p.m. Disc: Dianne Cook, Monash University</p> <p>3:45 p.m. Floor Discussion</p>	<p><b>219</b></p> <p>■ ● Making an Impact in Statistics Education Through Innovation and Outreach—Invited</p> <p>ENAR, Section on Statistics and Data Science Education, International Association for Statistical Education</p> <p>Organizer(s): Margaret Taub, Johns Hopkins Bloomberg School of Public Health</p> <p>Chair(s): Leah Jager, Johns Hopkins Bloomberg School of Public Health</p>
		<p>2:05 p.m. Teaching Students to Talk About Data Science—♦ Alison Hill, RStudio</p> <p>2:30 p.m. Rmarkdown Workflows Make New Statistical Methods Accessible to Biomedical Researchers—♦ Michael Love, UNC-Chapel Hill</p> <p>2:55 p.m. Overcoming the Barriers of Entry into Data Science for Non-Traditional Learners with Cloud Computing—♦ Shannon E. Ellis, UCSD</p> <p>3:20 p.m. Teaching Data Science Through Case Studies in Public Health—♦ Stephanie Hicks, Johns Hopkins Bloomberg School of Public Health</p> <p>3:45 p.m. Floor Discussion</p>
<p><b>220</b></p> <p>Uncertainty Quantification for Stochastic Optimization Methods in Machine Learning—Invited</p> <p>IMS, IEEE Computer Society</p> <p>Organizer(s): Weijie Su, University of Pennsylvania</p> <p>Chair(s): Weijie Su, University of Pennsylvania</p>	<p><b>CC-102</b></p> <p>2:05 p.m. Uncertainty Quantification for Online Learning—♦ Yuancheng Zhu, Renaissance Technologies; Weijie Su, University of Pennsylvania</p> <p>2:30 p.m. Convergence Diagnostics for Stochastic Gradient Methods—♦ Panagiotis Toulis, University of Chicago Booth School of Business; Jerry Chee, University of Chicago</p>	<p><b>MONDAY</b></p>

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

2:55 p.m.	Data-Adaptive Learning Rate Selection for Stochastic Gradient Descent Using Convergence Diagnostic—♦Matteo Sordello, University of Pennsylvania; Weijie Su, University of Pennsylvania
3:20 p.m.	First-Order Newton-Type Estimator for Distributed Estimation and Inference—♦Xi Chen, New York University; Weidong Liu, Shanghai Jiaotong University; Yichen Zhang, New York University
3:45 p.m.	Floor Discussion

2:55 p.m.	Detecting New Signals Under Background Mismodelling—♦Sara Algeri, University of Minnesota
3:20 p.m.	Statistical Challenges of Pulsar Timing—♦G. Jogesh Babu, Penn State University
3:45 p.m.	Floor Discussion

---

**Invited Panels 2:00 p.m.—3:50 p.m.**

---

**221 CC-112**

■● **Statistics in Marketing and Advertising: Saying it with Integrity, Accuracy, and Impact—Invited**  
Section on Statistics in Marketing, Section on Statistical Consulting, Committee on Applied Statisticians

Organizer(s): Sudhasatta Acharyya, Daiichi Sankyo Inc.  
Chair(s): Amit Bhattacharyya, Alexion Pharmaceuticals

2:05 p.m.	Data-Driven Business Decisions- a Pharma Perspective—♦Hiya Banerjee, Novartis Pharmaceuticals; Sudhasatta Acharyya, Daiichi Sankyo Inc.; Shashank Shinde, Novartis Pharmaceuticals ; George Joseph, Novartis Pharmaceuticals ; Niladri Roy Chowdhury, Novartis Pharmaceuticals Corporation
2:30 p.m.	Measuring the Causal Effects of Digital Advertising—♦Ziggy Lin, Facebook
2:55 p.m.	Improved Estimation of View Through Lift from Randomized A/B Tests—♦Kingshuk Roy Choudhury, Amazon; Anuvrat Singh, Amazon
3:20 p.m.	Disc: Sudhasatta Acharyya, Daiichi Sankyo Inc.
3:45 p.m.	Floor Discussion

**222 CC-302**

■● **Statistical Challenges with Astronomical Data—Invited**

National Institute of Statistical Sciences, General Methodology, Astrostatistics Special Interest Group

Organizer(s): James L Rosenberger, NISS (National Institute of Statistical Sciences) and Penn State  
Chair(s): Lingzhou Xue, Penn State University and National Institute of Statistical Sciences

2:05 p.m.	Time Delay Cosmography Towards the Hubble Constant—♦Hyungsuk Tak, University of Notre Dame; Simon Birrer, University of California, Los Angeles
2:30 p.m.	Generating Realistic Galaxy Images—♦Chad M Schafer, Carnegie Mellon University; Benjamin LeRoy, Carnegie Mellon University

**223 CC-703**

■● **The P-Value Controversy: Where Do We Go from Here?—Invited**

Biopharmaceutical Section, Biometrics Section, ENAR

Organizer(s): Pranab K Mitra, Merck

Chair(s): Pranab K Mitra, Merck

Panelists: ♦Jeffrey Blume, Vanderbilt University  
♦Lisa Strug,  
♦Michael Lavine, University of Massachusetts, Amherst  
♦Philip B. Stark, UC Berkeley  
♦Xihong Lin, Harvard  
♦David Gal, University of Illinois at Chicago

3:40 p.m. Floor Discussion

**224 CC-Four Seasons 1**

■● **Sexual Harassment and Assault -Confronting the Threat to Our Statistical Community—Invited**

ASA Task Force on Sexual Harassment and Assault, Committee on Women in Statistics, Caucus for Women in Statistics

Organizer(s): Leslie McClure, Drexel University

Chair(s): Robert Santos, The Urban Institute

Panelists: ♦Leslie McClure, Drexel University  
♦Emma Benn, Icahn School of Medicine at Mount Sinai  
♦Sally C. Morton, Virginia Tech  
♦Donna E LaLonde, ASA Committee on Women in Statistics

3:45 p.m. Floor Discussion

---

**Topic Contributed Sessions 2:00 p.m.—3:50 p.m.**

---

**225 CC-710**

■● **The Human Microbiome: From Discovery Studies to Statistical Predictive Personalized Medicine—Topic Contributed**

Section on Statistics in Genomics and Genetics, Biometrics Section, Section on Statistics in Epidemiology

Organizer(s): Yi-Hui Zhou, North Carolina State University  
 Chair(s): Wenzuan Zhong, University of Georgia

2:05 p.m.	The Machine Learning Methods Review for Microbiome Host Trait Prediction—♦Yi-Hui Zhou, North Carolina State University
2:25 p.m.	A Zero?Inflated Beta?Binomial Model for Microbiome Data Analysis—♦Tao Hu, Kite Pharma
2:45 p.m.	Predictive Modeling of Microbial Community Data Using Phylogeny-Regularized Regression Models—♦Jun Chen, Mayo Clinic
3:05 p.m.	Meta-Analysis of Large Metagenomic Data Sets at Strain-Level Resolution—♦Edoardo Pasolli, University of Naples Federico II
3:25 p.m.	Disc: Fred A Wright, North Carolina State University
3:45 p.m.	Floor Discussion

**226 CC-111**

■ Causal Inference with Spatial Environmental Data—Topic Contributed

Royal Statistical Society, Section on Statistics and the Environment, Section on Statistics in Epidemiology, Biometrics Section

Organizer(s): Corwin Zigler, University of Texas at Austin  
 Chair(s): Corwin Zigler, University of Texas at Austin

2:05 p.m.	Causal Spatial Analysis in the Presence of Unmeasured Confounders—♦Brian Reich, North Carolina State University; Shu Yang, North Carolina State University; Yawen Guan, North Carolina State University
2:25 p.m.	Causal Inference with Interfering Units for Cluster and Population Level Treatment Allocation Programs—♦Georgia Papadogeorgou, Duke; Fabrizia Mealli, University of Florence; Corwin Zigler, University of Texas at Austin
2:45 p.m.	Measurement Error, Spatial Confounding, and Changing Target Populations—♦Joshua Keller, Colorado State University
3:05 p.m.	Causal Inference and Casual Spatial Models: The Importance of Modeling Mechanism in Spatial Data—♦Ephraim Hanks, Pennsylvania State University
3:25 p.m.	Floor Discussion

**227 CC-709**

■ Recent Advances in the Design and Analysis of Multi-Reader Imaging Studies—Topic Contributed

Section on Medical Devices and Diagnostics, Biometrics Section, ENAR

Organizer(s): Joanna H Shih, National Cancer Institute  
 Chair(s): Joanna H Shih, National Cancer Institute

2:05 p.m.	Relationship Between Obuchowski-Rockette and Gallas U-Statistic Methods for Analyzing Multi-Reader Diagnostic Imaging Data—♦Stephen Hillis, University of Iowa
2:25 p.m.	Assigning Readers to Cases in Multi-Reader Multi-Case Imaging Studies Using Balanced Incomplete Block Designs—♦Erich Huang, National Cancer Institute
2:45 p.m.	Analyzing Readersí Performance in Detection-Localization Tasks—♦Andriy Bandos, University of Pittsburgh
3:05 p.m.	Adaptive Design and Analysis of Multi-Reader Multi-Case Studies—♦Weijie Chen, Food and Drug Administration; Zhipeng Huang, FDA/CDER; Frank Samuelson, FDA/CDRH; Lucas Tcheuko, FDA/CTP
3:25 p.m.	Disc: Alicia Toledano, Biostatistics Consulting, LLC
3:45 p.m.	Floor Discussion

**228 CC-607**

■ ● Interpreting Machine Learning Models: Opportunities, Challenges, and Applications—Topic Contributed

Section on Statistical Learning and Data Science, Section on Non-parametric Statistics, Section on Statistical Computing

Organizer(s): Vijayan Nair, Wells Fargo & University of Michigan, Ann Arbor  
 Chair(s): Vijayan Nair, Wells Fargo & University of Michigan, Ann Arbor

Chair(s): Vijayan Nair, Wells Fargo & University of Michigan, Ann Arbor

2:05 p.m.	Understanding the Effects of Predictor Variables in Black-Box Supervised Learning Models—♦Daniel W Apley, Northwestern University
2:25 p.m.	Deep Insights into Explainability and Interpretability of Machine Learning Algorithms and Applications to Risk Management—♦Jie Chen,
2:45 p.m.	Increasing Trust and Interpretability in Machine Learning with Model Debugging—♦Patrick Hall, H2O.ai
3:05 p.m.	Detecting Interpretable Insights from Large-Scale Time Series Data—♦Qing Feng, Facebook; Sean Taylor, Facebook
3:25 p.m.	Floor Discussion

**229 CC-708**

■ ● Advances in the Neyman-Pearson Classification—Topic Contributed

WNAR, Health Policy Statistics Section, Biometrics Section, Text Analysis Interest Group

Organizer(s): Jingyi Jessica Li, University of California, Los Angeles

Chair(s): Jingyi Jessica Li, University of California, Los Angeles

2:05 p.m.	Neyman-Pearson Classification: An Umbrella Algorithm—♦Xin Tong, University of Southern California; Yang Feng, Columbia University; Jingyi Jessica Li, University of California, Los Angeles
2:25 p.m.	A Unified View of Asymmetric Binary Classification—♦Wei Vivian Li, University of California, Los Angeles; Jingyi Jessica Li, University of California, Los Angeles; Xin Tong, University of Southern California
2:45 p.m.	Neyman-Pearson Classification: Parametrics and Power Enhancement—♦Yang Feng, Columbia University
3:05 p.m.	Intentional Control of Type I Error Over Unconscious Data Distortion: a Neyman-Pearson Approach to Text Classification—♦Richard Zhao, Pennsylvania State University; Lucy Xia, Stanford University; Xin Tong, University of Southern California; Yanhui Wu, University of Southern California
3:25 p.m.	Neyman-Pearson Criterion (NPC): a Model Selection Criterion for Asymmetric Binary Classification—♦Yiling Chen, University of California, Los Angeles; Jingyi Jessica Li, University of California, Los Angeles; Xin Tong, University of Southern California
3:45 p.m.	Floor Discussion

MONDAY

**230 ■● Innovative STEAMS Methodology Over STEM—Topic Contributed**

Quality and Productivity Section, Committee on Outreach Education, Section on Statistics and Data Science Education  
Organizer(s): Charles Chen, Applied Materials  
Chair(s): Charles Chen, Applied Materials

2:05 p.m.	STEAMS Applications on Gaming Science and Analytics—♦Mason Chen, Mission San Jose High School, Stanford OHS; Luke Liu, Stratford School
2:25 p.m.	STEAMS Approach on NBA Basketball Games—♦Alan Yao, Mission San Jose High School, and Stanford Online High School; Mason Chen, Mission San Jose High School, Stanford OHS
2:45 p.m.	STEAMS Application on Health Science and Analytics—♦Julianne Chiu, Kaitlyn Zhang, Stanford OHS; Mason Chen, Mission San Jose High School, Stanford OHS
3:05 p.m.	STEAMS Applications on Foods Science and Analytics—♦Kaitlyn Zhang, Stanford OHS; Mason Chen, Mission San Jose High School, Stanford OHS
3:25 p.m.	Disc: Patrick Giuliano, Abbott
3:45 p.m.	Floor Discussion

**CC-109**

**231**

**SBSS Student Paper Award Session II—Topic Contributed**

Section on Bayesian Statistical Science

Organizer(s): Robert Gramacy, Virginia Tech

Chair(s): Robert Gramacy, Virginia Tech

2:05 p.m.	Function-On-Scalar Quantile Regression with Application to Mass Spectrometry Proteomics Data—♦Yusha Liu, Meng Li, Rice University; Jeffrey S. Morris, M.D. Anderson Cancer Center
2:25 p.m.	Frequentist Consistency of Variational Bayes—♦Yixin Wang, David Blei, Columbia University
2:45 p.m.	Fitting Stochastic Epidemic Models to Gene Genealogies Using Linear Noise Approximation—♦Mingwei Tang, University of Washington; Gytis Dudas, Fred Hutchinson Cancer Research Center; Trevor Bedford, Fred Hutchinson Cancer Research Center; Vladimir Minin, University of California, Irvine
3:05 p.m.	On Posterior Contraction of Parameters and Interpretability in Bayesian Mixture Modeling—♦Aritra Guha, University of Michigan
3:25 p.m.	Constrained Bayesian Inference Through Posterior Projections—♦Sayan Patra, Duke University; David Dunson, Duke University
3:45 p.m.	Floor Discussion

**CC-105**

**232**

**■● Undergraduate Research in Statistics—Topic Contributed**

Section on Statistics and Data Science Education

Organizer(s): Peter E. Freeman, Carnegie Mellon University  
Chair(s): Debra Hydorn, University of Mary Washington

2:05 p.m.	Introducing Early Undergraduates to Statistical Practice: How You Can (And Why You Should) Provide Such Opportunities at Your Institution—♦Peter E. Freeman, Carnegie Mellon University
2:25 p.m.	Transformative Failure in Client-Based Projects for Introductory Data Science—♦Karl Schmitt, Valparaiso University; Lissa Yogan, Valparaiso University; Adali Johnson, Valparaiso University
2:45 p.m.	Moving Beyond Classroom Projects to Guided Research—♦Shonda Kuiper, Grinnell College
3:05 p.m.	Strategies for Achieving Success with Advanced Undergraduate Research Students in Statistics—♦Vittorio Addona, Macalester College
3:25 p.m.	15 Years of a Center for Interdisciplinary Research: Reflections and Projections—♦Paul Roback, St. Olaf College
3:45 p.m.	Floor Discussion

**CC-507**

233

CC-712

● Innovative Approaches for High-Dimensional Omics and Neuroimaging Data—Topic Contributed

International Indian Statistical Association, Biometrics Section, Section on Statistics in Genomics and Genetics

Organizer(s): Subharup Guha, University of Florida

Chair(s): Subharup Guha, University of Florida

2:05 p.m.	Are We There Yet: Differential Analysis of Single-Cell RNA Sequencing Data?—♦ Susmita Datta, ASA Committee on Women in Statistics
2:25 p.m.	Expression-Level-Dependent Correlation Structure Estimation for Repeated-Measures RNA-Seq Data—♦ Dan Nettleton, Iowa State University; Meiling Liu, Iowa State University
2:45 p.m.	Efficient Approaches for Dynamic Modeling of Multivariate Time Series—♦ Raquel Prado, UC Santa Cruz-Baskin School of Engineering
3:05 p.m.	Mediation Analysis for Zero-Inflated Mediators—♦ Zhigang Li, University of Florida; Janaka Peragawaththe Liyanage, University of Florida; A. James O'Malley, Dartmouth College; Susmita Datta, ASA Committee on Women in Statistics
3:25 p.m.	Nonparametric Bayes Multiresolution Testing for Detecting Rare Variants—♦ Jyotishka Datta, University of Arkansas; David Dunson, Duke University
3:45 p.m.	Floor Discussion

234

CC-707

Novel Statistical Methods for High-Dimensional Microbiome and Metagenomics Data Analysis—Topic Contributed

Section on Statistics in Epidemiology, Section on Statistics in Genomics and Genetics, Biometrics Section

Organizer(s): Chan Wang, Division of Biostatistics, NYU School of Medicine

Chair(s): Jiyuan Hu, New York University School of Medicine

2:05 p.m.	Analyzing Matched Sets of Microbiome Data Using LDM—♦ Yijuan Hu, Emory University; Zhengyi Zhu, Emory University; Caroline Mitchell, Vincent Center for Reproductive Biology, Massachusetts General Hospital, Harvard Medical S; Glen Alan Satten, Centers for Disease Control and Prevention
2:25 p.m.	Association Testing and Feature Selection for Microbiome and Host Genomics—♦ Anna Plantinga, Williams College; Michael C. Wu, Fred Hutchinson Cancer Research Center
2:45 p.m.	Multivariable Association in Population-Scale Metabonomic

Surveys—♦ Himmel Mallick, Merck & Co., Inc.; Timothy Tickle, Broad Institute; Lauren McIver, Harvard University; Gholamali Rahnavard, Broad Institute; Long Nguyen, Massachusetts General Hospital; George Weingart, Harvard University; Siyuan Ma, Harvard University; Boyu Ren, Harvard University; Emma Schwager, Harvard University; Aishwarya Subramanian, Broad Institute; Joseph Paulson, Genentech; Eric A. Franzosa, Harvard University; Hector Corrada Bravo, University of Maryland; Curtis Huttenhower, Harvard University

3:05 p.m.	Robust Regression for Microbiome Data Analysis—♦ Aditya Mishra, Flatiron Institute; Christian Lorenz Mueller, Flatiron Institute, Simons Foundation
3:25 p.m.	Estimating and Testing the Microbial Causal Mediation Effect with High-Dimensional and Compositional Microbiome Data—♦ Chan Wang, Division of Biostatistics, NYU School of Medicine; Jiyuan Hu, New York University School of Medicine; Martin Blaser, New York University School of Medicine and Rutgers University; Huilin Li, NYU School of Medicine
3:45 p.m.	Floor Discussion

235

CC-110

■ Statistical Analysis of eSports Data—Topic Contributed

Section on Statistics in Sports

Organizer(s): Brian Macdonald, Greater Than Plus Minus

Chair(s): Ryan Elmore, University of Denver

2:05 p.m.	Introduction to Statistical Analysis of eSports Data—♦ Brian Macdonald, Greater Than Plus Minus; Nicholas Clark, West Point
2:25 p.m.	Statistical Analysis of E-Sports Data—♦ Nicholas Clark, United States Military Academy; Brian Macdonald, Greater Than Plus Minus
2:45 p.m.	Identifying Symbiotic Relationships Between Champions in League of Legends—♦ Michael Schuckers, St. Lawrence University; Ivan Ramler, St. Lawrence University; Choong-Soo Lee, St. Lawrence University
3:05 p.m.	Disc: Nick Wan, Cincinnati Reds
3:25 p.m.	Disc: Sandy Weil, Kroenke Sports & Entertainment
3:45 p.m.	Floor Discussion

MONDAY

**Topic Contributed Panels 2:00 p.m.—3:50 p.m.**

**236 CC-503**

**■● Linked Data to Advance Evidence Building in Public Policy—Topic Contributed**

**Social Statistics Section, Survey Research Methods Section**

**Organizer(s): Asaph Young Chun, Statistical Research Institute of Statistics Korea; ISR Foundation**

**Chair(s): Justin Fisher, Government Accountability Office**

**Panelists:** ♦ Paul Chun, Rowan College

♦ Yun Seo Bae, ISR Foundation Center for Science Diplomacy

♦ Asaph Young Chun, Statistical Research Institute of Statistics Korea; ISR Foundation

**3:40 p.m. Floor Discussion**

**Contributed Sessions 2:00 p.m.—3:50 p.m.**

**237 CC-501**

**SPEED: Statistical Methods for GWAs, Genetics, Genomics, and Other Omics Studies, Part 1—Contributed**

**Section on Statistics in Genomics and Genetics, International Chinese Statistical Association, Section on Bayesian Statistical Science, Biometrics Section**

**Chair(s): Stanley Pounds, St. Jude Children's Research Hospital**

**2:05 p.m. Multivariate Association Analysis with Correlated Traits in Families—♦Souvik Seal, Division of Biostatistics, University of Minnesota**

**2:10 p.m. Trans-Ethnic Meta-Analysis of Metabolic Syndrome in a Multi-Ethnic Study—♦Emileigh L. Willems, University of Colorado Denver; Jia Y. Wan, University of California Irvine; Trina M. Norden-Krichmar, University of California Irvine; Karen L. Edwards, University of California Irvine; Stephanie A. Santorico, University of Colorado Denver**

**2:15 p.m. Rare Variant Association Tests for Multiple Ancestries Using Common Controls—♦Megan Sorenson, University of Colorado Denver; Audrey E Hendricks, University of Colorado Denver**

**2:20 p.m. GWEB: An Empirical-Bayes-Based Approach for Heritability Estimation, Statistical Fine-Mapping and Genetic Risk Prediction Using GWAS Summary Statistics—♦Wei Jiang, Yale University; Hongyu Zhao, Yale**

**2:25 p.m. Sparse Estimation of Genetic Relatedness to Control for Population Structure and Sample Relatedness in Genome-Wide Association Studies—♦Rounak Dey, Harvard TH Chan School of Public Health; Yaowu Liu, Harvard**

TH Chan School of Public Health; Zilin Li, Harvard TH Chan School of Public Health; Junwei Lu, Harvard TH Chan School of Public Health; Zheng Tracy Ke, Harvard University; Xihong Lin, Harvard

**Sparse Mediation Analysis Using Mixture Models—♦Yanyi Song, University of Michigan; Xiang Zhou, University of Michigan; Min Zhang, University of Michigan; Wei Zhao, University of Michigan; Yongmei Liu, Wake Forest School of Medicine; Sharon Kardia, University of Michigan; Ana Diez Roux, Drexel University; Belinda Needham, University of Michigan; Jennifer Smith, University of Michigan; Bhramar Mukherjee, University of Michigan**

**2:30 p.m. Fine Mapping Causal Variants with Functional Annotations—♦Sheila Gaynor, Harvard T.H. Chan School of Public Health; Xihong Lin, Harvard**

**2:35 p.m. Leveraging eQTLs to Identify Tissue-Specific Genetic Subtype of Complex Trait—♦Arunabha Majumdar, University of California, Los Angeles; Claudia Giambartolomei, University of California, Los Angeles; Na Cai, European Bioinformatics Institute (EMBL-EBI); Malika Kumar Freund, University of California, Los Angeles; Bogdan Pasaniuc, University of California, Los Angeles**

**2:40 p.m. Trait Evolution on Two Gene Trees—♦James Degnan, ; Huan Jiang, Dialysis INC**

**2:45 p.m. Intergrated Quantile Rank Test (IQRAT) for Heterogeneous Joint Effect of Rare and Common Variants in Sequencing Studies—♦Tianying Wang, Columbia University, Biostatistics Department; Iuliana Ionita-Laza, Columbia University, Biostatistics Department; Ying Wei, Columbia University, Biostatistics Department**

**2:50 p.m. An Integrative Analysis of DNA Copy Number and SNP Markers to Localize Causal Gene Region—♦Qi You Yu, National Taiwan University; Chuhsing Kate Hsiao, Institute of Epidemiology and Preventive Medicine, National Taiwan University, Taiwan; Tzu-Pin Lu, Institute of Epidemiology and Preventive Medicine, National Taiwan University, Taiwan; Jung-Ying Tzeng, North Carolina State University; Tzu-Hung Hsiao, Taichung Veterans General Hospital, Taiwan; Ching-Heng Lin, Taichung Veterans General Hospital, Taiwan**

**3:00 p.m. Bayesian Generalized Fused Hierarchical Structured Variable Selection Prior for Pathway-Based GWAS Using Summary Statistics—♦Yi Yang, University of Minnesota; Saonli Basu, University of Minnesota, Biostatistics SPH; Lin Zhang, Division of Biostatistics, University of Minnesota**

**3:05 p.m. A Flexible Bayesian Framework to Study Viral Trait Evolution—♦Paul Bastide, Rega Institute, KU Leuven; Guy Baele, Rega Institute / KU Leuven; Marc Suchard, UCLA; Philippe Lemey, Rega Institute, KU Leuven**

**3:10 p.m. Fully Bayesian Imputation Model for MNAR Data in QPCR—♦Valeria Sherina, ; Matthew N McCall, University of Rochester Medical Center; Tanzy M.T. Love, University of Rochester Medical Center**

**3:15 p.m. Predicting Patient Sensitivity Using Gene-Treatment Interactions with Bayesian Shrinkage Models—♦Arinjita**

3:20 p.m.	Bhattacharyya, University of Louisville; Subhadip Pal, University of Louisville; Riten Mitra, University of Louisville; Shesh N Rai, University of Louisville	2:30 p.m.	A New Methodology for Frame Building and Sample Design for the State Heating Oil and Propane Program (SHOPP)—Edgardo Cureg, U.S. Energy Information Administration (EIA); ♦Marcela Bradbury, U.S. Energy Information Administration (EIA)
3:25 p.m.	Prediction with Microbiome Sequencing Data via Multi-Kernel Learning—♦Bing Li, Brown University; Huilin Li, NYU School of Medicine; Shuang Wang, Columbia University	2:35 p.m.	Report on Industry Births and Deaths in PPI Frames—♦Andy Sadler, Bureau of Labor Statistics
3:30 p.m.	A Hierarchical Pitman-Yor Model for the Evolution of Phenotype Distribution on a Phylogenetic Tree—♦Hanxi Sun, Purdue Statistics; Heejung Shim, University of Melbourne, Australia; Vinayak Rao, Purdue University	2:40 p.m.	Determining the Distance Between Countries of Latin America and the Caribbean Regarding Their Fulfillment of the SDGs in 2017—♦Andres Esteban Arguedas Leiva, University of Costa Rica
3:35 p.m.	A New Sparse Network Model for High-Throughput Count Data—♦Caesar (Zexuan) Li, University of California, Los Angeles; Gang Li, UCLA; Eric Kawaguchi, UCLA Department of Biostatistics	2:45 p.m.	Providing Access to the Federal Information Base for Evidence Based Policy Making—♦Marilyn Seastrom, US Department of Education; Jennifer Nielsen, National Center for Education Statistics/IES/Dept of Education
3:45 p.m.	A Bayesian Zero-Inflated Negative Binomial Regression Model for the Integrative Analysis of Microbiome Data—♦Shuang Jiang, Southern Methodist University	2:50 p.m.	Imputation as a Practical Alternative to Data Swapping—♦Saki Kinney, RTI International; David Wilson, RTI International; Alan Karr, RTI International; Kelly Kang, NSF
	A Feature Allocation Model for Cytometry by Time-Of-Flight Data—♦Arthur Lui, University of California - Santa Cruz; Juhee Lee, University of California, Santa Cruz; Peter Thall, U.T. M.D. Anderson Cancer Center; Katy Rezvani, M.D. Anderson Cancer Center	3:00 p.m.	Using Efficient Sampling Methods for Fixed-Margin Matrices to Assess Judicial Innovation—♦Alex Fout,

**238 CC-103**  
**SPEED: Environment and Health, Governmental Policies and Population Surveys, Part 1—Contributed**

Section on Bayesian Statistical Science, Government Statistics Section, Health Policy Statistics Section, Lifetime Data Science Section, Text Analysis Interest Group

Chair(s): James Lymp, Juno Therapeutics, A Celgene Company

2:05 p.m.	Optimal Sampling Regimes for Estimating Population Dynamics—♦Rebecca Bergee,	3:05 p.m.	Examining Public Comments for Financial and Net Neutrality Regulations—♦Shawn Mankad, Cornell University; Abhinav Gaiha, Cornell University
2:10 p.m.	Application of Stochastic Search Variable Selection to Modeling Evacuation Ahead of Hurricane Irma—♦Sierra Bainter, University of Miami; Caitlin Brown, University of Miami; Kiara Timpano, University of Miami	3:10 p.m.	Using Supervised Machine Learning to Classify Customer Input—♦Adrianna Steers-Smith, USDA/FSIS
2:15 p.m.	Bayesian Finite Population Estimates from a Two-Stage Sample with Spatial Correlation—♦Alec M Chan-Golston, University of California, Los Angeles; Sudipto Banerjee, UCLA; Mark Handcock, University of California, Los Angles	3:15 p.m.	Weighting Adjustments Can Help with Low Response Rates, but at What Cost to Data Quality?—♦Chrishelle Lawrence, U.S. Energy Information Administration
2:20 p.m.	Transitions Between Homelessness States(Safe Haven, Temporary Housing , Emergency Shelter and Unsheltered) Before and After Operation Rio Grande in the Salt Lake Metropolitan Area—♦Prem Narayanan, Salt Lake County	3:20 p.m.	Annualizing Energy Consumption in Residential Households in the 2015 RECS—♦Jay Olsen, U.S. Department of Energy
2:25 p.m.	Assessing to the Impact of Differential Response Rates Across National Health and Nutrition Examination Survey (NHANES) Locations—♦Te-Ching Chen, CDC/NCHS; Jennifer Parker, CDC/NCHS/OAE/SPB; Tala Fakhouri, CDC/NCHS	3:25 p.m.	Methodology for Allocating Municipal Solid Waste to Biogenic and Non-Biogenic Energy—♦Joy Liu, US Department of Energy
		3:30 p.m.	On the Small Count Inflated Poisson Distribution—♦Michael Floren, Misericordia University; Trent L Lalonde, University of Northern Colorado
		3:35 p.m.	Conditional Survival Methods for Evaluating the Effect of a Time-Dependent Treatment on the Survival Function—♦Danting Zhu, ; Douglas Schaubel, University of Michigan
		3:40 p.m.	Hyper Prior Dirichlet Partial Multinomial Logistic Regression Through Multiple Binary Responses for Mozambique HIV/AIDS—♦Diana Gonzalez, Arizona State University; Di Fang, University of Arkansas
		3:45 p.m.	Floor Discussion

**239**

**■● Study Design and Analysis for Complex Survival Data—Contributed**

**Biometrics Section**

Chair(s): Jeffrey A. Thompson, University of Kansas Medical Center

2:05 p.m. Accounting for Preinvasive Conditions in the Analysis of Cancer Risk: With Application to Breast Cancer and the Sister Study—♦Jung In Kim, NIEHS/UNC; Jason Fine, University of North Carolina - Chapel Hill; Shanshan Zhao, National Institute of Environmental Health Sciences

2:20 p.m. Estimating Menarcheal Age Distribution from Partially Recalled Data—♦Sedigheh Mirzaei Salehabadi, St. Jude Children's Research Hospital; Debasis Sengupta, Indian Statistical Institute; Rahul Ghosal, North Carolina State University

2:35 p.m. Bayesian Optimality of Testing Procedures for Survival Data in the Non-Proportional Hazards Setting—♦Andrea Arfè, ; Lorenzo Trippa, Dana-Farber Cancer Institute; Brian Alexander, Dana-Farber Cancer Institute

2:50 p.m. Sample Size Calculation for Cluster Randomization Trials with a Time-To-Event Endpoint—♦Jianghao Li, Duke University Department of Biostatistics and Bioinformatics; Sin-Ho Jung, Duke University Department of Biostatistics and Bioinformatics

3:05 p.m. Group Sequential Design for Trials with Time-To-Event Endpoint Using the Proportional Time Assumption—♦Milind Phadnis, University of Kansas Medical Center

3:20 p.m. Concordance Index for Competing Risks Data in Discrete Time—♦Natalia A. Gouskova, Marcus Institute for Aging Research; Thomas G. Travison, Marcus Institute for Aging Research

3:35 p.m. Model Checking for Subdistribution Hazards Model Under Case-Cohort Design—♦Yayun Xu, Medical College of Wisconsin; Mei-Jie Zhang, Medical College of Wisconsin; Soyoung Kim, Medical College of Wisconsin

**CC-706**

2:20 p.m.

Application of Discrete False Discovery Rate Controlling Procedures in Clinical Safety Evaluations—♦Li He, Merck Research Laboratories; Joe Heyse, Merck

2:35 p.m.

Credible Subgroups for Identifying Benefiting Populations with Time-To-Event Data—♦Duy Ngo, ; Richard Baumgartner, Merck Research Laboratories; Shahruh Mt-Isa, MSD; Dai Feng, Merck; Jie Chen, Merck Research Laboratories; Joe Heyse, Merck; Patrick Schnell, Ohio State University

2:50 p.m.

A General Solution to Multiple Hypothesis Testing Problem with Constraints—♦Huaijiang Li, Allergan; Hong Zhou, Arkansas State University

3:05 p.m.

Incorporating the Sample Correlation Between Two Test Statistics to Adjust the Critical Points for the Control of Type-1 Error—♦Dror Rom, Prosoft Clinical; Jaclyn Ashley McTague, Prosoft Clinical

3:20 p.m.

MULTIPLE TESTING METHODS for A-PRIORI ORDERED HYPOTHESES—♦Anjana Grandhi, Merck & Co.

3:35 p.m.

An Extended Simes Test Procedure for Multiple Testing—♦Matthew Hudson, Prosoft Clinical; Dr. Joshua Naranjo, Western Michigan University; Dror Rom, Prosoft Clinical

**240**

**Topics in Multiplicity and Control of False Discovery Rate—Contributed**

**Biopharmaceutical Section**

Chair(s): Huichao Chen, Harvard University

2:05 p.m. Optimizing Graphical Procedures for Multiplicity Control in a Confirmatory Clinical Trial via Deep Learning—♦Tianyu Zhan, Immunology, DSS, AbbVie; Alan Hartford, Takeda Pharmaceutical Company; Walt Offen, Retired

**CC-705**

**241**

**Estimation Challenges and New Approaches—Contributed**

**Business and Economic Statistics Section**

Chair(s): Michael William Kotarinos, University of South Florida & Solarbeam Capital LLC

2:05 p.m.

On Post Dimension Reduction Statistical Inference—♦Kyongwon Kim, The Pennsylvania State University

2:20 p.m.

Randomized Algorithms of Maximum Likelihood Estimation with Spatial Autoregressive Models for Large-Scale Networks—♦Miaoqi Li, University of Cincinnati; Emily Lei Kang, University of Cincinnati

2:35 p.m.

Estimation of High-Dimensional Dynamic Conditional Precision Matrices with an Application to Forecast Combination—♦Tae-Hwy Lee, Univ of California, Riverside; Yi Millie Mao, University of California, Riverside; Aman Ullah, University of California, Riverside

2:50 p.m.

Bayesian Estimation and Testing for Constrained Multivariate Functions—♦Thomas Shively, Univ of Texas at Austin

3:05 p.m.

Gaussian Process Mixtures for Estimating Heterogeneous Treatment Effects—♦Abbas Zaidi, Duke University - Statistics

3:20 p.m.

Helping Effects Against the Curse of Dimensionality in Threshold Factor Models for High-Dimensional Matrix Time Series—♦Xialu Liu, San Diego State University; YI CHEN, Princeton University

3:35 p.m.	A Least Deviation Estimation Approach for Time Series Models—♦ Silvey Shamsi, Mian Adnan, Indiana University
-----------	--

**242** **CC-506**  
**Issues in Frame Quality and Accuracy Assessments—Contributed**  
**Government Statistics Section**  
Chair(s): Daniel Yang, U.S. Bureau of Labor Statistics

2:05 p.m.	Transition of a Large Healthcare Survey from a Dual-Frame Design to a Single-Frame Design—♦ Xian Tao, ; Ben Skalland, NORC at the University of Chicago; Laurie D. Elam-Evans, CDC; James A. Singleton, CDC; Holly A. Hill, CDC; Tanja Walker, Centers for Disease Control and Prevention; David Yankey, Centers for Disease Control and Prevention; Benjamin Fredua, Centers for Disease Control and Prevention; Kimberly Nguyen, Centers for Disease Control and Prevention; Wolter Kirk, NORC at the University of Chicago; Kathleen Santos, NORC at the University of Chicago
-----------	---

2:20 p.m.	Evaluation of a Sample Design Based on Predicted Occupational Frame Data—♦ Alice Yu, ; Erin McNulty, Bureau of Labor Statistics
-----------	---

2:35 p.m.	An Age-Period-Cohort Analysis of Census Net Undercount Rates from 1940 to 2010 Using Demographic Analysis—♦ Eric Jensen, U.S. Census Bureau; Lauren Medina, U.S. Census Bureau
-----------	--

2:50 p.m.	Incorporating Variance and Geographic Specificity into the Imputation Frame Used in Weighting the American Community Survey Group Quarters Sample—♦ Dirk Bullock, U.S. Census Bureau; John M. Jordan, U.S. Census Bureau; Edward C. Castro, Jr., U.S. Census Bureau
-----------	---

3:05 p.m.	Using Statistical Models in Place of Clerical Matching in the Census 2020 Post-Enumeration Survey to Produce Estimates of Census Housing Unit Coverage—♦ Michael Beaghen, Elizabeth Marra, U.S. Census Bureau; Mark Jost, U.S. Census Bureau
-----------	--

3:20 p.m.	Address Canvassing for the 2018 End-To-End Census Test—♦ Shannon McDougall, U.S. Census Bureau
-----------	--

3:35 p.m.	Imputation Models Using Automated Probability Matching Results—♦ Glenn Reisch, United States Census Bureau
-----------	--

**243** **CC-106**  
**Functional Object Analysis and Beyond—Contributed**  
**IMS**  
Chair(s): Yining Chen, London School of Economics

2:05 p.m.	Wasserstein F-Tests and Confidence Bands for the FrÈchet Regression of Density Response Curves—♦ Alexander Petersen, University of California, Santa Barbara; Xi Liu, University of California, Santa Barbara; Afshin Divani, University of Minnesota
-----------	---

2:20 p.m.	Efficient Multivariate Functional Estimation and the Super-Oracle Phenomenon—♦ Thomas Berrett, University of Cambridge; Richard Samworth, University of Cambridge
-----------	---

2:35 p.m.	Two-Component Mixture Model in the Presence of Covariates—♦ Nabarun Deb, Columbia University; Sujayam Saha, Google; Adityanand Guntuboyina, University of California at Berkeley; Bodhisattva Sen, Columbia University
-----------	--

2:50 p.m.	Optimal Estimation of Wasserstein Distance on a Tree with an Application to Microbiome Studies—♦ Shulei Wang, University of Pennsylvania; T. Tony Cai, The Wharton School, University of Pennsylvania; Hongzhe Li, University of Pennsylvania
-----------	---

3:05 p.m.	A Goodness of Fit Test for Object Data Using Nearest Neighbors—♦ Leif Ellingson, Texas Tech University; Dong Xu, Texas Tech University
-----------	--

3:20 p.m.	Nonparametric Estimation of Surface Integrals on Level Sets—♦ Wanli Qiao, George Mason University
-----------	---

3:35 p.m.	Edgeworth Expansions for Minimum Divergence Estimators—♦ Zhengyang Fan, ; Anand Vidyashankar, George Mason University
-----------	---

**244** **CC-504**

**New Advances in the Analysis of Competing Risks Data and Interval Censored Data and Related Topics—Contributed**

**Lifetime Data Science Section**

Chair(s): Scott Alan Bruce, George Mason University

2:05 p.m.	A Fast and Scalable Sparse Regression Method for Competing Risks Data—♦ Eric Kawaguchi, UCLA Department of Biostatistics; Marc Suchard, UCLA; Gang Li, UCLA; Jenny I. Shen, University of California, Los Angeles
-----------	---

2:20 p.m.	Cross-Sectional Length-Biased Semi-Competing Risks Data—♦ Alexander C McLain, University of South Carolina; Jiajia Zhang, University of South Carolina; Marie Thoma, University of Maryland
-----------	---

2:35 p.m.	Instrumental Variable Estimation of Exposure Effects for Competing Risks Data Using a Semiparametric Mixture Component Model—♦ Sai Dharmarajan, Food and Drug Administration; Douglas Schaubel, University of Michigan
-----------	--

2:50 p.m.	Propensity Score Matching with Missing Causes of
-----------	--

<p><b>245</b>  <b>Bayesian Inference in the Life Sciences and Medicine—Contributed</b>  <b>Section on Bayesian Statistical Science</b>  Chair(s): Furong Sun, Virginia Tech</p>	<p>Failure: a Monte Carlo Study—♦Seungbong Han, Gachon University</p>	<b>CC-101</b>
	<p>3:05 p.m. An Ensemble Method for Interval-Censored Time-To-Event Data—♦W. Yao, Stern, New York University; H. Frydman, New York University; Jeffrey S. Simonoff, New York University</p>	
	<p>3:20 p.m. Semiparametric Transformation Models for Left-Truncated and Interval-Censored Data Without or with a Cure Fraction—♦Chyong-Mei Chen,</p>	
	<p>3:35 p.m. Floor Discussion</p>	
<p><b>246</b>  <b>Bayesian Nonparametrics—Contributed</b>  <b>Section on Bayesian Statistical Science</b>  Chair(s): Pulong Ma, SAMSI/Duke University</p>	<b>CC-107</b>	
	<p>2:05 p.m. Bayesian Uncertainty Quantification in Monotone Densities—♦Moumita Chakraborty, North Carolina State University; Subhashis Ghosal, North Carolina State University</p>	
	<p>2:20 p.m. A Bayesian Nonparametric Model for Upper Record Data—♦Joon Jin Song, Baylor University; Jung-In Seo, Daejeon University</p>	
	<p>2:35 p.m. Gaussian Process Classification with Network Inputs—♦Nathan Josephs, Boston University; Eric Kolaczyk, Boston University; Lichen Lin, University of Notre Dame; Steve Rosenberg, Boston University</p>	
	<p>2:50 p.m. Scalable Bayesian Nonlinear SVMs for Big Data Problems—♦Sounak Chakraborty, University of Missouri, Columbia</p>	
	<p>3:05 p.m. Efficient Bayesian Shape-Constrained Function Estimation—♦Pallavi Ray, Texas A&amp;M University - College Station; Debdeep Pati, Texas A&amp;M University; Anirban Bhattacharya, TAMU</p>	
	<p>3:20 p.m. Bayesian Dependent Functional Mixture Estimation for Area and Time-Indexed Data—♦Terrance Savitsky, Bureau of Labor Statistics</p>	
	<p>3:35 p.m. Bayesian Spatial Nonhomogeneous Poisson Process Based on Mixture of Finite Mixtures Model with Applications—♦Wei Shi, University of Connecticut; Junxian Geng, Boehringer Ingelheim; Guanyu Hu, University of Connecticut</p>	
<p><b>247</b>  <b>Sufficient Dimension Reduction and High-Dimensional Data—Contributed</b>  <b>Section on Nonparametric Statistics</b>  Chair(s): Sayar Karmakar, University of Florida</p>	<b>CC-108</b>	
	<p>2:05 p.m. Moment Kernels for Estimating Central Mean Subspace and Central Subspace—♦Weihang Ren, ; Xiangrong Yin, University of Kentucky</p>	
	<p>2:20 p.m. A Sparse Sufficient Dimension Reduction Approach for Multiclass Linear Discriminant Analysis—♦Jing Zeng, Florida State University; Qing Mai, Florida State University; Xin Zhang, Florida State University</p>	
	<p>2:35 p.m. Likelihood-Based Dimension Reduction for Tensor Data—♦Ning Wang, Florida State University; Xin Zhang, Florida State University; Bing Li, The Pennsylvania State University</p>	
	<p>2:50 p.m. Robust Dimension Reduction Methods—♦Prabha Shrestha, ; Wei Lin, Ohio University</p>	

3:05 p.m.	Non Standard Asymptotics in High Dimension: Manski's Maximum Score Estimator Revisited—♦Debarghya Mukherjee, university of michigan; Ya'acov Ritov, university of michigan; Moulinath of Banerjee, university of michigan
3:20 p.m.	Metropolized Knockoff Sampling—♦Wenshuo Wang, Harvard University; Stephen Bates, Stanford; Emmanuel Candès, Stanford University; Lucas Janson, Harvard University
3:35 p.m.	A CONSISTENT INDEPENDENCE TEST via PROJECTED MUTUAL INFORMATION—♦Zhanrui Cai, Penn State University; Yaowu Zhang, Shanghai University of Finance and Economics; Liping Zhu, Renmin University of China; Runze Li, Penn State University; Xu Guo, Beijing Normal University

**248 CC-502**  
**Machine Learning in Science and Industry—Contributed Section on Statistical Learning and Data Science, Text Analysis Interest Group**  
Chair(s): Jean Feng, University of Washington

2:05 p.m.	Music Classification Based on Sequential Naive Bayes and Music Score Data—♦Tunan Ren, Guanghua School of Management; Hansheng Wang, Guanghua School of Management, Peking University, Beijing, China; Feifei Wang, School of Statistics, Renmin University of China, Beijing, China
2:20 p.m.	A Statistical and Machine Learning Framework for New Energy Vehicle Ride Sharing System—♦Kaixian Yu, Didi Chuxing; Jinliang Deng, Hong Kong University of Science and Technology; Chengchun Shi, North Carolina State University; Rui Song, North Carolina State University; Qiang Yang, Hong Kong University of Science and Technology; Jieping Ye, Didi Chuxing; Hongtu Zhu, DiDi Chuxing and UNC-Chapel Hill
2:35 p.m.	Using Machine Learning to Assign North American Industry Classification System Codes to Establishments Based on Business Description Write-Ins—♦Brian Dumbacher, U.S. Census Bureau; Anne Russell, U.S. Census Bureau
2:50 p.m.	Using a Network-Based Approach to Identify Gene Signatures That Predict Cancer Survival—♦Minya Pu, University of California, San Diego; Judith Varner, University of California, San Diego; Karen Messer, University of California, San Diego
3:05 p.m.	A Machine-Learning Approach to Extract Remote-Sensing Features for Predicting Crop Yield—♦Luca Sartore, National Institute of Statistical Sciences; Arthur Rosales, National Agricultural Statistics Service; David Johnson, National Agricultural Statistics Service; Mary Frances Dorn, Los Alamos National Laboratory; Clifford Spiegelman, Texas A&M University
3:20 p.m.	Dynamic Tensor Response Regression for Early

Diagnosis of Alzheimer's Disease—♦Jie Zhou, Will Wei Sun, Purdue University; Lexin Li, University of California at Berkeley

3:35 p.m. A Novel Method for Evaluating Co-Dependencies of Phenotypic Susceptibility to Multiple Antimicrobials Within and Between Bacterial Species in an Ecological Niche—♦Heman Shakeri, Kansas State University

**249 CC-210/212**  
**● The Climate Program at SAMSI—Contributed Section on Statistics and the Environment**  
Chair(s): William Christensen, BYU Department of Statistics

2:05 p.m.	Statistics for Ocean Heat Content Estimation with Argo Profiling Floats—♦Mikael Kuusela, Carnegie Mellon University; Donata Giglio, University of Colorado Boulder; Anirban Mondal, Case Western Reserve University; Michael Stein, University of Chicago
2:20 p.m.	Fine-Scale Spatiotemporal Air Pollution Analysis Using Mobile Monitors on Google Street View Vehicles—♦Yawen Guan, North Carolina State University; Margaret Johnson, JPL; Matthias Katzfuss, Texas A & M University; Elizabeth Mannhardt, US Environmental Protection Agency; Kyle Messier, Oregon State University; Brian Reich, North Carolina State University; Joon Jin Song, Baylor University
2:35 p.m.	Hierarchical Multi-Resolution Spatial-Temporal Functional Imputation for Large Satellite Image Data—♦Zhengyuan Zhu, Iowa State University; Weicheng Zhu, Amazon
2:50 p.m.	Ice Model Calibration Using Semi-Continuous Spatial Data—♦Won Chang, University of Cincinnati; Alex Konomi, University of Cincinnati; Yawen Guan, North Carolina State University; Murali Haran, Penn State University; Georgios Karagiannis, Durham University
3:05 p.m.	A Combined Physical-Statistical Approach for Estimating Storm Surge Risk—♦Whitney Huang, Statistical and Applied Mathematical Sciences Institute
3:20 p.m.	A Projection-Based Method for Modeling High-Dimensional Zero-Inflated Spatial Data—♦Seiyon Lee, Pennsylvania State University; Murali Haran, The Pennsylvania State University
3:35 p.m.	Multiscale Characterization of Wind Speed and Its Extremes—♦Julie Bessac, Argonne National Laboratory; Emil Constantinescu, Argonne National Laboratory

**250 CC-701**  
**Bayesian Modeling, Infectious Diseases and Tracking—Contributed**

**Section on Statistics in Epidemiology**

Chair(s): Al Ozonoff, Harvard Medical School

2:05 p.m. ARGO2: Accurate, Real-Time Flu Tracking with Internet Search Data—♦Shaoyang Ning, Harvard University; Shihao Yang, Harvard University; Samuel Kou, Harvard University

2:20 p.m. Multiscale Flu Forecasting—♦Dave Osthus, Los Alamos National Laboratory

2:35 p.m. A Hierarchical Approach for Modeling the Dynamics of Emerging Epidemics—♦Ali Arab, Georgetown University

2:50 p.m. Tracking Epidemics with Problematic Real-World Data: Ebola in Africa—♦Loren Cobb, University of Colorado Denver; Ashok Krishnamurthy, Mount Royal University

3:05 p.m. Identification of Causal Effects Under Contagion—♦Xiaoxuan Cai, Yale University; Forrest W Crawford, Yale School of Public Health; Wen Wei Loh, Ghent University

3:20 p.m. High-Resolution Estimation of TB Incidence in the United States Among Non-U.S.-Born Populations—♦Andrew Hill, U.S. Centers for Disease Control and Prevention; Nicolas Menzies, Harvard T.H. Chan School of Public Health

3:35 p.m. Floor Discussion

MONDAY

**Contributed Poster Presentations 2:00 p.m.—2:45 p.m.**

**251**

**CC-Hall C**

**SPEED: Biopharmaceutical Methods and Application I, Part 2—Contributed**

**Biopharmaceutical Section**

Chair(s): Sarah Ryan,

**Biopharmaceutical Section**

1 Bayesian Leveraging of Historical and Concurrent Data to Assess the Contribution of a New Molecular Entity with a Delayed Effect in a Combination Survival Trial—♦Samson Ghebremariam, Novartis Pharmaceutical Corporation; Lisa Hampson, Novartis Pharmaceutical Corporation; Amy Racine-Poon, Novartis Pharmaceutical Corporation; Beat Neuenschwander, Novartis Pharmaceutical Corporation; Bharani Dharan, Novartis Pharmaceuticals; Kalyanee Appanna, Novartis Pharmaceutical Corporation

2 Design of Clinical Trials for Bivariate Endpoints—♦Junxiao

Hu, University of Colorado; Patrick Blatchford, University of Colorado; John Kittelson, University of Colorado

3 Bayesian Modeling in Historical Data Borrowing on Controls in Clinical Trials—♦Zhuqing Yu, AbbVie Inc.; Zailong Wang, AbbVie Inc.; Lanju Zhang,

4 Analysis Methods for Skewed Data Distributions—♦Annpey Pong,

5 Identification of Potential Predictive Biomarker Candidates Through Strategic Analysis of Cytokine Profiles Across Multiple Anti-PD-1 Clinical Trials—♦Jeea Choi, Novartis; Ying Amanda Wang, Novartis; John Millholland, Novartis; Albert Reising, Novartis; Jan Christoph Bräse, Novartis; Xiaoshan Wang, Novartis; Connie Wong, Novartis; Kitty Wan, Novartis; Yiqun Yang, Novartis; Gullu Gorgun, Novartis; Parul Patel, Novartis; Hemant Patel, Novartis

6 Precise and Accurate Power of the Rank-Sum Test for a Continuous Variable—♦Katie Rose Mollan, University of North Carolina Chapel Hill; Ilana Trumble, University of Colorado Denver; Sarah Reifeis, University of North Carolina at Chapel Hill; Orlando Ferrer, University of North Carolina Chapel Hill; Camden P Bay, Harvard Medical School; Pedro L. Baldoni, University of North Carolina At Chapel Hill; Michael Hudgens, University of North Carolina at Chapel Hill

7 Reducing Misclassification Effect on Dynamic Treatment Regimen (DTR) of Sequential Multiple Assignment Randomized Trial Designs (SMART)—♦Jun He, Virginia Commonwealth University; Roy T Sabo, Virginia Commonwealth University; Donna McClish, VCU

8 Simple Adjustment for Bias Due to Unobserved Confounding—♦Yiran (Bonnie) Hu, AbbVie; Hui Xie, University of Illinois at Chicago

9 Umbrella and Platform Trials: Statistical Considerations on Efficiencies and a Case Study—♦Xiaoyun (Nicole) Li, Merck; Cong Chen, Merck & Co., Inc; Fang Liu, Merck; Wen Li, Merck

10 Event Prediction with a Maximum Enrollment—♦Lei Hua, Agios Pharmaceuticals; Junyi Zhou, Indiana University

11 Evaluating the "One-Model Fits All" Approach for Modeling Clinical Trial Adverse Events—♦Stephanie Pan,

12 How Many Imputations Are Enough When Reporting Clinical Trials?—♦Anders Gorst-Rasmussen, Novo Nordisk A/S

13 Meta-Analysis of Longitudinal Preclinical Efficacy Screens—♦William Forrest, Genentech, Inc; Bruno Alické, Genentech; Magdalena Osinska, Genentech; Shannon Ruppert, Genentech; Michal Jakubczak, Roche; Paweł Piatkowski, Roche

14 The Application of Beta Regression for Modeling a Covariate Adjusted ROC—♦Xing Meng, Baylor University; Jack D. Tubbs, Baylor University

15 Examining the Replication Crisis: The Effect of Underpowered Studies and Publication Bias—♦Christine M. Orndahl, Virginia Commonwealth University Dept of Biostatistics; Robert A. Perera, VCU Department of Biostatistics

16 Comparison of Bayesian Network Meta-Analysis Models for Survival Data—♦Purvi Prajapati, Baylor University; James D Stamey, Baylor University; John Seaman, Baylor University; Michael Sonksen, Eli Lilly & Co; Min-Hua Jen, Eli Lilly & Co.

17 Advantages of Parallel Design Over Crossover Design in the Study on Effects of Cannabis on Driving in Healthy Adults—♦Anya Umlauf, UC San Diego; Barth Wilsey, UC San Diego; Thomas Marcotte, UC San Diego; Florin Vaida, UC San Diego

18 Probability of Undetectable Error in Independent Dual Programming Validation for Analysis Results in Clinical Trials—♦Long Zheng, Takeda Pharmaceutical

19 An Extension of Cohen's Kappa for Clustered Data and Group Sequential Testing—♦Mary Ryan, University of California, Irvine; Daniel L. Gillen, University of California, Irvine

20 Flexible Semiparametric Bayesian Hierarchical Model for Basket Trials—♦Veronica Bunn, Takeda Pharmaceuticals; Jianchang Lin, Takeda Pharmaceuticals; Rachael Liu, Takeda Pharmaceuticals

28 Impact of Spatial Sampling on Survey Development and Analysis—♦Atisha Amin, Ipsos; Beatrice Abiero, Ipsos

29 Comparison of Alternative Variance Estimators for Raking in the Presence of Nonresponse—♦Daifeng Han, Westat; Richard Valliant, University of Maryland and University of Michigan

30 Proper Variance Estimation When Adjusting for Both Unknown Eligibility and Unit Nonresponse—♦Dhuly Chowdhury, RTI International; Phil Kott, RTI

31 Coverage Error in Administrative Data: An Assessment of the National Incident Based Reporting System—♦Sarah Zimmermann, RTI International; Dan Liao, RTI International; Marcus Berzofsky, RTI; Alexia Cooper, Bureau of Justice Statistics

32 A Smooth Pseudo-Population Bootstrap Approach in Survey Sampling with Applications to Quantile Estimators—♦Christian Léger, Université de Montréal; Vanessa McNealis, Université de Montréal

33 Doubly Robust Imputation in Complex Surveys Under Informative and Noninformative Sampling with Application to NHANES 2015-16 Data—♦Michael Machiorlatti, ; Sixia Chen, University of Oklahoma Health Sciences Center

34 Measures for Identifying Highly Associated Categorical Variables in Survey Data—♦Natalia Weil, Westat; Ismael Flores Cervantes, Westat

35 Oversampling Minority Populations in a Dual-Frame Telephone Survey—♦Alexander Stubblefield, University of Oklahoma Health Sciences Center; Sixia Chen, University of Oklahoma Health Sciences Center; Julie Stoner, University of Oklahoma Health Sciences Center

36 Likelihood Based Estimation of Finite Population Mean with Post-Stratification Information Under Nonignorable Nonresponse—♦Sahar Zangeneh, Fred Hutchinson Cancer Research Center; Roderick J Little, University of Michigan School of Public Health

37 Exploring Hybrid Methods for Estimation with Combined Probability and Nonprobability Samples—♦Qiao Ma, NORC at University of Chicago; Edward Mulrow, NORC at the University of Chicago

38 PRIOR DISTRIBUTIONS for FULLY BAYESIAN MRP: INSERTING INFORMATION USING INFORMATIVE PRIORS on COMPLEX MODEL STRUCTURES—♦Alexa DiBenedetto, Ipsos; Luke Vaicunas, Ipsos Public Affairs; Robert Petrin, Ipsos Public Affairs

39 An Evaluation of Traditional and Machine Learning Imputation Methods for Sampling Frame Construction for the American Voices Project—♦Cong Ye,

40 Variance Estimation for Nearest Neighbor Imputed Data—♦Xiaofei Zhang, Iowa State Univ; Wayne Fuller, Iowa State University

**252** CC-Hall C  
**SPEED: Improving Survey Data Quality with Multiple Data Sources, Administrative Data, and Nonresponse Bias Control, Part 2—Contributed**  
 Survey Research Methods Section, Section on Teaching of Statistics in the Health Sciences

Chair(s): Karol Krotki, RTI International

**Survey Research Methods Section**

21 Accessing and Exploring NCES Survey and Administrative Data Through Self-Guided Online Training Modules—♦Andrew A White, National Center for Education Statistics

22 Hot Deck Imputation Cells for the American Housing Survey—♦Chrystine Tadler, Insight Policy Research; Richard Griffiths, Insight Policy Research

23 Calibration Weighting for Nonreporting Agencies in FBI's National Incident Based Reporting System—♦Philip Lee, RTI; Dan Liao, RTI International; Marcus Berzofsky, RTI; Alexia Cooper, Bureau of Justice Statistics

24 HIGHER ORDER CALIBRATED ESTIMATOR in TWO STAGE SAMPLING—♦Veronica Salinas,

25 Nurse Effects on Nonresponse to Survey-Based Biomeasures—♦Joseph Sakshaug, Institute for Employment Research / University of Mannheim; Alexandru Cernat, University of Manchester; Tarani Chandola, University of Manchester; James Nazroo, University of Manchester; Natalie Shlomo, University of Manchester

26 Carry Forward Imputation for Unit Non-Response After a Survey Redesign—♦Kimberly Ault, RTI International

27 Effect of Monetary Incentives on Response Rates and Data Quality in a Survey of the U.S. Military—♦David McGrath, Department of Defense (DOD)

**Contributed Sessions 2:00 p.m.—3:50 p.m.**

**253** CC-Hall C

**Contributed Poster Presentations: Quantum Computing in Statistics and Machine Learning—Contributed**

**Quantum Computing in Statistics and Machine Learning**

Chair(s): Wendy Meiring, University of California At Santa Barbara

**Quantum Computing in Statistics and Machine Learning**

- 1 Optimization of Backpropagation Multilayer Neural Network—♦ Jun Kim, Purdue University; Anindya Bhadra, Purdue University
- 2 Dirichlet Process Mixture Regression Model—♦ Hend Aljobaily, University of Northern Colorado
- 3 Dataset Bias in Machine Learning—♦ Menna Hassan, ; Yung Hsiang Lu, Purdue University

**254** CC-Hall C

**Contributed Poster Presentations: Section on Bayesian Statistical Science—Contributed**

**Section on Bayesian Statistical Science**

Chair(s): Wendy Meiring, University of California At Santa Barbara

**Section on Bayesian Statistical Science**

- 4 Maize Yield Determinants and Management Strategies—♦ Han Wang, Michigan State University
- 5 Fast Bayesian Variable Selection and FDR Control—♦ Su Chen, The University of Texas At Austin; Stephen Walker, The University of Texas at Austin
- 6 Confusion for Good: Expanding the Bayesian Logistic Meta-Analysis from Odds Ratios to the Confusion Matrix—♦ Thomas Gibson, UCLA
- 7 Bayesian Agnostic Multiple-Hypotheses Test with Decision-Errors Control—♦ Marcio Augusto Diniz, Cedars Sinai Medical Center; Melaine Oliveira Couch, Florida State University; Zahra Razaee, Cedars-Sinai Medical Center; Andre Rogatko, Cedars-Sinai Medical Center
- 8 Mapping Land Reflectance with Bayesian Dynamic Linear Models—♦ Ryan Frost, Boston University
- 9 Bayesian Ordinal Quantile Regression with a Partially Collapsed Gibbs Sampler—♦ Isabella Grabski, Harvard University; Roberta De Vito, Princeton University; Barbara Engelhardt, Princeton University
- 10 A Bayesian Method to Identifying CpG Sites Exhibiting Transgenerational Effects on DNA Methylation and Their Heterogeneity via Nested Clustering in Beta Regression—♦ JIAJING WANG, University of memphis; Hongmei Zhang,

University of Memphis; John Holloway, University of Southampton; S. Hasan Arshad, University of Southampton; Wilfried JJ Karmaus, University of Memphis

- 11 New Development of Bayesian Inconsistency Detection for Network Meta-Analysis—♦ Cheng Zhang, University of Connecticut; Ming-Hui Chen, University of Connecticut; Joseph G Ibrahim, UNC; Sungduk Kim, NIH; Jianxin Lin, Merck, Inc.; Arvind Shah, Merck, Inc.; Hao Li, Boehringer Ingelheim
- 12 Inverse Stable Prior for Rate, Inverse Scale, and Inverse Variance Parameters—♦ Dexter Cahoy, University of Houston-Downtown and University of Maryland; Joseph Sedransk, Univ of Maryland
- 13 Bayesian Sparse Multivariate Regression with Asymmetric Nonlocal Priors for Microbiome Data Analysis—♦ Kurtis Shuler, UCSC; Juhee Lee, University of California, Santa Cruz; Marilou Sison-Mangus, UCSC
- 14 Sparse Priors for Orthogonal Matrices—♦ Michael Jauch, Duke University; Peter Hoff, Duke University; David Dunson, Duke University
- 15 Bayesian Quantile Envelope Model—♦ Minji Lee, University of Florida; Saptarshi Chakraborty, Memorial Sloan Kettering Cancer Center; Zhihua Su, University of Florida
- 16 A Bayesian Method for Locating Breakpoints in Time Series—♦ Jeffrey Liebner,
- 17 Stein Neural Sampler—♦ Tianyang Hu, Purdue Statistics; Zixiang Chen, Tsinghua Statistics; Hanxi Sun, Purdue Statistics; Jincheng Bai, Purdue Statistics; Mao Ye, Purdue Statistics; Guang Cheng, Purdue Statistics
- 18 Rank Selection of Wavelet Bases in a Spatial Mixed Effects Model Using a Two-Step Bayesian Forward Selection Algorithm—♦ Jaehui Lim, Florida State University; Eric Chicken, Florida State University; Jonathan R. Bradley, Florida State University
- 19 Criteria for Bayesian Hypothesis Testing for Two and More Groups—♦ Victor Pena, Baruch College (CUNY)
- 20 A Bayesian Methodology for High-Dimensional Discrete Graphical Models—♦ Anwesha Bhattacharyya,
- 21 Revisiting the Gelman-Rubin Diagnostic—♦ Christina Knudson, University of St Thomas; Dootika Vats, Indian Institute of Technology Kanpur
- 22 Flexible Multivariate Joint Model of Longitudinal Intensity and Binary Process for Medical Monitoring of Frequently Collected Data—♦ Resmi Gupta, Cincinnati Children's Hospital Medical Center
- 23 Flexible Bayesian Inference for Over-Dispersed or Under-Dispersed Spatial Count Data—♦ Hou-Cheng Yang,
- 24 A Topic Model for Websites—♦ Jason Wang, UCLA; Robert Weiss, UCLA
- 25 Function Estimation Through Phase and Amplitude Separation—♦ James Matuk, The Ohio State University;

Sebastian Kurtek, The Ohio State University; Oksana Chkrebtii, The Ohio State University; Karthik Bharath, University of Nottingham	39	Theoretical Guarantees of Convergence of EM Updates in Tangent Transformation Approach—♦Indrajit Ghosh, Texas A&M University; Anirban Bhattacharya, TAMU; Prasenjit Ghosh, Texas A & M University; Debdeep Pati, Texas A&M University
26 Bayesian Projected Calibration of Computer Models—♦Fangzheng Xie, Yanxun Xu, Johns Hopkins University	40	A Bayesian Model for Integer-Valued Time Series Based on Pitman-Yor Processes—♦Helton Graziadei, University of Sao Paulo; Paulo C. Marques F, Insper; Hedibert F. Lopes, Insper
27 Bayesian Approach to Partially Validated Binary Regression with Response and Exposure Misclassification of Longitudinal Data—♦Katrina Anderson, Marymount University; James D Stamey, Baylor University	41	Bayesian Smoothing and Classification of Sparse Functional Data Using Gaussian Process—♦Tahmidul Islam, University of South Carolina; Paramita Chakraborty , University of South Carolina; James Lynch, University of South Carolina; John Grego, University of South Carolina
28 A Bayesian Model of Microbiome Data for Simultaneous Identification of Covariate Associations and Prediction of Phenotypic Outcomes—♦Matthew Koslovsky, Rice University; Kristi L. Hoffman, Baylor College of Medicine; Carrie R. Daniel, MD Anderson Cancer Center; Marina Vannucci, Rice University		
29 Applications of the Bayesian Cut Function to Ecohydrological Studies—♦John Frank, Rocky Mountain Research Station	255	<b>CC-Hall C</b> <b>Contributed Poster Presentations: Section on Statistical Computing—Contributed Section on Statistical Computing</b> Chair(s): Wendy Meiring, University of California At Santa Barbara
30 Bayesian Variable Selection for Cox Regression Model with Spatially Varying Coefficients with Applications to Louisiana Respiratory Cancer Data—♦Jinjian Mu, University of Connecticut; Guanyu Hu, University of Connecticut; Qingyang Liu, University of Connecticut; Lynn Kuo, University of Connecticut		<b>Section on Statistical Consulting</b>
31 Multivariate Space-Time Disease Mapping via Quantification of Disease Risk Dependency—♦Daniel R. Baer, Medical University of South Carolina; Andrew B Lawson, Medical University of South Carolina	42	Accounting for the Uncertainty of Nuisance Parameter in Power and Sample Size Calculation—♦Chuchu Cheng, Boston College; Hao Wu, Vanderbilt University
32 Modeling Data on the Simplex—♦Rayleigh Lei, University of Michigan	43	<b>Section on Statistical Computing</b> Computational Effort of Multiple Hypothesis Testing—♦Georg Hahn,
33 Estimating the Parameters of Circles and Ellipses Using Orthogonal Distance Regression and Bayesian Errors-In-Variables—♦Jolene Splett, National Institute of Standards and Technology; Felix Jimenez, University of Colorado, NIST; Amanda Koepke, National Institute of Standards and Technology	44	Stochastic Gradient MCMC for State Space Models—♦Christopher Aicher, University of Washington
34 Multi-Rubric Models for Ordinal Spatial Data with Application to Online Ratings Data—♦Apurva Sunder Desai,	45	Computational Aspects of Model-Based Quantile Regression with Discrete Responses—♦Xuan Shi, University of Kentucky; Derek Young, University of Kentucky; Carlos Lamarche, University of Kentucky
35 Bayesian Community Detection for Weighted Sparse Networks Using Mixture of SBM Model—♦Yutzu Kuo, University of Notre Dame	46	Fitting Flexible Models for Count Data: COM-Poisson Regression, Bivariate, Multinomial and Mixed Models—♦Darcy Steeg Morris, U.S. Census Bureau; Kimberly F Sellers, Georgetown University
36 Conjugate Bayesian Multivariate Spatial Models with Accelerated Posterior Sampling Using Conjugate Gradient Method—♦Lu Zhang, UCLA Biostatistics; Sudipto Banerjee, UCLA	47	CPS Analysis: Self-Contained Validation of Biological Clustering Results—♦Lixiang Zhang, PSU; Jia Li, Penn State University; Lin Lin, PSU
37 The Impact of Prior Choice on Latent Variable Network Models—♦Ian Taylor, Colorado State University; Bailey Fosdick, Colorado State University	48	Does Overfitting of Multilinear Regression Models Impact Effect Size and Significance Measures Out of Sample?—♦William Finnoff, Finnoff Aviation Products, LLC
38 Bayesian Survival Analysis with Missing Covariate Values; an Application to Breast Cancer Data—♦Refah Alotaibi, Princess Nourah bint Abdulrahman University; Juliana Iworkumo Consul, Niger Delta University, Bayelsa State, Nigeria	49	Online Updating Method to Correct for Measurement Error in Big Data Streams—♦Joochul Lee, ; Elizabeth Schifano, University of Connecticut; HaiYing Wang, University of Connecticut
	50	Bootstrapping Transfer Function Models—♦Maher Qumsiyeh, Didiere Hirwantwari, University of Dayton

MONDAY

51 Multi-Level Monte Carlo Using Quasi-Random Numbers—♦Lu Vy, University of Colorado Denver; Erin Austin, University of Colorado Denver; Yaning Liu, University of Colorado Denver

52 Asymptotic Analysis of Wilf Partitions Using Generating Functions—♦Kevin LaMaster, ; Mark Ward, Purdue University

53 Optimal Two-Stage Adaptive Subsampling Design for Softmax Regression—♦Yaqiong Yao, University of Connecticut; HaiYing Wang, University of Connecticut; Jiahui Zou, Academy of Mathematics and Systems Science, Chinese Academy of Sciences

54 The Decomposition of Quadratic Forms Under Matrix Variate Skew Normal Distribution—♦Ziwei Ma, New Mexico State University; Tonghui Wang, New Mexico State University

55 Score Approximations for the Evolutionary Spectrum Model for Large Spatial Data—♦Amanda Muyskens, North Carolina State University; Joseph Guinness, Cornell University

56 Edge Deletion Tests in Graphical Models for Multivariate Time Series—♦Marco Reale, University of Canterbury; Chris Price, University of Canterbury; Anna Lin, Statistics New Zealand; Rory Ellis, University of Canterbury

57 Double Matched Matrix Factorization—♦Dongbang Yuan, Texas A&M University; Irina Gaynanova, Texas A&M University

58 A Large Sample Robust Linear Regression via A-Optimal Subsampling—♦Ziting Tang,

59 Nested Logistic Regression Model for Multiclass Rare Event Data Using Classification Cost—♦Masaaki Okabe, Doshisha University; Hiroshi Yadohisa, Doshisha University

60 Autocorrelation Function Estimation Using Penalized Least Squares—♦Xiyan Tan, Clemson University; Colin Mark Gallagher, Clemson University

61 Generalised Boosted Forests; Variance Estimation and Inference—♦Indrayudh Ghosal, Cornell University

62 Mediation Analysis with Binary Mediators: a New Parametric Method and R Programs—♦Yujiao Mai, St. Jude Children's Research Hospital; Deo Kumar Srivastava, St. Jude Children's Research Hospital; Hui Zhang, St. Jude Children's Research Hospital

63 Applying an Intrinsic Conditional Autoregressive Reference Prior for Areal Data—♦Erica Porter, Virginia Tech; Matthew Keefe, The Walt Disney Company; Christopher Franck, Virginia Tech; Marco Ferreira, Virginia Tech

64 Data Monitoring and Quality Control for Disease Growth in Longitudinal Medical Imaging Data—♦Kari Sorge, UCLA; Grace Kim, UCLA; Jihey Lee, UCLA

**256 CC-Hall C**  
**Contributed Poster Presentations: Section on Statistical Learning and Data Science—Contributed**

**Section on Statistical Learning and Data Science, Text Analysis Interest Group**

**Chair(s): Wendy Meiring, University of California At Santa Barbara**

**Section on Statistical Learning and Data Science**

65 Accounting for Established Predictors with the Multi-Step Elastic Net—♦Elizabeth C Chase, University of Michigan; Phil Boonstra, University of Michigan

66 Big, Bad Matrices: a Constructive Approach—♦Garrett Mulcahy, Purdue University; Thomas Sinclair, Purdue University

67 Bimodal Sentiment Analysis of Service Calls—♦YANAN JIA, Businessolver

68 Feature Selection for High-Dimensional Clustering by Hidden Markov Model with Variable Blocks(HMM-VB)—♦Beomseok Seo, Penn State University; Jia Li, Penn State University; Lynn Lin, Penn State University

69 On the Selection of Regression Model Using Machine Learning—♦Asanao Shimokawa, Tokyo University of Science; Etsuo Miyaoka, Tokyo University of Science

70 Training Students Concurrently in Data Science and Team Science: Results and Lessons Learned from Multi-Institutional Interdisciplinary Student-Led Research Teams 2012-2018—♦Brent Ladd, Purdue University; Mark Ward, Purdue University

71 Predicting Traffic Intensity with Deep Learning and Semantic Segmentation—♦Logan Bradley-Trietsch, Purdue University; Xiao Wang, Purdue University

72 Combining Machine Learning and Statistical Modeling to Identify Risk Factors of Hospital Mortality and Directionality for Patients with Acute Respiratory Distress Syndrome (ARDS)—♦Meng Zhang, Feinstein Institute for Medical Research; Michael Qiu, Feinstein Institute for Medical Research; Molly Stewart, Feinstein Institute for Medical Research; Jamie Hirsch, Feinstein Institute for Medical Research; Negin Hajizadeh, Feinstein Institute for Medical Research

73 Time Series Models to Forecast Mail Volume—♦Xuemei Pan, Mary Pritts, IBM

74 A Methodology to Classify High-Dimensional Data: Application to Mass Spectrometry Data—♦Achraf Cohen, University of West Florida

75 Testing Global Dynamics in *C. Elegans*—♦Anastasia Dmitrienko, Columbia University; John Cunningham, Columbia University; Sean Bittner, Columbia University

76 Testing for High-Dimensional Network Parameters in Auto-Regressive Models—♦Lili Zheng, University of Wisconsin-Madison; Garvesh Raskutti, University of Wisconsin-Madison

77 On the Non-Asymptotic and Sharp Lower Tail Bounds of Random Variables—♦Yuchen Zhou, University of Wisconsin-Madison; Anru Zhang, University of Wisconsin-Madison

78 A Computational Approach to the Structure of Subtraction Games—♦Kali Lacy, Purdue University; Bret Benesh, College of Saint Benedict/Saint John's University; Jamylle Carter, Diablo Valley College; Deidra Coleman, Wofford College; Douglas Crabbill, Purdue University; Jack Good, Purdue University; Michael Smith, Purdue University; Jennifer Travis, Lone Star College; Mark Ward, Purdue University

79 Combining Materials and Data Science—♦Haydn Schroader, Purdue University; Alejandro Strachan, Purdue University; Saaketh Desai, Purdue University; Juan Carlos Verduzco Gastelum, Purdue University; David Farache, Purdue University

80 Computational and Theoretical Analysis of Novel Dimensionality Reduction Algorithms in Data Mining Brandon Guo—♦Brandon Guo,

81 A Natural Language Processing Algorithm for Medication Extraction from Electronic Health Records Using the R Programming Language: MedExtractR—♦Hannah L Weeks, Vanderbilt University; Cole Beck, Vanderbilt University Medical Center; Elizabeth McNeer, Vanderbilt University; Joshua C Denny, Vanderbilt University; Cosmin A Bejan, Vanderbilt University; Leena Choi, Vanderbilt University Medical Center

82 Question Answering Using a Domain Specific Knowledge Base—♦Mitchell Kinney, University of Minnesota - Twin Cities

83 Propensity Score Analysis Using Machining Learning Techniques with Data Sets Involving Correlation of Covariates, Clustering, and Complex Outcome Functions and Propensity Scores—♦Li He, Clemson University; William C. Bridges Jr., Clemson University

84 Connecting Diverse Data with the Power of Natural Language Processing Methods—♦Tracy Schifeling, Bluprint; Murat Tasan, Bluprint

85 Performance of Latent Dirichlet Allocation with Different Topic and Document Structures—♦Haotian Feng, Clemson University

86 Using Push-Forward and Pullback Measures for Parameter Identification and Distribution Estimation—♦Tian Yu Yen, University of Colorado At Denver; Michael Pilosov, University of Colorado At Denver

87 Using Machine Learning to Incorporate Nutrition into Cardiovascular Mortality Risk Prediction—♦Joseph Rigdon, Stanford University; Sanjay Basu, Stanford University

88 Gender Differences in Authorship of Invited Commentary Articles in Medical Journals—♦Emma Thomas, Harvard University; Bamini Jayabalasingham, Elsevier, Inc.; Thomas Collins, Elsevier, Inc.; Jeroen Geertzen, Elsevier, Inc.; Chinh Bui, Elsevier; Francesca Dominici, Harvard T.H. Chan School of Public Health

89 Open Category Detection with PAC Guarantees—♦Si Liu, Oregon State University; Risheek Garrepalli, Oregon State University; Thomas G. Dietterich, Oregon State University; Alan Fern, Oregon State University; Dan Hendrycks, UC Berkeley

90 Statistical Inference in a High-Dimensional Binary Regression Problem with Noisy Responses—♦Hyebin Song,

91 Personalized HeartSteps: a Reinforcement Learning Algorithm for Optimizing Physical Activity—♦Peng Liao, University of Michigan; Susan Murphy, Harvard University; Predrag Klasnja, University of Michigan; Kristjan Greenewald, IBM

92 Aggregated Single-Study Learners for Generalizable Predictions—♦Boyu Ren, Lorenzo Trippa, Dana-Farber Cancer Institute; Giovanni Parmigiani, Dana-Farber Cancer Institute

93 Recursive Optimization Using Diagonalized Hessian Estimate and Its Application in EM—♦Shiqing Sun, ; James C. Spall, Applied Physics Laboratory

94 Phylogenetic Tree Based Deep Neural Networks for Microbiome Taxonomic Data Analyzes—♦Jing Zhai, University of Arizona; Jin Zhou, University of Arizona

**257 CC-Hall C  
Contributed Poster Presentations: Section for Statistical Programmers and Analysts—Contributed Section for Statistical Programmers and Analysts**

Chair(s): Wendy Meiring, University of California At Santa Barbara

**Section for Statistical Programmers and Analysts**

95 High-Performance Parallel Computing on a Cluster with R: a Tutorial—♦Ann Marie Weideman, University of North Carolina at Chapel Hill; Katie Rose Mollan, University of North Carolina Chapel Hill

96 An R Package IMDO for Phase II Clinical Trials with Delayed Outcomes—♦Diane Liu, University Of Texas M.D. Anderson Cancer Center; Chunyan Cai, University of Texas Health Science Center; Suyu Liu, University Of Texas M.D. Anderson Cancer Center

97 Use Restricted Mean Survival Time for the Design Phase of Studies in Power Calculations for Time-to-Event Endpoints—♦Bryan Fellman, MD Anderson Cancer Center; Nan Chen, University of Texas M.D. Anderson Cancer Center; Suyu Liu, University Of Texas M.D. Anderson Cancer Center

98 A Joint Poisson Hurdle Model of Longitudinal Outcomes and Informative Time—♦Gadir Alomair,

**258 CC-Hall C  
Contributed Poster Presentations:Section on Statistics in Sports—Contributed Section on Statistics in Sports**

Chair(s): Wendy Meiring, University of California At Santa Barbara

**Section on Statistics in Sports**

99 A Bayesian Approach to Ranking College Football Teams—♦Cassandra Hiltonbrand, University of Texas at San Antonio; Keying Ye, University of Texas at San Antonio; Jerome Keating, The University of Texas at San Antonio

100 Bayesian Baseball—♦Blake Shurtz,

**Contributed Poster Presentations 3:05 p.m.—3:50 p.m.**

**259 CC-Hall C**

**SPEED: Missing Data and Causal Inference Methods,**

**Part 2—Contributed**

**Health Policy Statistics Section**

Chair(s): Donna L. Coffman, Temple University

**Health Policy Statistics Section**

1 Developing and Evaluating Methods to Impute Race/Ethnicity in an Incomplete Dataset—♦Gabriella Silva, Brown University; Amal N. Trivedi, Brown University; Roee Gutman, Brown University

2 HIV Prevalence in Key Populations: a Semiparametric Bayesian Hierarchical Model for Scarce and Imbalanced Data—♦Amy Zhang, Pennsylvania State University; Le Bao, Pennsylvania State University; Michael Daniels, University of Florida

3 Using a Combination of Nearest Matching and Synthetic Control Methods in Causal Inference Study—♦Zhiyuan Dong,

4 Sensitivity to Unmeasured Confounders: Percutaneous Coronary Intervention (PCI) vs. Coronary Artery Bypass Grafting (CABG) in Patients with Stable Ischemic Heart Disease—♦Lewei Duan, Kaiser Permanente

5 Heterogeneous Treatment Effects with Subgroups via the Overlap Weights—♦Elizabeth Lorenzi,

6 Generalizing Health Insurance Plan Effects on Medicaid Spending with Randomized and Observational Data—♦Irina Degtari, Harvard T.H. Chan School of Public Health; Francesca Dominici, Harvard T.H. Chan School of Public Health; Sherri Rose, Harvard Medical School

7 The Impact of Covariance Priors on Arm-Based Bayesian Network Meta-Analyzes with Binary Outcomes—♦Zhenxun Wang, University of Minnesota; Lifeng Lin, Florida State University; JIM HODGES, UNIVERSITY OF MINNESOTA; Haitao Chu, University of Minnesota

8 A Tutorial on Applying Propensity Score Methods for Characterization of Treatment Effects on Patient Outcomes Using a Medical Claims Database—♦Ryan Ross, University of Michigan; Megan Caram, Institute for Health Policy and Innovation, University of Michigan Medical School; Paul Lin, Institute for Health Policy and Innovation, University of

Michigan Medical School; Min Zhang, University of Michigan; Bhramar Mukherjee, University of Michigan

9 Variable Selection in Causal Inference—♦Tingting Zhou, University of Michigan School of Public Health; Michael Elliott, University of Michigan; Roderick J Little, University of Michigan School of Public Health

10 True Trend or Just Pretend? Alternative Loss Functions to Reduce Overfitting in Synthetic Controls—♦Alyssa Bilinski, Laura A Hatfield, Harvard Medical School

11 Hospital Report Cards: Matched Design Versus Machine Learning—♦Frank Yoon,

12 Impact of Missing Data on Bias and Precision When Estimating Change in Patient-Reported Outcomes from a Clinical Registry—♦Olawale Fatai Ayilara, University of Manitoba; Lixia Zhang, University of Manitoba; Tolulope T Sajobi, University of Calgary; Richard Sawatzky, School of Nursing, Trinity Western University; Eric Bohm, University of Manitoba; Lisa M Lix, University of Manitoba

13 A Generalized Interrupted Time Series Model for Assessing Complex Health Care Interventions—♦Maricela Cruz, University of California, Irvine; Daniel L. Gillen, University of California, Irvine; Hernando Ombao, King Abdullah University of Science and Technology (KAUST)

14 Comparison of Missing Data Imputation Methods in Longitudinal Study of ADRD Patients—♦Yi Cao, Brown University; Roee Gutman, Brown University; Heather Allore, Yale University; Brent Vander Wyk, Yale University

15 Latent Class Analysis for Classification of Latent Policy Environments: a Case Study—♦Bryan Blette, University of North Carolina at Chapel Hill; Leah Frerichs, University of North Carolina at Chapel Hill; Annie Green Howard, The University of North Carolina at Chapel Hill

16 Measuring Hospital Acquired Infection Rates Under Incomplete Sampling—♦Derek Sonderegger, Northern Arizona University

17 Developing a Generalizable Algorithm for Classifying COPD Using Electronic Health Record Data: Combining Expert Medical Curation and Surrogate-Assisted Feature Extraction—♦Su Chu, Harvard Medical School; Jessica Lasky-Su, Brigham and Women's Hospital and Harvard Medical School; Michael Cho, Brigham and Women's Hospital and Harvard Medical School; Emily Wan, Brigham and Women's Hospital and Harvard Medical School; Scott Weiss, Brigham and Women's Hospital and Harvard Medical School; Elizabeth Karlson, Brigham and Women's Hospital and Harvard Medical School

18 Clustering of Longitudinal Trajectories with Multinomial EM Algorithm Based on State-Transition Templates—♦John Rice, Colorado School of Public Health; Elizabeth Juarez-Colunga,

University of Colorado Denver; James Feinstein, University of Colorado, Denver	28	Impact of ENSO and NAO on Extreme Monthly Precipitation of the USA—♦BHIKHARI THARU, Spelman College
19 Bayesian Inference of Separable Covariance Models for Health Care Quality Measures—♦Judith Law, Harvard Medical School; Laura A Hatfield, Harvard Medical School; Alan M. Zaslavsky, Harvard Medical School	29	Predictive Model Checking of a Wildlife Occupancy Model with a Partially-Known Stopping Rule—♦Aaron Springford, Weyerhaeuser; Jay Jones, Weyerhaeuser
260 <b>SPEED: Environmental Statistics Methods and Applications, Part 2—Contributed</b> <b>Section on Statistics and the Environment, Section on Bayesian Statistical Science</b> Chair(s): Wendy Meiring, University of California At Santa Barbara	30	Prenatal Exposure to PM2.5 Species and DNA Methylation in Newborns: a Novel Statistical Framework—♦Jenny Lee, Harvard School of Public Health; Tamar Sofer, Brigham and Women's Hospital, Harvard Medical School; Andres Cardenas, University of California, Berkeley - School of Public Health; Brent A. Coull, Harvard T. H. Chan School of Public Health
<b>Section on Statistics and the Environment</b>	31	Benefits of Monte Carlo Imputation of Non-Detects in Environmental Data—♦Kirk Cameron, Macstat Consulting, Ltd.
20 Bias Correction of Bounded Location Error in Binary Data—♦Nelson Walker, Kansas State University; Trevor Hefley, Kansas State University; Daniel Walsh, US Geological Survey	32	Trend Assessment for Daily Snow Depths with Changepoints Considerations—♦Jaechoul Lee, Boise State University; Robert Lund, Clemson University; Jonathan Woody, Mississippi State University; Yang Xu, Mississippi State University
21 Marked Determinantal Point Processes—♦Yiming Feng, Florida State University; Fred Huffer, Florida State University	33	Classifying Geographic Regions with Imperfect Labels—♦Forrest Paton, McMaster University; Paul D McNicholas, McMaster University
22 Meta-Analysis Accounting for Spatial and Temporal Studies: Bald and Golden Eagle Productivity—♦Mark Otto, Fish and Wildlife Service	34	Temporal Effects Comparison Across Four Treatments Applied to Ponderosa Pine for the Suppression and Prevention of Elytroderma Needle Disease—♦Ekaterina Smirnova, Virginia Commonwealth University; Joel M Egan, US Forest Service; Leonid Kalachev, University of Montana; John Goodburn, University of Montana; Kathleen McKeever, US Forest Service
23 Multi-Scale Vecchia Approximations of Gaussian Processes—♦Jingjie Zhang, Texas A&M University; Matthias Katzfuss, Texas A & M University	35	A Daily Rainfall Model for Multiple Sites for Use in Statistical Downscaling—♦Yiming Liu, University of New Hampshire; Ernst Linder, University of New Hampshire
24 Yield Forecasting Based on Short Time Series with High Spatial Resolution Data—♦Sayli Pokal, University of Nebraska-Lincoln; Yuzhen Zhou, University of Nebraska Lincoln; Trenton Franz, University of Nebraska Lincoln	36	Uncertainty Quantification for Joint Retrieval of Temperature, Humidity, and Cloud States from Satellite Data—♦Jonathan Hobbs, Jet Propulsion Laboratory
25 Statistical Postprocessing for Seasonal Weather Forecasts—♦Claudio Heinrich,	37	Spatially Informed Aggregation of Orbiting Carbon Observatory Measured XCO <sub>2</sub> for Global Flux Inversion—♦Joaquim Teixeira, NASA Jet Propulsion Laboratory
26 Reconstruction of <i>Alnus Viridis</i> Glacial Refugia Through Data Integration—♦Mauricio Campos, University of Illinois at Urbana Champaign; Bo Li, University of Illinois at Urbana-Champaign; Shreya Khurana, University of Illinois at Urbana Champaign; Joseph Napier, University of Illinois at Urbana Champaign; Guillaume deLafontaine, Université du Québec à Rimouski UQAR; Feng Sheng Hu, University of Illinois at Urbana Champaign	38	Bayesian Analysis of Multifidelity Computer Models with Local Features and Non-Nested Experimental Designs—♦Bledar Konomi, University of Cincinnati; Georgios Karagiannis, Durham University
27 Characterization of Spatial and Temporal Trends of Extreme Precipitation Using Functional Principal Component Analysis—♦Miyabi Ishihara, UC Berkeley; Christopher Paciorek, University of California; Mark Risser, Lawrence Berkeley National Laboratory; Michelle Yu, University of California, Berkeley		

**Invited Sessions 4:00 p.m.—5:50 p.m.****261 CC-Four Seasons 2-4****ASA President's Invited Address—Invited****JSM Partner Societies**

Chair(s): Karen Kafadar, University of Virginia

4:05 p.m. Coming to Our Census: How Social Statistics Underpin Our Democracy (And Republic)—♦Teresa A. Sullivan, University of Virginia

5:30 p.m. Floor Discussion

**Invited Sessions 8:00 p.m.—9:30 p.m.****262 CC-Four Seasons 1****■● IMS Presidential Address and Awards Ceremony—****Invited****IMS**

Organizer(s): Piotr Fryzlewicz, London School of Economics

Chair(s): Alison Etheridge, University of Oxford

8:05 p.m. 011, 010111, and 01111100100—♦Xiao-Li Meng, Harvard University

# TUESDAY JULY 30

## Special Presentation 8:30 a.m.—10:20 a.m.

**268** CC-Four Seasons 1  
**Introductory Overview Lecture: Modern Risk Analysis—Invited**  
**JSM Partner Societies**

Chair(s): Susan J. Simmons, North Carolina State University

8:35 a.m.	Environmental Risk Analysis—♦ Walter W. Piegorsch, University of Arizona
9:25 a.m.	Adversarial Risk Analysis—♦ David Banks, SAMSI/Duke University
10:15 a.m.	Floor Discussion

## Invited Sessions 8:30 a.m.—10:20 a.m.

**269** CC-712  
**● New Perspectives on Statistical Robustness—Invited**  
**IMS, International Indian Statistical Association, Section on Nonparametric Statistics**

Organizer(s): Po-Ling Loh, UW-Madison

Chair(s): Po-Ling Loh, UW-Madison

8:35 a.m.	Learning Discrete Markov Random Fields with Nearly Optimal Runtime and Sample Complexity—♦ Adam Klivans, UT Austin
9:00 a.m.	Algorithmic Questions in High-Dimensional Robust Statistics—♦ Ilias Diakonikolas, USC
9:25 a.m.	Robust Learning: Information Theory and Algorithms—♦ Jacob Steinhardt, UC Berkeley
9:50 a.m.	Robust Estimation via Robust Gradient Estimation—♦ Pradeep Ravikumar, Carnegie Mellon University
10:15 a.m.	Floor Discussion

**270** CC-704  
**● Nonparametric and Semiparametric Statistical Inference for Cure Models—Invited**  
**Journal of Nonparametric Statistics**

Organizer(s): Ingrid Van Keilegom, KU Leuven

Chair(s): Lan Wang, University of Minnesota

8:35 a.m.	Nonparametric Mixture Cure Models with Cure Partially Known—♦ M. Amalia Jácome, Universidade da Coruña; Wende Safari, Universidade da Coruña; Ignacio López-de-Ullíbarri, Universidade da Coruña
9:00 a.m.	Nonparametric Latency Estimation for Mixture Cure Models—♦ Ricardo Cao, Universidade da Coruña; Ana Lúpez-Cheda, Universidade da Coruña; M. Amalia Jácome, Universidade da Coruña
9:25 a.m.	Cure Regression Functions: Inference, Variable Selection and Model Checks—♦ Valentin Patilea, CREST Ensaï
9:50 a.m.	A Support Vector Machine Based Semiparametric Mixture Cure Model—♦ Yingwei Peng, Queen's University; Peizhi Li, Dongbei University of Finance and Economics and Queen's University; Qingli Dong, Dongbei University of Finance and Economics and Queen's University
10:15 a.m.	Floor Discussion

**271** CC-707  
**■ ● Statistical Analysis of Complex Imaging Data—Invited**  
**Section on Statistics in Imaging, Mental Health Statistics Section, WNAR**

Organizer(s): Dehan Kong, University of Toronto

Chair(s): Tingting Zhang, University of Virginia

8:35 a.m.	Fréchet Regression for Time-Varying Covariance Matrices of Myelination and Regional Co-Evolution Networks in the Developing Brain—♦ Hans Mueller, UC Davis; Alexander Petersen, University of California, Santa Barbara; Sean Deoni, Brown University; Xiongtao Dai, Iowa State University; Jane-Ling Wang, University of California, Davis
9:00 a.m.	A Time-Varying AR, Bivariate DLM of Functional Near-Infrared Spectroscopy Data—♦ Timothy Duane Johnson, University of Michigan
9:25 a.m.	Semiparametric Estimation Under Shape Invariance for fMRI Data—♦ Nicole Lazar, University of Georgia
9:50 a.m.	Defining the Resolution of Optogenetic Circuit Mapping—♦ Shizhe Chen, University of California, Davis; Liam Paninski, Columbia University; Ben Shababo, University of California, Berkeley; Hillel Adesnik, University of California, Berkeley
10:15 a.m.	Floor Discussion

TUESDAY

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

**272**

**Statistical Learning for Complex and High-Dimensional Data—Invited**

IMS

Organizer(s): Tony Cai, University of Pennsylvania

Chair(s): Richard Samworth, University of Cambridge

**CC-607**

8:35 a.m. Estimation and Inversion of Generative Networks—♦John Lafferty, Yale University

9:00 a.m. Sparse Grid Meets Random Hashing: Learning High-Dimensional Functions of Few Variables—♦Ming Yuan, Columbia University

9:25 a.m. Privacy Preserving Integrative Regression Analysis of High-Dimensional Heterogeneous Data—♦Yin Xia, Fudan University

9:50 a.m. How to Deal with Big Data? Understanding Large-Scale Distributed Regression—♦Edgar Dobriban, University of Pennsylvania; Yue Sheng, University of Pennsylvania

10:15 a.m. Floor Discussion

**273**

**■ ● How Advanced Analytic Tools Deliver Insights for Clinical Investigations Through Real World Data—Invited**

Biopharmaceutical Section, Biometrics Section, ENAR

Organizer(s): Junjing Lin, AbbVie

Chair(s): Margaret Gamalo-Siebers, Eli Lilly

**CC-109**

8:35 a.m. Incorporating Prior Knowledge on Phenotyping Accuracy for Association Studies Using Electronic Health Records Data—♦Yong Chen, University of Pennsylvania; Jing Huang, University of Pennsylvania

8:55 a.m. Challenges When Applying Advanced Analytics to Multiple Data Sources—♦David Ohlssen, Novartis

9:15 a.m. Predict Phase 3 Clinical Trial Results Using Phase 2 Data and Electronic Health Records—♦Qi Tang, Sanofi; Youran Qi, University of Wisconsin

9:35 a.m. Analytic Strategies of Using Propensity Scores in Clinical Data Augmentation—♦Junjing Lin, AbbVie; Margaret Gamalo-Siebers, Eli Lilly; Ram Tiwari, CDRH, FDA

9:55 a.m. Disc: Yunling Xu, FDA/CDRH

10:15 a.m. Floor Discussion

**274**

**● Macroeconomic Forecasting and Policy in Data Rich Digital Age Environments—Invited**

Business and Economic Statistics Section, Section on Risk Analysis, Section on Statistical Learning and Data Science

Organizer(s): Arnab Bhattacharjee, Heriot-Watt University

Chair(s): Liqian Cai, Liberty Mutual

**CC-201**

8:35 a.m. Some High-Dimensional Techniques for Analyzing Spatial and Other Complex Economic Data—♦Taps Maiti, Michigan State University

8:55 a.m. Prediction and Causal Inference Using Linear Regularized Regression with an Application to Commuting in Ireland—♦Achim Ahrens, Economic and Social Research Institute; Christian B Hansen, University of Chicago Booth School of Business; Mark E Schaffer, Heriot-Watt University

9:15 a.m. Financial Stress Scenario Development in a Data-Rich Environment - a Practitioner's View—♦Xin Wang, HSBC/ IHS Markit

9:35 a.m. Google Trends and the Macroeconomy: a Bayesian Mixed Frequency Approach—♦Arnab Bhattacharjee, Heriot-Watt University; David Kohns, Heriot-Watt University

9:55 a.m. Inference in High-Dimensional Models Without Regularization—♦Ying Zhu, UC San Diego; Kaspar Wuthrich, UC San Diego

10:15 a.m. Floor Discussion

**275**

**■ ● Improvements to the Current Population Survey Annual Social and Economic Supplement and Implications for Estimates of Income, Poverty, and Health Insurance Coverage—Invited**

Social Statistics Section

Organizer(s): Laryssa Mykyta, U.S. Census Bureau

Chair(s): Jonathan L. Rothbaum, U.S. Census Bureau

**CC-106**

8:35 a.m. Processing Changes to the Current Population Survey Annual Social and Economic Supplement—Jonathan L. Rothbaum, U.S. Census Bureau; ♦Trudi Jane Renwick, U.S. Census Bureau

8:55 a.m. Changes to the Household Relationship Data in the Current Population Survey—Rose Kreider, U.S. Census Bureau; ♦Benjamin Gurrentz, U.S. Census Bureau

9:15 a.m. Updating the Current Population Survey Processing System and Bridging Differences in the Measurement of Poverty—Ashley Edwards, U.S. Census Bureau; ♦John Creamer, U.S. Census Bureau

9:35 a.m.	Health Insurance in the United States: Evaluating the Effects of Changes—♦Edward Berchick, U.S. Census Bureau; Heide Jackson, U.S. Census Bureau
9:55 a.m.	Disc: John Czajka, Mathematica Policy Research
10:15 a.m.	Floor Discussion

**276 CC-108**

**■ ● Statistical Methods for Improving Inferences and Decision-Making in Population Health—Invited**  
**ENAR, Section on Statistics in Epidemiology, Biometrics Section**  
Organizer(s): Zhenke Wu, University of Michigan  
Chair(s): Jacob Fiksel, Johns Hopkins Bloomberg School of Public Health

8:35 a.m.	Bayesian Calibration of Verbal Autopsy Algorithms in Data-Scarce Settings—♦Abhi Datta, Johns Hopkins Bloomberg School of Public Health
9:00 a.m.	Robust Decisions from Modeled Estimators—Jishnu Das, The World Bank; Roy Van der Weide, The World Bank; ♦Tyler McCormick, University of Washington
9:25 a.m.	Bayesian Restricted Latent Class Models for Estimating Disease Etiologies—♦Zhenke Wu, University of Michigan; Scott L Zeger, Johns Hopkins Bloomberg School of Public Health
9:50 a.m.	Disc: Amy H Herring, Duke University
10:15 a.m.	Floor Discussion

**277 CC-506**

**■ ● Statistical Methods for Composite Time-To-Event Endpoints—Invited**  
**Lifetime Data Science Section, ENAR, Biometrics Section**  
Organizer(s): Lu Mao, University of Wisconsin-Madison  
Chair(s): Ting Ye, University of Wisconsin at Madison

8:35 a.m.	A Class of Proportional Win Fractions Regression Models for Composite Endpoints—♦Lu Mao, University of Wisconsin-Madison
8:50 a.m.	Semiparametric Regression Analysis for Composite Endpoints Subject to Component-Wise Censoring—♦Guoqing Diao, George Mason University; Donglin Zeng, UNC Chapel Hill; Chunlei Ke, Biogen; Haijun Ma, Amgen Inc.; Qi Jiang, Amgen; Joseph G Ibrahim, UNC
9:05 a.m.	Nonparametric Estimation of the Curtailed Win-Ratio—♦David Oakes, University of Rochester
9:20 a.m.	Some Meaningful Weighted Win Loss Statistics—♦Xiaodong Luo, Hui Quan, Sanofi US

9:35 a.m.	Stratified Win Ratio and Handling of Ties—GaoHong Dong, iStats Inc.; Junshan Qiu, FDA/CDER; Roland A. Matsouaka, Duke University School of Medicine; Victoria Chang, AbbVie; Jiu Zhou Wang, ImmunoGen Inc.; ♦David C. Hoaglin, University of Massachusetts Medical School; Marc Vandemeulebroecke, Novartis Pharma AG
9:50 a.m.	Disc: KyungMann Kim, University of Wisconsin-Madison
10:05 a.m.	Floor Discussion

**278 CC-504**

**■ ● Emerging Ideas in Predictive Inference—Invited**  
**Section on Statistical Learning and Data Science, Section on Nonparametric Statistics, Section on Statistical Computing**  
Organizer(s): Lucas Mentch, University of Pittsburgh  
Chair(s): Yifan Cui, University of Pennsylvania

8:35 a.m.	Predictive Inference with Random Forests—♦Lucas Mentch, University of Pittsburgh
9:00 a.m.	Forward Stability and Model Path Selection—♦Nicholas Kissel, University of Pittsburgh; Lucas Mentch, University of Pittsburgh
9:25 a.m.	Relaxing the Assumptions of Model-X Knockoffs—♦Lucas Janson, Harvard University; Dongming Huang, Harvard University
9:50 a.m.	Recent Advances in Conformal Prediction—♦Larry Wasserman, Carnegie Mellon University
10:15 a.m.	Floor Discussion

TUESDAY

**279 CC-207**

**■ ● Bioinformatics: Accomplishments and Challenges—Invited**  
**Caucus for Women in Statistics, Section on Statistics in Genomics and Genetics, Section on Statistical Learning and Data Science**  
Organizer(s): Nusrat Jahan, James Madison University  
Chair(s): Nusrat Jahan, James Madison University

8:35 a.m.	Optimal Permutation Recovery and Estimation of Bacterial Growth Dynamics—♦Hongzhe Li, University of Pennsylvania
9:00 a.m.	Estimating Somatic Variant Richness in the Cancer Genome—♦Ronglai Shen, Memorial Sloan-Kettering Cancer Center; Saptarshi Chakraborty, Memorial Sloan-Kettering Cancer Center; Colin Begg, Memorial Sloan-Kettering Cancer Center
9:25 a.m.	Integrative Network Modeling Approaches to Precision Cancer Medicine—♦Kim-Anh Do, University of Texas M.D. Anderson Cancer Center

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

9:50 a.m.	Statistical Inference of Chromatin 3D Structures from DNA Methylation Data—♦Shili Lin, The Ohio State University
10:15 a.m.	Floor Discussion

---

**Invited Panels 8:30 a.m.—10:20 a.m.**

---

280	CC-503
<b>● Statistical Outreach and Awareness: How to Make an Impact—Invited</b>	
<b>Section for Statistical Programmers and Analysts</b>	
Organizer(s): Marianne Miller, Eli Lilly and Company	
Chair(s): Adrian Coles, Eli Lilly and Co.	
Panelists:	♦Jesse Chittams, University of Pennsylvania ♦Renee Moore, Emory University ♦Darius McDaniel, Emory ♦Mark Ward, Purdue University ♦Lillian Prince, Kent State University
10:15 a.m.	Floor Discussion

281	CC-205
<b>■● When Statistical Methods Impact Policy—Invited</b>	
<b>Health Policy Statistics Section, Biometrics Section</b>	
Organizer(s): Sherri Rose, Harvard Medical School	
Chair(s): Samrachana Adhikari, New York University	
Panelists:	♦Miguel Marino, Oregon Health Sciences University ♦Sherri Rose, Harvard Medical School ♦Michael Baiocchi, Stanford University ♦Dionne Price, Food and Drug Administration
10:15 a.m.	Floor Discussion

282	CC-102
<b>● Data Science Education at the School Level—Invited</b>	
<b>International Association for Statistical Education, National Council of Teachers of Mathematics, Section on Statistics and Data Science Education</b>	
Organizer(s): Tim Erickson, Epistemological Engineering	
Chair(s): Tim Erickson, Epistemological Engineering	
Panelists:	♦Andee Rubin, TERC ♦Michelle Wilkerson, University of California at Berkeley ♦William Finzer, Concord Consortium ♦Anna Fergusson, University of Auckland ♦Rob Gould, ASA
10:15 a.m.	Floor Discussion

283	CC-603
-----	--------

**Statistical Sleuths, Data Thugs, or Methodological Terrorists? Recent Stories from the New Field of Error Detection in the Published Literature—Invited Section on Statistics and Data Science Education**

Organizer(s): Regina Nuzzo, American Statistical Association; Kristin Sainani, Stanford University

Chair(s): Regina Nuzzo, American Statistical Association

Panelists:	♦Kristin Sainani, Stanford University ♦James Heathers, Northeastern University ♦Nick Brown, University of Groningen ♦Andrew W. Brown, Indiana University School of Public Health-Bloomington
------------	---

10:10 a.m. Floor Discussion

---

**Topic Contributed Sessions 8:30 a.m.—10:20 a.m.**

---

284	CC-101
-----	--------

**ASA Biometrics Section JSM Travel Awards (II)—Topic Contributed Biometrics Section**

Organizer(s): Rebecca Hubbard, University of Pennsylvania

Chair(s): Elizabeth Ogburn, Johns Hopkins Bloomberg School of Public Health

8:35 a.m.	Integrated Principal Components Analysis—♦Tiffany M Tang, University of California at Berkeley; Genevera Allen, Rice University
8:55 a.m.	Are Clusterings of Multiple Data Views Independent?—♦Lucy Gao, University of Washington; Daniela Witten, University of Washington; Jacob Bien, University of Southern California
9:15 a.m.	High-Dimensional Log-Error-In-Variable Regression with Applications to Microbial Compositional Data Analysis—♦Pixu Shi, University of Wisconsin-Madison; Yuchen Zhou, University of Wisconsin-Madison; Anru Zhang, University of Wisconsin-Madison
9:35 a.m.	A Spatial Bayesian Modeling Approach for Cortical Surface fMRI Data Analysis—♦Amanda Mejia, IU; Yu Yue, The City University of New York; David Bolin, University of Gothenburg; Finn Lindgren, University of Edinburgh; Martin Lindquist, Johns Hopkins University
9:55 a.m.	Tailored Optimal Post-Treatment Surveillance for Cancer Recurrence—♦Rui Chen, UW-Madison Dept. of Statistics; Menggang Yu, University of Wisconsin-Madison
10:15 a.m.	Floor Discussion

285

CC-112

**■ Probabilistic Record Linkage and Inference with Merged Data—Topic Contributed**

Section on Statistics in Epidemiology, Social Statistics Section, Survey Research Methods Section

Organizer(s): Mauricio Sadinle, University of Washington

Chair(s): Mauricio Sadinle, University of Washington

8:35 a.m.	Record Linkage for Public Health Action: a Comparison of Matching Algorithms—♦Tigran Avoudjian, University of Washington Department of Epidemiology; Julia C Dombrowski, University of Washington; Mauricio Sadinle, University of Washington
8:55 a.m.	Active Learning for Probabilistic Record Linkage—♦Ted Enamorado, Princeton University
9:15 a.m.	A Structured Prior for Sequential Bayesian Record Linkage—♦Brendan McVeigh, Carnegie Mellon University; Jared S Murray, University of Texas at Austin
9:35 a.m.	Joint Record Linkage and Duplicate Detection via a Generative Prior on Partitions—♦Serge Aleshin-Guendel, University of Washington; Mauricio Sadinle, University of Washington
9:55 a.m.	Semiparametric Inference for Merged Data from Multiple Overlapping Sources—♦Takumi Saegusa, University of Maryland
10:15 a.m.	Floor Discussion

286

CC-605

**■ Advances in Bayesian Nonparametric Methods and Its Applications—Topic Contributed**

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA)

Organizer(s): Trevor Campbell, University of British Columbia

Chair(s): Brenda Betancourt, University of Florida

8:35 a.m.	Genomic Variety Estimation via Bayesian Nonparametrics—♦Lorenzo Masoero, Massachusetts Institute of Technology
8:55 a.m.	Adaptive Bayesian Density Estimation in Sup-Norm—♦Zacharie Naulet,
9:15 a.m.	A Bayesian Nonparametric View on Count-Min Sketch—♦Diana Cai, Princeton University; Michael Mitzenmacher, Harvard University; Ryan Adams, Princeton University
9:35 a.m.	Bayesian Nonparametric Methods for the Experimental Design of Single Cell Studies: From Clustering to Sorting—♦Bianca Dumitrescu, Princeton University; Federico Ferrari, Duke University; Stefano Favaro, Universita di Torino; Barbara Engelhardt, Princeton University

9:55 a.m.

Disc: Felipe Barrientos, Duke University

10:15 a.m.

Floor Discussion

287

CC-113

**■ ● Advanced Stochastic Models and Inference Methods for Large-Scale Phylogenetics—Topic Contributed**

Section on Statistics in Genomics and Genetics, Section on Statistical Computing, Section on Statistics in Epidemiology

Organizer(s): Guy Baele, Rega Institute / KU Leuven

Chair(s): Mandev Gill, Rega Institute, KU Leuven

8:35 a.m.	Fast and Robust Evolutionary Rate and Selection Pressure Inference Using Variational Bayes Techniques—♦Sergei Pond, Temple University
8:55 a.m.	Modeling Site-To-Site Variability of Synonymous Substitution Rates: Impacts on Statistical Inference—♦Spencer Muse, North Carolina State University; Sadie Wisotsky, Temple University; Sergei Kosakovsky Pond, Temple University

9:15 a.m.

Fitness-Dependent Birth-Death Models for Phylogenetic Inference of Adaptive Evolution—♦David Rasmussen, North Carolina State University; Tanja Stadler, ETH Zurich

9:35 a.m.

Towards Real-time Bayesian Inference for Pathogen Phylogenetics—♦Guy Baele, Rega Institute / KU Leuven; Mandev Gill, Rega Institute, KU Leuven; Philippe Lemey, Rega Institute, KU Leuven; Marc Suchard, UCLA; Andrew Rambaut, University of Edinburgh

9:55 a.m.

Large-Scale Molecular Epidemiology for Viruses: Efficient Algorithms and New Models—♦Xiang Ji, UCLA

10:15 a.m.

Floor Discussion

288

CC-705

**● New Insights from Classical Wisdom—honoring Lawrence D. Brown's Contributions to Graduate Student Education—Topic Contributed**

IMS, Section on Teaching of Statistics in the Health Sciences

Organizer(s): Chaitra Nagaraja, Fordham University

Chair(s): Linda Zhao, University of Pennsylvania

8:35 a.m.

Randomness-Free Study of Smooth M-Estimators—♦Arun Kuchibhotla, University of Pennsylvania

8:55 a.m.

REGRESSION ADJUSTMENT in COMPLETELY RANDOMIZED EXPERIMENTS with a DIVERGING

TUESDAY

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

<p><b>TUESDAY</b></p> <p><b>289</b>  <b>■ ● Assessing the Quality of Integrated Data—Topic Contributed</b>  <b>Government Statistics Section, Survey Research Methods Section, Section on Statistical Learning and Data Science</b>  <b>Organizer(s): Lisa Mirel, CDC/NCHS</b>  <b>Chair(s): Jeffrey Gonzalez, Bureau of Labor Statistics</b></p> <p><b>290</b>  <b>■ ● Big Data in Time Series and Spatial Data Analysis: Theory and Applications—Topic Contributed</b>  <b>Royal Statistical Society, IMS, Section on Statistical Computing</b>  <b>Organizer(s): Sucharita Ghosh, Swiss Federal Research Institute WSL</b>  <b>Chair(s): Sucharita Ghosh, Swiss Federal Research Institute WSL</b></p>	<p>NUMBER of COVARIATES—♦Lihua Lei, UC Berkeley; Peng Ding, University of California, Berkeley</p> <p>9:15 a.m. Nonparametric Empirical Bayes Methods for Sparse, Noisy Signals—♦Junhui Cai, ; Linda Zhao, University of Pennsylvania</p> <p>9:35 a.m. Testing for Independence with BERET—♦Duyeol Lee, University of North Carolina at Chapel Hill; Kai Zhang, University of North Carolina, Chapel Hill; Michael Kosorok, University of North Carolina at Chapel Hill</p> <p>9:55 a.m. Disc: Kai Zhang, University of North Carolina, Chapel Hill</p> <p>10:15 a.m. Floor Discussion</p>	<p>8:35 a.m. Two Sample Testing for Multivariate Functional Data—♦Klaus Telkmann, University of California Irvine; Dustin Pluta, University of California Irvine; Hernando Ombao, King Abdullah University of Science and Technology (KAUST); Babak Shahbaba, University of California Irvine</p> <p>8:55 a.m. Parameter Estimation for Big Data in Time Series and Random Fields—♦Adam Sykulski, Lancaster University; Sofia C Olhede, University College London; Arthur Guillaumin, University College London</p> <p>9:15 a.m. Nonparametric Regression Under Semi-Long Range Dependence—♦Farzad Sabzikar, Iowa State University</p> <p>9:35 a.m. Further Development of the Double Conditional Smoothing for Nonparametric Surfaces Under a Lattice Spatial Model—♦Yuanhua Feng, ; Bastian Sch%ofer, Paderborn University</p> <p>9:55 a.m. Disc: Jan Beran, University of Konstanz</p> <p>10:15 a.m. Floor Discussion</p>
	<p><b>291</b>  <b>■ Astrostatistics Interest Group: Student Paper Award—Topic Contributed</b>  <b>Astrostatistics Special Interest Group</b>  <b>Organizer(s): David Craig Stenning, Imperial College London</b>  <b>Chair(s): Chad M Schafer, Carnegie Mellon University</b></p>	<p><b>292</b>  <b>■ Providing Access to Useful Data While Preserving Confidentiality—Topic Contributed</b>  <b>Survey Research Methods Section, Government Statistics Section, Stats. Partnerships Among Academe Indust. &amp; Govt. Committee</b></p>
	<p>8:35 a.m. Practical Diagnostic Tools for Data Linkage Method—♦MoonJung Cho, U.S. Bureau of Labor Statistics; Justin McIllece, U.S. Bureau of Labor Statistics</p> <p>8:55 a.m. Balancing Data Confidentiality and Research Needs: NCHS Linked Mortality Files—♦Lisa Mirel, CDC/ NCHS; Cordell Golden, CDC/NCHS/OAE/SPB; Cindy Zhang, CDC/NCHS/OAE/SPB</p> <p>9:15 a.m. Tools for Evaluating Quality of State and Local Administrative Data—♦Zachary H Seeskin, NORC at the University of Chicago; Gabriel Ugarte, NORC at the University of Chicago; Rupa Datta, NORC at the University of Chicago</p> <p>9:35 a.m. The Implications of Misreporting for Longitudinal Studies of SNAP—♦Erik Scherpf, USDA Economic Research Service; Brian Stacy , USDA Economic Research Service</p> <p>9:55 a.m. Disc: Jennifer Parker, CDC/NCHS/OAE/SPB</p> <p>10:15 a.m. Floor Discussion</p>	<p>8:35 a.m. Impact of Using the Ultra-High-Energy Cosmic Ray Arrival Energies to Constrain Source Associations—♦Francesca Capel, KTH Royal Institute of Technology</p> <p>8:55 a.m. Deep Learning for Real-Time Classification of Transient Time Series from Massive Astronomical Data Streams—♦Daniel Muthukrishna, University of Cambridge</p> <p>9:15 a.m. Measuring the Local Matter Density Using Gaia DR2—♦Axel Widmark,</p> <p>9:35 a.m. Incorporating Uncertainties in Atomic Data into the Analysis of Solar and Stellar Observations: a Case Study in FeXIII—♦Xixi Yu, Imperial College of Science &amp; Technology; Giulio Del Zanna, University of Cambridge; David Craig Stenning, Imperial College London; David A van Dyk, Imperial College London; Harry P. Warren, Naval Research Laboratory; Mark A. Weber, Harvard-Smithsonian Center for Astrophysics</p> <p>9:55 a.m. Disc: David Craig Stenning, Imperial College London</p> <p>10:15 a.m. Floor Discussion</p>
	<p><b>290</b>  <b>■ ● Big Data in Time Series and Spatial Data Analysis: Theory and Applications—Topic Contributed</b>  <b>Royal Statistical Society, IMS, Section on Statistical Computing</b>  <b>Organizer(s): Sucharita Ghosh, Swiss Federal Research Institute WSL</b>  <b>Chair(s): Sucharita Ghosh, Swiss Federal Research Institute WSL</b></p>	<p><b>292</b>  <b>■ Providing Access to Useful Data While Preserving Confidentiality—Topic Contributed</b>  <b>Survey Research Methods Section, Government Statistics Section, Stats. Partnerships Among Academe Indust. &amp; Govt. Committee</b></p>
	<p>9:15 a.m. Nonparametric Empirical Bayes Methods for Sparse, Noisy Signals—♦Junhui Cai, ; Linda Zhao, University of Pennsylvania</p> <p>9:35 a.m. Testing for Independence with BERET—♦Duyeol Lee, University of North Carolina at Chapel Hill; Kai Zhang, University of North Carolina, Chapel Hill; Michael Kosorok, University of North Carolina at Chapel Hill</p> <p>9:55 a.m. Disc: Kai Zhang, University of North Carolina, Chapel Hill</p> <p>10:15 a.m. Floor Discussion</p>	<p>9:15 a.m. Parameter Estimation for Big Data in Time Series and Random Fields—♦Adam Sykulski, Lancaster University; Sofia C Olhede, University College London; Arthur Guillaumin, University College London</p> <p>9:35 a.m. Nonparametric Regression Under Semi-Long Range Dependence—♦Farzad Sabzikar, Iowa State University</p> <p>9:55 a.m. Further Development of the Double Conditional Smoothing for Nonparametric Surfaces Under a Lattice Spatial Model—♦Yuanhua Feng, ; Bastian Sch%ofer, Paderborn University</p> <p>10:15 a.m. Floor Discussion</p>
	<p>9:15 a.m. Nonparametric Empirical Bayes Methods for Sparse, Noisy Signals—♦Junhui Cai, ; Linda Zhao, University of Pennsylvania</p> <p>9:35 a.m. Testing for Independence with BERET—♦Duyeol Lee, University of North Carolina at Chapel Hill; Kai Zhang, University of North Carolina, Chapel Hill; Michael Kosorok, University of North Carolina at Chapel Hill</p> <p>9:55 a.m. Disc: Kai Zhang, University of North Carolina, Chapel Hill</p> <p>10:15 a.m. Floor Discussion</p>	<p>9:15 a.m. Parameter Estimation for Big Data in Time Series and Random Fields—♦Adam Sykulski, Lancaster University; Sofia C Olhede, University College London; Arthur Guillaumin, University College London</p> <p>9:35 a.m. Nonparametric Regression Under Semi-Long Range Dependence—♦Farzad Sabzikar, Iowa State University</p> <p>9:55 a.m. Further Development of the Double Conditional Smoothing for Nonparametric Surfaces Under a Lattice Spatial Model—♦Yuanhua Feng, ; Bastian Sch%ofer, Paderborn University</p> <p>10:15 a.m. Floor Discussion</p>

Organizer(s): Daniell Toth, U.S. Bureau of Labor Statistics  
 Chair(s): Daniell Toth, U.S. Bureau of Labor Statistics

8:35 a.m. Statistical Disclosure Issues Involving Digital Images of ROC Curves—♦Ofer Harel, Dept of Statistics, U of Connecticut; Gregory Matthews,

8:55 a.m. Pseudonymisation to Anonymisation: Addressing the GDPR in Survey Microdata—♦Jane Li, Westat; Tom Krenzke, Westat; Lin Li, Westat

9:15 a.m. Bayesian Pseudo Posterior Synthesis for Data Privacy Protection—♦Jingchen Hu, Vassar College; Terrance Savitsky, Bureau of Labor Statistics; Matthew Williams, National Science Foundation

9:35 a.m. PMSE Mechanism: Differentially Private Synthetic Data with Maximal Distributional Similarity—♦Joshua Snoke, RAND Corporation; Aleksandra Slavkovic, Penn State University

9:55 a.m. Floor Discussion

**293** **CC-507**  
**Recent Advances in Lifetime Data Analysis—Topic Contributed**

Lifetime Data Science Section, Section on Risk Analysis, International Chinese Statistical Association

Organizer(s): Mei-Ling Ting Lee, University of Maryland  
 Chair(s): Chung-Chou H. Chang, University of Pittsburgh

8:35 a.m. Estimations of the Joint Distribution of Failure Time and Failure Type with Prevalent Survival Data—♦Yu-Jen Cheng, National Tsing Hua University; Mei-Cheng Wang, Johns Hopkins University; Chang-Yu Tsai, National Tsing Hua University

8:55 a.m. Function-Based Hypothesis Testing in Uncensored and Censored Two-Sample Location-Scale Models—♦Sundarraman Subramanian, New Jersey Institute of Technology

9:15 a.m. Variable Screening with Multiple Studies and Its Application in Survival Analysis—♦Tianzhou Ma, University of Maryland College Park; Zhao Ren, University of Pittsburgh; George Tseng, University of Pittsburgh; Mei-Ling Ting Lee, University of Maryland; Takumi Saegusa, University of Maryland

9:35 a.m. Distribution-Free Threshold Regression for Time-To-Event Analysis—♦Mei-Ling Ting Lee, University of Maryland; George A Whitmore, McGill University

9:55 a.m. Disc: George A Whitmore, McGill University

10:15 a.m. Floor Discussion

**294** **CC-502**  
**SPEED: Statistical Learning and Data Science Speed Session 2, Part 1—Contributed**

Section on Statistical Learning and Data Science, Text Analysis Interest Group

Chair(s): Ali Shojaie, University of Washington

8:35 a.m. Three-Dimensional Radial Visualization of High-Dimensional Continuous or Discrete Data—♦Yifan Zhu, Iowa State University; Fan Dai, Iowa State University; Ranjan Maitra, Iowa State University

8:40 a.m. The Graph Quilting Problem - Graphical Model Selection from Partially Observed Covariances—Giuseppe Vinci, Rice University; Genevera Allen, Rice University; Gautam Dasarathy, Arizona State University

8:45 a.m. An Imputation Approach for Fitting Random Survival Forests with Interval-Censored Survival Data—♦Warren Keil, ; Tyler Cook, University of Central Oklahoma

8:50 a.m. Diagnostic Accuracy Evaluation of Diagnostic Assessment Model in Longitudinal Data: a Simulation Study of Neural Network Approach—♦Chi Chang, Michigan State University; Harlan McCaffery, University of Michigan

8:55 a.m. Smoothing Random Forest—♦Benjamin LeRoy, Carnegie Mellon University; Max G'Sell, Carnegie Mellon University

9:00 a.m. Aggregated Pairwise Classification of Statistical Shapes—♦Min Ho Cho, The Ohio State University

9:05 a.m. Statistical Optimality of Interpolated Nearest Neighbor Algorithms—♦Yue Xing, Purdue University; Qifan Song, Purdue University; Guang Cheng, Purdue Statistics

9:10 a.m. Ground Truth? Understanding How Humans Label Records and the Impact of Uncertainty—♦Kayla Frisoli, Carnegie Mellon University; Rebecca Nugent, Carnegie Mellon University

9:15 a.m. Block-Wise Partitioning for Extreme Multi-Label Classification—♦Yuefeng Liang, UC Davis; Thomas C. M. Lee, UC Davis; Cho-Jui Hsieh, UCLA

9:20 a.m. A Statistical Model for Tropical Cyclone Genesis and Assessing Its Differences Between Basins and Climates—♦Arturo Fernandez, University of California - Berkeley

9:30 a.m. Discovery of Gene Regulatory Networks Using Adaptively Selected Gene Perturbation Experiments—♦Michele Zemplenyi, Harvard University; Jeffrey Miller, Harvard TH Chan School of Public Health

9:35 a.m. Stagewise Generalized Estimating Equations for Varying Coefficient Models—♦Gregory Vaughan, Bentley University; Yicheng Kang, Bentley University

9:40 a.m. Stacked Ensemble Learning for Propensity Score Methods in Observational Studies—♦Maximilian Autenrieth, San Diego State University and Ulm University; Richard Levine, San Diego State University; Juanjuan Fan, San Diego State University; Maureen Guarcello, San Diego State University

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

<p>9:45 a.m. Predicting Sub-Cellular Location of Plant Protein Using Supervised Machine Learning—♦ David Arthur, ; Benjamin Annan, Youngstown State University; Eric Quayson, Youngstown State University; Jack Min, Youngstown State University; Guang-Hwa Andy Chang, Youngstown State University</p> <p>9:50 a.m. Semi-Supervised, Dynamic Class-Informative Feature Learning—♦ Vincent Pisztora</p> <p>9:55 a.m. Floor Discussion</p>	<p>9:15 a.m. Re-Examining File-Level Re-Identification Risk Assessment—♦ Lin Li, Westat; Jane Li, Westat; Tom Krenzke, Westat; Natalie Shlomo, University of Manchester</p> <p>9:20 a.m. Small Area Estimation on Fatalistic Beliefs About Cancer Using the Health Information National Trends Survey—♦ Benmei Liu, National Cancer Institute; Elise Rice, National Institute of Dental and Craniofacial Research; Richard Moser, National Cancer Institute</p> <p>9:30 a.m. Multilevel Models for Assessing the Impact of the Presidential Youth Fitness Program—♦ Ronaldo Iachan, ICF Macro, Inc.</p> <p>9:35 a.m. ADDRESSING DESIGN and ESTIMATION CHALLENGES WHEN USING MRP in PUBLIC HEALTH and BEHAVIORAL SCIENCE APPLICATIONS—♦ Robert Petrin, Ipsos Public Affairs; Alexa DiBenedetto, Ipsos; Luke Vaicunas, Ipsos Public Affairs</p> <p>9:40 a.m. Tracking Public Opinion with Twitter: a Critical Comparison of Cross-Sectional and Longitudinal Analyzes—♦ Robyn Ferg, ; Johann A Gagnon-Bartsch, University of Michigan; Fred Conrad, University of Michigan</p> <p>9:45 a.m. Recommendations for Assessing and Evaluating Variable Crosswalks—♦ Mitch Sevigny, Craig Hospital; Jessica Ketchum, Craig Hospital; David Mellick, Craig Hospital</p> <p>9:50 a.m. A Practical Guide to Small Area Estimation, Illustrated Using the Ohio Medicaid Assessment Survey—♦ Rachel Harter, RTI International; Amang Sukasih, RTI International; Jeniffer Iriondo-Perez, RTI International; Akhil Vaish, RTI International</p> <p>9:55 a.m. Benchmarking Mobile App Geofenced Samples: Adjusting for National Coverage and Selection Bias—♦ Davia Moyse, ICF; YangYang Deng, ICF Macro, Inc.; Matt Jans, ICF; Ronaldo Iachan, ICF Macro, Inc.; Richard (Lee) Harding, ICF; Kristie Healey, ICF; James Dayton, ICF; Scott Worthge, MFour Mobile Research; Laura O'Campo, MFour Mobile Research</p> <p>10:00 a.m. Investigating the Value of Appending New Types of Big Data to Address-Based Survey Frames and Samples—♦ Paul John Lavrakas, Independent Consultant</p> <p>10:05 a.m. Identity Disclosure Control in Microdata Release by Post-Randomization—♦ Xiaoyu Zhai, ; Tapan Nayak, George Washington University</p> <p>10:10 a.m. Entrepreneurship Environmental Success Factors in the Textiles and Apparel Industries—♦ Samaneh Pourmojib, North Carolina State University; Blanton Godfrey, North Carolina State University</p> <p>10:15 a.m. Floor Discussion</p>
<p><b>295</b> <span style="float: right;"><b>CC-103</b></span></p> <p><b>SPEED: Big Data, Small Area Estimation, and Methodological Innovations Under Development, Part 1—Contributed</b></p> <p><b>Survey Research Methods Section, Quality and Productivity Section</b></p> <p>Chair(s): Katherine McLaughlin, Oregon State University</p> <p>8:35 a.m. Using Paradata to Explore Users Pathways Through Web Surveys—♦ Renee Ellis, U.S. Census Bureau</p> <p>8:40 a.m. Why Machines Matter for Survey and Social Science Researchers: Exploring How Machine Learning Methods Can Be Applied to the Design, Collection and Analysis of Social Science Data—♦ Antje Kirchner, RTI International; Trent Burskirk, Bowling Green State University</p> <p>8:45 a.m. A Computationally Efficient Method for Selecting a Split Questionnaire Design—♦ Matthew Stuart, ; Cindy Yu, Iowa State University</p> <p>8:50 a.m. Assessing the Relationship Between Balanced Sample and Sample Representativeness—♦ Yonil Park, US Census Bureau; Thomas John Chesnut, US Census Bureau</p> <p>8:55 a.m. Trend Analysis for Complex Survey Data with Bayesian Approach—♦ Yi Mu, Centers for Disease Control and Prevention</p> <p>9:00 a.m. Applications of R Shiny to Evaluate and Improve Total Survey Quality—Xiaodan Lyu, Iowa State University; Heike Hofmann, Iowa State University; Emily Berg, Iowa State University; Jie Li, Iowa State University; ♦ Xin Zhang, Iowa State University</p> <p>9:05 a.m. Modifying State Sample Sizes for the National Crime Victimization Survey—♦ Samantha Spiers, U.S. Census Bureau; Sandra Peterson, U.S. Census Bureau; David Hornick, U.S. Census Bureau</p> <p>9:10 a.m. Small Area Estimates of the Child Population and Poverty in School Districts Using Dirichlet-Multinomial Models—♦ Jerry Maples, U.S. Census Bureau</p>	

296

CC-105

**SPEED: Biometrics - Methods and Application, Part 1—Contributed****Biometrics Section, Section on Bayesian Statistical Science**

Chair(s): Katherine E Irimata, National Center for Health Statistics

8:35 a.m. Development of an International Prostate Cancer Risk Tool Integrating Data from Multiple Heterogeneous Cohorts—♦Donna Ankerst, Technical University of Munich; Johanna Tolksdorf, Technical University of Munich

8:40 a.m. An Exponential Effect Persistence Model for Intensive Longitudinal Data—♦Claude Setodji, RAND Corporation; Steven C. Martino, RAND Corporation; Michael S. Dunbar, RAND Corporation; William G. Shadel, RAND Corporation

8:45 a.m. Analyzing Pre-Post Randomized Studies with One Post-Randomization Score Using Repeated Measures and ANCOVA Models—♦Fei Wan, University of Arkansas for Medical Sciences

8:50 a.m. Spectral Parameterization, Diagnostics, and Remedies for Confounding of Fixed Effects by Random Effects—♦Patrick Schnell, Ohio State University; Maitreyee Bose, Amgen

8:55 a.m. Differential Abundance Analyzes of Pre- and Post-Metabolomic Data with Steroid Treatment for Bronchopulmonary Dysplasia—♦Prabhakar Chalise, University of Kansas Medical Center; Tamorah R Lewis, Children's Mercy Hospital, University of Missouri Kansas City

9:00 a.m. Bayesian False Discovery Rate Under Sparsity Conditions—♦Iris Ivy Gauran,

9:05 a.m. SignNets: Fine Tuning Gene-Gene Similarity Metrics in Biological Systems—♦Crystal Shaw, UCLA; Vinayagam Arunachalam, Pfizer, Inc.; Jadwiga R Bienkowska, Pfizer, Inc.

9:10 a.m. To EM or Not to EM: Updated Estimation of the Probability of Clonal Relatedness of Pairs of Tumors in Cancer Patients—♦Audrey Mauguen, Memorial Sloan Kettering Cancer Center; Venkatraman E. Seshan, MSKCC; Irina Ostrovnaya, MSKCC; Colin Begg, Memorial Sloan Kettering Cancer Center

9:15 a.m. Is it èrandomí or èhaphazardí? Demonstrating Effects of Nonrandom Allocation by Simulation—♦Penny Reynolds, University of Florida College of Medicine

9:20 a.m. Estimating Optimal Treatment Regime to Maximize Restricted Mean Survival Time—♦Sanhita Sengupta, University of Minnesota

9:30 a.m. Item Response Theory Models for Survival Analysis and the Detection of Treatment Efficacy—♦Charlie Iaconangelo, Pharmerit International

9:35 a.m.

Similarity-Based Probability Weighted Learning for Individual Treatment Rule Estimation—♦Jinchun Zhang, New York University; Andrea B Troxel, NYU School of Medicine; Eva Petkova, New York University

9:40 a.m.

Multivariate Longitudinal Data from Eyes - Microperimetry Macular Sensitivity Loss in Patients with Stargardt Disease—♦Zhengfan Wang, UMASS-Amherst; Xiangrong Kong, Johns Hopkins University

9:45 a.m.

On Powerful Exact Nonrandomized Tests for the Poisson Two-Sample Setting—♦Stefan Wellek,

9:50 a.m.

Survey Calibration to Improve the Efficiency of Pure Risk Estimates from Case-Control Samples Nested in a Cohort—♦Yei Eun Shin, National Cancer Institute; Ruth Pfeiffer, National Cancer Institute; Barry Graubard, National Cancer Institute; Mitchell Henry Gail, National Cancer Institute, Division of Cancer Epidemiology and Genetics

9:55 a.m.

Two-Way Partial AUC and Its Properties—♦Kun Lu, Princeton University; Hanfang Yang, Renmin University of China; Xiang Lv, University of California, Berkeley; Feifang Hu, George Washington University

10:00 a.m.

Relative Risk Estimation in Clustered/Longitudinal Data Using Generalized Estimating Equations (GEE)—♦Chao Zhu, Menzies Institute for Medical Research, University of Tasmania; David W Hosmer, University of Vermont; Jim Stankovich, School of Medicine, University of Tasmania, Central Clinical School, Monash University; Karen Wills, Menzies Institute for Medical Research, University of Tasmania ; Leigh Blizzard, Menzies Institute for Medical Research, University of Tasmania

10:05 a.m.

Variance Estimation When Combining Inverse Probability Weighting and Multiple Imputation in Electronic Health Records-Based Research—♦Tanayott Thaveethai, Harvard T.H. Chan School of Public Health; Sebastien Haneuse, Harvard T.H. Chan School of Public Health

10:10 a.m.

Bayesian Generalized Mixed-Effect Modeling of Conway-Maxwell Poisson Data—♦Morshed Alam, University of Nebraska Medical Center; Meza Jane, University of Nebraska Medical center; Yeongjin Gwon, University of Nebraska Medical Center

10:15 a.m.

A Joint Hidden Markov Model for Studying Behavioral Intervention in Families of Adolescents with Type 1 Diabetes—♦Apurva Bhingare, ; Zhen Chen, Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)

TUESDAY

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

**297**

**SPEED: Food, Environment, Biomedical Imaging and Physical System Visualization/Learning, Part 1—Contributed**

**Section on Bayesian Statistical Science, International Chinese Statistical Association, Quality and Productivity Section, Section on Statistical Graphics, Section on Physical and Engineering Sciences, ASA LGBT Concerns Committee, Section on Statistics in Imaging**

Chair(s): Rajarshi Guhaniyogi, University of California, SC

8:35 a.m.	Subfield Yield Analysis for Precision Agriculture—♦ Jarad Niemi, Iowa State University; Luis Damiano, Iowa State University
8:40 a.m.	From Prediction Models to Shiny App: Creating a Tool for Contaminated Food Source Prediction in Salmonella and STEC Outbreaks—♦ Caroline Ledbetter, University of Colorado; Alice White, Colorado School of Public Health; Elaine Scallan Walter, Colorado School of Public Health; David Weitzenkamp, Colorado School of Public Health
8:45 a.m.	A Bayesian Approach for Estimating Earth's "missing" Minerals—♦ Grethe Hystad, Purdue University Northwest; Ahmed Eleish, Rensselaer Polytechnic Institute; Robert Downs, University of Arizona; Shaunna Morrison, Geophysical Laboratory, Carnegie Institution for Science; Robert Hazen, Geophysical Laboratory, Carnegie Institution for Science
8:50 a.m.	A Fully Bayesian Approach to Typhoon Precipitation Forecast—♦ Yu-Chun Huang, National Taiwan University; Chuhsing Kate Hsiao, Institute of Epidemiology and Preventive Medicine, National Taiwan University, Taiwan
8:55 a.m.	Air Pollutant Prediction from Precipitation—♦ Patrick Chang, JLS Middle School
9:00 a.m.	Hierarchical Bayesian Models to Estimate the Effects of Determinants of Airway and Alveolar Nitric Oxide—♦ Jingying Weng, Noa Molshatski, University of Southern California; Paul Marjoram, University of Southern California; Patrick Muchmore, University of Southern California; Shujing Xu, University of Southern California; Frank D Gilliland, University of Southern California; Sandrah P Eckel, University of Southern California
9:05 a.m.	Analysis of US Air Quality—♦ Xuemao Zhang, East Stroudsburg University
9:10 a.m.	Visualizing a Cyber Physical System in Drill Down Perspective—♦ Giovanni Sparacio, Saint Joseph's University; Kathleen Garwood, Saint Joseph's University; Marcello Balduccini, Saint Joseph's University
9:15 a.m.	Model Transfer Between Material Systems for Distortion Prediction in Laser-Based Additive Manufacturing—♦ Arman Sabbaghi, Purdue University; Jack Francis, Mississippi State University; Linkan Bian, Mississippi State University

**CC-501**

9:20 a.m.

Where Does Our Working Memory Take Place? a Multi-Level Sub-Graph Analysis of Brain Functional Connectivities—♦ Maoran Xu, University of Florida; Li Duan, University of Florida

9:30 a.m.

Robust Spatial Extent Inference with a Semiparametric Bootstrap Joint Testing Procedure—♦ Simon Vandekar, Vanderbilt University; Theodore Satterthwaite, University of Pennsylvania; Cedric K Xia, University of Pennsylvania; Azeez Adegbimpe, University of Pennsylvania; Kosha Ruparel, University of Pennsylvania; Ruben C Gur, University of Pennsylvania; Raquel E Gur, University of Pennsylvania; Russell Shinohara, University of Pennsylvania

9:35 a.m.

Analytic White Matter Tractography and Compositional Distance Based Summarization of White Matter Brain Structures—♦ Wendy Meiring, University of California At Santa Barbara; Matthew Cieslak, U.Penn; Tegan Brennan, UCSB; Subhash Suri, UCSB; Scott T. Grafton, UCSB

9:40 a.m.

Harmonization of Multi-Scanner Longitudinal MRI Neuroimaging Data—♦ Joanne C Beer, University of Pennsylvania; Russell Shinohara, University of Pennsylvania; Kristin Linn, University of Pennsylvania

9:45 a.m.

Machine Learning and Deep Learning Based on Multiple View Images and Additional Information—♦ Zheng Xu, University of Nebraska-Lincoln; Cong Wu, University of Nebraska-Lincoln

9:50 a.m.

Bayesian Penalized Model for Classification and Selection of Functional Predictors Using Longitudinal MRI Data from ADNI—♦ Asish Banik, Michigan State University; Taps Maiti, Michigan State University; Andrew Bender, Michigan State University

9:55 a.m.

Survival Analysis for Medical Imaging Data—♦ Samantha Morrison, Brown University; Jon Steingrimsson, Brown University; Constantine Gatsonis, Brown University

10:00 a.m.

Deformation-Based Morphometry Adapted for Lung CT—♦ Sarah Ryan, Tasha Fingerlin, National Jewish Health; Nichole E Carlson, University of Colorado Anschutz; Lisa Maier, National Jewish Health

10:05 a.m.

Radiomics Analysis Using Stability Selection Supervised Principal Component Analysis for Right-Censored Survival Data—♦ Kang Yan, School of Public Health, Li Ka Shing Faculty of Medicine, The University of Hong Kong; Xiaofei Wang, Duke University School of Medicine; Wendy Lam, School of Public Health, Li Ka Shing Faculty of Medicine, The University of Hong Kong, Ho; Varut Vardhanabhuti, Li Ka Shing Faculty of Medicine, The University of Hon; Anne W.M. Lee, The University of Hong; Herbert Pang, School of Public Health, Li Ka Shing Faculty of Medicine, The University of Hong Kong

10:10 a.m.

Clustering and Classification of Exocytic Events—♦ Ciaran Evans, Carnegie Mellon University; Max G'Sell, Carnegie Mellon University; Zara Weinberg, University of Michigan; Manojkumar Putthenveedu, University of Michigan

10:15 a.m. Lessons Learned Applying Deep Learning Approaches to Forecasting Complex Seasonal Behavior—♦Andrew T Karl, Adsурго LLC; James Wisnowski, Adsурго LLC; Lambros Petropoulos, USAA

**298 CC-107**

**Model/Variable Selection and Model Evaluation—Contributed**

**Biometrics Section**

Chair(s): Lindsay Renfro, University of Southern California and Children's Oncology Group

8:35 a.m. Are Linear Models Sufficient for Analyzing Adolescent BMI Z-Scores?—♦Christopher Wichman, University of Nebraska Medical Center; Nicholas Hein, University of Nebraska Medical Center

8:50 a.m. Model Confidence Bounds for Variable Selection—♦Yang Li, Renmin University of China

9:05 a.m. Variable Selection in Enriched Dirichlet Process with Applications to Causal Inference—♦Kumaresh Dhara, University of Florida; Michael Daniels, University of Florida

9:20 a.m. Maximum Likelihood Estimation of a Truncated Normal Distribution with Censored Data—♦Justin R Williams, UCLA; Hyung-Woo Kim, Alcon Laboratories, Inc.; Kate Crespi,

9:35 a.m. Integrative Multi-View Regression: Statistical Inference with De-Biased and Scaled Composite Nuclear Norm Penalization—♦Xiaokang Liu, University of Connecticut; Kun Chen, University of Connecticut

9:50 a.m. Comparing Strategies in Estimating Variance of Risk Ratios with Random Population Sizes—♦Tracy Pondo, CDC; Laura A Cooley, CDC

10:05 a.m. Stochastic Covariates in Poisson Regression—♦Evrim Oral, LSUHSC School of Public Health, Department of Biostatistics

**299 CC-111**

**Estimands and Imputations Methods—Contributed**

**Biopharmaceutical Section**

Chair(s): Weichao Bao, GlaxoSmithKline

8:35 a.m. An Approach to Multiple Imputation That Avoids the Inclusion of an Outcome in the Imputation Model—♦Monelle Tamegnon, Janssen R&D

8:50 a.m. Missing Data Imputation with Baseline Information in Longitudinal Clinical Trials—♦Yilong Zhang, Merck; Zachary Zimmer, Merck; Lei Xu, Merck; Gregory Golm, Merck; Raymond Lam, Merck; Susan Huyck, Merck; Frank G Liu, Merck Sharp & Dohme Inc.

9:05 a.m. Using the Retrieved Dropout Approach for Estimating a Treatment Policy Estimand—♦Ruvie Martin, Novartis Pharmaceuticals; Bjoern Bornkamp, Novartis Pharmaceuticals

9:20 a.m. Missing Data Approaches for Estimating Treatment Effect for Binary Data—♦Anindita Banerjee, Pfizer; Vivek Pradhan, Pfizer; Arnab Maity, Pfizer

9:35 a.m. Considerations for the Use of Multiple Imputation in a Noninferiority Trial Setting—♦Kimberly Walters, Statistics Collaborative, Inc.; Jie Zhou, Statistics Collaborative, Inc.; Janet Wittes, Statistics Collaborative, Inc; Lisa Weissfeld, Stats Collaborative

9:50 a.m. Identifying Treatment Effects Using Trimmed Means When Data Are Missing Not at Random—♦Alex Ocampo, Harvard University

10:05 a.m. Imputation Strategies When a Continuous Outcome Is to Be Dichotomized for Responder Analysis: a Simulation Study—♦Lysbeth Floden, University of Arizona; Melanie Bell, University of Arizona

**300 CC-710**

**Innovations in and Applications of Imputation—Contributed**

**Government Statistics Section**

Chair(s): Randall Powers, U.S. Bureau of Labor Statistics

8:35 a.m. Simulation Study to Compare Imputation at the ELI-PSU Level Versus the ITEM-AREA Level—♦Onimissi M Sheidu, Bureau of Labor Statistics

8:50 a.m. Imputing Seasonal Data in an Advanced Indicator with Forecasts from X-13ARIMA-SEATS—♦Nicole Czaplicki, U.S. Census Bureau; Yarissa Gonzalez, U.S. Census Bureau

9:05 a.m. Multiple Imputation Within the American Housing Survey—♦Sean Dalby, US Census Bureau

9:20 a.m. Redefining Viability in Data Collection and Its Impact on Estimation—♦Leland Righter, Bureau of Labor Statistics; Alice Yu, ; Bradley Rhein, Bureau of Labor Statistics

9:35 a.m. An Algorithm of Generalized Robust Ratio Model Estimation for Imputation—♦Kazumi Wada, National Statistics Center, Japan; Seiji Takata, Shiga University; Hiroe Tsubaki, The Institute of Statistical Mathematics

9:50 a.m. Exploring the Performance of IVEware and Proc MI with Ordinal Categorical Data—♦Valbona Bejleri, USDA National Agricultural Statistics Service; Andrew Dau, National Agricultural Statistics Service; Darcy Miller, National Agricultural Statistics Service

10:05 a.m. An Empirical Study of Correlation Coefficient Aggregation in Multiple Imputation—♦Jianjun Wang, ; Xin Ma, University of Kentucky

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

**301**

**■● Design and Analysis Tools for Mental Health Research—Contributed**

**Mental Health Statistics Section**

Chair(s): Adam Ciarleglio, The George Washington University

8:35 a.m.	Sample Size Considerations for Comparing Dynamic Treatment Regimens in a SMART with a Repeated-Measures Outcome—♦ Nicholas Seewald, University of Michigan; Daniel Almirall, University of Michigan
8:50 a.m.	Latent Class Analysis for Health and Medicine—♦ Douglas Gunzler,
9:05 a.m.	Analyzing Treatment Effects and Moderators in Randomized Pre-Post Clinical Trials—♦ Joseph Rausch, Nationwide Children's Hospital
9:20 a.m.	Exploring Model Fit Evaluation in Structural Equation Models with Incomplete Ordinal Variables Using the D2 Method—♦ Yu Liu, University of Houston; Suppanut Sriatusuk, University of Houston
9:35 a.m.	Estimating Treatment Capacity and Annual Client Counts of Substance Abuse Treatment Facilities—♦ Maria DeYoreo,
9:50 a.m.	Designing Repeated Measures to Address Subject-Level Heterogeneity in Behavioral and Psychiatric Studies—♦ Abera Wouhib, NIH
10:05 a.m.	A Matched Case-Control Analysis of Sexual and Gender Minorities' Health, Emergency Department Visits and Inpatient Stays: Evidence from a Mental Health System—♦ Eric FRIMPONG ; Grace Rowan, Office of Mental Health ; David Williams , Office of Quality and Patient Safety ; Mengxuan Li, Office of Mental Health ; Louis Solano, Office of Mental Health ; Sahil Chaudhry , New York State Office of Mental Health ; Marleen Radigan , Office of Mental Health

**CC-210/212**

9:20 a.m.

Warp Bridge Sampling: The Next Generation—♦ David Jones, Texas A&M University; Lazhi Wang, Two Sigma; Xiao-Li Meng, Harvard University

9:35 a.m.

Latent Community Adaptive Network Regression—♦ Heather Mathews, Duke University; Alexander Volfovsky, Duke University

9:50 a.m.

Bayesian Assurance and Sample Size Analysis in a Conjugate Bayesian Linear Model Framework—♦ Jane Pan, UCLA; Sudipto Banerjee, UCLA

10:05 a.m.

Accelerate Auxiliary Iterated Filtering—♦ Dao Nguyen,

**302**

**Advances in Bayesian Computation—Contributed**

**Section on Bayesian Statistical Science**

Chair(s): Sameer K. Deshpande, CSAIL, MIT

8:35 a.m.	Statistical and Computational Guarantees for Variational Boosting—♦ Biraj Guha, Texas A & M University; Debdeep Pati, Texas A&M University; Anirban Bhattacharya, TAMU
8:50 a.m.	Approximate Bayesian Inference via Sparse Grid Quadrature Evaluation for Hierarchical Models—♦ Joshua Hewitt, Colorado State University; Jennifer A Hoeting, Colorado State University
9:05 a.m.	A New Visualization for MCMC Output Analysis—♦ Nathan Robertson, University of California, Riverside; James Flegal, University of California, Riverside

**CC-701**

**303**

**Statistical Association and High-Dimensional Data—Contributed**

**Section on Nonparametric Statistics**

Chair(s): Qing Mai, Florida State University

8:35 a.m.	Estimating Conditional Mutual Information for Discrete and Continuous Random Variables—♦ Octavio Mesner, Carnegie Mellon University; Cosma Shalizi, Carnegie Mellon University; Larry Wasserman, Carnegie Mellon University
8:50 a.m.	Dissimilarity Metrics Based Two Sample Tests in High Dimension—♦ Changbo Zhu, University of Illinois at Urbana-Champaign; Xiaofeng Shao, University of Illinois at Urbana-Champaign
9:05 a.m.	A Flexible and Robust Method for Assessing Conditional Association and Conditional Concordance—♦ Xiangyu Liu, The University of Texas Health Science Center at Houston; Jing Ning, The University of Texas MD Anderson Cancer Center; Yu Cheng, University of Pittsburgh; Xuelin Huang, University of Texas MD Anderson Cancer Center; Ruosha Li, The University of Texas School of Public Health
9:20 a.m.	High-Dimensional Empirical Likelihood Methods for Dependent Functional Data—♦ Guangxing Wang, University of California, Davis; Wolfgang Polonik, University of California, Davis
9:35 a.m.	Robust Rank-Based Variable Selection in Double Generalized Linear Models with Diverging Number of Parameters Under Adaptive Lasso—♦ Brice Merlin Nguelifack, United States Naval Academy
9:50 a.m.	Lebesgue Regression—♦ Yotam Hechtlinger, Carnegie Mellon University; Niccolò Dalmasso, Carnegie Mellon University; Alessandro Rinaldo, Carnegie Mellon University; Larry Wasserman, Carnegie Mellon University
10:05 a.m.	Generalized Spatially Varying Coefficient Models—♦ Myungjin Kim, Iowa State University; Li Wang, Iowa State University

**CC-706**

<b>304</b>		<b>CC-302</b>	<b>305</b>		<b>CC-301</b>
<b>Risk Applications for Disease, Toxicology, and Biomarker Modeling—Contributed</b>		<b>● Bayesian Modeling and Variable Selection Methods—Contributed</b>		<b>Section on Risk Analysis</b>	
Section on Risk Analysis		<b>Section on Statistical Computing, International Society for Bayesian Analysis (ISBA), Section on Bayesian Statistical Science</b>		Chair(s): <b>JINGJING CHEN</b> , Takeda Pharmaceuticals	
8:35 a.m.	Applying Topic Modeling to Identify the Multifactorial Attributes of Drug-Induced Liver Injury—♦Dale Bowman, University of Memphis; Ayako Suzuki, Duke University School of Medicine; Jonathan Bona, University of Arkansas for Medical Sciences; Wen Zou, National Center for Toxicological Research; E. Olusegun George, University of Memphis	8:35 a.m.	A New Generalized Inverse Gaussian Distribution with Bayesian Estimators—♦Kenneth R Goward, Central Michigan University; Chin-I Cheng, Central Michigan University; Kahadawala Cooray, Central Michigan University	8:35 a.m.	Adverse Outcome Pathway Network Guided High-Dimensional Modeling for Risk Assessment Regarding Drug Induced Liver Injury—♦Dong Wang, FDA National Center for Toxicological Research (NCTR); Kapil Khadka, National Center for Toxicological Research/FDA
9:05 a.m.	Semiparametric Isotonic Regression Analysis for Risk Assessment Under Two-Phase Sampling Designs—♦Wen Li, The University of Texas School of Public Health; Ruosha Li, The University of Texas School of Public Health; Ziding Feng, Fred Hutchinson Cancer Research Center; Jing Ning, The University of Texas MD Anderson Cancer Center	9:05 a.m.	Variable Selection Techniques for Model-Based Clustering of Directional Data—♦Semhar Michael, South Dakota State University; Damon Bayer, South Dakota State University	9:05 a.m.	Semiparametric Model for Exchangeable Clustered Binary Outcomes—♦Xinran Qi, Medical College of Wisconsin; Aniko Szabo, Medical College of Wisconsin
9:20 a.m.	Nonlinear Mixture Models for Identifying Early Markers of Neurological Diseases—♦Qinxia Wang, Columbia University, Department of Biostatistics; Ming Sun, J.P. Morgan Chase, Compliance Analytics; Yuanjia Wang, Columbia University	9:20 a.m.	Implicit Regularization via Hadamard Product Parametrization in Linear Regression—♦Peng Zhao, Florida State University; Yun Yang, University of Illinois Urbana-Champaign; Qiao-chu He, Southern University of Science and Technology	9:20 a.m.	Occupational Radiation Exposure in US Radiologic Technologists and Absolute Risk of Cataract Incidence Assessed Using a Generalized Additive Model—♦Mark P Little, Radiation Epidemiology Branch, National Cancer Institute; Elizabeth K Cahoon, National Cancer Institute; Cari M Kitahara, National Cancer Institute; Steven L Simon, National Cancer Institute; Nobuyuki Hamada, Radiation Safety Research Center, Nuclear Technology Research Laboratory, CRIEP; Martha S Linet, National Cancer Institute
9:35 a.m.	Benchmark Analysis for Joint-Exposure Quantal Data in Quantitative Risk Assessment—♦Lucy Kerns, Youngstown State University	9:35 a.m.	High-Dimensional Controlled Variable Selection for Ordinal Outcomes—♦Han Fu, The Ohio State University; Kellie Archer, Ohio State University	9:35 a.m.	Incomplete High-Dimensional Inverse Covariance Estimation—♦Yunxi Zhang, University of Mississippi Medical Center; Soeun Kim, University of Texas Health Science Center at Houston
10:05 a.m.		9:50 a.m.	Variable Selection for High-Dimensional Nodal Attributes in Social Networks—♦Jia Wang, Penn State University; Runze Li, Penn State University		
		10:05 a.m.			
<b>TUESDAY</b>					
<b>306</b>		<b>CC-104</b>	<b>● Innovative Approaches to Teaching Statistics from Content to Modality—Contributed</b>		
<b>Section on Statistics and Data Science Education</b>		<b>Section on Statistics and Data Science Education</b>			Chair(s): <b>Elizabeth Fry</b> , University of Minnesota
8:35 a.m.	Acknowledging Our Foundations: Promoting Discussion of Historical and Philosophical Challenges Underlying Statistical Inference—♦Megan Higgs, Montana State University	8:35 a.m.			
8:50 a.m.	Growing Certain: Students' Mechanistic Reasoning About the Empirical Law of Large Numbers in a Simulation-Based Inference Course—♦Ethan Brown, University of Minnesota; Robert delMas, University of Minnesota	8:50 a.m.			
9:05 a.m.	Developing "Data Mentors" for Beginning Teachers—♦Debra Hydorn, University of Mary Washington	9:05 a.m.			

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

9:20 a.m.	Capstone Assessment Tools for the Undergraduate Statistics Major—♦Matthew D Beckman, Pennsylvania State University
9:35 a.m.	Teaching a Mixed-Mode Biostatistics Course Using Canvas—♦Julia Soulakova, University of Central Florida; Victoria L Owens, College of Medicine, UCF
9:50 a.m.	Teaching Graduate Level Statistics Courses in a Synchronous Classroom—♦Samantha Seals, University of West Florida
10:05 a.m.	Making an Impact Through Testing—♦Rosanna Overholser
<b>307</b>	<b>CC-505</b>
	<b>Novel Approaches for Analyzing Dynamic Networks—Contributed</b>
	<b>Section on Statistical Learning and Data Science</b>
	Chair(s): Joshua Cape, Johns Hopkins University
8:35 a.m.	Random Graph Hidden Markov Models for Percolation in Noisy Dynamic Networks—♦Xiaojing Zhu, ; Eric Kolaczyk, Boston University; Heather Shappell, Johns Hopkins University
8:50 a.m.	Bayesian Estimation of the Latent Dimension and Communities in Stochastic Blockmodels—♦Francesco Sanna Passino, Imperial College London; Nicholas A. Heard, Imperial College London
9:05 a.m.	Anomaly Detection in Time-Varying Networks—♦Lata Kodali, Virginia Tech; Leanna House, Virginia Tech; Srijan Sengupta, Vlrginia Tech; William H. Woodall, Virginia Tech
9:20 a.m.	Estimating Latent Space Models for Network Data with Multivariate Response Variables—♦Xuefei Zhang, University of Michigan; Ji Zhu, University of Michigan; Gongjun Xu, University of Michigan
9:35 a.m.	Developing New Statistical Pattern Recognition and System Identification Techniques for Partial Discharge Analysis—♦Pramoda Sachintha Jayasinghe, University of Manitoba; Mohammad Jafari Jozani, University of Manitoba; Behzad Kordi, University of Manitoba
9:50 a.m.	Nonparametric Anomaly Detection on Time Series of Graphs—♦Dorcas Ofori-Boateng, ; Yulia Gel, University of Texas at Dallas; Ivor Cribben, University of Alberta
10:05 a.m.	Dynamic Stochastic Mirror Descent with Statistical Applications—♦Shih-Kang Chao, University of Missouri-Columbia; Guang Cheng, Purdue Statistics

**TUESDAY**

<b>308</b>	<b>CC-203</b>
	<b>Recent Advancements in Spatial and Spatio-Temporal Modeling—Contributed</b>
	<b>Section on Statistics and the Environment</b>
	Chair(s): Alexandra Schmidt, McGill University
8:35 a.m.	Spatio-Temporal Cross-Covariance Functions Under the Lagrangian Framework—♦Mary Lai Salvana, KAUST; Amanda Lenzi, King Abdullah University of Science and Technology; Marc Genton, King Abdullah University of Science and Technology
8:50 a.m.	Surface Estimation for Multiple Misaligned Data Sets—♦Ashton Wiens, University of Colorado Boulder; William Kleiber, University of Colorado
9:05 a.m.	Bayesian Selection of Tuning Parameters—♦Nathan Wikle, Pennsylvania State University; Ephraim Hanks, Pennsylvania State University
9:20 a.m.	Spatially Varying Coefficients Models: How Maximum Likelihood Estimation Stacks up Against Other Methods—♦Jakob Dambon, University of Zurich; Reinhard Furrer, University of Zurich; Fabio Sigrist, Lucerne University of Applied Sciences and Arts
9:35 a.m.	Modeling Multivariate Spatial Processes with Applications in Remote Sensing—♦Emily Lei Kang, University of Cincinnati; Miaoqi Li, University of Cincinnati; Kerry Cawse-Nicholson, Jet Propulsion Laboratory, California Institute of Technology; Amy J Braverman, Jet Propulsion Laboratory, California Institute of Technology
9:50 a.m.	Semiparametric Estimation of Cross-Covariance Functions for Multivariate Random Fields—♦Ghulam Qadir, King Abdullah University of Science and Technology (KAUST); Ying Sun, King Abdullah University of Science and Technology
10:05 a.m.	Estimation of the Degree of Non-Stationarity and Universal Kriging on a Sphere Based on Intrinsic Random Function Theory—♦Jacob Shields, Elanco Animal Health; Nicholas Bussberg, Indiana University; Chunfeng Huang, Indiana University
<b>309</b>	<b>CC-110</b>
	<b>Advances in Causal Inference—Contributed</b>
	<b>Section on Statistics in Epidemiology</b>
	Chair(s): Danielle Braun, Harvard University
8:35 a.m.	A Comparison of Different Statistical Approaches to Deal with Model Misspecification and Missing Outcome Data—♦Veronica Sciannameo, University of Padova; Gian Paolo Fadini, University of Padova; Daniele Bottigliengo, University of Padova; Angelo Avogaro, University of Padova; Ileana Baldi, University of Padova; Dario Gregori, University of Padova; Paola Berchialla, University of Torino

8:50 a.m.	A Simulation Study on the Performance of AIPW and TMLE in Estimating Parameters of Marginal Structural Models Based on Real-World Longitudinal Data—♦Dawei Liu, Biogen; John Zhong, Biogen; Carl De Moor, Biogen	Common Controls—♦Megan Sorenson, University of Colorado Denver; Audrey E Hendricks, University of Colorado Denver
9:05 a.m.	Sensitivity Analysis Statistics for Routine Reporting: The Partial R2 and the Robustness Value—♦Carlos Leonardo Kulnig Cinelli, UCLA; Chad Hazlett, UCLA	4 GWEB: An Empirical-Bayes-Based Approach for Heritability Estimation, Statistical Fine-Mapping and Genetic Risk Prediction Using GWAS Summary Statistics—♦Wei Jiang, Yale University; Hongyu Zhao, Yale
9:20 a.m.	On the Robustness of Doubly Robust Estimators in Causal Inference—♦Weicong Lyu, University of Wisconsin-Madison; Peter Steiner, University of Wisconsin	5 Sparse Estimation of Genetic Relatedness to Control for Population Structure and Sample Relatedness in Genome-Wide Association Studies—♦Rounak Dey, Harvard TH Chan School of Public Health; Yaowu Liu, Harvard TH Chan School of Public Health; Zilin Li, Harvard TH Chan School of Public Health; Junwei Lu, Harvard TH Chan School of Public Health; Zheng Tracy Ke, Harvard University; Xihong Lin, Harvard
9:35 a.m.	Rethinking Meta-Analysis: Addressing Problems of Non-Transportability When Combining Treatment Effects Across Patient Populations—♦Tat Thang Vo, Ghent University; Stijn Vansteelandt, Ghent University; Raphael Porcher, Centre de Recherche ...pidÈmiologie et StatistiqueS Universit��de Paris (CRESS-UMR1153)	6 Fine Mapping Causal Variants with Functional Annotations—♦Sheila Gaynor, Harvard T.H. Chan School of Public Health; Xihong Lin, Harvard
9:50 a.m.	Multiple Imputation Strategies for Handling Missing Data When Generalizing Randomized Clinical Trial Findings Through Propensity Score-Based Methodologies—♦Albee Ling, Stanford University; Maya B Mathur, Harvard University; Kris Kapphahn, Stanford University; Maria Montez-Rath , Stanford University; Manisha Desai, Stanford University Quantitative Sciences Unit	7 Leveraging eQTLs to Identify Tissue-Specific Genetic Subtype of Complex Trait—♦Arunabha Majumdar, University of California, Los Angeles; Claudia Giambartolomei, University of California, Los Angeles; Na Cai, European Bioinformatics Institute (EMBL-EBI); Malika Kumar Freund, University of California, Los Angeles; Bogdan Pasaniuc, University of California, Los Angeles
10:05 a.m.	Can We Attribute Suicides to an App? Nonparametric Estimation the Probability of Causation—♦Maria Cuellar, Carnegie Mellon University; Walter Dempsey, Harvard University	8 Trait Evolution on Two Gene Trees—♦James Degnan, ; Huan Jiang, Dialysis INC

**Contributed Poster Presentations 9:25 a.m.—10:10 a.m.**

**310 CC-Hall C**

**SPEED:Statistical Methods for GWAs, Genetics, Genomics, and Other Omics Studies, Part 2—Contributed**

**Section on Statistics in Genomics and Genetics, International Chinese Statistical Association, Section on Bayesian Statistical Science, Biometrics Section**

**Chair(s): Stanley Pounds, St. Jude Children's Research Hospital**

**Section on Statistics in Genomics and Genetics**

- 1 Multivariate Association Analysis with Correlated Traits in Families—♦Souvik Seal, Division of Biostatistics, University of Minnesota
- 2 Trans-Ethnic Meta-Analysis of Metabolic Syndrome in a Multi-Ethnic Study—♦Emileigh L. Willems, University of Colorado Denver; Jia Y. Wan, University of California Irvine; Trina M. Norden-Krichmar, University of California Irvine; Karen L. Edwards, University of California Irvine; Stephanie A. Santorico, University of Colorado Denver
- 3 Rare Variant Association Tests for Multiple Ancestries Using

**International Chinese Statistical Association**

- 10 An Integrative Analysis of DNA Copy Number and SNP Markers to Localize Causal Gene Region—♦Qi You Yu, National Taiwan University; Chuhsing Kate Hsiao, Institute of Epidemiology and Preventive Medicine, National Taiwan University, Taiwan; Tzu-Pin Lu, Institute of Epidemiology and Preventive Medicine, National Taiwan University, Taiwan; Jung-Ying Tzeng, North Carolina State University; Tzu-Hung Hsiao, Taichung Veterans General Hospital, Taiwan; Ching-Heng Lin, Taichung Veterans General Hospital, Taiwan

**Section on Bayesian Statistical Science**

- 11 Bayesian Generalized Fused Hierarchical Structured Variable Selection Prior for Pathway-Based GWAS Using Summary Statistics—♦Yi Yang, University of Minnesota; Saonli Basu, University of Minnesota, Biostatistics SPH; Lin Zhang, Division of Biostatistics, University of Minnesota
- 12 A Flexible Bayesian Framework to Study Viral Trait Evolution—♦Paul Bastide, Rega Institute, KU Leuven; Guy Baele, Rega Institute / KU Leuven; Marc Suchard, UCLA; Philippe Lemey, Rega Institute, KU Leuven

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

13 Fully Bayesian Imputation Model for MNAR Data in QPCR—  
♦Valeria Sherina, ; Matthew N McCall, University of Rochester Medical Center; Tanzy M.T. Love, University of Rochester Medical Center

#### Biometrics Section

14 Predicting Patient Sensitivity Using Gene-Treatment Interactions with Bayesian Shrinkage Models—♦Arinjita Bhattacharyya, University of Louisville; Subhadip Pal, University of Louisville; Riten Mitra, University of Louisville; Shesh N Rai, University of Louisville

15 Prediction with Microbiome Sequencing Data via Multi-Kernel Learning—♦Bing Li, Brown University; Huilin Li, NYU School of Medicine; Shuang Wang, Columbia University

16 A Hierarchical Pitman-Yor Model for the Evolution of Phenotype Distribution on a Phylogenetic Tree—♦Hanxi Sun, Purdue Statistics; Heejung Shim, University of Melbourne, Australia; Vinayak Rao, Purdue University

17 A New Sparse Network Model for High-Throughput Count Data—♦Caesar (Zexuan) Li, University of California, Los Angeles; Gang Li, UCLA; Eric Kawaguchi, UCLA Department of Biostatistics

#### Section on Bayesian Statistical Science

18 A Bayesian Zero-Inflated Negative Binomial Regression Model for the Integrative Analysis of Microbiome Data—♦Shuang Jiang, Southern Methodist University

#### Biometrics Section

19 Sparse Mediation Analysis Using Mixture Models—♦Yanyi Song, University of Michigan; Xiang Zhou, University of Michigan; Min Zhang, University of Michigan; Wei Zhao, University of Michigan; Yongmei Liu, Wake Forest School of Medicine; Sharon Kardia, University of Michigan; Ana Diez Roux, Drexel University; Belinda Needham, University of Michigan; Jennifer Smith, University of Michigan; Bhramar Mukherjee, University of Michigan

#### Section on Bayesian Statistical Science

20 A Feature Allocation Model for Cytometry by Time-Of-Flight Data—♦Arthur Lui, University of California - Santa Cruz; Juhee Lee, University of California, Santa Cruz; Peter Thall, U.T. M.D. Anderson Cancer Center; Katy Rezvani, M.D. Anderson Cancer Center

311

CC-Hall C

**SPEED: Environment and Health, Governmental Policies and Population Surveys, Part 2—Contributed**  
Government Statistics Section, Section on Bayesian Statistical Science, Health Policy Statistics Section, Lifetime Data Science Section, Text Analysis Interest Group

Chair(s): Wendy Meiring, University of California At Santa Barbara

#### Section on Bayesian Statistical Science

21 Optimal Sampling Regimes for Estimating Population Dynamics—♦Rebecca Bergee,

22 Application of Stochastic Search Variable Selection to Modeling Evacuation Ahead of Hurricane Irma—♦Sierra Bainter, University of Miami; Caitlin Brown, University of Miami; Kiara Timpano, University of Miami

23 Bayesian Finite Population Estimates from a Two-Stage Sample with Spatial Correlation—♦Alec M Chan-Golston, University of California, Los Angeles; Sudipto Banerjee, UCLA; Mark Handcock, University of California, Los Angles

#### Government Statistics Section

24 Transitions Between Homelessness States(Safe Haven, Temporary Housing , Emergency Shelter and Unsheltered) Before and After Operation Rio Grande in the Salt Lake Metropolitan Area—♦Prem Narayanan, Salt Lake County

25 Assessing to the Impact of Differential Response Rates Across National Health and Nutrition Examination Survey (NHANES) Locations—♦Te-Ching Chen, CDC/NCHS; Jennifer Parker, CDC/NCHS/OAE/SPB; Tala Fakhouri, CDC/NCHS

26 A New Methodology for Frame Building and Sample Design for the State Heating Oil and Propane Program (SHOPP)—Edgardo Cureg, U.S. Energy Information Administration (EIA); ♦Marcela Bradbury, U.S. Energy Information Administration (EIA)

27 Report on Industry Births and Deaths in PPI Frames—♦Andy Sadler, Bureau of Labor Statistics

28 Determining the Distance Between Countries of Latin America and the Caribbean Regarding Their Fulfillment of the SDGs in 2017—♦Andres Esteban Arguedas Leiva, University of Costa Rica

29 Providing Access to the Federal Information Base for Evidence Based Policy Making—♦Marilyn Seastrom, US Department of Education; Jennifer Nielsen, National Center for Education Statistics/IES/Dept of Education

30 Imputation as a Practical Alternative to Data Swapping—♦Saki Kinney, RTI International; David Wilson, RTI International; Alan Karr, RTI International; Kelly Kang, NSF

31 Using Efficient Sampling Methods for Fixed-Margin Matrices to Assess Judicial Innovation—♦Alex Fout,

32 Examining Public Comments for Financial and Net Neutrality Regulations—♦Shawn Mankad, Cornell University; Abhinav Gaiha, Cornell University

33 Using Supervised Machine Learning to Classify Customer Input—♦Adrianna Steers-Smith, USDA/FSIS

34 Weighting Adjustments Can Help with Low Response Rates, but at What Cost to Data Quality?—♦Chrishelle Lawrence, U.S. Energy Information Administration

35 Annualizing Energy Consumption in Residential Households in the 2015 RECS—♦ Jay Olsen, U.S. Department of Energy

36 Methodology for Allocating Municipal Solid Waste to Biogenic and Non-Biogenic Energy—♦ Joy Liu, US Department of Energy

**Health Policy Statistics Section**

37 On the Small Count Inflated Poisson Distribution—♦ Michael Floren, Misericordia University; Trent L Lalonde, University of Northern Colorado

**Lifetime Data Science Section**

38 Conditional Survival Methods for Evaluating the Effect of a Time-Dependent Treatment on the Survival Function—♦ Danting Zhu, ; Douglas Schaubel, University of Michigan

**Health Policy Statistics Section**

39 Hyper Prior Dirichlet Partial Multinomial Logistic Regression Through Multiple Binary Responses for Mozambique HIV/AIDS—♦ Diana Gonzalez, Arizona State University; Di Fang, University of Arkansas

**Invited Sessions 10:30 a.m.—12:20 p.m.**

**312**

**CC-203**

**● Theory for Deep Neural Networks—Invited**

IMS

Organizer(s): Johannes Schmidt-Hieber, Leiden University

Chair(s): Johannes Schmidt-Hieber, Leiden University

10:35 a.m. On Deep Learning as a Remedy for the Curse of Dimensionality in Nonparametric Regression—♦ Michael Kohler, Technische Universitaet Darmstadt; Sophie Langer, Technische Universitaet Darmstadt

11:05 a.m. Robust Estimation and Generative Adversarial Nets—♦ Chao Gao, University of Chicago

11:35 a.m. Generalization Analysis for Mechanism of Deep Learning via Nonparametric Statistics—♦ Masaaki Imaizumi, Institute of Statistical Mathematics

12:05 p.m. Floor Discussion

**313**

**CC-201**

**● Recent Developments in Statistical Inference Using Distance Correlation and Related Dependence Metrics—Invited**

Section on Nonparametric Statistics, Journal of Nonparametric Statistics, International Chinese Statistical Association

Organizer(s): Xiaofeng Shao, University of Illinois At Urbana-Champaign

Chair(s): Xianyang Zhang, Texas A&M University

10:35 a.m. Distance-Based Independence Screening for Canonical Analysis—♦ Xiaoming Huo, Georgia Institute of Technology; Chuiping Yu, Georgia Institute of Technology

11:00 a.m. Dependence Measures in Metric Spaces: From Distance Correlation to Earth Mover's Correlation—♦ Gabor Szekely, NSF

11:25 a.m. Distance-Based and RKHS-Based Dependence Metrics in High Dimension—♦ Xiaofeng Shao, University of Illinois At Urbana-Champaign

11:50 a.m. Expected Conditional Characteristic Function-Based Measures for Testing Independence—♦ Xiangrong Yin, University of Kentucky; Chenlu Ke, University of Kentucky

12:15 p.m. Floor Discussion

**314**

**CC-605**

**■ ● They Never Die: a Historical Overview of the Many Uses of Famous Historic Data Sets—Invited**

Section on Statistical Graphics, Journal of Statistics Education, History of Statistics Interest Group, Caucus for Women in Statistics

Organizer(s): Wendy L Martinez, Bureau of Labor Statistics

Chair(s): Wendy L Martinez, Bureau of Labor Statistics

10:35 a.m. The Unsinkable Titanic Data—♦ Juergen Symanzik, Utah State University; Michael Friendly, York University; Ortac Onder, York University

11:05 a.m. Give Your Statistician Colleague Iris Bulbs for Their House Warming!—♦ Dianne Cook, Monash University

11:35 a.m. Do Data Have a Limited Shelf Life?—♦ Stephen Stigler, University of Chicago

12:05 p.m. Floor Discussion

**315**

**CC-301**

**■ Innovative Bayesian Approaches in Clinical Trials and Practical Considerations—Invited**

Section on Bayesian Statistical Science, Biopharmaceutical Section, Society for Clinical Trials

Organizer(s): Mandy Jin, Merck & Co., Inc.

Chair(s): Mandy Jin, Merck & Co., Inc.

10:35 a.m. Revisiting Test-Then-Pool Methods and Some Practical Considerations—Frank G Liu, Merck Sharp & Dohme Inc.; ♦ Wen Li, Merck

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

<p><b>TUESDAY</b></p> <p><b>316</b> <span style="float: right;"><b>CC-702</b></span>  <b>■ ● Emerging Advances of Innovative Computational Skills with Unconventional Likelihoods—Invited Section on Statistical Computing</b>  Organizer(s): Jiwei Zhao, State University of New York At Buffalo  Chair(s): Jiwei Zhao, State University of New York At Buffalo</p> <p>10:35 a.m. A Broad Framework for Likelihood Alternatives in View of Small, Very Large, and Variable-Size Data—♦Geert Molenberghs, Universiteit Hasselt &amp; Katholieke Universiteit Leuven</p> <p>11:00 a.m. Maximum Empirical Likelihood Estimation and Related Topics—♦Anton Schick, Binghamton University</p> <p>11:25 a.m. A Likelihood Ratio Test for Shape-Constraint Density—♦Kwun Chuen Gary Chan, University of Washington</p> <p>11:50 a.m. Community Detection with Dependent Connectivity—Yubai Yuan, University of Illinois at Urbana-Champaign; ♦Annie Qu, University of Illinois at Urbana-Champaign</p> <p>12:15 p.m. Floor Discussion</p>	<p><b>317</b> <span style="float: right;"><b>CC-607</b></span>  <b>■ ● Uncertainty Quantification in Various Applications—Invited</b>  ASA Advisory Committee on Climate Change Policy, Section on Physical and Engineering Sciences, Section on Statistics and the Environment  Organizer(s): Bo Li, University of Illinois at Urbana-Champaign  Chair(s): Bo Li, University of Illinois at Urbana-Champaign</p>	<p>10:55 a.m. Nonparametric Bayesian Estimation of Heterogeneous Causal Effects Using Real-World Data—♦Xinyi Xu, The Ohio State University; Bo Lu, The Ohio State University; Steve MacEachern, The Ohio State University; Ling Wang, Michigan State University</p> <p>11:15 a.m. Design of Drug Combination Early Phase Cancer Trials Under the Setting of Partial Toxicity Attribution—♦Mourad Tighiouart, Cedars-Sinai Medical Center</p> <p>11:35 a.m. Bayesian Framework for Pediatric Drug Development—♦Amarjot Kaur, Merck &amp; Co.; Mandy Jin, Merck &amp; Co., Inc.; Qing Li, Merck Research Labs</p> <p>11:55 a.m. Disc: Gregory Campbell, GCStat Consulting</p> <p>12:15 a.m. Floor Discussion</p>	<p>10:35 a.m. Computer Experiments with Binary Time Series and Applications to Cell Biology: Modeling, Estimation and Calibration—♦C F Jeff Wu, Georgia Inst of Technology; Ying Hung, Rutgers University</p> <p>11:00 a.m. Uncertainty Quantification in Assessing the Hazard from Pyroclastic Flows and Storm Surge—♦James Berger, Duke University</p> <p>11:25 a.m. Uncertainty Estimates for Environmental Time Series—♦Michael Stein, University of Chicago</p> <p>11:50 a.m. Disc: Brian Reich, North Carolina State University</p> <p>12:15 p.m. Floor Discussion</p>
		<b>318</b>	<b>CC-207</b>
		<b>■ ● Rietz Lecture—Invited</b>	
		IMS	
		Organizer(s): Rajen D Shah, University of Cambridge	
		Chair(s): T. Tony Cai, The Wharton School, University of Pennsylvania	
		10:35 a.m. Selective Inference: The Silent Killer of Replicability—♦Yoav Benjamini, Tel Aviv University	
		12:15 p.m. Floor Discussion	
		<b>319</b>	<b>CC-113</b>
		<b>Highlights of the Canadian Journal of Statistics—Invited</b>	
		SSC	
		Organizer(s): Louis-Paul Rivest, UniversitéLaval	
		Chair(s): Robert Platt, McGill University	
		10:35 a.m. Big Data and Partial Least-Squares Prediction—♦Dennis Cook, University of Minnesota; Liliana Forzani, Departamento de Matematica, Universidad Nacional del Litoral	
		11:00 a.m. Post-Selection Inference for L1-Penalized Likelihood Models—♦Robert Tibshirani, Stanford University	
		11:25 a.m. Likelihood Inflating Sampling Algorithm—♦Jeffrey S Rosenthal, University of Toronto	
		11:50 a.m. Estimating Prevalence Using Indirect Information and Bayesian Evidence Synthesis—♦David A. Stephens, McGill University	
		12:15 p.m. Floor Discussion	

**320**

**■● Statistical Approaches for Modeling Social Unrests—Invited**

**Section on Statistics in Defense and National Security, Social Statistics Section, Business and Economic Statistics Section**

Organizer(s): Snigdhansu Chatterjee, University of Minnesota

Chair(s): Michael Baron, American University

10:35 a.m. Predicting Anti-Government Violence in Mexico with Big Data on Citizen-Government Interactions—♦ Benjamin E. Bagozzi, University of Delaware; Snigdhansu Chatterjee, University of Minnesota; Ujjal Kumar Mukherjee, University of Illinois

11:00 a.m. Forecasting Political Instability Using Heterogeneous Data Streams—♦ Chrysm Ross Watson, Los Alamos National Laboratory; Ashlynn Daughton, Los Alamos National Laboratory; Geoffrey Fairchild, Los Alamos National Laboratory; Sara Del Valle, Los Alamos National Laboratory

11:25 a.m. Model Fusion with Spatial Partitioning for Forecasting Civil Unrest—♦ Andrew Hoegh, Montana State University

11:50 a.m. Predicting the Supply Chain Impact of National Level Conflicts: a Recursive Neural Network Based Approach—♦ Ujjal Kumar Mukherjee, University of Illinois; Benjamin E. Bagozzi, University of Delaware; Snigdhansu Chatterjee, University of Minnesota

12:15 p.m. Floor Discussion

**CC-703**

11:35 a.m. Randomization for the Direct Effect of an Infectious Disease Intervention in a Clustered Study Population—♦ Forrest W Crawford, Yale School of Public Health; Olga Morozova, Yale School of Public Health; Daniel Eck, Yale School of Public Health

11:55 a.m. Disc: Michael Hudgens, University of North Carolina at Chapel Hill

12:15 p.m. Floor Discussion

**322**

**● Time-To-Event Models in Complex Observational Studies—Invited**

**Biometrics Section, ENAR, Biopharmaceutical Section**

Organizer(s): Soutrik Mandal, National Cancer Institute

Chair(s): Ana Maria Ortega-Villa, National Institutes of Health

10:35 a.m. A Copula Model Approach for Regression Analysis of Informatively Interval-Censored Failure Time Data—♦ (Tony) Jianguo Sun, University of Missouri

11:00 a.m. Validating Risk Prediction Models with Sub-Samples of Cohorts—♦ Ruth Pfeiffer, National Cancer Institute; Mitchell Henry Gail, National Cancer Institute, Division of Cancer Epidemiology and Genetics; Yei Eun Shin, National Cancer Institute

11:25 a.m. Cure Rate Frailty Models for Clustered Current Status Data with Informative Cluster Size—Kejun He, Renmin University; Wei Ma, Renmin University; Tong Wang, Texas A&M University; Dipankar Bandyopadhyay, Virginia Commonwealth University; ♦ Samiran Sinha, Texas A&M University

11:50 a.m. Goodness-of-Fit Tests for the Linear Transformation Models with Interval-Censored Data—♦ Soutrik Mandal, National Cancer Institute; Suojin Wang, Texas A&M University; Samiran Sinha, Texas A&M University

12:15 p.m. Floor Discussion

**321**

**● Causal Inference in Vaccine Trials and Outbreak Investigations: Epidemiologic Study Design and Statistical Analysis—Invited**

**Section on Statistics in Epidemiology, Biometrics Section, American Public Health Association**

Organizer(s): Eben Kenah, The Ohio State University

Chair(s): Eben Kenah, The Ohio State University

10:35 a.m. Chasing Cases: Customizing Vaccine Trials for Emerging Infectious Diseases—♦ Natalie E Dean, University of Florida; M Elizabeth Halloran, University of Washington and Fred Hutchinson Cancer Research Center; Ira M. Longini, University of Florida

10:55 a.m. Healthcare Infection Prevention -a Need for Better Aligning Research Questions with the Decisions They Inform—♦ Justin O'Hagan, Centers for Disease Control and Prevention

11:15 a.m. Estimating Causal Effects of Vaccines Under Interference from Randomized and Partially Randomized Studies—♦ M Elizabeth Halloran, University of Washington and Fred Hutchinson Cancer Research Center

**CC-107**

**323**

**■● Causal Inference in Sports Statistics—Invited**

**Section on Statistics in Sports**

Organizer(s): Katherine Evans, Verily Life Sciences

Chair(s): Justin Jacobs, Squared2020 Statistics

10:35 a.m. Causality: a Missing Piece in Machine Learning and Reinforcement Learning Approaches to Sports Analytics—♦ Alexander N DAmour, Google

11:00 a.m. Estimating the Health Consequence of Playing Football: Evidence from Observational Studies—♦ Sameer K. Deshpande, CSAIL, MIT; Raiden Hasegawa, University of Pennsylvania; Dylan Small, University of Pennsylvania; Jordan Weiss, University of Pennsylvania

**TUESDAY**

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

11:25 a.m.	Treatment Effect Heterogeneity in MLB Bunting Strategies—♦Katherine Evans, Verily Life Sciences; Michael Lopez, NFL
11:50 a.m.	Building Blocks for Estimating Causal Effects of Athlete Behavior in Football and Hockey Using Player Tracking Data—♦Michael Lopez, Skidmore College
12:15 p.m.	Floor Discussion

**Invited Panels 10:30 a.m.—12:20 p.m.**

<b>324</b>	<b>CC-205</b>
■ The Juggling Collaborative Statistician: Which Balls to Drop?—Invited	
Section on Statistical Consulting, Committee on Applied Statisticians, Biometrics Section, Korean International Statistical Society	
Organizer(s): Julia L Sharp, Colorado State University	
Chair(s): Mary J Kwasny, Northwestern University	
Panelists:	<ul style="list-style-type: none"> <li>♦Emily Griffith, North Carolina State University</li> <li>♦Alexandra Hanlon, University of Pennsylvania</li> <li>♦Mimi Kim, Albert Einstein College of Medicine</li> <li>♦Ji-Hyun Lee, University of Florida</li> <li>♦Jungwha "Julia" Lee, Northwestern University</li> <li>♦Julia L Sharp, Colorado State University</li> </ul>
12:15 p.m.	Floor Discussion

<b>325</b>	<b>CC-102</b>
■ Building Future Leaders: Perspectives on Training in Ethics, Professionalism, and Leadership—Invited	
Council of Chapters	
Organizer(s): John D Keighley, University of Kansas Medical Center	
Chair(s): David Morganstein, Westat	
Panelists:	<ul style="list-style-type: none"> <li>♦Gina-Maria Pomann, Duke University</li> <li>♦Jonathan Gelfond, University of Texas Health San Antonio</li> <li>♦Pandurang Kulkarni, Eli Lilly &amp; Company</li> <li>♦Jo Wick, University of Kansas Medical Center</li> </ul>
12:10 p.m.	Floor Discussion

**Topic Contributed Sessions 10:30 a.m.—12:20 p.m.**

<b>326</b>	<b>CC-108</b>
■ ● Use of Concurrent and Non-Concurrent Control Data in Basket and Platform Trials—Topic Contributed	
Biopharmaceutical Section	
Organizer(s): Weichao Bao, GlaxoSmithKline	

Chair(s): Ying Grace Li, Eli Lilly and Company

10:35 a.m.	Use of Historical Control Information in Platform Trials—♦Satrajit Roychoudhury, Pfizer Inc
10:55 a.m.	Biomarkers and Use of Non-Concurrent Controls: Experiences of the Children's Oncology Group—♦Lindsay Renfro, University of Southern California and Children's Oncology Group
11:15 a.m.	Statistical Innovations for Complex Diseases: a Multi-Arm Adaptive Platform Trial for Cystic Fibrosis—♦Benjamin Saville, Berry Consultants
11:35 a.m.	An Adaptive Platform Trial Evaluating Four Targeted Therapies in Pediatric Sepsis—♦Kristen Cunanan,
11:55 a.m.	Disc: Laura Lee Johnson, U.S. Food and Drug Administration (FDA) Center for Drug Evaluation and Research (CDER)
12:15 p.m.	Floor Discussion

<b>327</b>	<b>CC-110</b>
■ ● Probabilistic Decision-Making in Clinical Research—Topic Contributed	
Biopharmaceutical Section, Section on Bayesian Statistical Science	
Organizer(s): Alan Hartford, Takeda Pharmaceutical Company	

Chair(s): Qi Tang, Sanofi

10:35 a.m.	Predicting Technical Success of a Phase III Program Using Bayesian Latent Relationship Modeling—♦Saurabh Mukhopadhyay, AbbVie
10:55 a.m.	Evidence Based Decision Making in Clinical Trials—♦Erik Pulkstenis, AbbVie
11:15 a.m.	Time-To-Event Bayesian Optimal Interval Design to Accelerate Dose-Finding Based on Both Efficacy and Toxicity Outcomes—♦Kentaro Takeda, Astellas Pharma Global Development, Inc.
11:35 a.m.	Utilizing Bayesian Analysis for Probabilistic Decision Making in a Platform Clinical Trial—♦J. Kyle Wathen, Janssen R&D
11:55 a.m.	Floor Discussion

328

CC-112

■ ● Integrative Approaches for Statistical Analysis of Data from Multiple Sources—Topic Contributed  
ENAR, Section on Statistical Learning and Data Science, Biometrics Section

Organizer(s): Irina Gaynanova, Texas A&amp;M University

Chair(s): Irina Gaynanova, Texas A&amp;M University

10:35 a.m. Dynamic Systems Approach to Deep Learning with Different Types of Data Sets and Its Application to Prediction of Alzheimer's Disease—♦ Momiao Xiong, University of Texas School of Public Health; Helen Engle, University of Texas School of Public Health; Yuanyuan Liu, University of Texas School of Public Health; Zhouxuan Li, University of Texas School of Public Health; Qiyang Ge, University of Texas School of Public Health; Shudi Li, University of Texas School of Public Health; Shan Liu, University of Texas School of Public Health

10:55 a.m. Data Integration Using Joint and Individual Non-Gaussian Component Analysis—♦ Benjamin Risk, Emory University; Irina Gaynanova, Texas A&M University

11:15 a.m. Integrative Factorization of Bidimensionally Linked Matrices—♦ Eric Lock, University of Minnesota; Jun Young Park, University of Minnesota

11:35 a.m. SIDA: a New Discriminant Analysis Method for Multi-Type, Multi-Class Data—♦ Sandra Safo, University of Minnesota; Eun Jeong Min, University of Pennsylvania

11:55 a.m. Targeted Integrative Learning via a Distance Segmented Regression—♦ Kun Chen, University of Connecticut; Yang Song, Vertex Pharmaceuticals Inc.; Biju Wang, University of Connecticut

12:15 p.m. Floor Discussion

329

CC-704

SLDS Student Paper Awards—Topic Contributed  
Section on Statistical Learning and Data Science  
Organizer(s): Ali Shojaie, University of Washington  
Chair(s): Genevera Allen, Rice University

10:35 a.m. Learning Optimal Individualized Decision Rules with Risk Control—♦ Zhengling Qi,

10:55 a.m. Joint Association and Classification Analysis of Multi-View Data—♦ Yunfeng Zhang, Texas A&M University; Irina Gaynanova, Texas A&M University

11:15 a.m. Community Detection with Dependent Connectivity—♦ Yubai Yuan, University of Illinois at Urbana-Champaign; Annie Qu, University of Illinois at Urbana-Champaign

11:35 a.m. Nonlinear Variable Selection via Deep Neural Networks—♦ Yao Chen, Purdue University; Qingyi Gao, Purdue University; Faming Liang, Purdue University; Xiao Wang, Purdue University

11:55 a.m.

Dynamic Visualization and Fast Computation for Convex Clustering via Algorithmic Regularization—♦ Michael Weylandt, Rice University; John Nagorski, Rice University, Department of Statistics; Genevera Allen, Rice University

12:15 p.m.

Floor Discussion

330

CC-603

● Snapshots in History: Statisticians Making an Impact—Topic Contributed

History of Statistics Interest Group, Section on Statistics and Data Science Education, Caucus for Women in Statistics

Organizer(s): Wendy L Martinez, Bureau of Labor Statistics

Chair(s): Jeffrey Smith, U.S. Army Research Laboratory

10:35 a.m.

Abraham DeMoivre: Progenitor of Statistics—♦ Herbert Weisberg,

10:55 a.m.

Two Chapters in the Development of Human Population Sampling (1895/1934)—♦ Dominic Lusinchi,

11:15 a.m.

Brewing up Statistics: a Look at Gosset's Contributions—♦ Martha McRoy, Pew Research Center

11:35 a.m.

Using Primary Historical Sources to Teach Statistics—♦ Beverly Wood, Embry-Riddle Aeronautical University

11:55 a.m.

A One-Credit History of Statistics Course Using "The Lady Tasting Tea" by David Salsburg with Supplementary Readings—♦ Phyllis Curtiss, Grand Valley State University; Kirk Anderson, Grand Valley State Univ

12:15 p.m.

Floor Discussion

331

CC-709

■ ● Advances in the Analysis of Massive Space-Time Data Sets Using High Performance Computing—Topic Contributed

Section on Statistics and the Environment, Section on Teaching of Statistics in the Health Sciences

Organizer(s): Florian Gerber, Colorado School of Mines

Chair(s): Joseph Guinness, Cornell University

10:35 a.m.

Implementing Spatial Statistical Methods for Massive Data—♦ Dorit Hammerling, National Center for Atmospheric Research; Huang Huang, National Center for Atmospheric Research; Lewis Blake, Colorado School of Mines

10:55 a.m.

Scalable Gapfilling in Spatio-Temporal Remote Sensing Data—♦ Reinhard Furrer, University of Zurich

11:15 a.m.

Detecting Changes in Precipitation Extremes at Their Native Scales Over the Contiguous United States—♦ Mark Risser, Lawrence Berkeley National Laboratory; Christopher Paciorek, University of California; Michael

TUESDAY

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

TUESDAY

<p><b>332</b>  <b>■ ● Multivariate Time Series: Modeling and Estimation—Topic Contributed</b>  <b>Business and Economic Statistics Section, Government Statistics Section, Biometrics Section</b>  Organizer(s): James Livsey, U.S. Census Bureau  Chair(s): Anand Vidyashankar, George Mason University</p>	<p>10:35 a.m. Wehner, Lawrence Berkeley National Laboratory; Travis O'Brien, Lawrence Berkeley National Laboratory; William Collins, Lawrence Berkeley National Laboratory</p>	<p>11:35 a.m. Nonstationary Spatial Data: Think Globally Act Locally—♦ Douglas William Nychka, NCAR</p>	<p>11:55 a.m. GPU Accelerated Deep Learning for Climate and Weather—♦ David Hall, NVIDIA</p>	<p>12:15 p.m. Floor Discussion</p>	<p>10:55 a.m. Responsive and Adaptive Survey Design: Use of Bias Propensity During Data Collection to Reduce Nonresponse Bias—♦ Daniel Pratt, RTI International; Andrey Peytchev, RTI International; Michael Duprey, RTI International</p>
	<p>10:35 a.m. Applying the EM Algorithm to Multivariate Signal Extraction—♦ James Livsey, U.S. Census Bureau</p>	<p>11:35 a.m. Dual Coupled Kalman Filters for Simultaneously Updating Estimated Time-Varying States and Parameters of VARMA Models Using Data with Periodically or Non-Periodically Missing Values—♦ Peter Zadrozny, Bureau of Labor Statistics</p>	<p>11:55 a.m. Gaussian Copula Vector Autoregressive Modeling—♦ Vladas Pipiras, University of North Carolina At Chapel Hill; James Livsey, U.S. Census Bureau; Benjamin Leinwand, University of North Carolina at Chapel Hill</p>	<p>12:15 p.m. Floor Discussion</p>	<p>11:15 a.m. Dynamic Interventions for Outcome Improvement: Minimizing Cost for a Fixed RMSE—♦ Stephanie M Coffey, U.S. Census Bureau</p>
	<p>10:35 a.m. Constrained Estimation in Co-Integrated VAR Models—♦ Anindya Roy, University of Maryland - Baltimore County; Tucker McElroy, US Census Bureau</p>	<p>11:35 a.m. A Class of Multivariate Filters for Trend Extraction and Statistical Analysis of Multiple Related Time Series—♦ Thomas Trimbur, Census Bureau; Tucker McElroy, US Census Bureau</p>	<p>11:55 a.m. Floor Discussion</p>	<p>11:35 a.m. Using Cost-Calibration Trade-Offs in Establishment Surveys to Allocate Cases by Mode—♦ Benjamin Martin Reist, USDA, NASS; Gavin Corral, National Agricultural Statistics Service (NASS); Andrew Dau, National Agricultural Statistics Service; Tyler Wilson, USDA, NASS; Audra Zakzeski, National Agricultural Statistics Service</p>	<p>11:55 a.m. Use of Adaptive and Responsive Design Concepts and Methods in the Integration of Multiple Data Sources—♦ John L. Eltinge, United States Census Bureau</p>
	<p>10:35 a.m. Gaussian Copula Vector Autoregressive Modeling—♦ Vladas Pipiras, University of North Carolina At Chapel Hill; James Livsey, U.S. Census Bureau; Benjamin Leinwand, University of North Carolina at Chapel Hill</p>	<p>11:35 a.m. A Class of Multivariate Filters for Trend Extraction and Statistical Analysis of Multiple Related Time Series—♦ Thomas Trimbur, Census Bureau; Tucker McElroy, US Census Bureau</p>	<p>11:55 a.m. Floor Discussion</p>	<p>11:35 a.m. Floor Discussion</p>	<p>12:15 p.m. Floor Discussion</p>
	<p>10:35 a.m. Constrained Estimation in Co-Integrated VAR Models—♦ Anindya Roy, University of Maryland - Baltimore County; Tucker McElroy, US Census Bureau</p>	<p>11:35 a.m. A Class of Multivariate Filters for Trend Extraction and Statistical Analysis of Multiple Related Time Series—♦ Thomas Trimbur, Census Bureau; Tucker McElroy, US Census Bureau</p>	<p>11:55 a.m. Floor Discussion</p>	<p>10:35 a.m. The Effect of Bariatric Surgery on Health Care Costs: a Synthetic Control Approach Using Bayesian Structural Time Series—♦ Christoph Kurz, Helmholtz Zentrum Muenchen</p>	<p>10:35 a.m. The Effect of Bariatric Surgery on Health Care Costs: a Synthetic Control Approach Using Bayesian Structural Time Series—♦ Christoph Kurz, Helmholtz Zentrum Muenchen</p>
	<p>10:35 a.m. A Class of Multivariate Filters for Trend Extraction and Statistical Analysis of Multiple Related Time Series—♦ Thomas Trimbur, Census Bureau; Tucker McElroy, US Census Bureau</p>	<p>11:35 a.m. Floor Discussion</p>	<p>11:35 a.m. A Latent Class Based Joint Model for Recurrence and Termination with Application to Heart Transplants—♦ Zhixing Xu, Florida State University; Debajyoti Sinha, FLORIDA STATE UNIVERSITY; Jonathan R. Bradley, Florida State University</p>	<p>10:35 a.m. The Effect of Bariatric Surgery on Health Care Costs: a Synthetic Control Approach Using Bayesian Structural Time Series—♦ Christoph Kurz, Helmholtz Zentrum Muenchen</p>	<p>10:35 a.m. The Effect of Bariatric Surgery on Health Care Costs: a Synthetic Control Approach Using Bayesian Structural Time Series—♦ Christoph Kurz, Helmholtz Zentrum Muenchen</p>
<p><b>333</b>  <b>■ Adaptive Survey Design: Recent Advances and New Potential—Topic Contributed</b>  <b>Survey Research Methods Section, Government Statistics Section, Social Statistics Section</b>  Organizer(s): Stephanie M Coffey, U.S. Census Bureau  Chair(s): Thomas Louis, Johns Hopkins Bloomberg SPH</p>	<p>10:35 a.m. Adapting Data Collection Activities Using Survey Fielding Metrics—♦ A. Elizabeth Ormson, NORC at the University of Chicago; Rupa Datta, NORC at the University of Chicago; Weihuang Wong, NORC at the University of Chicago</p>	<p>11:35 a.m. Nonstationary Spatial Data: Think Globally Act Locally—♦ Douglas William Nychka, NCAR</p>	<p>11:55 a.m. GPU Accelerated Deep Learning for Climate and Weather—♦ David Hall, NVIDIA</p>	<p>12:15 p.m. Floor Discussion</p>	<p>11:15 a.m. Dynamic Interventions for Outcome Improvement: Minimizing Cost for a Fixed RMSE—♦ Stephanie M Coffey, U.S. Census Bureau</p>
	<p>10:35 a.m. Adapting Data Collection Activities Using Survey Fielding Metrics—♦ A. Elizabeth Ormson, NORC at the University of Chicago; Rupa Datta, NORC at the University of Chicago; Weihuang Wong, NORC at the University of Chicago</p>	<p>11:35 a.m. Nonstationary Spatial Data: Think Globally Act Locally—♦ Douglas William Nychka, NCAR</p>	<p>11:55 a.m. GPU Accelerated Deep Learning for Climate and Weather—♦ David Hall, NVIDIA</p>	<p>12:15 p.m. Floor Discussion</p>	<p>11:35 a.m. Using Cost-Calibration Trade-Offs in Establishment Surveys to Allocate Cases by Mode—♦ Benjamin Martin Reist, USDA, NASS; Gavin Corral, National Agricultural Statistics Service (NASS); Andrew Dau, National Agricultural Statistics Service; Tyler Wilson, USDA, NASS; Audra Zakzeski, National Agricultural Statistics Service</p>
	<p>10:35 a.m. Nonstationary Spatial Data: Think Globally Act Locally—♦ Douglas William Nychka, NCAR</p>	<p>11:35 a.m. GPU Accelerated Deep Learning for Climate and Weather—♦ David Hall, NVIDIA</p>	<p>11:55 a.m. Floor Discussion</p>	<p>11:35 a.m. Using Cost-Calibration Trade-Offs in Establishment Surveys to Allocate Cases by Mode—♦ Benjamin Martin Reist, USDA, NASS; Gavin Corral, National Agricultural Statistics Service (NASS); Andrew Dau, National Agricultural Statistics Service; Tyler Wilson, USDA, NASS; Audra Zakzeski, National Agricultural Statistics Service</p>	<p>11:55 a.m. Use of Adaptive and Responsive Design Concepts and Methods in the Integration of Multiple Data Sources—♦ John L. Eltinge, United States Census Bureau</p>
	<p>10:35 a.m. GPU Accelerated Deep Learning for Climate and Weather—♦ David Hall, NVIDIA</p>	<p>11:35 a.m. Floor Discussion</p>	<p>11:35 a.m. Floor Discussion</p>	<p>11:35 a.m. Floor Discussion</p>	<p>12:15 p.m. Floor Discussion</p>
	<p>10:35 a.m. Floor Discussion</p>	<p>11:35 a.m. Floor Discussion</p>	<p>11:55 a.m. Floor Discussion</p>	<p>11:35 a.m. Floor Discussion</p>	<p>12:15 p.m. Floor Discussion</p>
	<p>10:35 a.m. Floor Discussion</p>	<p>11:35 a.m. Floor Discussion</p>	<p>11:55 a.m. Floor Discussion</p>	<p>11:35 a.m. Floor Discussion</p>	<p>12:15 p.m. Floor Discussion</p>
<p><b>334</b>  <b>■ Health Policy Statistics Student Paper Awards—Topic Contributed</b>  <b>Health Policy Statistics Section, International Society for Bayesian Analysis (ISBA), Section on Bayesian Statistical Science</b>  Organizer(s): Roeen Gutman, Brown University  Chair(s): Lisa M Lix, University of Manitoba</p>	<p>10:35 a.m. The Effect of Bariatric Surgery on Health Care Costs: a Synthetic Control Approach Using Bayesian Structural Time Series—♦ Christoph Kurz, Helmholtz Zentrum Muenchen</p>	<p>11:35 a.m. A Latent Class Based Joint Model for Recurrence and Termination with Application to Heart Transplants—♦ Zhixing Xu, Florida State University; Debajyoti Sinha, FLORIDA STATE UNIVERSITY; Jonathan R. Bradley, Florida State University</p>	<p>11:55 a.m. Posterior Predictive Treatment Assignment Methods for Causal Inference in the Context of Time-Varying Treatments—♦ Shirley Liao,</p>	<p>10:35 a.m. The Effect of Bariatric Surgery on Health Care Costs: a Synthetic Control Approach Using Bayesian Structural Time Series—♦ Christoph Kurz, Helmholtz Zentrum Muenchen</p>	<p>10:35 a.m. The Effect of Bariatric Surgery on Health Care Costs: a Synthetic Control Approach Using Bayesian Structural Time Series—♦ Christoph Kurz, Helmholtz Zentrum Muenchen</p>
	<p>10:35 a.m. A Latent Class Based Joint Model for Recurrence and Termination with Application to Heart Transplants—♦ Zhixing Xu, Florida State University; Debajyoti Sinha, FLORIDA STATE UNIVERSITY; Jonathan R. Bradley, Florida State University</p>	<p>11:35 a.m. Posterior Predictive Treatment Assignment Methods for Causal Inference in the Context of Time-Varying Treatments—♦ Shirley Liao,</p>	<p>11:35 a.m. A Bayesian Difference-In-Differences Framework for Measuring the Impact of Primary Care Redesign on Diabetes Outcomes—♦ James Normington, Univ of Minnesota; Eric Lock, University of Minnesota; Caroline Carlin, University of Minnesota; Kevin Peterson, University of Minnesota; Bradley Carlin, Counterpoint Statistical Consulting, LLC</p>	<p>10:35 a.m. The Effect of Bariatric Surgery on Health Care Costs: a Synthetic Control Approach Using Bayesian Structural Time Series—♦ Christoph Kurz, Helmholtz Zentrum Muenchen</p>	<p>10:35 a.m. The Effect of Bariatric Surgery on Health Care Costs: a Synthetic Control Approach Using Bayesian Structural Time Series—♦ Christoph Kurz, Helmholtz Zentrum Muenchen</p>
	<p>10:35 a.m. Posterior Predictive Treatment Assignment Methods for Causal Inference in the Context of Time-Varying Treatments—♦ Shirley Liao,</p>	<p>11:35 a.m. A Bayesian Difference-In-Differences Framework for Measuring the Impact of Primary Care Redesign on Diabetes Outcomes—♦ James Normington, Univ of Minnesota; Eric Lock, University of Minnesota; Caroline Carlin, University of Minnesota; Kevin Peterson, University of Minnesota; Bradley Carlin, Counterpoint Statistical Consulting, LLC</p>	<p>11:55 a.m. A Bayesian Hierarchical Causal Effect Model Accounting for Incomplete Noncompliance Data in Meta-Analysis—♦ Jincheng Zhou, University of Minnesota; JIM HODGES, UNIVERSITY OF MINNESOTA; Haitao Chu, University of Minnesota</p>	<p>10:35 a.m. The Effect of Bariatric Surgery on Health Care Costs: a Synthetic Control Approach Using Bayesian Structural Time Series—♦ Christoph Kurz, Helmholtz Zentrum Muenchen</p>	<p>10:35 a.m. The Effect of Bariatric Surgery on Health Care Costs: a Synthetic Control Approach Using Bayesian Structural Time Series—♦ Christoph Kurz, Helmholtz Zentrum Muenchen</p>
	<p>10:35 a.m. A Bayesian Difference-In-Differences Framework for Measuring the Impact of Primary Care Redesign on Diabetes Outcomes—♦ James Normington, Univ of Minnesota; Eric Lock, University of Minnesota; Caroline Carlin, University of Minnesota; Kevin Peterson, University of Minnesota; Bradley Carlin, Counterpoint Statistical Consulting, LLC</p>	<p>11:35 a.m. A Bayesian Hierarchical Causal Effect Model Accounting for Incomplete Noncompliance Data in Meta-Analysis—♦ Jincheng Zhou, University of Minnesota; JIM HODGES, UNIVERSITY OF MINNESOTA; Haitao Chu, University of Minnesota</p>	<p>12:15 p.m. Floor Discussion</p>	<p>10:35 a.m. The Effect of Bariatric Surgery on Health Care Costs: a Synthetic Control Approach Using Bayesian Structural Time Series—♦ Christoph Kurz, Helmholtz Zentrum Muenchen</p>	<p>10:35 a.m. The Effect of Bariatric Surgery on Health Care Costs: a Synthetic Control Approach Using Bayesian Structural Time Series—♦ Christoph Kurz, Helmholtz Zentrum Muenchen</p>
	<p>10:35 a.m. A Bayesian Hierarchical Causal Effect Model Accounting for Incomplete Noncompliance Data in Meta-Analysis—♦ Jincheng Zhou, University of Minnesota; JIM HODGES, UNIVERSITY OF MINNESOTA; Haitao Chu, University of Minnesota</p>	<p>11:35 a.m. Floor Discussion</p>	<p>11:55 a.m. Floor Discussion</p>	<p>11:35 a.m. Floor Discussion</p>	<p>12:15 p.m. Floor Discussion</p>
	<p>10:35 a.m. Floor Discussion</p>	<p>11:35 a.m. Floor Discussion</p>	<p>11:55 a.m. Floor Discussion</p>	<p>11:35 a.m. Floor Discussion</p>	<p>12:15 p.m. Floor Discussion</p>

<p><b>335</b></p> <p><b>SRMS/SSS/GSS Student Paper Competition—Topic Contributed</b></p> <p><b>Social Statistics Section, Survey Research Methods Section, Government Statistics Section</b></p> <p>Organizer(s): Jeffrey Gonzalez, Bureau of Labor Statistics</p> <p>Chair(s): Amanda Rae Ellis, Eastern Kentucky University</p> <p>10:35 a.m. Polling Bias from Undecided Voters in Recent US Presidential Elections—♦Joshua Bon, Queensland University of Technology; Timothy Ballard, University of Queensland; Bernard Baffour, Australian National University</p> <p>10:55 a.m. Complementing the Power of Deep Learning with Statistical Model Fusion: Probabilistic Forecasting of Influenza in Dallas County, Texas, USA—♦Marwah Soliman, University of Texas At Dallas; Yulia Gel, University of Texas at Dallas; Vyacheslav Lyubchich, University of Maryland Center for Environmental Science</p> <p>11:15 a.m. Predicting Interviewer Effects Using Paradata—♦Sharan Sharma, University of Michigan; Michael Elliott, University of Michigan</p> <p>11:35 a.m. Reinforced Designs for Observational Studies of Treatment Effects: Multiple Instruments Plus Control Groups as Evidence Factors—♦Bikram Karmakar, University of Pennsylvania; Dylan Small, University of Pennsylvania; Paul Rosenbaum, University of Pennsylvania</p> <p>11:55 a.m. Accounting for Survey Design in Bayesian Disaggregation of Survey-Based Areal Estimates of Proportions—♦Marco Benedetti, University of Michigan; Veronica J. Berrocal, University of Michigan</p> <p>12:15 p.m. Floor Discussion</p>	<p><b>CC-504</b></p>	<p><b>337</b></p> <p><b>SPEED: Methodological Developments in Social Statistics, Part 1—Contributed</b></p> <p><b>Social Statistics Section, Text Analysis Interest Group</b></p> <p>Chair(s): Melissa Kovacs, FirstEval, LLC</p> <p>10:35 a.m. A Partial Simulation Study of Phantom Effects in Multilevel Analysis of School Effects: The Case of School Socioeconomic Composition—Xin Ma, University of Kentucky; ♦Hao Zhou, University of Kentucky</p> <p>10:40 a.m. Measuring Impact of Tax Law Changes on CPS ASEC Tax Model—♦Bruce Webster, US Census Bureau; Kathryn Shantz, U.S. Census Bureau</p> <p>10:45 a.m. Break Detection Methods Applied for Int'l GDP P.C. Time-Series Data, Together with Economics and Block-Chain Techs—♦BeomYong Kim, Jeju National University</p> <p>10:50 a.m. Factors Contributing to Successful Employment Outcomes for Individuals Who Are Hard-Of-Hearing—♦Hansapani Rodrigo, University of Texas Rio Grande Valley; Shawn Saladin, Uniuviversity of Texas Rio Grande Valley; Sergio Cuevas, Uniuviversity of Texas Rio Grande Valley</p> <p>10:55 a.m. Implementing Empirical Results of Panel Models with Lagged Dependent Variables and Random Intercepts into Microsimulation—♦Dawid Bekalarczyk, ; Petra Stein, University of Duisburg-Essen</p> <p>11:00 a.m. A Spatial Microsimulation Model of Labor Market Integration in Germany—♦Monika Obersneider, University of Duisburg-Essen; Petra Stein, University of Duisburg-Essen</p> <p>11:05 a.m. Patterns of Effects and Sensitivity Analysis for Differences-In-Differences—♦Luke Keele, University of Pennsylvania; Dylan Small, University of Pennsylvania; Colin B. Fogarty, Massachusetts Institute of Technology</p> <p>11:10 a.m. Using Statistical and Machine Learning Methods to Analyze Response Time Data from Computer-Based Educational Assessments—♦Bingchen Liu, Educational Testing Service</p> <p>11:15 a.m. Finding the Strength in a Weak Instrument in a Study of Cognitive Outcomes Produced by Catholic High Schools—♦Siyu Heng, University of Pennsylvania; Dylan Small, University of Pennsylvania; Paul Rosenbaum, University of Pennsylvania</p> <p>11:20 a.m. Predicting Poverty Using Remote Sensing Vegetation Indices—♦Grace Deng, Cornell University</p> <p>11:30 a.m. Gender Gap in the Perception of Safety in Subways—♦Laila Ait Bihi Ouali, Imperial College London - Access Management; Daniel Graham, Imperial College London</p>	<p><b>CC-502</b></p>
<p><b>336</b></p> <p><b>■ ● Catalyzing Change: Creating the Reality That Statistical Reasoning Skills Are Vital for All Students—Topic Contributed</b></p> <p><b>Section on Statistics and Data Science Education</b></p> <p>Organizer(s): Christine A Franklin, American Statistical Association and University of Georgia</p> <p>Chair(s): Gail Burrill, Michigan State University</p> <p>Panelists: ♦Christine A Franklin, American Statistical Association and University of Georgia</p> <p>♦Jessica Utts, University of California - Irvine</p> <p>♦Lisa LaVange, University of North Carolina</p> <p>♦David Barnes, National Council of Teachers of Mathematics</p> <p>12:10 p.m. Floor Discussion</p>	<p><b>CC-503</b></p>	<p><b>TUESDAY</b></p>	

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

11:35 a.m.	Presenting Results of Statistical Tests in Graphical Format—♦Nola du Toit, NORC at the University of Chicago; Edward Mulrow, NORC at the University of Chicago; Christopher du Sousa-Nieves, NORC at the University of Chicago
11:40 a.m.	A Panel Analytic Approach to Modeling Sleep-Related Outcomes Among Older Adults in China—♦Mack Shelley, Iowa State University; Yen-Han Lee, Indiana University; Yen-Chang Chang, National Tsing Hua University; Timothy Chiang, Pennsylvania State University; Ching-Ti Liu, Boston University
11:45 a.m.	Framing of Culture War Issues in Congressional Campaign Websites—♦Jack Wolf, St. Olaf College; Christopher Chapp, St. Olaf College; My Khe Nguyen, St. Olaf College; Paul Roback, St. Olaf College; Jessica Whittenburg, St. Olaf College
11:50 a.m.	Data-Driven Community Based Programming: a Statistical Analysis of Heart Disease Prevention Initiatives in Oklahoma City-County—♦Mary Nevener,
11:55 a.m.	Confidence Intervals for Marginal Effects and Predictive Margins in Logit Models—♦Chaitra Nagaraja, Fordham University; Benjamin Cole, Fordham University
12:00 p.m.	Making Data-Driven Decisions About Serving Homeless Populations Using Machine Learning Tools—♦Austin Lampros,
12:05 p.m.	Getting a Clear Picture of Studentsí Writing Performance—♦Ya Mo, Boise State University; NELL Sedransk, NISS
12:10 p.m.	A Statistical Measure of Gerrymandering and Compactness of District Maps—♦Rajarshi Dey, University of South Alabama; Andrei Pavelescu, University of South Alabama
12:15 p.m.	Floor Discussion

TUESDAY

**338** **CC-103**  
**SPEED: Biostatistical Methods, Application, and Education, Part 1—Contributed**

ENAR, Section on Medical Devices and Diagnostics, Mental Health Statistics Section, Quality and Productivity Section, Section on Statistics in Epidemiology, Section on Bayesian Statistical Science, Section on Risk Analysis, Section on Statistical Graphics, Section on Teaching of Statistics in the Health Sciences

Chair(s): Loren Cobb, University of Colorado Denver

10:35 a.m.	Impact of Approaches for Clinical and Radiological Monitoring on Predicting of Short-Term and Long-Term Disability Outcomes in Multiple Sclerosis—♦Brian Healy, Biostatistics Center/Massachusetts General Hospital
10:40 a.m.	Assessment of Biomarker Strategies in Lung Cancer

10:45 a.m.	Management via Net Reclassification Indices—♦Piper Williams, University of Colorado Anschutz Medical Campus; Alexander Kaizer, University of Colorado Anschutz Medical Campus; Anna Barlén, University of Colorado Anschutz Medical Campus
10:50 a.m.	New Results on the Weighted Generalized Score for Comparing Two Correlated Means—♦Aaron Douglas Jones, Duke University; Andrzej Stanislaw Kosinski, Duke University
10:55 a.m.	Developing Year-Long Mobile Health Interventions to Improve Mental Health Outcomes Among Medical Interns: Experimental Design and Statistical Methods—♦Timothy NeCamp, University of Michigan; Zhenke Wu, University of Michigan; Srijan Sen, University of Michigan
11:00 a.m.	Lowering Sample Size Requirements for Mixture Modeling in Mental Health Research—♦Alessandro De Nadai, Texas State University; Kate Fitzgerald, University of Michigan; Ryan Zamora, Texas State University; Luke Norman, University of Michigan; Tara Little, Texas State University; Joseph Himle, University of Michigan; Kristin Mannella, University of Michigan; Stephan Taylor, University of Michigan
11:05 a.m.	Psychotherapy Outcomes for Adults with Autism Spectrum Disorder in a University Counseling Setting—♦E. Neeley Tass, Brigham Young University
11:10 a.m.	Sample Size Calculations in Single-Case Designs—♦Jiabei Yang, Brown School of Public Health; Christopher Schmid, Brown University; Jon Steingrimsson, Brown University
11:15 a.m.	Importance of Data Quality for National HIV Prevention Program Monitoring and Evaluation—♦Guoshen Wang, Centers for Disease Control and Prevention; Shubha Rao, The Centers for Disease Control and Prevention ; Hui Zhao, The Centers for Disease Control and Prevention ; Wei Song, The Centers for Disease Control and Prevention ; Carolyn Wright, The Centers for Disease Control and Prevention ; Marc Wiehn, Luther Consulting LLC
11:20 a.m.	Coffee and Cardiovascular Disease Prevention—♦Anna Wu, ; Patrick Giuliano, Abbott
11:30 a.m.	Tolerance Intervals for Autoregressive Models, with an Application to Hospital Waiting Lists—♦Kedai Cheng, ; Derek Young, University of Kentucky
11:35 a.m.	Temporal Association of Prostate and Colon Cancer with World Trade Center Rescue/Recovery Work: a 14 Year Cohort Study—♦Charles Hall, Albert Einstein College of Medicine; David Goldfarb, Montefiore Medical Center ; Rachel Zeig-Owens, Montefiore Medical Center ; David Prezant, Fire Department of the City of New York
11:40 a.m.	Age-Period-Cohort Analysis of Lead Body Burden in the United States, 1976-2016—♦Yutaka Aoki, National Center for Health Statistics
	Optimality in Group Testing Estimation with Misclassification—♦Md. S. Sarker, Radford University

11:45 a.m.	Joint Valid Moments Bayesian Marginal Logistic Regression Model with Time Dependent Covariates—♦Maria Vazquez, ; Jeffrey Wilson, W. P. Carey School of Business, ASU	10:55 a.m.	Blinding in Open Label Study with Adaptive Design—♦Bo Xu, Boston Biomedical Inc; Bo Jin, Boston Biomedical Inc; Alex Dmitrienko, Mediana Inc
11:50 a.m.	A Bayesian Zero Inflated Binomial Model for Repeated Measures Count Data—♦Benjamin W. Rogers, UCLA	11:00 a.m.	Estimating the Relative Risk for Response-Biased Samples: Calibration and Conditional Likelihood—♦Claudia Rivera-Rodriguez, University of Auckland
11:55 a.m.	Predicting the Absolute Risk of Undetected Uterine Cancer in a Matched Case-Control Study—♦Catherine Lee, Kaiser Permanente Division of Research; Scott E. Lentz, , The Southern California Permanente Medical Group, Los Angeles; Eve Zaritsky, The Permanente Medical Group, Oakland California; Lue-Yen Tucker, The Division of Research, Kaiser Permanente Northern California; Tina Raine-Bennett, Oakland California and The Division of Research, Kaiser Permanente Northern California	11:05 a.m.	Another Estimation Method Besides MMRM for Treatment Effects in Diabetes Clinical Trials—♦Yu Du, Eli Lilly and Company
12:00 p.m.	Experiences with Incorporating R into a Second-Level Biostatistics Course for MPH Students—♦Christine Mauro, Columbia University; Nicholas Williams, Columbia University; Anjile An, Columbia University	11:10 a.m.	Criteria for Choosing a Futility Method for Clinical Studies—♦Richard McNally, Covance-Chiltern
12:05 p.m.	Rank-Based Approach for Estimating Correlations in Mixed Ordinal Data—♦Xiaoyun Quan, ; James Booth, Cornell University; Martin Wells, Cornell University	11:15 a.m.	Random Forests for Exploring Factors Driving Opioid Prescribing in National Outpatient Health Care Data Using Complex Survey Design—♦Yong Ma, FDA; JaeJoon Song, FDA
12:10 p.m.	Pre-Conceptions of Statistical Inference in Biostatistics—♦Aimee Schwab-McCoy, Creighton University	11:20 a.m.	An Adaptive Phase II Dose Finding Study Using Sample Size Re-Estimation Design—♦Qingyang Liu, University of Connecticut; Guanyu Hu, University of Connecticut; Yaoshi Wu, Boehringer-Ingelheim ; Binqi Ye, Boehringer-Ingelheim; Susan Wang, Boehringer-Ingelheim

**339**

**CC-105**

**SPEED: Biopharmaceutical and General Health Studies: Statistical Methods and Applications, Part 1—Contributed**

**Biopharmaceutical Section, Section on Statistics in Epidemiology, Section on Bayesian Statistical Science, Health Policy Statistics Section, ENAR**

Chair(s): Sedigheh Mirzaei Salehabadi, St. Jude Children's Research Hospital

10:35 a.m.	Mediation Analysis for Longitudinal Data with Applications to Clinical Trial Data—♦Yun Zhang,
10:40 a.m.	Adjusting Response Adaptive Allocation for Subject Dropout—♦Katharine Stromberg, Virginia Commonwealth University; Adam Sima, Virginia Commonwealth University
10:45 a.m.	The Use of a New Classifier to Maximize the Classification Performance—♦Hua Ma, Merck; Joe Heyse, Merck
10:50 a.m.	Reproducibility of Living Data - Validation of Published Research Using the Parkinson's Progression Marker Initiative Living Database—♦Elliot Burghardt, University of Iowa; Christopher Coffey, University of Iowa; Chelsea Caspell-Garcia, University of Iowa; Eric Foster, Ferring Pharmaceuticals

**TUESDAY**

10:55 a.m.	Blinding in Open Label Study with Adaptive Design—♦Bo Xu, Boston Biomedical Inc; Bo Jin, Boston Biomedical Inc; Alex Dmitrienko, Mediana Inc
11:00 a.m.	Estimating the Relative Risk for Response-Biased Samples: Calibration and Conditional Likelihood—♦Claudia Rivera-Rodriguez, University of Auckland
11:05 a.m.	Another Estimation Method Besides MMRM for Treatment Effects in Diabetes Clinical Trials—♦Yu Du, Eli Lilly and Company
11:10 a.m.	Criteria for Choosing a Futility Method for Clinical Studies—♦Richard McNally, Covance-Chiltern
11:15 a.m.	Random Forests for Exploring Factors Driving Opioid Prescribing in National Outpatient Health Care Data Using Complex Survey Design—♦Yong Ma, FDA; JaeJoon Song, FDA
11:20 a.m.	An Adaptive Phase II Dose Finding Study Using Sample Size Re-Estimation Design—♦Qingyang Liu, University of Connecticut; Guanyu Hu, University of Connecticut; Yaoshi Wu, Boehringer-Ingelheim ; Binqi Ye, Boehringer-Ingelheim; Susan Wang, Boehringer-Ingelheim
11:30 a.m.	Optimal Treatment Selection in Immuno-Oncology Trials Based on RMST—♦Yue Shentu, Merck & Co, Inc.
11:35 a.m.	Quantifying the Number of Events Borrowed from External Data in Hybrid Control Arms—♦Brian Segal, Flatiron Health; Carrie Bennette, Flatiron Health; Somnath Sarkar, Flatiron Health
11:40 a.m.	Characterizing Irreproducibility in Drug Sensitivity Data from a Large Pharmacogenomic Study—♦Zoe Rehnberg, University of Michigan; Johann A Gagnon-Bartsch, University of Michigan
11:45 a.m.	Closest Similar Subset Imputation—♦Macaulay Okwuokenye, Brio Dexteri Pharmaceutical Consultant & UNE; Karl E Peace, Georgia Southern University
11:50 a.m.	Planning and Analyzing Clinical Trials with Competing Risks: Recommendations for Choosing Appropriate Statistical Methodology—♦ Misun Yu Lee, Astellas Pharma; Joseph Poythress, University of Georgia; James Young, Astellas Pharma
11:55 a.m.	Estimating and Using the Attained Power Distribution to Ensure We Get the Trial Power We Expect—♦Yongdong Ouyang, University of British Columbia; Hubert Wong, University of British Columbia; Ehsan Karim, University of British Columbia; Paul Gustafson, University of British Columbia
12:00 p.m.	Bayesian Semiparametric Joint Modeling of Longitudinal Predictors and a Binary Outcome—♦Woobeen Lim, The Ohio State University; Michael Pennell, Ohio State University
12:05 p.m.	Clustering of Multivariate Data with Varying Dimensions—♦Xiaoqi Lu, Columbia University; Bin Cheng, Columbia University; Ying Kuen Ken Cheung, Columbia University

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

<p>12:10 p.m. Sieve Maximum Likelihood Method for Interval-Censored Data with Missing Covariates Under Proportional Hazards Model—♦Ruiwen Zhou, University of Missouri-Columbia; Huiqiong Li, Yunnan University; (Tony) Jianguo Sun, University of Missouri</p> <p>12:15 p.m. Floor Discussion</p>	<p>11:35 a.m. Bayesian Model Selection and Averaging in the Presence of Latent Heteroscedasticity in Linear Models—♦Thomas Metzger, Virginia Tech; Christopher Franck, Virginia Tech</p> <p>11:40 a.m. Predictive Density Estimation of Multivariate Skew-Normal Distribution—♦Othmane Kortbi, UAE University Al-Ain</p> <p>11:45 a.m. Bayesian Inference for Exponential Random Graph Models via Kernel Bayes Rule—♦Fan Yin, University of California, Irvine; Carter Tribley Butts, University of California, Irvine</p> <p>11:50 a.m. Adaptive Variable Selection for Sequential Prediction in Multivariate Dynamic Models—♦Isaac Lavine, Duke University; Michael Lindon, Tesla; Mike West, Duke University</p> <p>11:55 a.m. Bayesian Quantile Regression Applied to Time Between Healthcare-Associated Infection Events—♦Jonathan Edwards, Center for Disease Control &amp; Prevention</p> <p>12:00 p.m. A Distributed MCMC Sampler for Latent Dirichlet Allocation—♦Kelson Zawack, Yale University; Hongyu Zhao, Yale</p> <p>12:05 p.m. High-Dimensional Posterior Consistency in Mixed Frequency Bayesian Vector Autoregressive Models—♦Nilanjana Chakraborty, University of Florida; George Michailidis, University of Florida; Kshitij Khare, University of Florida</p> <p>12:10 p.m. A New Bayesian Person-Fit Analysis Method for Item Response Theory Models Using Pivotal Discrepancy Measures—♦Adam Combs, Robert Morris University</p> <p>12:15 p.m. Ordinal Probit Functional Regression Models with Application to Computer-Use Behavior in Rhesus Monkeys—♦Mark Meyer, Georgetown University; Jeffrey S. Morris, M.D. Anderson Cancer Center; Regina Paxton Gazes, Bucknell University; Robert R. Hampton, Emory University and Yerkes National Primate Research Center; Brent A. Coull, Harvard T. H. Chan School of Public Health</p>
<p><b>340</b> <span style="float: right;"><b>CC-501</b></span></p> <p><b>SPEED: Bayesian Methods, Part 1—Contributed Section on Bayesian Statistical Science, Section on Statistics in Defense and National Security</b></p> <p>Chair(s): Chris Gotwalt, SAS Institute Inc.</p> <p>10:35 a.m. Bayesian Spatially Clustered Coefficient Regression—♦Zhao Tang Luo, Texas A&amp;M University; Huiyan Sang, Texas A&amp;M University; Bani Mallick, Texas A&amp;M University</p> <p>10:40 a.m. Spatial Cox Model with Applications on Multiple Sclerosis Patients—♦HSIUCHING CHANG, IQVIA; Hyokoung Grace Hong, Michigan State University; Yu Yue, The City University of New York</p> <p>10:45 a.m. Variational Inference for Latent Space Models for Dynamic Networks—♦Yan Liu, University of Illinois at Urbana-Champaign; Yuguo Chen, University of Illinois at Urbana-Champaign</p> <p>10:50 a.m. A New Flexible Prior Being Local and Nonlocal for Bayesian Variable Selection—♦Liangliang Zhang, M.D. Anderson Cancer Center</p> <p>10:55 a.m. A Bayesian Two-Part Quantile Regression Model for Count Data with Excess Zeros—♦Clay King, Colorado Mesa University; Joon Jin Song, Baylor University</p> <p>11:00 a.m. Nonparametric Density Estimation and Regression Using Coarse Count Data—♦Jacob Coleman,</p> <p>11:05 a.m. Revisiting the Proton-Radius Problem Using Constrained Gaussian Processes—♦Shuang Zhou, Texas A&amp;M University; Pablo Giuliani, Florida State University; Jorge Piekarewicz, Florida State University; Anirban Bhattacharya, TAMU; Debdeep Pati, Texas A&amp;M University</p> <p>11:10 a.m. An Investigation into How Model Uncertainty Is Reflected Through the Posterior Variance for Partial Regression Coefficients—♦Katharine Banner, Montana State University; Megan Higgs, Montana State University</p> <p>11:15 a.m. An Objective Bayesian Multiple Testing for Correlated Binomial Proportions—♦Siva Sivaganesan, University of Cincinnati; Emrah Gecili, Cincinnati Children's Hospital Medical Center</p> <p>11:20 a.m. Bayesian Model Selection Using Mass-Nonlocal Prior—♦Guiling Shi, Amgen</p> <p>11:30 a.m. The Use of Experimental Design and Bayesian Logistic Models in Defense Analysis: a Case Study—♦Keyla Pagan-Rivera,</p>	<p><b>341</b> <span style="float: right;"><b>CC-104</b></span></p> <p><b>Random Effects and Mixed Models—Contributed Biometrics Section</b></p> <p>Chair(s): Richard Kryscio, Univ of Kentucky</p> <p>10:35 a.m. An Algorithmic Construction of All Unbiased Estimators of Variance Components in Linear Mixed Effects Models—♦Luyao Peng, Univ. of California, Riverside; Subir Ghosh, University of California, Riverside</p> <p>10:50 a.m. Ensemble Learning Integrated with Cancer Survivor Intervention Trials—♦Anjishnu Banerjee, ; Melinda Stolley, Medical College of Wisconsin; Avik Chakrabarti, University of Wisconsin Milwaukee; Alexis Visotcky, Medical College of Wisconsin</p>

11:05 a.m. A Stepped Wedge Design in Practice: Lessons Learned from the DECIDE-LVAD Trial—♦Diane Fairclough, Colorado School of Public Health; Erin Leister Chaussee, Colorado School of Public Health; Larry Allen, University of Colorado Denver, School of Medicine

11:20 a.m. Construction of the Design Matrix for Generalized Linear Mixed-Effects Models in the Context of Clinical Trials of Treatment Sequences—♦Francisco Diaz, The University of Kansas Medical Center

11:35 a.m. A Bayesian Joint Model for Longitudinal Frequency and Duration Outcomes in a Migraine Study—♦Gul Inan, Istanbul Technical University

11:50 a.m. Modeling Time-Varying Effects of Multilevel Risk Factors of Hospitalizations in Patients on Dialysis—♦Yihao Li, UCLA; Danh V Nguyen, University of California At Irvine; Yanjun Chen, UC Irvine; Connie M Rhee, UC Irvine; Kamayr Kalantar-Zadeh, UC Irvine; Damla Senturk, UCLA

12:05 p.m. Fast Two-Stage Estimator for Clustered Count Data with Overdispersion—♦Alvaro FlÚrez, Universiteit Hasselt; Geert Molenberghs, Universiteit Hasselt & Katholieke Universiteit Leuven; Geert Verbeke, Catholic University of Leuven; Michael Kenward, Ashkirk, United Kingdom; Pavlos Mamouris, KU Leuven; Bert Vaes, KU Leuven

## **342 CC-109**

### **■ Topics in Adaptive-Seamless and Group Sequential Designs—Contributed Biopharmaceutical Section**

Chair(s): Qi Jiang, Seattle Genetics

10:35 a.m. Adaptive Sequential Design for Seamless Phase 2/3 Combination—♦Ping Gao, Brightech International; Tai Xie, Brightech International; Peng Zhang, Brightech International; Yue Tu, Brightech International; Lingyun Liu, Cytel; Cyrus Mehta, Cytel

10:50 a.m. Selecting Critical Boundaries in Group-SequENTIAL Trials with Multiple Endpoints—♦Toshimitsu Hamasaki, National Cerebral and Cardiovascular Center; Hsien-Ming James Hung, PhD, Food and Drug Administration; Chin-Fu Hsiao, National Health Research Institutes; Scott R Evans, George Washington University

11:05 a.m. Covariate Adaptive Randomization in Seamless Phase II/III Clinical Trials—♦Hongjian Zhu, University of Texas Health Science Center at Houston; Wei Ma, Renmin University; Mengxi Wang, University of Texas Health Science Center at Houston

11:20 a.m. Evaluation of Type 1 Error in a 2-In-1 Adaptive Phase 2/3 Design with Dual-Primary Endpoints in Oncology Studies—♦Li Fan, Merck; Jing Zhao, Merck Research Labs

11:35 a.m. Implementation of an Adaptive Early Phase Trial Design for Drug Combinations—♦Bethany Horton, University of Virginia; Nolan Wages, University of Virginia

11:50 a.m. Developing Innovative Group Sequential Design Trials That Account for the Correlation Between Test Statistics—♦JonDavid Sparks, Eli Lilly & Company; Bill Prucka, Eli Lilly & Company; Brian Millen, Eli Lilly & Company

12:05 p.m. Unblinded Sample Size Re-Estimation in Clinical Trials with Count Outcomes—♦Yeting Du, Cytel Inc; Lingyun Liu, Cytel

## **343**

## **CC-111**

### **Innovative Trial Designs and Analytics—Contributed Biopharmaceutical Section**

Chair(s): Darcy Hille, Merck & Company Inc

10:35 a.m. On the Robustification of MAP Prior in Bayesian Historical Data Borrowing—♦Hongtao Zhang, AbbVie Inc.

10:50 a.m. Optimal Two-Stage Designs for Exploratory Basket Trials—♦Heng Zhou, Merck & Co., Inc; Fang Liu, Merck; Cai (Iris) Wu, Merck & Co., Inc; Cong Chen, Merck & Co., Inc

11:05 a.m. A Case Study of a Complex Design for a Clinical Trial with Features of Randomized Withdrawal and Parallel Randomization in a Rare Disease Area—♦Junxiang Luo, Sanofi-Aventis; Qi Zhang, Sanofi; Hui Quan, Sanofi US

11:20 a.m. A Bayesian Design with Conditional Borrowing of Historical Data in a Rare Disease Setting—♦Peng Sun, ; Ming-Hui Chen, University of Connecticut; Yiwei Zhang, Biogen; John Zhong, Biogen; Charlie Cao, Biogen; Guochen Song, Biogen; Zhenxun Wang, University of Minnesota,

11:35 a.m. Evaluation of False Discovery Rate in Platform Studies—♦Qiusheng Chen, Merck; Xiaoyun (Nicole) Li, Merck; Cong Chen, Merck & Co., Inc

11:50 a.m. Platform Trial Design with Incorporating Historical Data Dynamically—♦Weichao Bao, GlaxoSmithKline; Ohad Amit, GlaxoSmithKline; Sofia Paul, GlaxoSmithKline; Teri Ashton, GlaxoSmithKline; Karrie Wang, GlaxoSmithKline; Leah Suttner, GlaxoSmithKline

12:05 p.m. Adjustment of Subgroups Reversal Effect via Bayesian Borrowing Approach in Oncology Regulatory Submission—♦Rachael Liu, Takeda Pharmaceuticals ; Jianchang Lin, Takeda Pharmaceuticals; Veronica Bunn, Takeda Pharmaceuticals

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

**344**

**Expanding Data Utility - Issues in Disclosure and Modeling—Contributed**

**Government Statistics Section**

Chair(s): Lisa Mirel, CDC/NCHS

10:35 a.m.	Documentation of Survey Settings in Public Use Data Sets—♦Stas Kolenikov, Abt Associates; Brady T. West, University of Michigan; Peter Lugtig, University of Utrecht
10:50 a.m.	Balancing Privacy and Precision: Disclosure Control Methods in Government Surveys—♦Ellen Galantucci, Bureau of Labor Statistics
11:05 a.m.	Using Generative Adversarial Networks to Generate Synthetic Population—♦Yijun Wei, NISS; Luca Sartore, National Institute of Statistical Sciences; NELL Sedransk, NISS
11:20 a.m.	Overdispersed Binomial Small Area Models with Application to Poverty Rate Estimation—♦Patrick Joyce,
11:35 a.m.	Arrest-Related Deaths Program Redesign Study: Pilot Survey Measures of Decedent and Incident Characteristics—♦Kevin Scott, Bureau of Justice Statistics; Duren Banks, RTI International; Michael Plantz, RTI International; Lance Couzens, RTI International; Erin Kennedy, RTI International; Philip Lee, RTI; Connor Brooks, Bureau of Justice Statistics
11:50 a.m.	Floor Discussion

**CC-506**

11:35 a.m.

Fundamental Limits of Exact Support Recovery in High Dimensions—♦Zheng Gao, University of Michigan; Stilian Stoev, University of Michigan

11:50 a.m.

Debiased Inference in High-Dimensional Single-Index Models Under Gaussian Design—♦Hamid Eftekhar, University of Michigan; Moulinath of Banerjee, university of michigan; Ya'acov Ritov, university of michigan

12:05 p.m.

Inference for Heterogeneous Quantile Treatment Effects in High Dimensions: Rank and Score Balancing—♦Alexander Giessing, Princeton University; Jingshen Wang, University of Michigan

**345**

**High-Dimensional Statistics—Contributed**

**IMS**

Chair(s): Lihua Lei, UC Berkeley

10:35 a.m.	Likelihood Ratio Test in Multivariate Linear Regression: From Low to High Dimension—♦Yinqiu He, University of Michigan; Tiefeng Jiang, University of Minnesota; Jiyang Wen, Johns Hopkins University; Gongjun Xu, University of Michigan
10:50 a.m.	Global and Simultaneous Hypothesis Testing for High-Dimensional Logistic Regression Models—♦Rong Ma, Univ of Pennsylvania; T. Tony Cai, The Wharton School, University of Pennsylvania; Hongzhe Li, University of Pennsylvania
11:05 a.m.	Inference for High-Dimensional Linear Mixed Effects Models: a Quasi-Likelihood Approach—♦Sai Li, University of Pennsylvania; Hongzhe Li, University of Pennsylvania; T. Tony Cai, The Wharton School, University of Pennsylvania
11:20 a.m.	Divergence Based Inference for High-Dimensional GLMM—♦Lei Li, George Mason University; Anand Vidyashankar, George Mason University

**CC-210/212**

**346**

**■ ● New Methods with Applications in Mental Health Statistics—Contributed**

**Mental Health Statistics Section**

Chair(s): Catherine Durso,

10:35 a.m.	A Parametric Meta-Analysis—♦Chang Yu, Vanderbilt University; Daniel Zelterman, Yale University School of Public Health
10:50 a.m.	A Spatial Bayesian Semiparametric Mixture Model for Positive Definite Matrices with Applications to Diffusion Tensor Imaging—♦Zhou Lan, North Carolina State University; Brian Reich, North Carolina State University; Dipankar Bandyopadhyay, Virginia Commonwealth University
11:05 a.m.	Hierarchical Hidden Markov Models for Response Time Data—♦Deborah Kunkel, Clemson University; Zhiwei Yan, Google; Peter F. Craigmile, The Ohio State University; Mario Peruggia, The Ohio State University; Trisha Van Zandt, The Ohio State University
11:20 a.m.	A Functional Additive Model for Estimating Interactions Between a Treatment and a Large Number of Functional Regressors—♦Hyung Park, New York University; Eva Petkova, New York University; Thaddeus Tarpey, New York University; Todd Ogden, Columbia University
11:35 a.m.	Modeling Longitudinal Depressive Symptoms in Community-Based Studies—♦Ana W. Capuano, Rush University Medical Center; Jeffrey Dawson, University of Iowa; Sue E Leurgans, Rush University Medical Center; Donald Hedeker, University of Chicago
11:50 a.m.	Integrative Survival Analysis with Uncertain Event Times in Application to a Suicide Risk Study—♦Wenjie Wang, University of Connecticut; Robert Aseltine, University of Connecticut Health Center; Kun Chen, University of Connecticut; Jun Yan, University of Connecticut
12:05 p.m.	A New Approach to Functional Regression Mediation Analysis with Application to a Smoking Cessation Intervention—♦Donna L. Coffman, Temple University; John J. Dziak, Pennsylvania State University; Runze Li, Penn State University; Megan Piper, University of Wisconsin

**TUESDAY**

**CC-701**

**■ ● New Methods with Applications in Mental Health Statistics—Contributed**

**Mental Health Statistics Section**

Chair(s): Catherine Durso,

10:35 a.m.	A Parametric Meta-Analysis—♦Chang Yu, Vanderbilt University; Daniel Zelterman, Yale University School of Public Health
10:50 a.m.	A Spatial Bayesian Semiparametric Mixture Model for Positive Definite Matrices with Applications to Diffusion Tensor Imaging—♦Zhou Lan, North Carolina State University; Brian Reich, North Carolina State University; Dipankar Bandyopadhyay, Virginia Commonwealth University
11:05 a.m.	Hierarchical Hidden Markov Models for Response Time Data—♦Deborah Kunkel, Clemson University; Zhiwei Yan, Google; Peter F. Craigmile, The Ohio State University; Mario Peruggia, The Ohio State University; Trisha Van Zandt, The Ohio State University
11:20 a.m.	A Functional Additive Model for Estimating Interactions Between a Treatment and a Large Number of Functional Regressors—♦Hyung Park, New York University; Eva Petkova, New York University; Thaddeus Tarpey, New York University; Todd Ogden, Columbia University
11:35 a.m.	Modeling Longitudinal Depressive Symptoms in Community-Based Studies—♦Ana W. Capuano, Rush University Medical Center; Jeffrey Dawson, University of Iowa; Sue E Leurgans, Rush University Medical Center; Donald Hedeker, University of Chicago
11:50 a.m.	Integrative Survival Analysis with Uncertain Event Times in Application to a Suicide Risk Study—♦Wenjie Wang, University of Connecticut; Robert Aseltine, University of Connecticut Health Center; Kun Chen, University of Connecticut; Jun Yan, University of Connecticut
12:05 p.m.	A New Approach to Functional Regression Mediation Analysis with Application to a Smoking Cessation Intervention—♦Donna L. Coffman, Temple University; John J. Dziak, Pennsylvania State University; Runze Li, Penn State University; Megan Piper, University of Wisconsin

**347**

**CC-302**

**Computationally Intensive Bayesian Methodology—Contributed**

**Section on Bayesian Statistical Science**

Chair(s): Suprateek Kundu, Emory University

10:35 a.m. Bayesian Model and Analysis of Particulate Matter Metal Mixtures—♦Boubakari Ibrahimou, Florida International University

10:50 a.m. A Survival Tree Partition Model Using Latent Gaussian Processes and Laplace Approximations—♦Richard Payne, Eli Lilly & Company; Bani Mallick, Texas A&M University

11:05 a.m. Bayesian Sampling in Constrained Domains—♦Sharang Chaudhry, University of Nevada Las Vegas; Kaushik Ghosh, University of Nevada Las Vegas; Daniel Lautzenheiser, University of Nevada Las Vegas

11:20 a.m. Order-Restricted Bayesian Estimation of Multinomial Counts for Small Areas—♦Xinyu Chen, Worcester Polytechnic Institute; Balgobin Nandram, Worcester Polytechnic Institute

11:35 a.m. Bayesian Inference for the Common Location Parameter of Several Shifted-Exponential Populations—♦Sumith Gunasekera, The University of Tennessee - Chattanooga

11:50 a.m. Bayesian Analysis of Areal Data with Unknown Adjacencies Using the Stochastic Edge Mixed Effects Model—♦Heli Gao, Florida State University

12:05 p.m. Bayesian LASSO for Non-Stationary Gaussian Linear Mixed Effects Model—♦Emrah Gecili, Cincinnati Children's Hospital Medical Center; Siva Sivaganesan, University of Cincinnati; Assem G Ziady, Cincinnati Children's Hospital Medical Center; Rhonda Szczesniak, Cincinnati Children's Hospital

**348**

**CC-707**

**Applications: Gaussian Process and Computer Experiments—Contributed**

**Section on Physical and Engineering Sciences**

Chair(s): Mary Frances Dorn, Los Alamos National Laboratory

10:35 a.m. On Calibration of Parameter-Only Computer Models—♦Peter Marcy, Los Alamos National Laboratory

10:50 a.m. Computer Model Emulation for High-Dimensional Functional Output from OCO-2 Remote Sensing—♦Anirban Mondal, Case Western Reserve University; Pulong Ma, Duke University; Jonathan Hobbs, Jet Propulsion Laboratory; Emily Lei Kang, University of Cincinnati; Alex Konomi, University of Cincinnati; Joon Jin Song, Baylor University

11:05 a.m. Calibration and Analysis of Model Discrepancy in Nuclear Energy Density Functional Simulators—♦Michael Grosskopf,

11:20 a.m.

Making an 'Impact' on Shock Physics with Uncertainty Quantification—♦Devin Francom, Los Alamos

11:35 a.m.

Spectral-In-Time Formulations for Environmental Spacetime Processes—♦Charlotte Haley, Argonne National Lab

11:50 a.m.

Flexible Regression on Orientation Predictors -Predicting Stress Within Metals—♦Scott Vander Wiel, Los Alamos National Laboratory; Peter Marcy, Los Alamos National Laboratory

12:05 p.m.

Gaussian Process with Input Location Error and Applications to the Composite Parts Assembly Process—♦Wenjia Wang, SAMSI; Xiaowei Yue, Virginia Polytechnic Institute and State University; Ben Haaland, University of Utah; C F Jeff Wu, Georgia Inst of Technology

**349**

**CC-705**

**■ Quality, Reliability and Measurement System—Contributed**

**Quality and Productivity Section**

Chair(s): Alex Gutman, 84.51ʃ

10:35 a.m.

Measurement Systems Analysis for Functional Data—♦Laura Lancaster, SAS Institute Inc.; Chris Gotwalt, SAS Institute Inc.

10:50 a.m.

Objective Comparison of Confidence Bound Methods for Binomial Series System Reliability—♦Edward Schuberg, MARC

11:05 a.m.

Optimal Planning of Step-Stress Accelerated Degradation Test Under Exponential Dispersion Degradation Process—♦David Han, University of Texas At San Antonio

11:20 a.m.

Extracting Practical Value from Experimental Designs Through Simulation—♦Rob Lievense, JMP

11:35 a.m.

A Repairable System with Two Spare Units and Two Repair Facilities Serviced by Two Types of Repairers—♦Vahid Andalib, Indiana University - Purdue University Indianapolis (IUPUI); Jyotirmoy Sarkar, Indiana University - Purdue University Indianapolis (IUPUI)

11:50 a.m.

Statistical Sampling Plans for Quality Control—♦Chunrong Cheng, FDA; Boguang Zhen, FDA

12:05 p.m.

The Investigation and Monitoring of Network Using Duality Between Network and Time Series—♦Zhi Wang,

**TUESDAY**

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

TUESDAY

**350**

**New Methods for Time Series and Longitudinal Data—Contributed**

**Section on Statistical Learning and Data Science**

Chair(s): Jean De Dieu Tapsoba, Fred Hutchinson Cancer Research Center

10:35 a.m.	Regularized Estimation of VAR_X Models—♦Sagnik Halder,
10:50 a.m.	An Efficient Two Step Algorithm for High-Dimensional Change Point Regression Models Without Grid Search—♦Abhishek Kaul, Washington State University; Venkata K Jandhyala, Washington State University; Stergios B Fotopoulos, Washington State University
11:05 a.m.	Joint Estimation of Structured Multivariate VAR Modeling—♦Peiliang Bai, University of Florida; George Michailidis, University of Florida
11:20 a.m.	Root Cause Detection Among Anomalous Time Series Using Temporal State Alignment—♦Sayan Chakraborty, Zillow Group Inc.
11:35 a.m.	Recurrent Neural Networks for ARMA Model Selection—♦Bei Chen, IBM Research; Beat Buesser, IBM Research; Kelsey DiPietro, University of Notre Dame
11:50 a.m.	Time Series Analysis with Unsupervised Learning—Meihui Guo, National Sun Yat-Sen University; Ke-Jie Chen, National Sun Yat-sen University; ♦Cheng Han Chua, National Sun Yat-sen University
12:05 p.m.	Classification of Longitudinal Unbalanced Data: Growth Mixture Models Vs Conventional Cluster Analysis on Approximated Values at Common Time Points—♦Mosammat Tanbin, ; Benjamin E. Leiby, Thomas Jefferson University; Md Jobayer Hossain, Nemours children Healthcare Systems

**351**

**■● Statistical Methods for Single-Cell Genomics—Contributed**

**Section on Statistics in Genomics and Genetics**

Chair(s): Lingling An, University of Arizona

10:35 a.m.	Feature Selection and Dimension Reduction for Single Cell RNA-Seq Based on a Multinomial Model—♦Frederick William Townes, Harvard Biostatistics; Martin Aryee, Massachusetts General Hospital; Stephanie Hicks, Johns Hopkins Bloomberg School of Public Health; Rafael Irizarry, Harvard University
10:50 a.m.	SCINA: Semi-Supervised Analysis of Single Cells in Silico—♦Ze Zhang, University of Texas Southwestern Medical Center at Dallas; Tao Wang, University of Texas Southwestern Medical Center; Payal Kapur, University of Texas Southwestern Medical Center; Xinlei Wang, Southern Methodist University; Gary Hon, University of

**CC-706**

Texas Southwestern Medical Center; James Brugarolas, University of Texas Southwestern Medical Center

11:05 a.m.	Flexible Experimental Designs for Valid Single-Cell RNA-Sequencing Experiments Allowing Batch Effects Correction—♦Fangda Song, The Chinese University of Hong Kong; Yingying Wei, The Chinese University of Hong Kong
11:20 a.m.	Correcting Batch Effects in Single Cell RNA Sequencing Data Using Sparse Supervised Canonical Correlation (SCCA) Analysis—♦Wenlan Zang, Yale's Section of Pulmonary, Critical Care, and Sleep Medicine (Yale-PCCSM); Michael Kane, Yale; Jen-hwa Chu, Yale University School of Medicine
11:35 a.m.	Single-Cell Transcriptome and Regulome Data Integration—♦Weiqiang Zhou, Johns Hopkins Bloomberg School of Public Health; Zhicheng Ji, Johns Hopkins Bloomberg School of Public Health; Weixiang Fang, Johns Hopkins Bloomberg School of Public Health; Hongkai Ji, Johns Hopkins Bloomberg School of Public Health
11:50 a.m.	Exponential-Family Embedding with Application to Cell Developmental Trajectories for Single-Cell RNA-Seq Data—♦Kevin Lin, Carnegie Mellon University, Department of Statistics and Data Science; Jing Lei, Carnegie Mellon University; Kathryn Roeder, Carnegie Mellon University
12:05 p.m.	TWO-SIGMA-Geneset: TWO-Component SIngle Cell Model-Based Association Method for Gene Set Testing—♦Eric Van Buren, University of North Carolina at Chapel Hill; Di Wu, University of North Carolina at Chapel Hill; Ming Hu, Cleveland Clinic; Yun Li, University of North Carolina at Chapel Hill

**352**

**■● Recent Development in Imaging Data Analysis—Contributed**

**Section on Statistics in Imaging**

Chair(s): Ciprian Crainiceanu, Johns Hopkins University

10:35 a.m.	Distributional Properties and Estimation in Image Clustering in Spatial Random Fields with Applications—♦Zijuan Chen, Texas A&M University; Suojin Wang, Texas A&M University
10:50 a.m.	Latent Complex-Valued Autoregressive Model for fMRI Magnitude Time Series—♦Daniel Adrian, Grand Valley State University; Ranjan Maitra, Iowa State University; Daniel Rowe, Marquette University
11:05 a.m.	ISREA: A Novel Approach for Raman Spectrum Baseline Correction and Its Application on Real Data—♦Yunnan Xu, Virginia Tech; Pang Du, Virginia Tech
11:20 a.m.	Adaptive Bayesian Factor Spectral Analysis of High-Dimensional Nonstationary Time Series—♦Zeda Li, Baruch College CUNY; Rob Krafty, University of Pittsburgh; Ori Rosen, University of Texas at El Paso

**CC-507**

**■● Recent Development in Imaging Data Analysis—Contributed**

**Section on Statistics in Imaging**

Chair(s): Ciprian Crainiceanu, Johns Hopkins University

11:35 a.m. Estimating the Amount of Training Data for a Deep Learning Algorithm to Detect Severe Burns—♦Amy Nussbaum, SpectralMD; Jeffrey Thatcher, SpectralMD; Fallu Yi, SpectralMD; Ron Baxter, SpectralMD; Aadeesh Shringarpure, SpectralMD; Humberto Talavera, SpectralMD; Kevin Plant, SpectralMD

11:50 a.m. A New Adaptive Signal Detection Method for Neuroimage Analysis—♦M Inlow, Indiana State University; S Cong, ECE Department, Purdue University; Shen Li, University of Pennsylvania

12:05 p.m. Floor Discussion

**Contributed Poster Presentations 10:30 a.m.—11:15 a.m.**

**353** **CC-Hall C**  
**SPEED: Statistical Learning and Data Science Speed Session 2, Part 2—Contributed**  
**Section on Statistical Learning and Data Science, Text Analysis Interest Group**  
Chair(s): Ali Shojaie, University of Washington  
**Section on Statistical Learning and Data Science**

- 1 Three-Dimensional Radial Visualization of High-Dimensional Continuous or Discrete Data—♦Yifan Zhu, Iowa State University; Fan Dai, Iowa State University; Ranjan Maitra, Iowa State University
- 2 The Graph Quilting Problem - Graphical Model Selection from Partially Observed Covariances—Giuseppe Vinci, Rice University; Genevera Allen, Rice University; Gautam Dasarathy, Arizona State University
- 3 An Imputation Approach for Fitting Random Survival Forests with Interval-Censored Survival Data—♦Warren Keil, ; Tyler Cook, University of Central Oklahoma
- 4 Diagnostic Accuracy Evaluation of Diagnostic Assessment Model in Longitudinal Data: a Simulation Study of Neural Network Approach—♦Chi Chang, Michigan State University; Harlan McCaffery, University of Michigan
- 5 Smoothing Random Forest—♦Benjamin LeRoy, Carnegie Mellon University; Max G'Sell, Carnegie Mellon University
- 6 Aggregated Pairwise Classification of Statistical Shapes—♦Min Ho Cho, The Ohio State University
- 7 Statistical Optimality of Interpolated Nearest Neighbor Algorithms—♦Yue Xing, Purdue University; Qifan Song, Purdue University; Guang Cheng, Purdue Statistics
- 8 Ground Truth? Understanding How Humans Label Records and the Impact of Uncertainty—♦Kayla Frisoli, Carnegie Mellon University; Rebecca Nugent, Carnegie Mellon University
- 9 Block-Wise Partitioning for Extreme Multi-Label Classification—♦Yuefeng Liang, UC Davis; Thomas C. M. Lee, UC Davis; Cho-Jui Hsieh, UCLA

- 10 A Statistical Model for Tropical Cyclone Genesis and Assessing Its Differences Between Basins and Climates—♦Arturo Fernandez, University of California - Berkeley
- 11 Discovery of Gene Regulatory Networks Using Adaptively Selected Gene Perturbation Experiments—♦Michele Zemplenyi, Harvard University; Jeffrey Miller, Harvard TH Chan School of Public Health
- 12 Stagewise Generalized Estimating Equations for Varying Coefficient Models—♦Gregory Vaughan, Bentley University; Yicheng Kang, Bentley University
- 13 Stacked Ensemble Learning for Propensity Score Methods in Observational Studies—♦Maximilian Autenrieth, San Diego State University and Ulm University; Richard Levine, San Diego State University; Juanjuan Fan, San Diego State University; Maureen Guarcello, San Diego State University
- 14 Predicting Sub-Cellular Location of Plant Protein Using Supervised Machine Learning—♦David Arthur, ; Benjamin Annan, Youngstown State University; Eric Quayson, Youngstown State University; Jack Min, Youngstown State University; Guang-Hwa Andy Chang, Youngstown State University
- 15 Semi-Supervised, Dynamic Class-Informative Feature Learning—♦Vincent Pisztora,

**354** **CC-Hall C**  
**SPEED: Big Data, Small Area Estimation, and Methodological Innovations Under Development, Part 2—Contributed**  
**Survey Research Methods Section, Quality and Productivity Section**

Chair(s): Katherine McLaughlin, Oregon State University  
**Survey Research Methods Section**

- 17 Using Paradata to Explore Users Pathways Through Web Surveys—♦Renee Ellis, U.S. Census Bureau
- 18 Why Machines Matter for Survey and Social Science Researchers: Exploring How Machine Learning Methods Can Be Applied to the Design, Collection and Analysis of Social Science Data—♦Antje Kirchner, RTI International; Trent Burskirk, Bowling Green State University
- 19 A Computationally Efficient Method for Selecting a Split Questionnaire Design—♦Matthew Stuart, ; Cindy Yu, Iowa State University
- 20 Assessing the Relationship Between Balanced Sample and Sample Representativity—♦Yonil Park, US Census Bureau; Thomas John Chesnut, US Census Bureau
- 21 Trend Analysis for Complex Survey Data with Bayesian Approach—♦Yi Mu, Centers for Disease Control and Prevention
- 22 Applications of R Shiny to Evaluate and Improve Total Survey Quality—Xiaodan Lyu, Iowa State University; Heike Hofmann, Iowa State University; Emily Berg, Iowa State University; Jie Li, Iowa State University; ♦Xin Zhang, Iowa State University

**TUESDAY**

- 23 Modifying State Sample Sizes for the National Crime Victimization Survey—♦ Samantha Spiers, U.S. Census Bureau; Sandra Peterson, U.S. Census Bureau; David Hornick, U.S. Census Bureau
- 24 Small Area Estimates of the Child Population and Poverty in School Districts Using Dirichlet-Multinomial Models—♦ Jerry Maples, U.S. Census Bureau
- 25 Re-Examining File-Level Re-Identification Risk Assessment—♦ Lin Li, Westat; Jane Li, Westat; Tom Krenzke, Westat; Natalie Shlomo, University of Manchester
- 26 Small Area Estimation on Fatalistic Beliefs About Cancer Using the Health Information National Trends Survey—♦ Benmei Liu, National Cancer Institute; Elise Rice, National Institute of Dental and Craniofacial Research; Richard Moser, National Cancer Institute
- 27 Multilevel Models for Assessing the Impact of the Presidential Youth Fitness Program—♦ Ronaldo Iachan, ICF Macro, Inc.
- 28 ADDRESSING DESIGN and ESTIMATION CHALLENGES WHEN USING MRP in PUBLIC HEALTH and BEHAVIORAL SCIENCE APPLICATIONS—♦ Robert Petrin, Ipsos Public Affairs; Alexa DiBenedetto, Ipsos; Luke Vaicunas, Ipsos Public Affairs
- 29 Tracking Public Opinion with Twitter: a Critical Comparison of Cross-Sectional and Longitudinal Analyses—♦ Robyn Ferg, ; Johann A Gagnon-Bartsch, University of Michigan; Fred Conrad, University of Michigan
- 30 Recommendations for Assessing and Evaluating Variable Crosswalks—♦ Mitch Sevigny, Craig Hospital; Jessica Ketchum, Craig Hospital; David Mellick, Craig Hospital
- 31 A Practical Guide to Small Area Estimation, Illustrated Using the Ohio Medicaid Assessment Survey—♦ Rachel Harter, RTI International; Amang Sukasih, RTI International; Jeniffer Iriondo-Perez, RTI International; Akhil Vaish, RTI International
- 32 Benchmarking Mobile App Geofenced Samples: Adjusting for National Coverage and Selection Bias—♦ Davia Moyse, ICF; YangYang Deng, ICF Macro, Inc; Matt Jans, ICF; Ronaldo Iachan, ICF Macro, Inc; Richard (Lee) Harding, ICF; Kristie Healey, ICF; James Dayton, ICF; Scott Worthge, MFour Mobile Research; Laura O'Campo, MFour Mobile Research
- 33 Investigating the Value of Appending New Types of Big Data to Address-Based Survey Frames and Samples—♦ Paul John Lavrakas, Independent Consultant
- 34 Identity Disclosure Control in Microdata Release by Post- Randomization—♦ Xiaoyu Zhai, ; Tapan Nayak, George Washington University

**Quality and Productivity Section**

- 35 Entrepreneurship Environmental Success Factors in the Textiles and Apparel Industries—♦ Samaneh Pourmojib, North Carolina State University; Blanton Godfrey, North Carolina State University

**Contributed Poster Presentations 10:30 a.m.—12:20 p.m.****CC-Hall C****Contributed Poster Presentations: Biopharmaceutical Section—Contributed Biopharmaceutical Section**  
Chair(s): Wendy Meiring, University of California At Santa Barbara Biopharmaceutical Section

- 1 Some Tests for the Assessment of Univariate and Multivariate Bioequivalence—♦ Rabab Elnaem, University of Maryland, Baltimore County; Thomas Mathew, University of Maryland, Baltimore County
- 2 A Comparison of Methods to Estimate the Event Rate Based on Longitudinal Data—♦ Bo Fu, Astellas Pharma Inc.; Xuan Liu, Astellas Pharma Inc; Jun Zhao, Astellas Pharma Inc.
- 3 A Bayesian Answers "Should This Drug Be Approved?"—♦ Konstantinos Vamvourellis, London School of Economics and Political Science
- 4 On Meta-Analytical Methodologies for Spontaneous and Solicited Safety Data Evaluation—♦ Hal Li, Merck Research Laboratories; William (Bill) Wang, Merck Research Lab
- 5 The Statistics of Synthetically-Controlled Clinical Trials—Aaron Smith, Unlearn.AI; ♦ Charles K. Fisher, Unlearn.AI
- 6 Machine Learning Based Methods for Predicting Response and Remission—♦ Marcus Sobel, Temple University; Ibrahim Turkoz, Janssen Research and Development, LLC
- 7 Nonparametric Bayesian Method for Combination Drugs with Discrete Doses—♦ Galen Cook-Wiens, Cedars Sinai Medical Center; Zahra Razaee, Cedars-Sinai Medical Center; Mourad Tighiouart, Cedars-Sinai Medical Center
- 8 Estimand and Analysis Consideration in a Phase III Study of CAR-T with Delayed Treatment Effect - a Case Study of Lymphoma—♦ Wen Gu, Novartis Pharmaceutical Inc.
- 9 A Bayesian Adaptive Design in Cancer Phase I Trials Using Dose Combinations with Quasi-Continuous Toxicity Index—♦ Sungjin Kim, Cedars-Sinai Medical Center; Zahra Razaee, Cedars-Sinai Medical Center; Andre Rogatko, Cedars-Sinai Medical Center; Mourad Tighiouart, Cedars-Sinai Medical Center
- 10 Assessing the Performance of Different Outcomes for Tumor Growth Studies with Animal Models—♦ Luke William Patten, Center for Innovative Design and Analysis, University of Colorado, Anschutz Medical Campus; Alexander Kaizer, University of Colorado Anschutz Medical Campus; Patrick Blatchford, University of Colorado
- 11 Equivalency Test Based on Combinations of Mean and Variance Components in the One-Way Random Effects Model with Application to Device Comparison Study—♦ Yun Bai, Medtronic; BAOLIN WU, University of Minnesota; Zengri Wang, Medtronic plc; Theodore Lystig, Medtronic
- 12 A DECAY MODEL for HANDLING MISSING DATA in CLINICAL TRIALS—

◆Tao Sheng,	Covance Inc; Angela Liu, Covance; Santhosh Kuppusamy, Covance; Jeffrey Joseph, Covance
13 A Comparison of Migraine Prevention Therapies in the Adult Versus Pediatric Populations Using a Joint Bayesian Network Meta-Analysis Model—♦Zachary Thomas, Eli Lilly and Company; Phebe Kemmer, Eli Lilly and Company; Tianle Hu, Eli Lilly and Company; Fanni Natanegara, Eli Lilly and Company; Himanshu Upadhyaya, Eli Lilly and Company	26 High-Throughput Screening of Features Which Moderate Treatment Effect on Clinical Outcome—♦Kushal Shah, University of North Carolina (UNC); Michael Kosorok, University of North Carolina at Chapel Hill
14 Dose-Finding Designs Using Time-To-Event Toxicity Data and Multiple Constraints—♦Meizi Liu, University of Chicago	27 Non-Collapsibility of Hazard Ratio—♦Busola Sanusi, The University of North Carolina; Godwin Yung, Takeda Pharmaceuticals; Yi Liu, Takeda Pharmaceuticals International Co.
15 Surrogate Endpoint Analysis Using Subgroup Information in Immuno-Oncology—♦Dan Zhao, ; Yujun Wu, Takeda	28 Using BLRM to Find MTDs for Loading Dose and Maintenance Dose in Oncology Trials—♦Kejian Liu, Sanofi; Ying Sun, University of Virginia
16 Wearable Devices in Clinical Trials: Making an Impact in the Cardiovascular Space—♦Vanja Vlajnic, ; Chrysanthi Dori, Bayer; Mercedeh Ghadessi, Bayer; Stephan Cichos, Bayer; Maike Ahrens, Bayer; Matthias Sachs, Bayer / SAMSI; Paolo Piraino, Bayer	29 Machine Learning for Protein Design—♦Yuting Xu, Merck Sharp & Dohme Corp.; Andy Liaw, Merck Sharp & Dohme Corp.
17 Combining Tabular Data with Visual Display to Enhance Interpretation of Clinical Trial Data—♦Teresa Curto, Cytel; Ashish Aggarwal , Cytel; Angelo Tinazzi , Cytel	30 Mediation by Progression of Treatment-Related Differences in Patient Reported Outcomes (PROs) in Oncology—♦Michael Blackowicz, Clinical Outcomes Solutions; Alicyn Campbell, Patient Relevant Evidence; Lysbeth Floden, Clinical Outcomes Solutions; Stacie Hudgens, Clinical Outcomes Solutions; Ethan Basch, University of North Carolina Lineberger Comprehensive Cancer Center
18 Tumor-Growth Modeling for Informed Go/No-Go Decisions—♦Wei Wei, Yale University School of Public Health; Daniel Zelterman, Yale University School of Public Health; Elizabeth Garrett-Mayer, American Society of Clinical Oncology	31 The Role of HLA-Class-II (HLAcll) Molecules in Determining the Immunogenicity Potential of Therapeutic Factor VIII Proteins (TFVIIIs) in Hemophilia a (HA): Assessing the Gate Keepe—♦Henry Mead, Walden University
19 Less Is More -Adaptive Seamless Phase II/III Design—♦Helen Chen, GSK; Jonathan Haddad , GlaxoSmithKline; Xiaowei Wang, GlaxoSmithKline	32 Continuous Glucose Monitoring Technology and a Workflow for Its Data Analysis—♦Dandan Wang, Faculty of Health Sciences, University of Macau; Xiaohua Douglas Zhang, University of Macau; Zhaozhi Zek Zhang, Washington University
20 Estimate of Treatment Difference for Non-Normally Distributed Data in Clinical Trials -Comparison of Hodges-Lehmann Method and Quantile Regression—♦Youlan Rao, United Therapeutics Corporation; Yonggang Yao, SAS Institute Inc; Lisa Edwards, United Therapeutics Corporation; Chunqin Deng, United Therapeutics Corporation	33 The Use of Real World Evidence to Clinical Trials: a Case Study of Propensity Score Analysis with Partial Missing Data—♦Qi Xia, Johnson & Johnson Pharmaceutical Research; Libo Sun, JNJ; GANG LI, JNJ; Uma Siangphoe, JNJ; YING WAN, JNJ; SUDHAKAR RAO, JNJ
21 Sequential Multiple Assignment Randomized Trials with Continuous Intermediate Outcome—♦Holly Elizabeth Hartman, University of Michigan; Kelley Kidwell, University of Michigan; Matthew J. Schipper, University of Michigan	34 Integrative Variable Selection Method for Subgroup Analyses in Longitudinal Data—♦Xiaochen Li, Indiana University; Sujuan Gao, Indiana University
22 Statistical Considerations for Analytical Method Transfer Equivalence Margin—♦Oluyemi Oyeniran, JNJ; Jyh-Ming Shoung, Janssen R&D	35 Bias-Correction in Estimating Treatment Effect in Fallback Analysis: An Approach Based on Randomized Test with Smooth Rejection Functions—♦Kiichiro Toyoizumi, Shionogi Inc; Shigeyuki Matsui, Nagoya University Graduate School of Medicine
23 Quantifying Impact of Enrichment in Randomized Clinical Trials—♦Navneet Hakhu, University of California, Irvine; Daniel L. Gillen, University of California, Irvine	<b>Biometrics Section</b>
24 Predicting Unmeasured Outcomes in the Real-World Data: Bayesian and Frequentist Approaches - a Simulation Study—♦Wenyu Ye, Eli Lilly and Company; Douglas Faries, Eli Lilly & Company; Xiang Zhang, Eli Lilly and Company; Janet Ford, Eli Lilly and Company; Zbigniew Kadziola, Eli Lilly and Company; Xiaojuan Mi, TechData Service Company, LLC; Ilya Lipkovich, Eli Lilly and Company	36 Identifying Two-Stage Optimal Dynamic Treatment Regimes: Compare Performances of Different Methods Under Model Misspecification—♦Sooyeong Lim, Miami University; Chen Chen, Cincinnati Children's Hospital; Rhonda Szczesniak, Cincinnati Children's Hospital; Gary Lewis McPhail, Cincinnati Children's Hospital; Bin Huang, Cincinnati Children's Hospital
25 A Multiple Imputation Approach to the Tipping Point Analysis to Account for Covariates in a Test for Association Between Study Treatment and Responder Status—♦Laurel Bastone,	

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

### Biopharmaceutical Section

37 Stepwise Progressive Parametric Multiple Testing Procedure with Correlated Normal Test Statistics—♦Xuan Deng, Merck; Mark Chang, Veristat

38 Quantitative Reproducibility Analysis for Identifying Reproducible Targets from High-Throughput Experiments—♦Wenfei Zhang, Sanofi (United States)

39 An Event/Trial Binomial Model for Meaningful Change Inference in Randomized Clinical Trials—♦Daniel Serrano, Pharmerit International

40 Model Averaging of Bayesian Additive Regression Trees via Approximate Gaussian Processes—♦Kijoeng Nam, Merck; Nicholas Henderson, Johns Hopkins University; Dai Feng, Merck

41 Cancer Immunotherapy Trial Design with Delayed Treatment Effect—♦Jing Wei, no

42 A Personalized Medicine Approach for Comparative Evidence in Non-Randomized Studies—♦Carl De Moor, Biogen; Lu Tian, Stanford University School of Medicine; Fabio Pellegrini, Biogen International GmbH

43 Sample Size Calculation for the Andersen-Gill Model Comparing Rates of Recurrent Events—♦Ronan Fitzpatrick, Statsols; Yongqiang Tang, Tesaro

44 Mining Longitudinal Real-World Data to Identify Risk Factors for Cardiovascular Events Related to Anti-Dementia Medications—♦Meiqi He, University of Pittsburgh School of Pharmacy; Yuting Zhang, University of Melbourne Institute of Applied Economic and Social Research; Inmaculada Hernandez, University of Pittsburgh School of Pharmacy

45 Bootstrap Calibration for Parametric Tolerance Intervals to Improve Coverage Probabilities—♦Yixuan Zou, University of Kentucky; Derek Young, University of Kentucky

46 Evaluating the Effects of Design Parameters on the Performances of Phase I Trial Designs—♦Yaqian Zhu, University of Pennsylvania; Wei-Ting Hwang, University of Pennsylvania; Yimei Li, University of Pennsylvania

TUESDAY

### 356

### CC-Hall C

#### Contributed Poster Presentations: Business Analytics/Statistics Education Interest Group—Contributed Business Analytics/Statistics Education Interest Group

Chair(s): Wendy Meiring, University of California At Santa Barbara

#### Business Analytics/Statistics Education Interest Group

47 Estimating Partitions of the Distribution of P-Values—♦Robert Pavur, University of North Texas; Kellie Keeling, University of Denver

### 357

### CC-Hall C

#### Contributed Poster Presentations: Business and Economic Statistics Section—Contributed Business and Economic Statistics Section

Chair(s): Wendy Meiring, University of California At Santa Barbara

#### Business and Economic Statistics Section

48 The Comparison of Multiple Imputation and Missing Indicator Methods for Prediction in Regression Analysis—♦Chi-Hong Tseng, UCLA

49 Time-Varying Copulas with Full-Range Dependence for Modeling Financial Data—♦Jason Selbo, ; Su Jianxi, Purdue University

50 Information Shocks in Agricultural Futures Markets—yu Wu, University of Manitoba; ♦Julieta Frank,

51 Mean Treatment Effect Inference in the Presence of Heavy-Tailed Data—♦Luke Smith, Amazon

52 Time Series Analysis of the Rate of the Inflation and Unemployment in Saudi Arabia for the Period (2000-2018)—♦Amani Albaqshi,

53 Determinants of Corporate Bankruptcy: Identification and Uncertainty—♦TIANHAI ZU, University of Cincinnati; Yan Yu, University of Cincinnati; Yichen Qin, University of Cincinnati

54 The Large-Sample, Small Disturbance and Asymptotic Conditions of Dominance of Efficient Shrinkage in Seemingly Unrelated Regression Equations (SURE)—♦Ali Mehrabani,

### 358

### CC-Hall C

#### Contributed Poster Presentations: Section on Statistics in Epidemiology—Contributed Section on Statistics in Epidemiology

Chair(s): Wendy Meiring, University of California At Santa Barbara

#### Section on Statistics in Epidemiology

55 Evaluating Medication Adherence Using Self-Report and Medication Refills in Treating Complex Chronic Conditions—♦Andrew Nicholson, VA NY Harbor Healthcare System Research & Development Service

56 Spatio-Temporal Models for Forecasting Human Cases of West Nile Virus—♦Yuzhen Zhou, University of Nebraska Lincoln

57 Application of Variance Analysis to Proficiency Test Data from CDC Lead and Multi-Element Proficiency (LAMP) Program—♦Po-Yung Cheng, CDC; Kathryn Vance, CDC; Cynthia Ward, CDC; Robert Jones, CDC; Amir Makhmudov, CDC

58 Workplace Interventions and Attitudes Associated with Influenza Vaccination Coverage Among Health Care Personnel in Home Health Care Settings, 2016-17 and 2017-18 Influenza Seasons—♦Xin Yue, Leiods Inc./Centers for Disease Control

and Prevention; Barbara Bardenheier, Centers for Disease Control and Prevention; Carla Black, Centers for Disease Control and Prevention; Sarah Ball, Abt Associates Inc; Marie A. de Perio, Centers for Disease Control and Prevention; Anthony Scott Laney, Centers for Disease Control and Prevention	70	University of California, Berkeley; James Roose, University of California, Berkeley; Mark van der Laan, UC Berkeley
59 The Concordance of Chronic Conditions Between Survey Reports and Medicare Claims in Older Mexican Americans—♦Lin-Na Chou, The University of Texas Medical Branch; Yong-Fang Kuo, The University of Texas Medical Branch; Kenneth John Ottenbacher, The University of Texas Medical Branch; Soham Al Snihi, The University of Texas Medical Branch	71	Cox and Aalen Models in Action -a Series of Case Studies from Clinical Epidemiology—♦Susanne Strohmaier, CeMSIIS, Medical University of Vienna; Heinze Georg, CeMSIIS, Medical University of Vienna
60 A Unified Framework of Longitudinal Models to Examine Reciprocal Relations—♦Satoshi Usami, University of Tokyo	72	Meta-Analysis of Time-To-Event Data: Simulating Median Follow-Up Time—♦G. Kolm, Medstar Washington Hospital; Cheng Zhang, MedStar Washington Hospital; Rebecca Torguson, MedStar Washington Hospital; Kazuhiro Dan, MedStar Washington Hospital; Alexandre Kajita, MedStar Washington Hospital; Hector M Garcia Garcia, Medstar Washington Hospital; Ron Waksman, MedStar Washington Hospital
61 Optimal Subclassification via Propensity Scores Using Graphical Presentations—♦Eiji Nakatani, Shizuoka General Hospital; Sho Komukai, Osaka University Graduate School of Medicine; Takanobu Nomura, Kyoto University Graduate School of Medicine	73	Evaluation of the Impact of Antimicrobial Hand Towels on Hand Contamination with Escherichia Coli Among Mothers in Kisumu County, Kenya, 2011-2012—♦Sunkyoung Kim, Centers for Disease Control and Prevention; Allison C Brown, Centers for Disease Control and Prevention; Jennifer Murphy, Centers for Disease Control and Prevention; Jared Oremo, Safe Water and AIDS Project; Quick Rob, Centers for Disease Control and Prevention; Mercy Owuor, Safe Water and AIDS Project; Bobbie Person, Centers for Disease Control and Prevention
62 USING NET BENEFIT CURVES for BUILDING a MODEL PERFORMANCE MEASURE for EXAMINING CLINICAL USEFULNESS—♦Anwesha Mukherjee, Merck & Co Inc; Daniel L. McGee, Florida State University	74	Statistical Issues for Latent Class Analysis—♦Tzu-Cheg Kao, Uniformed Services University of the Health Sciences
63 A New Perspective on Modeling Count Time Series Data—♦Matheus Bartolo Bartolo Guerrero, KAUST; Wagner Barreto-Souza, Universidade Federal de Minas Gerais; Hernando Ombao, King Abdullah University of Science and Technology (KAUST)	75	Spatiotemporal Trends of Stage-Specific Incidence Rate of Non-Small Cell Lung Cancer (NSCLC) in New York State (1995-2015)—♦Kaylee Ho, Weill Cornell Medicine; Bian Liu, Icahn School of Medicine at Mount Sinai
64 The Effect of Missing Industry and Occupation Codes on the Assessment of Health Outcomes in the 2016 Behavioral Risk Factor Surveillance System (BRFSS) Survey—♦Jia Li, NIOSH; Matthew Groenewold, NIOSH; Sara E. Luckhaupt, NIOSH; Marie H. Sweeney, NIOSH; James M. Boiano, NIOSH	76	Estimating Outcome-Exposure Associations When Exposure Biomarker Detection Limits Vary Across Batches—♦Jonathan Boss, University of Michigan; Bhramar Mukherjee, University of Michigan; Kelly K. Ferguson, National Institute of Environmental Health Sciences; Amira M. Aker, University of Michigan; Akram N. Alshawabkeh, Northeastern University; Jose F. Cordero, University of Georgia; John D. Meeker, University of Michigan; Sehee Kim, University of Michigan
65 Identifying Spatio-Temporal Variation in Breast Cancer Incidence Among Different Age Cohorts Using Bayesian Hierarchical Modeling—♦Amy Hahn, University of Iowa; Jacob J Oleson, University of Iowa; Alexandra Thomas, Wake Forest University School of Medicine; Kristin Conway, University of Iowa; Kathleen Stewart, University of Maryland; Charles Lynch, University of Iowa; Paul Romitti, University of Iowa	77	Estimating the Causal Effect of Digoxin on Adverse Events in LVAD Patients Using Marginal Structural Models—♦Katherine Hoffman, Weill Cornell Medicine; Ivan Diaz, Weill Medical College, Cornell University; Alberto Pinsino, Columbia University Medical Center; Paolo Colombo, Columbia University Medical Center; Melana Yuzefpolskaya, Columbia University Medical Center; Antonia Gaudig, Columbia University Medical Center; Eugene Royzman, Columbia University Medical Center; Melissa Mabasa, Columbia University Medical Center; Giulio Mondellini, Columbia University Medical Center
66 A Comparison of Statistical Causal Inference Methods for Animal Health Applications—♦Ju Ji, Iowa State University; Chong Wang, Iowa State University; Zhulin He, Iowa State University; Karen Hay, QIMR Berghofer Medical Research Institute; Tamsin Barnes, The University of Queensland; Annette O'Connor, Iowa State University	78	Social Network Analysis to Examine Physician Use of Minimally Invasive Breast Biopsy—♦Figaro Lorestani, Children's Hospital Colorado; Daniel Jupiter, University of Texas Medical Branch
67 Matching Design-Based Subpopulation Effect Estimation in Observational Studies—♦YUYANG ZHANG, The Ohio State University; Bo Lu, The Ohio State University		Statistical and Epidemiological Challenges in Using the NHANES Assessment of Oral Human Papillomavirus Infection to Study Risk of Infection and of Oropharyngeal Cancer in
68 Generalizing Study Results with Latent Propensity Score Weighting—♦Chenxiang Li, NYU School of Medicine; Andrea B Troxel, NYU School of Medicine		
69 Comparison of Parameter Estimates from Optimal Dynamic Treatment Rule-Based Adaptive Designs—♦Lina Montoya,		

the US—♦Barry Graubard, National Cancer Institute; Anil Chaturvedi, National Cancer Institute; Joseph Tota, National Cancer Institute; Hormuzd Katki, US National Cancer Institute; Maura Gillison, MD Anderson

79 Forecasting Vector-Borne Disease in the United States—♦Maddy St. Ville, Clemson University; Christopher McMahan, Clemson University; Stella Self, Clemson University

80 Lung Cancer Mortality in Chile—♦Maria Gloria Icaza, Universidad De Talca

81 Estimating CACE in Meta-Analysis of RCTs with Binary Outcome Accounting for Noncompliance: a Generalized Linear Mixed Model Approach—♦Ting Zhou, Sichuan University/University of Minnesota; Jincheng Zhou, University of Minnesota; JIM HODGES, UNIVERSITY OF MINNESOTA; Lifeng Lin, Florida State University; Yong Chen, University of Pennsylvania; Stephen R. Cole, UNC Gillings School of Global Public Health; Haitao Chu, University of Minnesota

82 Effects of Treatment Classifications in Network Meta-Analysis—♦Aiwen Xing, ; Lifeng Lin, Florida State University

83 What's the Optimal Number to Match in a Propensity Score Matched Case-Control Study?—♦Paul Nakonezny, UT Southwestern Medical Center; Abu Minhajuddin,

84 A Comparison of Semiparametric Approaches to Model Nonlinear Outcome Trajectories in the Presence of Nonignorable Dropout—♦Andrew Hammes, University of Colorado-Biostatistics; Samantha MaWhinney, University of Colorado Anschutz Medical Campus; Nichole E Carlson, University of Colorado Anschutz; Peter DeWitt, University of Colorado - Biostatistics; Jeri Forster, University of Colorado - Biostatistics

85 Bayesian Hierarchical Modeling for Under-Reported Spatial Count Data—♦Jinjie Chen, Baylor University; James D Stamey, Baylor University; Joon Jin Song, Baylor University

86 On the Performance of Various Risk-Scoring Approaches—♦Yared Gurmu; ; Jeong-Gun Park, Brigham and Women's Hospital; Francesco Nordio, Brigham and Women's Hospital; Kyungah Im, Brigham and Women's Hospital; Jing Qian, University of Massachusetts Amherst

87 Common Data Elements for the Longitudinal Study of Glioma—♦Laila Poisson,

88 Evaluating Heterogeneity in the Effect of Reduced Nicotine Content Cigarettes—♦Chuyu Deng, University of Minnesota- Div of Biostatistics

89 Controlling the False Discovery Proportion: a Simulation Study—♦HARLAN MCCAFFERY, University of Michigan; Chi Chang, Michigan State University

**359****CC-Hall C****Contributed Poster Presentations: Section on Medical Devices and Diagnostics—Contributed  
Section on Medical Devices and Diagnostics, Text Analysis Interest Group**

Chair(s): Wendy Meiring, University of California At Santa Barbara

**Section on Medical Devices and Diagnostics**

90 Modeling Concordance of Beta-Amyloid Images Under a Mixed Model Framework—♦Katelyn A. McKenzie, University of Kansas Medical Center; Jonathan D. Mahnen, University of Kansas Medical Center

91 ROC and C: Time-Dependent Relationships Between ROC Curve Methods and Concordance Measures—♦Norberto Pantoja Galicia, U.S. Food and Drug Administration; Rebecca Betensky, NYU

92 Application of Calibration Estimator in Comparison of TVR-MACE Survival Rate Between IntraVascular UltraSound Guided PCI and Angiography Guided PCI Within Complex Lesion Population—♦Cheng Zhang,

93 Missing Data and Sensitivity Analyzes: a Methodology Evolution in Medical Device Studies—♦Scott Mollan, ICON plc

94 A Wavelet Decomposition Based Analysis of Physical Activity and Using Accelerometer Data—♦Margaret Bunker, University of Michigan

95 Prediction of Pediatric Emergency Department X-Ray and CT Utilization in the United States—♦Xingyu Zhang, University of Michigan; Sheng Yang, University of Michigan; Pau Medrano-Gracia, University of Auckland; Konrad Werys, University of Oxford; Prashant Mahajan, University of Michigan

**360****CC-Hall C****Contributed Poster Presentations: Section on Risk Analysis—Contributed  
Section on Risk Analysis**

Chair(s): Wendy Meiring, University of California At Santa Barbara

**Section on Risk Analysis**

96 Two-Stage Predictive Models for Assessing Misrepresentation Risk on Self-Reported Tobacco Status in Health Insurance Ratemaking—♦Hayley Jordan, ; Su Jianxi, Purdue University

97 Space-Time Modeling of Tropical Cyclone Genesis Using a Semiparametric Generalized Linear Model—♦Suilou Huang, AIR-Worldwide; Suz Tolwinski-Ward, AIR-Worldwide; Michal Clavner, AIR-Worldwide

98 High-Dimensional GARCH Model with L1 Regularization—♦Sijie Yao, ; Haipeng Xing, SUNY Stony Brook; Hui Zou, University of Minnesota

**Contributed Poster Presentations 11:35 a.m.—12:20 p.m.****361****CC-Hall C****SPEED: Biometrics - Methods and Application, Part 2—Contributed****Biometrics Section, Section on Bayesian Statistical Science**

Chair(s): Katherine E Irimata, National Center for Health Statistics

**Biometrics Section**

- 1 Development of an International Prostate Cancer Risk Tool Integrating Data from Multiple Heterogeneous Cohorts—♦Donna Ankerst, Technical University of Munich; Johanna Tolksdorf, Technical University of Munich
- 2 An Exponential Effect Persistence Model for Intensive Longitudinal Data—♦Claude Setodji, RAND Corporation; Steven C. Martino, RAND Corporation; Michael S. Dunbar, RAND Corporation; William G. Shadel, RAND Corporation
- 3 Analyzing Pre-Post Randomized Studies with One Post-Randomization Score Using Repeated Measures and ANCOVA Models—♦Fei Wan, University of Arkansas for Medical Sciences
- 4 Spectral Parameterization, Diagnostics, and Remedies for Confounding of Fixed Effects by Random Effects—♦Patrick Schnell, Ohio State University; Maitreyee Bose, Amgen
- 5 Differential Abundance Analyzes of Pre- and Post-Metabolomic Data with Steroid Treatment for Bronchopulmonary Dysplasia—♦Prabhakar Chalise, University of Kansas Medical Center; Tamorah R Lewis, Children's Mercy Hospital, University of Missouri Kansas City
- 6 Bayesian False Discovery Rate Under Sparsity Conditions—♦Iris Ivy Gauran,
- 7 SignNets: Fine Tuning Gene-Gene Similarity Metrics in Biological Systems—♦Crystal Shaw, UCLA; Vinayagam Arunachalam, Pfizer, Inc.; Jadwiga R Bienkowska, Pfizer, Inc.
- 8 To EM or Not to EM: Updated Estimation of the Probability of Clonal Relatedness of Pairs of Tumors in Cancer Patients—♦Audrey Mauguen, Memorial Sloan Kettering Cancer Center; Venkatraman E. Seshan, MSKCC; Irina Ostrovnaya, MSKCC; Colin Begg, Memorial Sloan Kettering Cancer Center
- 9 Is it èrandomí or èhaphazardí? Demonstrating Effects of Nonrandom Allocation by Simulation—♦Penny Reynolds, University of Florida College of Medicine
- 10 Estimating Optimal Treatment Regime to Maximize Restricted Mean Survival Time—♦Sanhita Sengupta, University of Minnesota
- 11 Item Response Theory Models for Survival Analysis and the Detection of Treatment Efficacy—♦Charlie laconangelo, Pharmerit International
- 12 Similarity-Based Probability Weighted Learning for Individual Treatment Rule Estimation—♦Jinchun Zhang, New York

University; Andrea B Troxel, NYU School of Medicine; Eva Petkova, New York University

13

Multivariate Longitudinal Data from Eyes - Microperimetry Macular Sensitivity Loss in Patients with Stargardt Disease—♦Zhengfan Wang, UMASS-Amherst; Xiangrong Kong, Johns Hopkins University

14

On Powerful Exact Nonrandomized Tests for the Poisson Two-Sample Setting—♦Stefan Wellek,

15

Survey Calibration to Improve the Efficiency of Pure Risk Estimates from Case-Control Samples Nested in a Cohort—♦Yei Eun Shin, National Cancer Institute; Ruth Pfeiffer, National Cancer Institute; Barry Graubard, National Cancer Institute; Mitchell Henry Gail, National Cancer Institute, Division of Cancer Epidemiology and Genetics

16

Two-Way Partial AUC and Its Properties—♦Kun Lu, Princeton University; Hanfang Yang, Renmin University of China; Xiang Lv, University of California, Berkeley; Feifang Hu, George Washington University

17

Relative Risk Estimation in Clustered/Longitudinal Data Using Generalized Estimating Equations (GEE)—♦Chao Zhu, Menzies Institute for Medical Research, University of Tasmania; David W Hosmer, University of Vermont; Jim Stankovich, School of Medicine, University of Tasmania, Central Clinical School, Monash University; Karen Wills, Menzies Institute for Medical Research, University of Tasmania ; Leigh Blizzard, Menzies Institute for Medical Research, University of Tasmania

18

Variance Estimation When Combining Inverse Probability Weighting and Multiple Imputation in Electronic Health Records-Based Research—♦Tanayott Thaweethai, Harvard T.H. Chan School of Public Health; Sebastien Haneuse, Harvard T.H. Chan School of Public Health

19

Bayesian Generalized Mixed-Effect Modeling of Conway-Maxwell Poisson Data—♦Morshed Alam, University of Nebraska Medical Center; Meza Jane, University of Nebraska Medical center; Yeongjin Gwon, University of Nebraska Medical Center

20

A Joint Hidden Markov Model for Studying Behavioral Intervention in Families of Adolescents with Type 1 Diabetes—♦Apurva Bhingare, ; Zhen Chen, Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)

TUESDAY

**362****CC-Hall C****SPEED: Food, Environment, Biomedical Imaging and Physical System Visualization/Learning, Part 2—Contributed**

Section on Bayesian Statistical Science, Section on Statistical Graphics, International Chinese Statistical Association, Quality and Productivity Section, Section on Physical and Engineering Sciences, Section on Statistics in Imaging, ASA LGBT Concerns

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

## Committee

Chair(s): Wendy Meiring, University of California At Santa Barbara

## Section on Bayesian Statistical Science

21 Subfield Yield Analysis for Precision Agriculture—♦ Jarad Niemi, Iowa State University; Luis Damiano, Iowa State University

## Section on Statistical Graphics

22 From Prediction Models to Shiny App: Creating a Tool for Contaminated Food Source Prediction in Salmonella and STEC Outbreaks—♦ Caroline Ledbetter, University of Colorado; Alice White, Colorado School of Public Health; Elaine Scallan Walter, Colorado School of Public Health; David Weitzenkamp, Colorado School of Public Health

## Section on Bayesian Statistical Science

23 A Bayesian Approach for Estimating Earth's "missing" Minerals—♦ Grethe Hystad, Purdue University Northwest; Ahmed Eleish, Rensselaer Polytechnic Institute; Robert Downs, University of Arizona; Shaunna Morrison, Geophysical Laboratory, Carnegie Institution for Science; Robert Hazen, Geophysical Laboratory, Carnegie Institution for Science

## International Chinese Statistical Association

24 A Fully Bayesian Approach to Typhoon Precipitation Forecast—♦ Yu-Chun Huang, National Taiwan University; Chuhsing Kate Hsiao, Institute of Epidemiology and Preventive Medicine, National Taiwan University, Taiwan

## Quality and Productivity Section

25 Air Pollutant Prediction from Precipitation—♦ Patrick Chang, JLS Middle School

## Section on Bayesian Statistical Science

26 Hierarchical Bayesian Models to Estimate the Effects of Determinants of Airway and Alveolar Nitric Oxide—♦ Jingying Weng, Noa Molshatski, University of Southern California; Paul Marjoram, University of Southern California; Patrick Muchmore, University of Southern California; Shujing Xu, University of Southern California; Frank D Gilliland, University of Southern California; Sandrah P Eckel, University of Southern California

## Section on Statistical Graphics

27 Analysis of US Air Quality—♦ Xuemao Zhang, East Stroudsburg University

28 Visualizing a Cyber Physical System in Drill Down Perspective—♦ Giovanni Sparacio, Saint Joseph's University; Kathleen Garwood, Saint Joseph's University; Marcello Balduccini, Saint Joseph's University

## Section on Physical and Engineering Sciences

29 Model Transfer Between Material Systems for Distortion Prediction in Laser-Based Additive Manufacturing—♦ Arman Sabbaghi, Purdue University; Jack Francis, Mississippi State University; Linkan Bian, Mississippi State University

TUESDAY

## Section on Bayesian Statistical Science

30 Where Does Our Working Memory Take Place? a Multi-Level Sub-Graph Analysis of Brain Functional Connectivities—♦ Maoran Xu, University of Florida; Li Duan, University of Florida

## Section on Statistics in Imaging

31 Robust Spatial Extent Inference with a Semiparametric Bootstrap Joint Testing Procedure—♦ Simon Vandekar, Vanderbilt University; Theodore Satterthwaite, University of Pennsylvania; Cedric K Xia, University of Pennsylvania; Azeez Adebampe, University of Pennsylvania; Kosha Ruparel, University of Pennsylvania; Ruben C Gur, University of Pennsylvania; Raquel E Gur, University of Pennsylvania; Russell Shinohara, University of Pennsylvania

32 Analytic White Matter Tractography and Compositional Distance Based Summarization of White Matter Brain Structures—♦ Wendy Meiring, University of California At Santa Barbara; Matthew Cieslak, U.Penn; Tegan Brennan, UCSB; Subhash Suri, UCSB; Scott T. Grafton, UCSB

33 Harmonization of Multi-Scanner Longitudinal MRI Neuroimaging Data—♦ Joanne C Beer, University of Pennsylvania; Russell Shinohara, University of Pennsylvania; Kristin Linn, University of Pennsylvania

## ASA LGBT Concerns Committee

34 Machine Learning and Deep Learning Based on Multiple View Images and Additional Information—♦ Zheng Xu, University of Nebraska-Lincoln; Cong Wu, University of Nebraska-Lincoln

## Section on Bayesian Statistical Science

35 Bayesian Penalized Model for Classification and Selection of Functional Predictors Using Longitudinal MRI Data from ADNI—♦ Asish Banik, Michigan State University; Taps Maiti, Michigan State University; Andrew Bender, Michigan State University

## Section on Statistics in Imaging

36 Survival Analysis for Medical Imaging Data—♦ Samantha Morrison, Brown University; Jon Steingrimsson, Brown University; Constantine Gatsonis, Brown University

37 Deformation-Based Morphometry Adapted for Lung CT—♦ Sarah Ryan, Tasha Fingerlin, National Jewish Health; Nichole E Carlson, University of Colorado Anschutz; Lisa Maier, National Jewish Health

38 Radiomics Analysis Using Stability Selection Supervised Principal Component Analysis for Right-Censored Survival Data—♦ Kang Yan, School of Public Health, Li Ka Shing Faculty of Medicine, The University of Hong Kong; Xiaofei Wang, Duke University School of Medicine; Wendy Lam, School of Public Health, Li Ka Shing Faculty of Medicine, The University of Hong Kong, Ho; Varut Vardhanabutti, Li Ka Shing Faculty of Medicine, The University of Hong Kong; Anne W.M. Lee, The University of Hong Kong; Herbert Pang, School of Public Health, Li Ka Shing Faculty of Medicine, The University of Hong Kong

39 Clustering and Classification of Exocytic Events—♦Ciaran Evans, Carnegie Mellon University; Max G'Sell, Carnegie Mellon University; Zara Weinberg, University of Michigan; Manojkumar Puthenveedu, University of Michigan

**Quality and Productivity Section**

40 Lessons Learned Applying Deep Learning Approaches to Forecasting Complex Seasonal Behavior—♦Andrew T Karl, Adsурго LLC; James Wisnowski, Adsурго LLC; Lambros Petropoulos, USAA

**Invited Sessions 2:00 p.m.—3:50 p.m.**

**374 CC-605**  
**■ ● Statistics in Biosciences (SIB) Special Invited Session**  
**-Impacts of Statistics in Genomics and Imaging—Invited**  
**International Chinese Statistical Association, Section on Statistics in Genomics and Genetics, Biometrics Section**  
**Organizer(s): Hongzhe Li, University of Pennsylvania**  
**Chair(s): Hongzhe Li, University of Pennsylvania**

2:05 p.m. Alignment and Integrative Analysis of Single-Cell RNA-Seq and Single-Cell ATAC-Seq Data—Weiqiang Zhou, Johns Hopkins Bloomberg School of Public Health; Zhicheng Ji, Johns Hopkins Bloomberg School of Public Health; ♦Hongkai Ji, Johns Hopkins Bloomberg School of Public Health

2:35 p.m. Functional Graphical Modeling and Applications in Brain Connectivity Analysis—♦Lexin Li, University of California at Berkeley

3:05 p.m. Gene-Set Integrative Analysis of Multi-Omics Data Using Tensor-Based Association Tests—Meng Yang, North Carolina State University; Wenbin Lu, North Carolina State University; Fan Zhang, University at Buffalo; Jeff Miecznikowski, University at Buffalo; ♦Jung-Ying Tzeng, North Carolina State University

3:35 p.m. Floor Discussion

**375 CC-107**  
**■ ● Modern Statistical Methods for Comparative Effectiveness Research—Invited**  
**Section on Statistics in Epidemiology, Health Policy Statistics Section, ENAR**  
**Organizer(s): Liangyuan Hu, Icahn School of Medicine at Mount Sinai**  
**Chair(s): Liangyuan Hu, Icahn School of Medicine at Mount Sinai**

2:05 p.m. Balancing Weights for Causal Inference: Theory and Practice—♦Fan Li, Duke University

2:30 p.m. Model-Assisted Sensitivity Analysis for Hidden Bias in CER—♦Bo Lu, The Ohio State University; Giovanni Nattino, The Ohio State University

2:55 p.m. Errors in Electronic Health Records: What Two Phase Sampling Teaches Us About Data Validation—♦Bryan E Shepherd, Vanderbilt University School of Medicine; Gustavo Amorim, Vanderbilt University; Ran Tao, Vanderbilt University Medical Center; Sarah Lotspeich, Vanderbilt University; Pamela Shaw, University of Pennsylvania

3:20 p.m. Incorporating Information from a Network of Personalized Trials to Facilitate Individualized Treatment Choice—♦Christopher Schmid, Brown University

3:45 p.m. Floor Discussion

**376 CC-103**  
**● All Things Bayesian: The Next Generation—Invited**  
**International Indian Statistical Association, Section on Bayesian Statistical Science, General Methodology**  
**Organizer(s): Ananda Sen, University of Michigan**  
**Chair(s): Saptarshi Chatterjee, Northern Illinois University**

2:05 p.m. A Practical Bayesian Analysis of Recurrence and Termination—♦Debajyoti Sinha, FLORIDA STATE UNIVERSITY; Zhixing Xu, Florida State University; Jonathan R. Bradley, Florida State University

2:30 p.m. Honey I Shrunk the Intercept—♦Ananda Sen, University of Michigan; Phil Boonstra, University of Michigan

2:55 p.m. On the Beta Prime Prior for Scale Parameters in High-Dimensional Bayesian Regression Models—♦Malay Ghosh, University of Florida; Ray Bai,

3:20 p.m. Uncertainty Quantification for Bayesian Survival Analysis—♦Stephanie van der Pas, Leiden University; Ismael Castillo, Sorbonne University

3:45 p.m. Floor Discussion

**377 CC-108**  
**■ ● New Innovations and Challenges in HGLMs and H-Likelihood—Invited**  
**WNAR, Korean International Statistical Society**  
**Organizer(s): Il Do Ha, Pukyong National University**  
**Chair(s): Dongseok Choi, Oregon Health & Science University**

2:05 p.m. Analysis of Degradation Data Using Double Hierarchical Generalized Linear Model—♦Maengseok Noh, Pukyong National University; Youngjo Lee, Seoul National University

2:25 p.m. Penalized H-Likelihood Approaches for Various Random-Effects Survival Models—♦Il Do Ha, Pukyong

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

TUESDAY

	National University; Youngjo Lee, Seoul National University
2:45 p.m.	Frailty Mean Residual Life Regression for Clustered Survival Data: a Hierarchical Quasi-Likelihood Method—♦Liming Xiang, Nanyang Technological University; Rui Huang, Nanyang Technological University; Il Do Ha, Pukyong National University
3:05 p.m.	H-Likelihood Methods in Spatial Statistics: Recent Advances and Future Challenges—♦Debashis Mondal, Oregon State University
3:25 p.m.	Disc: Jong-Hyeon Jeong, University of Pittsburgh
3:45 p.m.	Floor Discussion
<b>378</b>	<b>CC-Four Seasons 1</b>
■ ●	<b>Wald Lecture II—Invited</b>
IMS	
Organizer(s):	Piotr Fryzlewicz, London School of Economics
Chair(s):	Xihong Lin, Harvard
2:05 p.m.	Wald II: Statistical Learning with Sparsity—♦Trevor J Hastie, Stanford University
3:05 p.m.	Disc: Rahul Mazumder, MIT
3:25 p.m.	Disc: William Fithian, University of California at Berkeley
3:45 p.m.	Floor Discussion
<b>379</b>	<b>CC-501</b>
■ ●	<b>Achieving Adequate Representation When Surveying Rare Populations—Invited</b>
Journal of Survey Statistics and Methodology, Survey Research Methods Section, Government Statistics Section	
Organizer(s):	Tom Krenzke, Westat
Chair(s):	Leyla Mohadjer, Westat
2:05 p.m.	Application of Non-Probability and Probability-Based Link-Tracing Approaches to Sampling Out-Of-School Youth in Developing Countries—♦Tom Krenzke, Westat; Leyla Mohadjer, Westat
2:35 p.m.	Hybrid Estimates for Rare Populations: Probability Surveys Augmented with Targeted Nonprobability Samples—♦Jill A Dever, RTI International
3:05 p.m.	Exploring Mechanisms of Recruitment and Recruitment Cooperation in Respondent-Driven Sampling—♦Sunghee Lee, University of Michigan; Ai Rene Ong, University of Michigan; Michael Elliott, University of Michigan
3:35 p.m.	Floor Discussion

	<b>380</b>	<b>CC-301</b>
■ ●	<b>Curious Roles of Latent Variables in Prediction and Inference—Invited</b>	
Mental Health Statistics Section, Section on Statistical Learning and Data Science, Biometrics Section		
Organizer(s):	Booil Jo, Stanford University	
Chair(s):	Xiao-Li Meng, Harvard University	
2:05 p.m.	Integrated Principal Components Analysis—Tiffany M Tang, University of California at Berkeley; ♦Genevera Allen, Rice University	
2:25 p.m.	Forecasting Future Smoking-Related Mortality in 69 Countries: The Vital Role of Latent Variables—Yicheng Li, University of Washington; ♦Adrian Raftery, University of Washington	
2:45 p.m.	Latent Variables in Causal Inference: Interpretation and Challenges—♦Tyler VanderWeele, Harvard University	
3:05 p.m.	Disc: Robert Tibshirani, Stanford University	
3:25 p.m.	Disc: Mark van der Laan, UC Berkeley	
3:45 p.m.	Floor Discussion	
<b>381</b>	<b>CC-706</b>	
■ ●	<b>Recent Advances in Multiple Testing and False Discovery Rate Analysis—Invited</b>	
IMS, International Chinese Statistical Association, International Statistical Institute		
Organizer(s):	Wenguang Sun, University of Southern California	
Chair(s):	Jacob Bien, University of Southern California	
2:05 p.m.	A New Approach for Large-Scale Multiple Testing with Application to FDR Control for Graphically Structured Hypotheses—♦Wenfei Guo, New Jersey Institute of Technology; Gavin Lynch, Catchpoint Systems, Inc.; Joseph P. Romano, Stanford University	
2:25 p.m.	Optimal False Discovery Rate Control in the Two-Group Model—♦Ruth Heller, Tel-Aviv University; Saharon Rosset, Tel Aviv University	
2:45 p.m.	SOAR: Structure Online--Adaptive Rules for False Discovery Rate Control in Dynamic Models—♦Wenguang Sun, University of Southern California; Weinan Wang, Snap Inc.	
3:05 p.m.	Closed Testing and Admissibility of Procedures Controlling False Discovery Proportions—♦Jelle Goeman, Leiden University Medical Center; Jesse Hemerik, University of Oslo; Aldo Solari, University of Milano-Bicocca	
3:25 p.m.	Adapting to One- and Two-Way Classified Structures of Hypotheses While Controlling False Discoveries—♦Sanat K Sarkar, Temple University	
3:45 p.m.	Floor Discussion	

<p><b>382</b></p> <p>■ ● <b>Climate Networks and Extremes—Invited</b> Section on Risk Analysis, Section on Physical and Engineering Sciences, Section on Statistics and the Environment Organizer(s): Snigdhsu Chatterjee, University of Minnesota Chair(s): Snigdhsu Chatterjee, University of Minnesota</p> <p>2:05 p.m. Chi Network: an Exploratory Tool for Extremal Dependence—♦Dan Cooley, Colorado State University; Whitney Huang, Statistical and Applied Mathematical Sciences Institute</p> <p>2:35 p.m. An Overview of Network Methods Focusing on Extremal Dependence—♦Imme Ebert-Uphoff, Colorado State University</p> <p>3:05 p.m. Modeling Future Climate-Induced Insurance Risk as Multi-Layer Networks—Yulia Gel, University of Texas at Dallas; ♦Vyacheslav Lyubchich, University of Maryland Center for Environmental Science; Asim Dey, University of Texas at Dallas; Monisha Yuvaraj, University of Texas at Dallas Disc: Robert Lund, Clemson University</p> <p>3:35 p.m. Floor Discussion</p>	<p><b>CC-707</b></p>	<p><b>384</b></p> <p>■ ● <b>Artificial Intelligence Meets Behavioral Science: Innovations in Discovering and Leveraging Nudges—Invited</b> Section on Statistics in Marketing, Business and Economic Statistics Section, Institute for Operations Research and the Management Sciences Organizer(s): Ying Zhu, UC San Diego Chair(s): Ying Zhu, UC San Diego</p> <p>2:05 p.m. Visual Listening In: Extracting Brand Image Portrayed on Social Media—♦Liu Liu, University of Colorado Boulder - Leeds School of Business; Daria Dzyabura, New York University Stern School of Business; Natalie Mizik, University of Washington - Foster School of Business</p> <p>2:20 p.m. Personalized Free Trials: Design and Evaluation—♦Ebrahim Barzegary, University of Washington; Hema Yoganarasimhan, University of Washington; Abhishek Pani, Adobe Systems Incorporated</p> <p>2:35 p.m. How Algorithmic Confounding in Recommendation Systems Increases Homogeneity and Decreases Utility—♦Allison Chaney, Duke University; Brandon Stewart, Princeton University; Barbara Engelhardt, Princeton University</p> <p>2:50 p.m. What Is a Good Explanation for Artificial Intelligence Decisions? a Human's Guide to Understanding Machine Learning Output—♦Tong (Joy) Lu, Carnegie Mellon University; Dokyun Lee, Carnegie Mellon University; Taewan Kim, Carnegie Mellon University; David Danks, Carnegie Mellon University</p> <p>3:05 p.m. Harnessing the Small Victories: Empirical Evidence from a Calorie and Weight Loss Tracking Application—♦Kosuke Uetake, Yale University ; Nathan Yang, McGill University</p> <p>3:20 p.m. Disc: Nathan Yang, McGill University</p> <p>3:35 p.m. Floor Discussion</p>	<p><b>CC-504</b></p>
<p><b>383</b></p> <p>■ ● <b>Experimental Design Applications in the Pharmaceutical Industry—Invited</b> Section on Physical and Engineering Sciences, Biopharmaceutical Section, Quality and Productivity Section Organizer(s): Stan Altan, Janssen R&amp;D Chair(s): Areti Manola, Janssen R&amp;D</p> <p>2:05 p.m. Experimental Design in the Pharmaceutical Industry—♦Brad Evans, Pfizer, Inc</p> <p>2:25 p.m. Central Composite Designs for Process Characterization, Why?—♦Jose Ramirez, Amgen, Inc.</p> <p>2:45 p.m. Overview of DoEs and Applications in the Pharmaceutical Industry—♦Jyh-Ming Shoung, Janssen R&amp;D; Dwaine Banton, Janssen R&amp;D; Areti Manola, Janssen R&amp;D</p> <p>3:05 p.m. An Extended Youden Design for Biological Assays—♦Yi Hua, University of Illinois at Chicago; Samad Hedayat, University of Illinois at Chicago; Min Yang, University of Illinois at Chicago; Stan Altan, Janssen R&amp;D Disc: Stan Altan, Janssen R&amp;D</p> <p>3:25 p.m. Floor Discussion</p>	<p><b>CC-505</b></p>	<p><b>385</b></p> <p>● <b>Leo Breiman Award—Invited</b> Section on Statistical Learning and Data Science Organizer(s): Ali Shojaie, University of Washington Chair(s): Xiaotong Shen, University of Minnesota</p> <p>2:05 p.m. Restricted Boltzmann Machines and Truncated Gaussian Distributions—♦Yichao Wu, The University of Illinois at Chicago</p> <p>2:20 p.m. Integrating “two Cultures” in Data Science: Predictability, Computability, and Stability (PCS)—♦Bin Yu, UC Berkeley</p> <p>2:35 p.m. Floor Discussion</p>	<p><b>CC-607</b></p>
<p><b>383</b></p> <p>■ ● <b>Experimental Design Applications in the Pharmaceutical Industry—Invited</b> Section on Physical and Engineering Sciences, Biopharmaceutical Section, Quality and Productivity Section Organizer(s): Stan Altan, Janssen R&amp;D Chair(s): Areti Manola, Janssen R&amp;D</p> <p>2:05 p.m. Experimental Design in the Pharmaceutical Industry—♦Brad Evans, Pfizer, Inc</p> <p>2:25 p.m. Central Composite Designs for Process Characterization, Why?—♦Jose Ramirez, Amgen, Inc.</p> <p>2:45 p.m. Overview of DoEs and Applications in the Pharmaceutical Industry—♦Jyh-Ming Shoung, Janssen R&amp;D; Dwaine Banton, Janssen R&amp;D; Areti Manola, Janssen R&amp;D</p> <p>3:05 p.m. An Extended Youden Design for Biological Assays—♦Yi Hua, University of Illinois at Chicago; Samad Hedayat, University of Illinois at Chicago; Min Yang, University of Illinois at Chicago; Stan Altan, Janssen R&amp;D Disc: Stan Altan, Janssen R&amp;D</p> <p>3:25 p.m. Floor Discussion</p>	<p><b>CC-505</b></p>	<p><b>385</b></p> <p>● <b>Leo Breiman Award—Invited</b> Section on Statistical Learning and Data Science Organizer(s): Ali Shojaie, University of Washington Chair(s): Xiaotong Shen, University of Minnesota</p> <p>2:05 p.m. Restricted Boltzmann Machines and Truncated Gaussian Distributions—♦Yichao Wu, The University of Illinois at Chicago</p> <p>2:20 p.m. Integrating “two Cultures” in Data Science: Predictability, Computability, and Stability (PCS)—♦Bin Yu, UC Berkeley</p> <p>2:35 p.m. Floor Discussion</p>	<p><b>TUESDAY</b></p>

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

**386**

**■● Filtering Methods for Spatio-Temporal Big Data Applications—Invited**

**Section on Statistics and the Environment, Section on Physical and Engineering Sciences, Section on Statistical Computing**

Organizer(s): Matthias Katzfuss, Texas A & M University

Chair(s): Christopher K. Wikle, University of Missouri

2:05 p.m.	Ensemble Kalman Methods for High-Dimensional Hierarchical Dynamic Space-Time Models—Matthias Katzfuss, Texas A & M University; Christopher K. Wikle, University of Missouri; ♦ Jonathan R Stroud, Georgetown University
2:30 p.m.	Nonlinear, Non-Gaussian Extensions for Serial Ensemble Filter Data Assimilation—♦ Jeffrey Anderson, National Center for Atmospheric Research
2:55 p.m.	Improving Particle Filter Performance in Spatially-Extended Problems by Smoothing Observations—♦ Ian Grooms, University of Colorado Boulder; Gregor Robinson, University of Colorado Boulder; William Kleiber, University of Colorado
3:20 p.m.	Particle Filters in High Dimensions—♦ Peter Jan van Leeuwen, Colorado State University and University of Reading (UK); Manuel Pulido, University of Reading
3:45 p.m.	Floor Discussion

**CC-201**

Organizer(s): Mine Cetinkaya-Rundel, Duke University

Chair(s): Beth Chance, Cal Poly - San Luis Obispo

Panelists: ♦ Mine Cetinkaya-Rundel, Duke University  
♦ Michael Posner, Villanova University  
♦ Jeff Forbes, Duke University  
♦ Andrea Danyluk, Williams College

3:45 p.m. Floor Discussion

**387**

**Florence Nightingale David Award—Invited**

**Florence N. David Award, Committee of Presidents of Statistical Societies, History of Statistics Interest Group**

Organizer(s): Bhramar Mukherjee, University of Michigan

Chair(s): Huixia Judy Wang, The George Washington University

2:05 p.m.	Introduction to the FN David Award—♦ Amanda L. Golbeck, University of Arkansas for Medical Sciences
2:30 p.m.	Statisticians and the Evolution of the Randomized Clinical Trial—♦ Susan S. Ellenberg, University of Pennsylvania
3:40 p.m.	Floor Discussion

**CC-207**

**389**

**● Official Statistics at the Crossroads: Data Quality and Access in an Era of Heightened Privacy Risk—Invited**  
**Government Statistics Section, Committee on National Statistics, NAS, Committee on Professional Ethics**

Organizer(s): Michael Hawes, U.S. Census Bureau

Chair(s): Michael Hawes, U.S. Census Bureau

Panelists: ♦ John M. Abowd, U.S. Census Bureau  
♦ Rochelle (Shelly) Wilkie Martinez, U.S. Office of Management and Budget  
♦ Katy Rother, Committee on Oversight, U.S. House of Representatives  
♦ Michael Davern, NORC

3:40 p.m. Floor Discussion

**CC-703**

**Topic Contributed Sessions 2:00 p.m.—3:50 p.m.**

**390**

**■● Advanced Fault Detection and Attribution in Large and Complex Data Streams—Topic Contributed**  
**Quality and Productivity Section, Section on Physical and Engineering Sciences, Section on Statistical Learning and Data Science**

Organizer(s): Amanda S Hering, Baylor University

Chair(s): Amanda S Hering, Baylor University

2:05 p.m.	Dynamic Tracking and Screening in Massive Datastreams—♦ Changliang Zou, Nankai University
2:25 p.m.	Multiple Tensor-On-Tensor Regression: An Approach for Modeling Processes with Heterogeneous Sources of Data—♦ Kamran Paynabar, Georgia Institute of Technology; Mostafa Resisi, Georgia Tech; Hao Yan, Arizona State University; Jianjun Shi, Georgia Tech
2:45 p.m.	A Fault Detection Strategy Based on Wavelet Multiscale Representation of the Process—♦ Fouzi Harrou, King Abdullah University of Science and Technology; Ying Sun, King Abdullah University of Science and Technology
3:05 p.m.	Fault Detection Using PCA at a Municipal Wastewater

**Invited Panels 2:00 p.m.—3:50 p.m.**

**388**

**■● Building Bridges for Data Science Education—Invited**

**Section on Statistics and Data Science Education, Section on Statistical Computing, Section on Statistical Learning and Data Science**

**CC-603**

<p>Treatment Facility—♦Kathryn Blair Newhart, Colorado School of Mines; Tzahi Cath, Colorado School of Mines; Amanda S Hering, Baylor University</p> <p>3:25 p.m. Fault Attribution in a Complex, Nonstationary, and Temporally Dependent Wastewater Treatment System—♦Molly Klanderman, Baylor University</p> <p>3:45 p.m. Floor Discussion</p>	<p>2:05 p.m. Bootstrapping Spectral Statistics in High Dimensions—♦Miles Lopes, UC Davis; Alexander Aue, University of California, Davis; Andrew Blandino, UC Davis</p> <p>2:25 p.m. Unsupervised Ensemble Learning: a Spectral Approach—♦Boaz Nadler, Weizmann Institute of Science</p> <p>2:45 p.m. Distributed Ridge Regression in High Dimensions—♦Yue Sheng, University of Pennsylvania; Edgar Dobriban, University of Pennsylvania</p> <p>3:05 p.m. “Spectral Algorithms for High-Dimensional Data Analysis: What Have We Learned”—♦Matan Gavish, Hebrew Univ of Jerusalem</p> <p>3:25 p.m. Joint Behavior of Large Autocovariance Matrices—♦Arup Bose, Indian Statistical Institute</p> <p>3:45 p.m. Floor Discussion</p>
<p><b>391</b></p> <p>■ ● Leveraging Disparate Sources of Data and Machine Learning to Improve Causal Inference—Topic Contributed</p> <p>ENAR, Section on Statistical Learning and Data Science, Social Statistics Section</p> <p>Organizer(s): Jann Spiess, Postdoctoral Research, Microsoft Research; Johann A Gagnon-Bartsch, University of Michigan</p> <p>Chair(s): Johann A Gagnon-Bartsch, University of Michigan</p> <p>2:05 p.m. Transfer Learning for Estimating Causal Effects Using Neural Networks—♦Soeren Kuenzel, ; Jasjeet Sekhon, UC Berkeley; Bradley Reinhold Stadie, UC Berkeley; Nikita Vemuri, UC Berkeley</p> <p>2:25 p.m. ReLOOP: Precise Unbiased Estimation in Randomized Experiments Using Observational Auxilliary Data—♦Adam Sales, University of Texas At Austin; Johann A Gagnon-Bartsch, University of Michigan; Anthony Botelho, Worcester Polytechnic Institute; Neil T Heffernan, Worcester Polytechnic Institute; Edward Wu, University of Michigan; Luke Miratrix, Harvard University</p> <p>2:45 p.m. Machine Learning for Estimating Causal Effects from High-Dimensional Observational Data—♦Fredrik Johansson, MIT</p> <p>3:05 p.m. Bayesian Inference for Sample Surveys in the Presence of High-Dimensional Auxiliary Information—♦Yutao Liu, Columbia University; Andrew Gelman, Columbia University; Qixuan Chen, Columbia University</p> <p>3:25 p.m. Manipulation Proof Machine Learning—♦Daniel Borkegren, Brown University; Joshua Blumenstock, University of California Berkeley</p> <p>3:45 p.m. Floor Discussion</p>	<p><b>CC-106</b></p> <p><b>393</b></p> <p>ASA Biometrics Section JSM Travel Awards (I)—Topic Contributed</p> <p>Biometrics Section</p> <p>Organizer(s): Rebecca Hubbard, University of Pennsylvania</p> <p>Chair(s): Sheng Luo, Duke University Medical Center</p> <p>2:05 p.m. Propensity Score Weighting for Causal Inference with Multiple Treatments—♦Fan Li, Duke University; Fan Li, Duke University</p> <p>2:25 p.m. Triplet Matching for Estimating Causal Effects with Three Treatment Arms and Extensions—♦Giovanni Nattino, The Ohio State University; Bo Lu, The Ohio State University; Junxin Shi, The Research Institute of Nationwide Children's Hospital; Stanley Lemeshow, Ohio State University; Henry Xiang, The Research Institute of Nationwide Children's Hospital</p> <p>2:45 p.m. Causal Isotonic Regression—♦Ted Westling, University of Massachusetts Amherst; Marco Carone, University of Washington; Peter Gilbert, Fred Hutchinson Cancer Research Center</p> <p>3:05 p.m. Stage-Wise Synthesis of Randomized Trials for Optimizing Dynamic Treatment Regimes—♦Yuan Chen, Columbia University Mailman School of Public Health, Department of Biostatistics; Yuanjia Wang, Columbia University; Donglin Zeng, UNC Chapel Hill</p> <p>3:25 p.m. Disc: Rebecca Hubbard, University of Pennsylvania</p> <p>3:45 p.m. Floor Discussion</p>
<p><b>392</b></p> <p>● Large-Scale Data Analysis via Spectral Methods—Topic Contributed</p> <p>IMS, Section on Statistical Learning and Data Science</p> <p>Organizer(s): Edgar Dobriban, University of Pennsylvania</p> <p>Chair(s): Edgar Dobriban, University of Pennsylvania</p>	<p><b>CC-705</b></p>

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

**394**

**■ Brushing up Your Skills in Genomic Data Analysis—Topic Contributed**

**Korean International Statistical Society, Section on Statistics in Genomics and Genetics, Section on Statistical Consulting**

Organizer(s): Kwang-Youn Kim, Northwestern University

Chair(s): Jungwha "Julia" Lee, Northwestern University

2:05 p.m. Combining Multiple Genomic Data Sets—♦Sihai Zhao, University of Illinois at Urbana-Champaign

2:25 p.m. Approaches for Network-Based Pathway Analysis of Genomic Data—♦Rosemary Braun, Northwestern University; Sahil D. Shah, Northwestern University

2:45 p.m. Application of Machine Learning to Find Needle in a Genomic Haystack—♦Kwang-Youn Kim, Northwestern University

3:05 p.m. Statistical Considerations for Metabolomic Data—♦Sharon Lutz, Harvard Medical School; Rachel S. Kelly, Channing Division of Network Medicine, Brigham & Women's Hospital, Harvard Medical School; Joanne E. Sordillo, Harvard Medical School and Harvard Pilgrim Health Care ; Ann Wu, Harvard Medical School and Harvard Pilgrim Health Care

3:25 p.m. Statistical Approaches for Jointly Analyzing Microbiome and Other -Omics Data Types—♦Michael C. Wu, Fred Hutchinson Cancer Research Center

**CC-502**

**396**

**■ ● Savage Awards Session—Topic Contributed**

**International Society for Bayesian Analysis (ISBA), Section on Bayesian Statistical Science**

Organizer(s): Joyee Ghosh, The University of Iowa

Chair(s): Michael Daniels, University of Florida

2:05 p.m. Bayesian Nonparametric Models for Biomedical Data Analysis—♦Tianjian Zhou, The University of Chicago; Peter Müller, University of Texas Austin; Yuan Ji, The University of Chicago; Michael Daniels, University of Florida

2:25 p.m. Statistical Models for Dependent Trajectories with Application to Animal Movement—♦Henry Scharf, Colorado State University

2:45 p.m. Black Box Variational Inference—♦Rajesh Ranganath, NYU Courant Institute of Mathematical Science

3:05 p.m. Geometric Bayes—♦Andrew Holbrook, UCLA Department of Human Genetics

3:25 p.m. Floor Discussion

**CC-105**

**397**

**■ ● Multiple Aspects of Bayesian Strategies for Variable Selection in Standard and Non-Standard Models—Topic Contributed**

**Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA), International Indian Statistical Association**

Organizer(s): Arnab Kumar Maity, Texas A&M University

Chair(s): Satwik Acharyya, Texas A&M University

2:05 p.m. Bayesian Model Selection for Nonparametric Problems—♦Debdeep Pati, Texas A&M University; Yun Yang, University of Illinois Urbana-Champaign

2:25 p.m. Highest Posterior Model Computation and Variable Selection—♦Arnab Kumar Maity, Texas A&M University; Sanjib Basu, University of Illinois at Chicago

2:45 p.m. Bayesian Criterion Based Variable Selection: Comparisons and Applications—♦Sanjib Basu, University of Illinois at Chicago; Arnab Kumar Maity, Texas A&M University; Santu Ghosh, Augusta University

3:05 p.m. Estimation and Comparison of Conditional Moment Models—♦Siddhartha Chib, Washington University in St. Louis

3:25 p.m. Bayesian Individualized Variable Selection—♦Minsuk Shin, Harvard University; Jun S. Liu, Harvard University

3:45 p.m. Floor Discussion

**TUESDAY**

**395**

**■ ● Connecting Parallel Universes—Topic Contributed**

**Survey Research Methods Section, Government Statistics Section, Business and Economic Statistics Section**

Organizer(s): Arthur B Kennickell, Self

Chair(s): Barry W Johnson, Statistics of Income, IRS

2:05 p.m. HFCS Micro Simulation Model—♦Miguel Ampudia, European Central Bank; Johannes Fleck, European Central Bank

2:25 p.m. Are Survey Data Underestimating the Inequality of Net Wealth?—♦Tairi Room, Bank of Estonia; Jaanika Merikull, Bank of Estonia

2:45 p.m. Pooling (Data) Assets to Learn About Debts—♦Brian Bucks, Consumer Financial Protection Bureau

3:05 p.m. Labour Income Uncertainty During a Crisis—♦Reamonn Lydon, Central Bank of Ireland; Julia Le Blanc, Deutsche Bundesbank

3:25 p.m. Machine Learning European Household Wealth—♦Johannes Fleck, European University Institute

3:45 p.m. Floor Discussion

**CC-702**

**CC-109**

**Topic Contributed Panels 2:00 p.m.—3:50 p.m.**

**398**

**CC-102**

**■ ● Considerations in Optimization of Pediatric Drug Development—Topic Contributed**

Biopharmaceutical Section, Society for Clinical Trials, Academy for Health Services Research and Health Policy

Organizer(s): Freda Cooner, Amgen Inc.

Chair(s): Freda Cooner, Amgen Inc.

Panelists: ♦ Amy Xia, Amgen Inc

♦ Lynne Yao, FDA/CDER

♦ Fanni Natanegara, Eli Lilly and Company

♦ Gary Noel, Johnson & Johnson

3:40 p.m. Floor Discussion

**399**

**CC-503**

**■ ● Statistical Collaboration at All Levels: Challenges, Implementation, and Rewards—Topic Contributed**

Section on Statistical Consulting, Committee on Applied Statisticians, Committee on Career Development

Organizer(s): Shelley Hurwitz, Harvard Medical School

Chair(s): Alicia Carriquiry, Iowa State University

Panelists: ♦ Amit Bhattacharyya, Alexion Pharmaceuticals

♦ Edward Mulrow, NORC at the University of Chicago

♦ Frank Bretz, Novartis Pharma AG

♦ William (Bill) Wang, Merck Research Lab

♦ Shari Medendorp, Premier Research

3:45 p.m. Floor Discussion

**400**

**CC-205**

**● Changing the Statistics Community: Effective Strategies for Promoting an Inclusive and Equitable Culture for Women—Topic Contributed**

Committee on Women in Statistics, Committee on Professional Ethics, ENAR

Organizer(s): Stephanie Hicks, Johns Hopkins Bloomberg School of Public Health

Chair(s): Stephanie Hicks, Johns Hopkins Bloomberg School of Public Health

Panelists: ♦ Wendy L Martinez, Bureau of Labor Statistics

♦ Debasish Ghosh, University of Colorado Anschutz Medical Campus

♦ Jen Hecht, R Studio

♦ Gabriela de Queiroz, IBM

♦ Karthik Ram, Berkeley Institute for Data Science at UC Berkeley

♦ Suzanne Thornton, Rutgers University

3:40 p.m. Floor Discussion

**401**

**CC-704**

**■ ● Why JavaScript?—Topic Contributed**

Section on Statistical Graphics, Section on Statistical Computing

Organizer(s): Joyce Robbins, Columbia University

Chair(s): Tim Hesterberg, Google

Panelists: ♦ Karl Broman, University of Wisconsin

♦ Carson Sievert, RStudio

♦ Ramnath Vaidyanathan, DataCamp

♦ Joy Yang, Google

3:40 p.m. Floor Discussion

**402**

**CC-710**

**■ Cheating Lessons: Learning from Academic Dishonesty—Topic Contributed**

Section on Teaching of Statistics in the Health Sciences, Section on Statistics and Data Science Education

Organizer(s): Monnie McGee, Southern Methodist University

Chair(s): Ed Gracely, Drexel University

Panelists: ♦ Monnie McGee, Southern Methodist University

♦ Jacqui Milton, Boston University

♦ Jana Anderson, Colorado State University

♦ Jeremiah Aakre, Mayo Clinic

♦ Amy L Phelps, Duquesne University

3:40 p.m. Floor Discussion

**TUESDAY**

**Topic Contributed Poster Presentations 2:00 p.m.—3:50 p.m.**

**403**

**CC-Hall C**

**SPAAC Poster Competition—Topic Contributed**

Scientific and Public Affairs Advisory Committee, Survey Research Methods Section

Chair(s): Michael Messner, U.S. Environmental Protection Agency

**Section on Statistics and the Environment**

- 1 Statistical Downscaling with Spatial Misalignment: Application to Wildland Fire PM2.5 Emissions Forecasting—♦ Suman Majumder, North Carolina State University; Yawen Guan, North Carolina State University; Brian Reich, North Carolina State University; Ana Rappold, US Environmental Protection Agency

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

### Section on Nonparametric Statistics

- 2 Estimation of Semiparametric Functional Coefficients Panel Data Model—♦Shaymal Halder, Auburn University; Emir Malikov, Auburn University
- 3 Bootstrap-Based Inference Method for Time-Dependent Dual-Frequency Coherence—♦Kamila Kazimierska, KAUST, Saudi Arabia; Ania Dudek, AGH, Poland; Hernando Ombao, King Abdullah University of Science and Technology (KAUST)

### Section on Statistics and the Environment

- 4 Wavelet Variances for Heavy-Tailed Time Series—♦Rodney Fonseca, University of Campinas; Debashis Mondal, Oregon State University; Lingjiao Zhang, University of Pennsylvania

### Section on Statistics in Epidemiology

- 5 A Causal Model to Estimate the Effect of Distance-Weighted Built Environment Exposures from Longitudinal Data—♦Adam Peterson, ; Brisa Sanchez, Drexel University

### Social Statistics Section

- 6 Poll-Based Bayesian Models to Predict United States Presidential Elections—♦Brittany Alexander, ; Leif Ellingson, Texas Tech University

### Health Policy Statistics Section

- 7 Implementation Science and the Opportunity of Probabilistic Programming Languages—♦Patrick Wilson, Mayo Clinic; Curtis Storlie, Mayo Clinic

### Section on Statistics in Genomics and Genetics

- 8 Estimation and Model Selection Methods for Polygenic Scores on Summary Statistics—♦Jack Pattee, University of Minnesota-Div of Biostatistics; Wei Pan, University of Minnesota
- 9 A Comparison of Missing Data Imputation Methods for Longitudinal Data—♦Meghan Sealey, ; Lan Zhu, Oklahoma State University

### Section on Statistics and the Environment

- 10 Using Black-Box Machine Learning Techniques to Identify Spatial Dependence in Occupancy Data—♦Narmadha Mohankumar, Kansas State University; Trevor Hefley, Kansas State University

### Section on Statistics in Epidemiology

- 11 Propensity Score Analysis to Reduce Bias in Comparing Gender Difference in Takotsubo Cardiomyopathy Using National Inpatient Sample—♦Hsin-Fang Li, Providence Health and Services

### Section on Bayesian Statistical Science

- 12 The Use of Bayesian Methods to Detect Test Fraud—♦Sandip Sinharay, Educational Testing Service; Matthew Johnson, Educational Testing Service

TUESDAY

### Biopharmaceutical Section

- 13 RWE for Lorazepam IV Regulatory Approval in Japan—Richard B. Chambers, Pfizer Inc; ♦Kelly H Zou, Pfizer Inc; Yoshiomi Nakazuru, Pfizer R&D Japan; Shintaro Hiro, Pfizer R&D Japan; Michinori Terada, Pfizer R&D Japan; Alexa Parliyan, Pfizer Inc; Ahmed Shelbaya, Pfizer Inc; Patricia Schepman, Pfizer Inc

### Section on Statistics in Epidemiology

- 14 Power and Sample Size Considerations for the Test Negative Design—♦Yanan Huo, ; Natalie E Dean, University of Florida

### Biopharmaceutical Section

- 15 Statistical Monitoring of Causal Treatment Effect on the Incidence and Severity of Adverse Events in Clinical Trials—♦Jiawei Duan, University of Kansas Medical Center; Jo Wick, University of Kansas Medical Center; Byron Gajewski, University of Kansas Medical Center, The University of Kansas Cancer; Matthew Mayo, University of Kansas Medical Center; Scott Weir, University of Kansas Medical Center

### Lifetime Data Science Section

- 16 Deep Learning with GWAS to Predict AMD Progression—♦Tao Sun, University of Pittsburgh; Wei Chen, Children's Hospital of Pittsburgh of UPMC; Ying Ding, University of Pittsburgh

### Section on Statistics in Genomics and Genetics

- 17 Sample Sizes Associated with a Choice of Normalization and Test Statistical Methods for Differential Gene Expression Analysis in RNA-Seq Studies—♦Xiaohong Li, University of Louisville; Nigel G.F. Cooper, University of Louisville; Timothy E O'Toole, University of Louisville; Eric C. Rouchka, University of Louisville

### Biopharmaceutical Section

- 18 Using Surrogate Endpoints for Trials with Delayed Treatment Effect—♦Qing Li, Takeda; Jianchang Lin, Takeda Pharmaceuticals

### Section on Statistics in Genomics and Genetics

- 19 Estimation of Speciation Times Under the Multispecies Coalescent—♦Jing Peng, The Ohio State University; Laura Kubatko, The Ohio State University; David Swofford, Duke University

### Section on Nonparametric Statistics

- 20 Functional Change Detection for Mapping Annual Urban Dynamics Using Landsat Data—♦Xinyue Chang, Iowa State University ; Xiongtao Dai, Iowa State University ; Zhengyuan Zhu, Iowa State University

### Biometrics Section

- 21 Detecting Participant Noncompliance Across Multiple Time Points: The CATCH 'EM Method—♦Ross Peterson, David Michael Vock, University of Minnesota; Joseph Koopmeiners, University of Minnesota

### Section on Statistics in Genomics and Genetics

- 22 Integrative Modeling of Multi-Omic Data Using a Mediation Framework—♦Ilana Trumble, University of Colorado Denver; Daniel Frank, University of Colorado Anschutz Medical Campus,

Department of Medicine; Vijay Ramakrishnan, University of Colorado Anschutz Medical Campus, Department of Otolaryngology; Miranda Kroehl, Colorado School of Public Health

### Section on Statistics in Epidemiology

23 Utilizing the Internet as a Public Health Surveillance Medium: Outcomes from the RADARSÆ System Web Monitoring Program—♦ Zachary R Margolin, Rocky Mountain Poison and Drug Center, Denver Health and Hospital Authority; Kevin W Wogenstahl, Rocky Mountain Poison and Drug Center, Denver Health and Hospital Authority; Joshua Curtis Black, Rocky Mountain Poison and Drug Center; Richard A Olson, Rocky Mountain Poison and Drug Center, Denver Health and Hospital Authority; Richard C Dart, Rocky Mountain Poison and Drug Center, Denver Health and Hospital Authority

### Biopharmaceutical Section

24 The Use of BON Design in Practice: What We Have Learned—♦Suyu Liu, University Of Texas M.D. Anderson Cancer Center; Heather Lin, MD Anderson Cancer Center; Lei Feng, MD Anderson Cancer Center; Xuemei Wang, MD Anderson Cancer Center

25 Sample Size Evaluation for Oncology Phase II Trial Design—♦Jun Sun, ICON plc; Jill Stankowski, ICON plc

### Section on Statistics and the Environment

26 Testing Exchangeability in Spatiotemporal Random Processes—♦Trevor Harris, University of Illinois Urbana Champaign; Bo Li, University of Illinois at Urbana-Champaign; Nathan Steiger, Lamont-Doherty Earth Observatory; Jason Smerdon, Lamont-Doherty Earth Observatory; Naveen Naidu Narisetty, University of Illinois at Urbana Champaign; Derek Tucker, Sandia National Laboratories

### Section on Physical and Engineering Sciences

27 An Analysis of Motorcyclist's Injury Severity in Florida Work Zones: a Random Parameter Approach with Heterogeneity in Means and Variances—♦Rahul Deshmukh, Center for Urban Transportation Research; ♦Mouyid Islam, Center for Urban Transportation Research

### Section on Nonparametric Statistics

28 Shape Constrained Function Estimation—♦Sutanoy Dasgupta, Florida State University

29 The Nonparametric Behrens-Fisher Problem with Dependent Replicates—♦Akash Roy, University of Texas At Dallas; FRANK KONIETSCHKE, Institut für Biometrie und Klinische Epidemiologie, Charité-Universitätsmedizin Berlin; Solomon W. Harrar, University of Kentucky

### Section on Statistics in Epidemiology

30 Use of Quadratic Inference Function for Estimation of Marginal Intervention Effects in Cluster Randomized Trials—♦Hengshi Yu, University of Michigan, Ann Arbor; Fan Li, Duke University; Elizabeth L Turner, Duke University

### Mental Health Statistics Section

31 Mixed Effects Models for Sequential, Multiple Assignment Randomized Trials (SMARTs)—♦Brook Luers, University of Michigan; Daniel Almirall, University of Michigan

### Section on Statistics in Epidemiology

32 Higher Significance with Smaller Samples: a Modified Sequential Probability Ratio Test—♦Sandipan Pramanik, Texas A&M University (College Station); Valen Johnson, Texas A&M University; Anirban Bhattacharya, TAMU

### Section on Bayesian Statistical Science

33 Bayesian Inference on Multivariate Medians and Quantiles—♦Indrabati Bhattacharya, North Carolina State University; Subhashis Ghosal, North Carolina State University

### Biopharmaceutical Section

34 Obtain a Confidence Interval for Relative Treatment Difference Without Bootstrap—♦Ruji Yao, Merck; Amarjot Kaur, Merck & Co.; Qing Li, Merck Research Labs; Anjela Tzontcheva, Merck & Co., Inc.

### Survey Research Methods Section

35 Estimating Uncertainty of Small Area Estimates via Multilevel Regression and Post-Stratification: a Comparison of Bayesian, Bootstrapping and Monte Carlo Simulation Methods—♦Yan Wang, CDC; Xingyou Zhang, Economic Research Service, USDA; James B. Holt, CDC; Hua Lu, CDC; Janet B. Croft, CDC; Kurt J. Greenlund, CDC

### Biometrics Section

36 Identifying the Optimal Timing of Surgery from Observational Data—♦Xiaofei Chen, Southern Methodist University/UT Southwestern; Daniel Heitjan, Southern Methodist University; Haekyung Jeon-Slaughter, UT Southwestern

### Section on Medical Devices and Diagnostics

37 Strategies for Pooling in Array Testing Configurations with Multiplex Assays—♦Christopher Bilder, University of Nebraska-Lincoln; Joshua Tebbs, University of South Carolina; Christopher McMahan, Clemson University

### Biopharmaceutical Section

38 A Data-Driven Fallback Procedure for Multiple Comparisons—♦Jared Wolf, J.B. Hunt Transport Inc.; Hong Zhou, Arkansas State University

### Contributed Sessions 2:00 p.m.—3:50 p.m.

404

CC-113

### ■ ● Quantile, Semiparametric and Nonparametric Methods in Survival Analysis—Contributed Biometrics Section

Chair(s): David Michael Vock, University of Minnesota

TUESDAY

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

2:05 p.m.	Estimating Cross Quantile Residual Ratio with Left-Truncated Semi-Competing Risks Data—♦Jing Yang, Merck & Co., Inc; Limin Peng, Emory University
2:20 p.m.	Quantile Association Regression on Bivariate Survival Data—♦Ling-Wan Chen, NIEHS; Yu Cheng, University of Pittsburgh; Ying Ding, University of Pittsburgh; Ruosha Li, The University of Texas School of Public Health
2:35 p.m.	Quantile Regression for Survival Analysis with Complex Censoring and Truncation Using a Novel Likelihood Approximation—♦Bryan Keith McNair, University of Colorado Anschutz Medical Campus; Debasish Ghosh, University of Colorado Anschutz Medical Campus; Gary Grunwald, University of Colorado Anschutz Medical Campus
2:50 p.m.	Stochastic Expectation Maximization for Semiparametric Regression Analysis of Multivariate Interval-Censored Data—♦Kaitlyn Cook, Harvard University; Rui Wang, Harvard University
3:05 p.m.	Methods for Survival Analysis Leveraging Data from Randomized Clinical Trials and Observational Studies—♦Jean De Dieu Tapsoba, Fred Hutchinson Cancer Research Center; Ying Qing Chen, Fred Hutchinson Cancer Research Center
3:20 p.m.	Doubly Robust Inference Procedures for Analyzing the Cancer Registry Data—♦Sho Komukai, Osaka University Graduate School of Medicine; Satoshi Hattori, Graduate School of Medicine, Osaka University
3:35 p.m.	Nonparametric Inference of Population Size History via Survival Analysis—♦Jonathan Terhorst, University of Michigan
<b>405</b>	
<b>CC-101</b>	
<b>Statistical Issues Specific to Therapeutic Areas—Contributed</b>	
Biopharmaceutical Section	
Chair(s): Bochao Jia, Eli Lilly and Company	
2:05 p.m.	Dynamic Prediction of Alzheimer's Disease Progression Using Features of Multiple Longitudinal Outcomes—♦Kan Li, Merck & Co.; Sheng Luo, Duke University Medical Center; Richard Entsuah, Merck & Co.
2:20 p.m.	Estimating Knots in Bilinear Spline Growth Models with Time-Invariant Covariates in the Framework of Individual Measurement Occasions—♦Jin Liu, ; Robert A. Perera, VCU Department of Biostatistics; Robert M. Kirkpatrick, Virginia Institute for Psychiatric & Behavioral Genetics
2:35 p.m.	Assessing Correlates of Protection in Vaccine Trials: Statistical Solutions in the Context of High Vaccine Efficacy—♦Fabian Tibaldi, GSK Vaccines; Andrea Callegaro, GSK Vaccines

TUESDAY

2:50 p.m.	Statistical Modeling Strategies for Medication Adherence Research—♦Josh DeClercq, Vanderbilt University Medical Center; Leena Choi, Vanderbilt University Medical Center
3:05 p.m.	Characteristics of Meta-Analyses Used for Assessment of Vaccine Safety—♦Rositsa Dimova, FDA
3:20 p.m.	Nonparametric Estimation of Enriched Crossover Design with High Placebo Response Rate—♦Siying Li, IQVIA; Gary Koch, University of North Carolina at Chapel Hill
3:35 p.m.	Two New Dual-Agent Dose Escalation Methods—♦Yue Yang, North Carolina State University; Wentao Feng, Seattle Genetics; Qianwen Tan, Seattle Genetics; Lisa Brown, Seattle Genetics

**406**

**CC-507**

**New Methodologies and Modern Data Applications—Contributed**

Business and Economic Statistics Section

Chair(s): Mariana Saenz Ayala, Georgia Southern

2:05 p.m.	Use of Social Media Big Data for Predicting the Credit Ratings of Companies—♦Leonie Tabea Goldmann, University of Edinburgh; Jonathan Crook, University of Edinburgh; Raffaella Calabrese, University of Edinburgh
2:20 p.m.	Sparse Vector Networks—♦Victor Solo, University of New South Wales
2:35 p.m.	Multidimensional Skills and the Returns to Schooling: Evidence from an Interactive Fixed Effects Approach and a Linked Survey-Administrative Dataset—♦Evan Totty, U.S. Census Bureau; Mohitosh Kejriwal, Purdue University; Xiaoxiao Li , Villanova University
2:50 p.m.	A Study of the Las Cruces Housing Market—♦Thomas Fullerton, UTEP; Steven L Fullerton, University of Texas at El Paso
3:05 p.m.	Analyzing Network Formation Models Using CEO's Twitter Networks—♦Suyong Song, University of Iowa; Kang-Pyo Lee, University of Iowa
3:20 p.m.	Bi-Clustering of Multivariate Regression Models:—♦Raja Velu, Syracuse University; Zhaoque Zhou, Syracuse University
3:35 p.m.	Going Viral, Binge Watching, and Attention Cannibalism—♦Natalie Blades, Brigham Young University; Scott Grimshaw, Brigham Young University; Candace J. Berrett, Brigham Young University

**407**

**CC-210/212**

**Novel Methods for Causal Inference in Health Policy—Contributed**

Health Policy Statistics Section, International Society for Bayesian Analysis (ISBA), Section on Bayesian Statistical Science

Chair(s): Phillip Schulte, Mayo Clinic

2:05 p.m. Estimation of Average Causal Effect in Clustered Data Using Multiple Imputation—♦ Recai Yucel, SUNY Albany School of Public Health; Meng Wu, Department of Health, NY State

2:20 p.m. Directional Penalties for Optimal Matching in Observational Studies—♦ Ruoqi Yu, University of Pennsylvania; Paul Rosenbaum, University of Pennsylvania

2:35 p.m. Matching Algorithms for Causal Inference with Multiple Treatments—♦ Anthony D. Scotina, Simmons University; Roe Gutman, Brown University

2:50 p.m. Causal Inference Under Interference in Dynamic Therapy Group Studies—♦ Susan Paddock, NORC at the University of Chicago; Bing Han, RAND Corporation; Lane Burgette, RAND Corporation

3:05 p.m. A Probabilistic Approach to Cost-Effectiveness Analysis with Censored Outcomes—♦ Nicholas Illenberger, University of Pennsylvania; Andrew J. Spieker, Vanderbilt University Medical Center; Nandita Mitra, University of Pennsylvania

3:20 p.m. Bayesian Joint Network Meta-Regression Methods Adjusting for Post-Randomization Variables—♦ Jing Zhang, University of Maryland College Park; Mark Wymer, University of Maryland; Haitao Chu, University of Minnesota; Qinshu Lian, Genentech

3:35 p.m. A Simulation Study for the Statistical Performance of Matching Adjusted Indirect Comparison—♦ Fan Wu, Biogen; Xiaoyu Jiang, Biogen; Katherine Riester, Biogen

**408**

**CC-709**

**Joint Modeling of Longitudinal and Survival Data and Related Topics—Contributed**

Lifetime Data Science Section

Chair(s): Mengdie Yuan, Food and Drug Administration

2:05 p.m. The Joint Modeling of Longitudinal Covariates and Censored Quantile Regression—♦ Bo Hu, Columbia University; Ying Wei, Columbia University, Biostatistics Department; Mary Beth Terry, Columbia University

2:20 p.m. Joint Analysis of Longitudinal and Interval-Censored Failure Time Data—♦ Yin-Chu Chang,

2:35 p.m. Joint Latent Class Trees: a Tree-Based Approach to Joint Modeling of Time-To-Event and Longitudinal Data—♦ Ningshan Zhang, New York University; Jeffrey S. Simonoff, New York University

2:50 p.m. Bayesian Joint Models for Longitudinal and Competing Risks Data—♦ Allison Furgal, University of Michigan Biostatistics; Ananda Sen, University of Michigan; Jeremy Taylor, University of Michigan

3:05 p.m.

Joint Modeling of Longitudinal Data and Informative Zero-Inflated Cluster Size Adjusted for a Terminal Event—♦ Biyi Shen, The Pennsylvania State University; Vernon Chinchilli, Pennsylvania State University; Ming Wang, Pennsylvania State University

3:20 p.m.

A Gaussian Copula Approach for Dynamic Prediction of Survival with a Longitudinal Biomarker—♦ Krithika Suresh, University of Colorado; Jeremy Taylor, University of Michigan; Alexander Tsodikov, University of Michigan

3:35 p.m.

H-Likelihood Estimation for Survival Analysis with Log-Skew-Normal Shared Frailty—♦ Adams Kusi Appiah, University of Nebraska Medical Center; Gleb Haynatzki, University of Nebraska Medical Center; Hongying Dai, University of Nebraska Medical Center

**409**

**CC-110**

**Bayesian Space-Time Modeling—Contributed Section on Bayesian Statistical Science**

Chair(s): Michael Grosskopf,

2:05 p.m.

Bayesian Spatio-Temporal Models for Map Reconstruction and Forest Inventory Prediction—♦ Giovanni Petris, Univ of Arkansas; Avishek Chakraborty, University of Arkansas; Kamrul Khan, University of Arkansas; Ty Wilson, USDA Forest Service

2:20 p.m.

Animal Movement Through Space and Time in a Hierarchical Bayesian Framework—♦ Alex Oard, ; Athanasios Micheas, University of Missouri

2:35 p.m.

Gaussian Copula Processes in Spatial Generalized Linear Models—♦ Robert Richardson, Brigham Young University

2:50 p.m.

Constrained Functional Regression of National Forest Inventory Data Over Time Using Reconstructed Remote Sensing Observations—♦ Md Kamrul Hasan Khan, University of Arkansas; Avishek Chakraborty, University of Arkansas; Giovanni Petris, Univ of Arkansas; Ty Wilson, USDA Forest Service

3:05 p.m.

Hierarchical Multivariate Directed Acyclic Graph Auto-Regressive (DAGAR) Models for Spatial Diseases Mapping—♦ Leilwen Gao, UCLA; Abhi Datta, Johns Hopkins Bloomberg School of Public Health; Sudipto Banerjee, UCLA

3:20 p.m.

Nearest Neighbor Co-Kriging Gaussian Process—♦ Si Cheng, University of Cincinnati; Alex Konomi, University of Cincinnati

3:35 p.m.

Bayesian Nested Lasso with Application to Mixed Frequency Data—♦ Satyajit Ghosh, Rutgers University; Kshitij Khare, University of Florida; George Michailidis, University of Florida

TUESDAY

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

**410**

**Diagnostic Tests: Regulatory Considerations of Intermediate Outputs and Oncology Screening, and Optimal Point of Heterogeneous ROC Curves—Contributed**

Section on Medical Devices and Diagnostics

Chair(s): Alan M. Zaslavsky, Harvard Medical School

2:05 p.m.	Evaluation of Diagnostic Tests with Binary/Dichotomous Output: a Decision Analytic Approach—♦ Arianna Simonetti, U.S. Food and Drug Administration - CDRH; Bipasa Biswas, U.S. Food and Drug Administration - CDRH
2:20 p.m.	Diagnostic Devices with Intermediate/Gray Zone Output—♦ Bipasa Biswas, U.S. Food and Drug Administration - CDRH
2:35 p.m.	ROC Analysis for Multistage Diagnostic Testing Procedures in the Presence of Indeterminate Results—♦ Ziqiang Chen, State University of New York At Buffalo; Gregory Wilding, SUNY at Buffalo
2:50 p.m.	Statistical Methods to Address Verification Bias for Evaluating Screening Tests—♦ Changhong Song, FDA
3:05 p.m.	Four Types of Reported Results in Quantitative Molecular Diagnostics Tests: Uncertainty of the Reported Results—♦ Jeffrey Vaks, Roche Molecular Diagnostics
3:20 p.m.	The Optimal Point of the ROC Curve When Disease Distribution Is a Mixture of Normals—♦ Donna McClish, VCU
3:35 p.m.	Floor Discussion

**CC-104**

University of Illinois at Urbana-Champaign; Xiaohui Chen, University of Illinois at Urbana-Champaign

3:20 p.m.	The Validity of Randomization Tests in Randomized Controlled Clinical Trials—♦ Diane Uschner, George Washington University
3:35 p.m.	Comparison of Rotational Symmetry in Three-Dimensional Rotation Data Through a Permutation Test—♦ Melissa Bingham, University of Wisconsin-La Crosse

**TUESDAY**

**411**

**Nonparametric Testing—Contributed**

Section on Nonparametric Statistics

Chair(s): Eric Kawaguchi, UCLA Department of Biostatistics

2:05 p.m.	Kernel Based-Hybrid Test for High-Dimensional Data—♦ Inyoung Kim, Virginia Tech
2:20 p.m.	The Exact Equivalence of Distance and Kernel Methods for Hypothesis Testing—♦ Cencheng Shen, University of Delaware; Joshua Vogelstein, Johns Hopkins University
2:35 p.m.	A Consistent Nonparametric Test for Endogeneity—♦ Seolah Kim, University of California, Riverside
2:50 p.m.	Optimal Confidence Bands Under Shape Restriction in Multidimension—♦ Pratyay Datta, Columbia University ASA Student Chapter; Bodhisattva Sen, Columbia University
3:05 p.m.	A Robust Bootstrap Change Point Test for High-Dimensional Location Parameter—♦ Mengjia Yu,

**CC-302**

2:05 p.m.	Modifications of the Syrjala Test for Testing Spatial Distribution Differences Between Two Populations—♦ Eric McKinney, Utah State University; Juergen Symanzik, Utah State University
2:20 p.m.	Positive Orthant Dirichlet Hyperspheric Distribution—♦ Jose Guardiola, Texas A&M University Corpus Christi; Eduardo Garcia Portugues, Universidad Carlos III de Madrid
2:35 p.m.	Identifying Influential Posters on Reddit Through Network Analysis—♦ Jonathan Lane, Activision Publishing; Aaron Sachs, Harvard University
2:50 p.m.	A Change-Point Detection and Clustering Method in the Recurrent-Event Context—♦ Qing Li, Iowa State University
3:05 p.m.	Estimating Multiple Precision Matrices Using Cluster Fusion Regularization—♦ Brad Price, West Virginia University; Aaron Molstad, Fred Hutchinson Cancer Research Center; Ben Sherwood, University of Kansas
3:20 p.m.	Gradient-Based Sparse Principal Component Analysis with Extensions to Online Learning—♦ Yixuan Qiu, Carnegie Mellon University; Jing Lei, Carnegie Mellon University; Kathryn Roeder, Carnegie Mellon University
3:35 p.m.	A General Multivariate Linear Mixed Model for Detecting Gene by Environment Interactions—♦ Hyeyonju Kim, University of Tennessee Health Sci Ctr; Saunak Sen, University of Tennessee Health Sci Ctr

**413**

**Network Analysis and Network-Based Modeling—Contributed**

Section on Statistical Learning and Data Science

Chair(s): Ali Shojaie, University of Washington

**CC-712**

2:05 p.m.	Mixed Network Modeling for Network Simulation—♦Fairul Mohd-Zaid, Air Force Research Labs; Wright Champ, Florida State University
2:20 p.m.	Two-Stage Spectral Co-Clustering for Matched Communities—♦Hyesun Yoo, University of Michigan; Ji Zhu, University of Michigan
2:35 p.m.	Second-Order Models for Exchangeable Relational Data—♦Frank Marrs, Colorado State University; Bailey Fosdick, Colorado State University
2:50 p.m.	Network Heterogeneity and Strength of Connections—♦Sandipan Roy, University of Bath; Subhadeep Mukhopadhyay, Temple University
3:05 p.m.	Maximum Likelihood Estimation and Graph Matching in Errorfully Observed Networks—♦Jesus Arroyo, Johns Hopkins University; Daniel L Sussman, Boston University; Carey E Priebe, Johns Hopkins University; Vince Lyzinski, University of Massachusetts Amherst
3:20 p.m.	Prediction from Networks with Node Features with Application to Neuroimaging—♦Daniel Kessler, University of Michigan; Elizaveta Levina, University of Michigan; Keith Levin, University of Michigan
3:35 p.m.	Operating Characteristics of Network Centrality—♦Manjari Narayan,

<b>414</b>	<b>CC-203</b>
<b>Models for Environmental Processes—Contributed</b>	
<b>Section on Statistics and the Environment</b>	

Chair(s): Yawen Guan, North Carolina State University

2:05 p.m.	Mobile Methane Sensors: Addressing Important Natural Gas Infrastructure Questions—♦Zachary Weller, Joseph von Fischer, Colorado State University
2:20 p.m.	Penalized Basis Models for Very Large Spatial Data Sets—♦Mitchell Krock, University of Colorado at Boulder; William Kleiber, University of Colorado; Stephen Becker, University of Colorado
2:35 p.m.	Flexible Quantile Contours for Multivariate Functional Data: Beyond Convexity—♦Gaurav Agarwal, King Abdullah University of Science and Technology (KAUST); Ying Sun, King Abdullah University of Science and Technology
2:50 p.m.	Robust Functional Multivariate Analysis OfVariance with Environmental Applications—♦Zhuo Qu, KAUST; Marc Genton, King Abdullah University of Science and Technology; Wenlin Dai, Renmin University of China
3:05 p.m.	Spatial Cluster Detection with Threshold Quantile Regression—♦Junho Lee, King Abdullah University of Science and Technology; Ying Sun, King Abdullah University of Science and Technology; Huixia Judy Wang, The George Washington University
3:20 p.m.	Characterizing Global Spatio-Temporal Patterns of Crop Production Using Multilevel Network Analysis—

3:35 p.m.	♦Srishti Vishwakarma, University of Maryland Center for Environmental Science; Vyacheslav Lyubchich, University of Maryland Center for Environmental Science; Xin Zhang, University of Maryland Center for Environmental Science
3:35 p.m.	Combining Air Pollution Estimates from Multiple Statistical Models Using Spatial Bayesian Ensemble Averaging—♦Nancy L Murray, Emory University; Howard Chang, Emory

**415** **CC-112**

**■ Statistical Methods for Gene Expression and RNA-Seq Analysis—Contributed**

**Section on Statistics in Genomics and Genetics**

Chair(s): Peng Liu, Iowa State University

2:05 p.m.	Nonparametric Method for Differential Analysis of RNA-Seq with Quantification Uncertainty—♦Anqi Zhu, University of North Carolina Chapel Hill; Joseph G Ibrahim, UNC; Michael Love, UNC-Chapel Hill
2:20 p.m.	Can You Trust Differential Expression Methods for RNA-Seq Data Analysis?—♦Boris P Hejblum, University of Bordeaux; Marine Gauthier, Université de Bordeaux, Inria/Inserm, VRI; Rodolphe Thiébaut, Université Bordeaux, Inria/Inserm, VRI; Denis Agniel, RAND Corporation
2:35 p.m.	Flexible Bivariate Correlated Count Data Regression with Application in Gene Coexpression Analysis Based on RNA-Sequencing Data—♦Zichen Ma, University of South Carolina
2:50 p.m.	Latent Dirichlet Model to Compare Expressed Isoform Proportions to a Reference Panel—♦Sean McCabe, University of North Carolina at Chapel Hill; Andrew B Nobel, University of North Carolina at Chapel Hill; Michael Love, UNC-Chapel Hill
3:05 p.m.	Genome-Wide Detection of Allele-Specific Gene Expression by a Bayesian Logistic Regression Model—♦Tieming Ji, University of Missouri At Columbia; Jing Xie, University of Missouri at Columbia; Marco Ferreira, Virginia Tech
3:20 p.m.	Simultaneous Confidence Intervals for Gene Isoform Expression in RNA Sequencing Data with Overdispersion—♦Bo Li, The Citadel
3:35 p.m.	Floor Discussion

**416** **CC-701**

**Nonresponse Errors and Fixes—Contributed**

**Survey Research Methods Section**

Chair(s): Barbara Robles, Federal Reserve Board

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

2:05 p.m.	Exploring the Relationship Between Burden Factors and Survey Response—♦Morgan Earp, Bureau of Labor Statistics; Brandon Kopp, Bureau of Labor Statistics; John Dixon, Bureau of Labor Statistics	4	Presenting Results of Statistical Tests in Graphical Format—♦Nola du Toit, NORC at the University of Chicago; Edward Mulrow, NORC at the University of Chicago; Christopher du Sousa-Nieves, NORC at the University of Chicago
2:20 p.m.	Using Survey Contact History to Study the Effect of Interviewer Strategies on Respondent Behavior—♦John Dixon, Bureau of Labor Statistics	5	A Panel Analytic Approach to Modeling Sleep-Related Outcomes Among Older Adults in China—♦Mack Shelley, Iowa State University; Yen-Han Lee, Indiana University; Yen-Chang Chang, National Tsing Hua University; Timothy Chiang, Pennsylvania State University; Ching-Ti Liu, Boston University
2:35 p.m.	A Comparison of Selective Versus Automatic Editing for Estimating Totals—♦Chin-Fang Weng, U.S. Census Bureau; Joanna Fane Lineback, U.S. Census Bureau	6	Framing of Culture War Issues in Congressional Campaign Websites—♦Jack Wolf, St. Olaf College; Christopher Chapp, St. Olaf College; My Khe Nguyen, St. Olaf College; Paul Roback, St. Olaf College; Jessica Whittenburg, St. Olaf College
2:50 p.m.	Assessment of an Imputation Process for the 2017 Census of Agriculture—♦Tara Murphy, USDA National Agricultural Statistics Service; Habtamu Benecha, NASS/USDA; Denise A. Abreu, USDA National Agricultural Statistics Service; Darcy Miller, National Agricultural Statistics Service	7	Data-Driven Community Based Programming: a Statistical Analysis of Heart Disease Prevention Initiatives in Oklahoma City-County—♦Mary Nevener,
3:05 p.m.	Visibility Imputation for Population Size Estimation Using Respondent-Driven Sampling—♦Katherine McLaughlin, Oregon State University; Mark Handcock, University of California, Los Angles	8	Confidence Intervals for Marginal Effects and Predictive Margins in Logit Models—♦Chaitra Nagaraja, Fordham University; Benjamin Cole, Fordham University
3:20 p.m.	Imputation in a National Health Survey: Balancing Data Quality with Respondent Burden in the Medical Expenditure Panel Survey (MEPS)—♦Emily Mitchell, Agency for Healthcare Research and Quality; Jerrod Anderson, Agency for Healthcare Research and Quality; Samuel H Zuvekas, Agency for Healthcare Research and Quality	9	Making Data-Driven Decisions About Serving Homeless Populations Using Machine Learning Tools—♦Austin Lampros,
3:35 p.m.	Population Size Estimation Using Multiple Respondent-Driven Sampling Surveys—♦Brian Kim, University of Maryland, College Park; Mark Handcock, University of California, Los Angles	10	A Statistical Measure of Gerrymandering and Compactness of District Maps—♦Rajarshi Dey, University of South Alabama; Andrei Pavelescu, University of South Alabama
		11	Measuring Impact of Tax Law Changes on CPS ASEC Tax Model—♦Bruce Webster, US Census Bureau; Kathryn Shantz, U.S. Census Bureau
		12	Getting a Clear Picture of Studentsí Writing Performance—♦Ya Mo, Boise State University; NELL Sedransk, NISS
		13	Break Detection Methods Applied for Int'l GDP P.C. Time-Series Data, Together with Economics and Block-Chain Techs—♦BeomYong Kim, Jeju National University; JuHyun Jeon, Chung-Ang University
		14	Factors Contributing to Successful Employment Outcomes for Individuals Who Are Hard-Of-Hearing—♦Hansapani Rodrigo, University of Texas Rio Grande Valley; Shawn Saladin, Uniiversity of Texas Rio Grande Valley; Sergio Cuevas, Uniiversity of Texas Rio Grande Valley
		15	Implementing Empirical Results of Panel Models with Lagged Dependent Variables and Random Intercepts into Microsimulation—♦Dawid Bekalarczyk, ; Petra Stein, University of Duisburg-Essen
		16	A Spatial Microsimulation Model of Labor Market Integration in Germany—♦Monika Obersneider, University of Duisburg-Essen; Petra Stein, University of Duisburg-Essen
		17	Patterns of Effects and Sensitivity Analysis for Differences-In-Differences—♦Luke Keele, University of Pennsylvania; Dylan Small, University of Pennsylvania; Colin B. Fogarty, Massachusetts Institute of Technology

TUESDAY

**Contributed Poster Presentations 2:00 p.m.—2:45 p.m.**

**417 CC-Hall C**

**SPEED: Methodological Developments in Social Statistics, Part 2—Contributed Social Statistics Section, Text Analysis Interest Group**

Chair(s): Wendy Meiring, University of California At Santa Barbara

**Social Statistics Section**

- 1 A Partial Simulation Study of Phantom Effects in Multilevel Analysis of School Effects: The Case of School Socioeconomic Composition—Xin Ma, University of Kentucky; ♦Hao Zhou, University of Kentucky
- 2 Predicting Poverty Using Remote Sensing Vegetation Indices—♦Grace Deng, Cornell University
- 3 Gender Gap in the Perception of Safety in Subways—♦Laila Alt Bihi Ouali, Imperial College London - Access Management; Daniel Graham, Imperial College London

18 Using Statistical and Machine Learning Methods to Analyze Response Time Data from Computer-Based Educational Assessments—♦Bingchen Liu, Educational Testing Service

19 Finding the Strength in a Weak Instrument in a Study of Cognitive Outcomes Produced by Catholic High Schools—♦Siyu Heng, University of Pennsylvania; Dylan Small, University of Pennsylvania; Paul Rosenbaum, University of Pennsylvania

**418****CC-Hall C****SPEED: Biostatistical Methods, Application, and Education, Part 2—Contributed**

**Section on Medical Devices and Diagnostics, ENAR, Mental Health Statistics Section, Quality and Productivity Section, General Methodology, Section on Bayesian Statistical Science, Section on Risk Analysis, Section on Statistical Graphics, Section on Teaching of Statistics in the Health Sciences**

Chair(s): Loren Cobb, University of Colorado Denver

**Quality and Productivity Section**

20 Importance of Data Quality for National HIV Prevention Program Monitoring and Evaluation—♦Guoshen Wang, Centers for Disease Control and Prevention; Shubha Rao, The Centers for Disease Control and Prevention ; Hui Zhao, The Centers for Disease Control and Prevention ; Wei Song, The Centers for Disease Control and Prevention ; Carolyn Wright, The Centers for Disease Control and Prevention ; Marc Wiehn, Luther Consulting LLC

**Section on Teaching of Statistics in the Health Sciences**

21 Pre-Conceptions of Statistical Inference in Biostatistics—♦Aimee Schwab-McCoy, Creighton University

**ENAR**

22 Impact of Approaches for Clinical and Radiological Monitoring on Predicting of Short-Term and Long-Term Disability Outcomes in Multiple Sclerosis—♦Brian Healy, Biostatistics Center/Massachusetts General Hospital

**Mental Health Statistics Section**

23 Developing Year-Long Mobile Health Interventions to Improve Mental Health Outcomes Among Medical Interns: Experimental Design and Statistical Methods—♦Timothy NeCamp, University of Michigan; Zhenke Wu, University of Michigan; Srijan Sen, University of Michigan

**Quality and Productivity Section**

24 Tolerance Intervals for Autoregressive Models, with an Application to Hospital Waiting Lists—♦Kedai Cheng, ; Derek Young, University of Kentucky

25 Coffee and Cardiovascular Disease Prevention—♦Anna Wu, ; Patrick Giuliano, Abbott

**Mental Health Statistics Section**

26 Lowering Sample Size Requirements for Mixture Modeling in Mental Health Research—♦Alessandro De Nadai, Texas State

University; Kate Fitzgerald, University of Michigan; Ryan Zamora, Texas State University; Luke Norman, University of Michigan; Tara Little, Texas State University; Joseph Himle, University of Michigan; Kristin Mannella, University of Michigan; Stephan Taylor, University of Michigan

**Section on Statistical Graphics**

27 Rank-Based Approach for Estimating Correlations in Mixed Ordinal Data—♦Xiaoyun Quan, ; James Booth, Cornell University; Martin Wells, Cornell University

**Section on Statistics in Epidemiology**

28 Age-Period-Cohort Analysis of Lead Body Burden in the United States, 1976-2016—♦Yutaka Aoki, National Center for Health Statistics

**Mental Health Statistics Section**

29 Psychotherapy Outcomes for Adults with Autism Spectrum Disorder in a University Counseling Setting—♦E. Neeley Tass, Brigham Young University

**Section on Medical Devices and Diagnostics**

30 Assessment of Biomarker Strategies in Lung Cancer Management via Net Reclassification Indices—♦Piper Williams, University of Colorado Anschutz Medical Campus; Alexander Kaizer, University of Colorado Anschutz Medical Campus; Anna BarÜn, University of Colorado Anschutz Medical Campus

**Section on Teaching of Statistics in the Health Sciences**

31 Experiences with Incorporating R into a Second-Level Biostatistics Course for MPH Students—♦Christine Mauro, Columbia University; Nicholas Williams, Columbia University; Anjile An, Columbia University

**Section on Statistics in Epidemiology**

32 Joint Valid Moments Bayesian Marginal Logistic Regression Model with Time Dependent Covariates—♦Maria Vazquez, ; Jeffrey Wilson, W. P. Carey School of Business, ASU

33 Temporal Association of Prostate and Colon Cancer with World Trade Center Rescue/Recovery Work: a 14 Year Cohort Study—♦Charles Hall, Albert Einstein College of Medicine; David Goldfarb, Montefiore Medical Center ; Rachel Zeig-Owens, Montefiore Medical Center ; David Prezant, Fire Department of the City of New York

**Section on Risk Analysis**

34 Predicting the Absolute Risk of Undetected Uterine Cancer in a Matched Case-Control Study—♦Catherine Lee, Kaiser Permanente Division of Research; Scott E. Lentz, , The Southern California Permanente Medical Group, Los Angeles; Eve Zaritsky, The Permanente Medical Group, Oakland California; Lue-Yen Tucker, The Division of Research, Kaiser Permanente Northern California; Tina Raine-Bennett, Oakland California and The Division of Research, Kaiser Permanente Northern California

**Section on Medical Devices and Diagnostics**

35 New Results on the Weighted Generalized Score for Comparing Two Correlated Means—♦Aaron Douglas Jones, Duke

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

University; Andrzej Stanislaw Kosinski, Duke University

#### Mental Health Statistics Section

36 Sample Size Calculations in Single-Case Designs—♦Jiabei Yang, Brown School of Public Health; Christopher Schmid, Brown University; Jon Steingrimsson, Brown University

#### Section on Bayesian Statistical Science

37 A Bayesian Zero Inflated Binomial Model for Repeated Measures Count Data—♦Benjamin W. Rogers, UCLA

#### Biometrics Section

38 Optimality in Group Testing Estimation with Misclassification—♦Md. S. Sarker, Radford University

### Contributed Poster Presentations 2:00 p.m.—3:50 p.m.

**419**

**CC-Hall C**

#### Contributed Poster Presentations: Government Statistics Section—Contributed

##### Government Statistics Section

Chair(s): Wendy Meiring, University of California At Santa Barbara

##### Government Statistics Section

39 The Value of Mentors for Young Adults—♦Jayla Gabrielle Langford, Purdue University

40 Data Analytics for Better Statistics—♦Jeremy Heng, Ministry of Manpower

41 "Comparison of Methods to Analyze Cost When Extreme Values Are Present"—♦Clinton Alverson, CDC/DDNID/NCBDDD/DCDD/BDB; Charles E. Rose, CDC/DDNID/NCBDDD/OD

42 Estimating Custom Rates Using a Weighted Mean of Reported Rates—♦Franklin Duan, USDA NASS MD; Timothy Keller, Saint Louis University; Peter Quan, NASS, USDA

#### Section on Statistical Learning and Data Science

43 A Comparison of Several Missing Data Imputation Techniques for Analyzing Different Types of Missingness—♦Tiantian Yang, Clemson University; William Bridges, Clemson University

##### Government Statistics Section

44 Partitioning the Adjustment for Nonresponse, Undercoverage and Misclassification for the 2017 Census of Agriculture—Linda J Young, USDA National Agricultural Statistics Service; ♦Bayazid Sarkar, National Agricultural Statistics Service (NASS); Habtamu Benecha, NASS/USDA; Sarah Goodale, National Agricultural Statistics Service (NASS); Gavin Corral, National Agricultural Statistics Service (NASS)

45 Reconstructing Matrices with Linear Programming—♦Luis Frank, Universidad de Buenos Aires

46 Factors Associated with Rural Disparities in Early-Season Influenza Vaccination Among U.S. Adults, 2018-19 Influenza Season—♦Anup Srivastav, Centers for Disease Control and Prevention/Leidos Inc; Pengjun Lu, CDC; Tammy A Santibanez, Centers for Disease Control and Prevention; Ashely Amaya, RTI International; Jill A Dever, RTI International; Marshica Stanley Kurtz, RTI International; Jessica L Roycroft, RTI International; Walter W Williams, Centers for Disease Control and Prevention

**420**

**CC-Hall C**

#### Contributed Poster Presentations: Health Policy Statistics Section—Contributed

##### Health Policy Statistics Section

Chair(s): Wendy Meiring, University of California At Santa Barbara

##### Health Policy Statistics Section

47 Multivariate Joint Modeling of Mean and Variation and Time-Lagged Intensive Longitudinal Methods to Assess Associations Between Outcomes and Predictor Variation—♦Maryam Skafyan, University of Northern Colorado; Trent L Lalonde, University of Northern Colorado

48 A Multinomial Hurdle Model, Interpretation in the Context of Post Discharge Cost of Care—♦Carter Sevick, Elizabeth Juarez-Colunga, University of Colorado Denver; Lisa McLeod, University of Colorado Denver, School of Medicine

49 Generalized Mixed Functional Modeling Approach for Discrete Scalar Outcomes and Account for the Cross-Dependence of Repeated Functional Observations—♦Mostafa Zahedjahromi, University of Northern Colorado; Trent L Lalonde, University of Northern Colorado

50 Alternative Method to Determine High and Low Performing Facilities—♦Allen Haas, University of Texas Medical Branch, Dept of OB/GYN; Yong-Fang Kuo, The University of Texas Medical Branch; James Graham, Colorado State University

51 Unknown Unknowns: Silently Missing Administrative Data—♦Laura A Hatfield, Harvard Medical School

52 Statistical De-Identification of a Health Dataset Based on a Common Data Model—♦Megan Branda, University of Colorado - Denver; Debashis Ghosh, University of Colorado Anschutz Medical Campus

53 Asymptotic Properties and Optimal Threshold Selection in Probabilistic Record Linkage Analyzes—♦Nicole Solomon, Duke University; Sean M O'Brien, Duke University Medical Center

54 Estimating Time to Intermediate Endpoints Using Population-Level Survival Data and Deconvolution Methods, with Application to Cancer Progression and Recurrence—♦Marlena Bannick, University of Washington

55 The Trim-And-Fill Method for Publication Bias: Practical Guidelines and Recommendations Based on a Large Database of Meta-Analyzes—♦Linyu Shi, Florida State University; Lifeng Lin, Florida

56	State University Water Fluoridation—♦Katherine Brinkers,	65	Prediction of Shrimp Size Distribution Reared Inside Submersible Sea Cages—♦Rafael Perez Abreu, Centro de Investigación en Matemáticas, A.C. (CIMAT); Ignacio Mendez, CIMAT; Raul Perez Gallardo, CIMAT
57	Comparison Between Individual-Level and Ecological Models: a HIV PrEP Prescription Example Using a National Pharmacy Database—♦Jun Zhang, Center for Disease Control and Prevention; Neal Carnes, Centers for Disease Control & Prevention; Ya-lin Huang, Centers for Disease Control & Prevention; Deborah Gelaude, Division of HIV/AIDS Prevention, Centers for Disease Control & Prevention, Atlanta, GA; Yuko Mizuno, Division of HIV/AIDS Prevention, Centers for Disease Control & Prevention, Atlanta, GA; Karen W. Hoover, Division of HIV/AIDS Prevention, Centers for Disease Control & Prevention, Atlanta, GA	66	Designing Bridging Studies to Adjust for Assay Changes in National Surveys—♦Maya Sternberg, Centers for Disease Control & Prevention
58	Using Interactive Web-Based Monitoring to Increase Breastfeeding—♦Jordan-Taylor Harris, Purdue Univ; Azza Ahmed, Purdue University	67	A Process Control Model with Decisions Based on Runs—♦William S Griffith, University of Kentucky; Michelle Smith, Eastern Kentucky University
59	Evaluating the Psychometric Properties of the Immunotherapy Module of the MD Anderson Symptom Inventory (MDASI-Immunotherapy)—♦Tito Mendoza, Univ. of Texas M.D. Anderson Cancer Center; Ajay Sheshadri, The University of Texas MD Anderson Cancer Center; Ken Hess, The University of Texas MD Anderson Cancer Center; Mehmet Altan, The University of Texas MD Anderson Cancer Center; Betty Stephen, The University of Texas MD Anderson Cancer Center; Charles Cleland, The University of Texas MD Anderson Cancer Center; David Hong, The University of Texas MD Anderson Cancer Center; Aung Naing, The University of Texas MD Anderson Cancer Center	68	Advanced Visualization Techniques for Big Data—♦Scott Wise, JMP (A Division of SAS, Inc)

**421 CC-Hall C****Contributed Poster Presentations: Quality and Productivity Section—Contributed****Quality and Productivity Section**

Chair(s): Wendy Meiring, University of California At Santa Barbara

**Quality and Productivity Section**

60	Statistics in Three Biological and Environmental Science Case Studies—♦Zijiang Wong, ; Kien Kiat Wong, Applied Materials; Yun Zhou, Simcom
61	Effects of Mixture Distributions on Phase I and Phase II Performance of Shewhart Style Charts—♦Bryce Whitehead, University of Northern Colorado; Austin Brown, University of Northern Colorado
62	Hill Climb Racing Video Game: Return of Investment Analysis—♦Luke Liu, ; Julianne Chiu, ; Mason Chen, Mission San Jose High School, Stanford OHS
63	Statistical Process Control in the Presence of Multiple Batch Effects—♦Lindsay Jones, Boeing; Robert Michael Lawton, Boeing; Kelsea Cox, Boeing
64	A Comparison of Four Methods of Inverse Prediction—♦Christine Watters, Louisiana State University Health Sciences Center; Lynn LaMotte, Louisiana State University Health Sciences Center

TUESDAY

**422 CC-Hall C****Contributed Poster Presentations: Social Statistics Section—Contributed****Social Statistics Section**

Chair(s): Wendy Meiring, University of California At Santa Barbara

**Social Statistics Section**

69	Network Models with Unspecified Higher Order Dependence—♦Stone Chen, University of Auckland
70	Evaluating the Effects of Misspecification in the Symbolic Linear Regression for Interval-Valued Data—♦Natalia Costa Araujo, University of Georgia; Lynne Billard, University of Georgia
71	Modeling the Occurrence of Terrorist Attacks—♦Earl Hur, Iowa State Univ; Mark Steven Kaiser, Iowa State University
72	Fear of Death and Its Association with Religion-Related Beliefs—♦Joshua Kerr, CSU East Bay
73	Sequence Distance Regression for Estimating Covariate Effects on Activity Sequences with an Application to Mobile Sensor Data—♦Roland Brown, University of Minnesota; Julian Wolfson, University of Minnesota
74	Measuring Polarity from News Sources: a Topic Modeling Approach—♦Shane Bookholtz, Virginia Tech; Nathan Wycoff, Virginia Tech
75	Testing Complex Multivariate Mediation Hypotheses—♦Joseph Dickens, University of Michigan

**423 CC-Hall C****Contributed Poster Presentations: Survey Research Methods Section—Contributed****Survey Research Methods Section**

Chair(s): Wendy Meiring, University of California At Santa Barbara

**Survey Research Methods Section**

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

76 Evaluating Estimation Methods for Combining Probability and Nonprobability Samples Through a Simulation Study—♦Michael Yang, NORC at the University of Chicago; Nadarajasingam Ganesh, NORC at the University of Chicago; Edward Mulrow, NORC at the University of Chicago; Vicki Pineau, NORC at the University of Chicago

77 Simulation Evaluation of Adaptive Survey Designs for a Community Health Survey—♦David Brown, Colorado State University; F Jay Breidt, Colorado State University

78 Impact of Survey Administration Mode on Educational Surveys—♦Yue Jia, Educational Testing Service

79 Methodological Considerations for Sampling in the Influenza Hospitalization Surveillance Network—♦Alissa O'Halloran, Centers for Disease Control and Prevention; Shikha Garg, CDC; Lauren Beacham, CDC; Charisse Cummings, CDC; Carrie Reed, CDC

80 The Impact of Adding a Survey Supplement on Response Rates—♦Holly Shulman, Centers for Disease Control

81 Assessment of Nonresponse in the 2016 National Hospital Care Survey—♦Iris Shimizu, National Center for Health Statistics; Geoffrey Jackson, National Center for Health Statistics; Vladislav Beresovsky, National Center for Health Statistics

82 Methods for Incorporating Weighting Adjustments into a Replicate Weighting Strategy for the Public-Use NHIS—♦Van Parsons, National Center for Health Statistics

83 Internet Self-Response Projections for the 2020 Census—♦Megan Parker, Census Bureau

84 Method for Selecting Calibration Weights in a Non-Probability Epidemiological Survey—♦Joshua Curtis Black, Rocky Mountain Poison and Drug Center; Karilynn Rockhill, Rocky Mountain Poison and Drug Center; Alyssa Forber, Rocky Mountain Poison and Drug Center; Elise Amioka, Rocky Mountain Poison and Drug Center; K. Patrick May, Rocky Mountain Poison and Drug Center

85 Methods for Identifying Careless Responders in Online Survey Data—♦Elise Amioka, Rocky Mountain Poison and Drug Center; Joshua Curtis Black, Rocky Mountain Poison and Drug Center; Alyssa Forber, Rocky Mountain Poison and Drug Center; Karilynn Rockhill, Rocky Mountain Poison and Drug Center

86 Functional Covariate Adjustment in Survey Sampling—♦Hengfang Wang, Iowa State University of Science and Technology; Zhengyuan Zhu, Iowa State University; Jaekwang Kim, Iowa State University

87 Evaluating the Contribution Acoustic Monitors Have in Predicting Bat Mist Netting Success—♦I'Yanna Scott, ; Patrick Zollner, Purdue University; Nerisa Tava, Purdue University; Cheyenne Gerdes, Purdue University; Laura D'Acunto, Purdue University

88 Statistical Disclosure Control with Machine Learning—♦Allshine Chen, ; Sixia Chen, University of Oklahoma Health

TUESDAY

Sciences Center; Yan Daniel Zhao, University of Oklahoma Health Sciences Center

**424**

**CC-Hall C**

**Contributed Poster Presentations: Transportation Statistics Interest Group—Contributed**

**Transportation Statistics Interest Group**  
Chair(s): Wendy Meiring, University of California At Santa Barbara

**Transportation Statistics Interest Group**

89 Weighted L1 Regularized VAR for Spatio-Temporal Data—♦Zhenzhong Wang, Iowa State University; Abolfazl Safikhani, Columbia University; Zhengyuan Zhu, Iowa State University; David Matteson, Cornell University

90 TRANSFERABILITY of CRASH MODIFICATION FACTORS via GRAPHICAL CAUSAL MODELS: AN INTRODUCTION—♦Gary Davis, University of Minnesota; Jingru Gao, University of Minnesota

**425**

**CC-Hall C**

**Contributed Poster Presentations: Uncertainty Quantification in Complex Systems Interest Group—Contributed**

**Uncertainty Quantification in Complex Systems Interest Group**  
Chair(s): Wendy Meiring, University of California At Santa Barbara

**Uncertainty Quantification in Complex Systems Interest Group**

91 Data Assimilation with Local Translation Error Analysis—♦Kazuyuki Nakamura, Meiji University

92 Evaluation of a Stochastic Collocation Scheme for Weather Models—♦James Collins, U.S. Army Research Laboratory; Judah L. Cleveland, US Army Research Laboratory; Dongbin Xiu, Ohio State University; Jeffrey Smith, U.S. Army Research Laboratory

**Contributed Poster Presentations 3:05 p.m.—3:50 p.m.**

**426**

**CC-Hall C**

**SPEED: Biopharmaceutical and General Health Studies: Statistical Methods and Applications, Part 2—Contributed**

**Biopharmaceutical Section, Health Policy Statistics Section, ENAR**  
Chair(s): Sedigheh Mirzaei Salehabadi, St. Jude Children's Research Hospital

**Biopharmaceutical Section**

- 1 Mediation Analysis for Longitudinal Data with Applications to Clinical Trial Data—♦Yun Zhang,
- 2 An Adaptive Phase II Dose Finding Study Using Sample Size Re-Estimation Design—♦Qingyang Liu, University of Connecticut; Guanyu Hu, University of Connecticut; Yaoshi Wu, Boehringer-Ingelheim; Binqi Ye, Boehringer-Ingelheim; Susan Wang, Boehringer-Ingelheim
- 3 Optimal Treatment Selection in Immuno-Oncology Trials Based on RMST—♦Yue Shentu, Merck & Co., Inc.
- 4 Quantifying the Number of Events Borrowed from External Data in Hybrid Control Arms—♦Brian Segal, Flatiron Health; Carrie Bennette, Flatiron Health; Somnath Sarkar, Flatiron Health
- 5 Characterizing Irreproducibility in Drug Sensitivity Data from a Large Pharmacogenomic Study—♦Zoe Rehnerberg, University of Michigan; Johann A Gagnon-Bartsch, University of Michigan
- 6 Closest Similar Subset Imputation—♦Macaulay Okwuokenye, Brio Dexteri Pharmaceutical Consultant & UNE; Karl E Peace, Georgia Southern University
- 7 Planning and Analyzing Clinical Trials with Competing Risks: Recommendations for Choosing Appropriate Statistical Methodology—♦Misun Yu Lee, Astellas Pharma; Joseph Pothress, University of Georgia; James Young, Astellas Pharma

### Section on Statistics in Epidemiology

- 8 Estimating and Using the Attained Power Distribution to Ensure We Get the Trial Power We Expect—♦Yongdong Ouyang, University of British Columbia; Hubert Wong, University of British Columbia; Ehsan Karim, University of British Columbia; Paul Gustafson, University of British Columbia

### Section on Bayesian Statistical Science

- 9 Bayesian Semiparametric Joint Modeling of Longitudinal Predictors and a Binary Outcome—♦Woobeen Lim, The Ohio State University; Michael Pennell, Ohio State University

### Health Policy Statistics Section

- 10 Clustering of Multivariate Data with Varying Dimensions—♦Xiaoqi Lu, Columbia University; Bin Cheng, Columbia University; Ying Kuen Ken Cheung, Columbia University
- 11 Sieve Maximum Likelihood Method for Interval-Censored Data with Missing Covariates Under Proportional Hazards Model—♦Ruiwen Zhou, University of Missouri-Columbia; Huiqiong Li, Yunnan University; (Tony) Jianguo Sun, University of Missouri

### Biopharmaceutical Section

- 12 Adjusting Response Adaptive Allocation for Subject Dropout—♦Katharine Stromberg, Virginia Commonwealth University; Adam Sima, Virginia Commonwealth University

### ENAR

- 13 Estimating the Relative Risk for Response-Biased Samples: Calibration and Conditional Likelihood—♦Claudia Rivera-Rodriguez, University of Auckland

### Biopharmaceutical Section

- 14 The Use of a New Classifier to Maximize the Classification Performance—♦Hua Ma, Merck; Joe Heyse, Merck
- 15 Reproducibility of Living Data - Validation of Published Research Using the Parkinson's Progression Marker Initiative Living Database—♦Elliot Burghardt, University of Iowa; Christopher Coffey, University of Iowa; Chelsea Caspell-Garcia, University of Iowa; Eric Foster, Ferring Pharmaceuticals
- 16 Blinding in Open Label Study with Adaptive Design—♦Bo Xu, Boston Biomedical Inc; Bo Jin, Boston Biomedical Inc; Alex Dmitrienko, Mediana Inc
- 17 Another Estimation Method Besides MMRM for Treatment Effects in Diabetes Clinical Trials—♦Yu Du, Eli Lilly and Company
- 18 Criteria for Choosing a Futility Method for Clinical Studies—♦Richard McNally, Covance-Chiltern
- 19 Random Forests for Exploring Factors Driving Opioid Prescribing in National Outpatient Health Care Data Using Complex Survey Design—♦Yong Ma, FDA; JaeJoon Song, FDA

**CC-Hall C**

### 427 SPEED: Bayesian Methods, Part 2—Contributed Section on Bayesian Statistical Science

Chair(s): Wendy Meiring, University of California At Santa Barbara

### Section on Bayesian Statistical Science

- 20 Bayesian Spatially Clustered Coefficient Regression—♦Zhao Tang Luo, Texas A&M University; Huiyan Sang, Texas A&M University; Bani Mallick, Texas A&M University
- 21 Spatial Cox Model with Applications on Multiple Sclerosis Patients—♦HSIUCHING CHANG, IQVIA; Hyokoung Grace Hong, Michigan State University; Yu Yue, The City University of New York
- 22 Variational Inference for Latent Space Models for Dynamic Networks—♦Yan Liu, University of Illinois at Urbana-Champaign; Yuguo Chen, University of Illinois at Urbana-Champaign
- 23 A New Flexible Prior Being Local and Nonlocal for Bayesian Variable Selection—♦Liangliang Zhang, M.D. Anderson Cancer Center
- 24 A Bayesian Two-Part Quantile Regression Model for Count Data with Excess Zeros—♦Clay King, Colorado Mesa University; Joon Jin Song, Baylor University
- 25 Nonparametric Density Estimation and Regression Using Coarse Count Data—♦Jacob Coleman,

**TUESDAY**

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

26 Revisiting the Proton-Radius Problem Using Constrained Gaussian Processes—♦Shuang Zhou, Texas A&M University; Pablo Giuliani, Florida State University; Jorge Piekarewicz, Florida State University; Anirban Bhattacharya, TAMU; Debdeep Pati, Texas A&M University

27 An Investigation into How Model Uncertainty Is Reflected Through the Posterior Variance for Partial Regression Coefficients—♦Katharine Banner, Montana State University; Megan Higgs, Montana State University

28 An Objective Bayesian Multiple Testing for Correlated Binomial Proportions—♦Siva Sivaganesan, University of Cincinnati; Emrah Gecili, Cincinnati Children's Hospital Medical Center

29 Bayesian Model Selection Using Mass-Nonlocal Prior—♦Guiling Shi, Amgen

**Section on Statistics in Defense and National Security**

30 The Use of Experimental Design and Bayesian Logistic Models in Defense Analysis: a Case Study—♦Keyla Pagan-Rivera,

**Section on Bayesian Statistical Science**

31 Bayesian Model Selection and Averaging in the Presence of Latent Heteroscedasticity in Linear Models—♦Thomas Metzger, Virginia Tech; Christopher Franck, Virginia Tech

32 Predictive Density Estimation of Multivariate Skew-Normal Distribution—♦Othmane Kortbi, UAE University Al-Ain

33 Bayesian Inference for Exponential Random Graph Models via Kernel Bayes Rule—♦Fan Yin, University of California, Irvine; Carter Tribley Butts, University of California, Irvine

34 Adaptive Variable Selection for Sequential Prediction in Multivariate Dynamic Models—♦Isaac Levine, Duke University; Michael Lindon, Tesla; Mike West, Duke University

35 Bayesian Quantile Regression Applied to Time Between Healthcare-Associated Infection Events—♦Jonathan Edwards, Center for Disease Control & Prevention

36 A Distributed MCMC Sampler for Latent Dirichlet Allocation—♦Kelson Zawack, Yale University; Hongyu Zhao, Yale

37 High-Dimensional Posterior Consistency in Mixed Frequency Bayesian Vector Autoregressive Models—♦Nilanjana Chakraborty, University of Florida; George Michailidis, University of Florida; Kshitij Khare, University of Florida

38 A New Bayesian Person-Fit Analysis Method for Item Response Theory Models Using Pivotal Discrepancy Measures—♦Adam Combs, Robert Morris University

39 Ordinal Probit Functional Regression Models with Application to Computer-Use Behavior in Rhesus Monkeys—♦Mark Meyer, Georgetown University; Jeffrey S. Morris, M.D. Anderson Cancer Center; Regina Paxton Gazes, Bucknell University; Robert R. Hampton, Emory University and Yerkes National Primate Research Center; Brent A. Coull, Harvard T. H. Chan School of Public Health

TUESDAY

**Invited Sessions 4:00 p.m.—5:50 p.m.****428****CC-Four Seasons 2-4****Deming Lecture—Invited****Deming Lectureship Committee, JSM Partner Societies**

Chair(s): Karen Kafadar, University of Virginia

4:05 p.m. Walking with Giants: a Research Odyssey—♦Nicholas Fisher, University of Sydney

5:45 p.m. Floor Discussion

**Invited Sessions 8:00 p.m.—9:30 p.m.****429****CC-Four Seasons 2-4****ASA President's Address and Awards—Invited****JSM Partner Societies**

Chair(s): Lisa LaVange, University of North Carolina

8:05 p.m. Reinforcing the Impact of Statistics on Society—♦Karen Kafadar, University of Virginia

# WEDNESDAY JULY 31

## Special Presentation 8:30 a.m.—10:20 a.m.

### 435 CC-Four Seasons 1

#### Introductory Overview Lecture: Pedagogy and Technology for Teaching Statistics—Invited

JSM Partner Societies

Organizer(s): Allan Rossman, Cal Poly - San Luis Obispo

Chair(s): Allan Rossman, Cal Poly - San Luis Obispo

8:35 a.m. Critical Learning Experiences for Preparing Teachers of Statistics—♦Hollylynne S Lee, NC State University

9:00 a.m. Developing a Platform for Data Exploration—♦William Finzer, Concord Consortium

9:25 a.m. A View of Undergraduate Statistics Education—♦Beth Chance, Cal Poly - San Luis Obispo

9:50 a.m. Floor Discussion

## Invited Sessions 8:30 a.m.—10:20 a.m.

### 436 CC-110

#### ■ ● Deep Learning for Data Science—Invited

WNAR, ENAR, International Chinese Statistical Association

Organizer(s): Yingying Fan, University of Southern California

Chair(s): Jinchi Lv, University of Southern California

8:35 a.m. Dynamic Demand-Supply Network Data Analysis for Ride Sharing Business—♦Hongtu Zhu, DiDi Chuxing and UNC-Chapel Hill

9:00 a.m. DeepPINK: Reproducible Feature Selection in Deep Neural Networks—♦Yingying Fan, University of Southern California

9:25 a.m. Learning Grid Cells with Vector Representation of Self-Position and Matrix Representation of Self-Motion—♦Ying Nian Wu, UCLA

9:50 a.m. Disc: Jun S. Liu, Harvard University

10:10 a.m. Floor Discussion

### 437

### CC-603

#### ■ ● Novel Bayesian Methods and Their Impacts on Scientific Applications—Invited

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA), International Indian Statistical Association

Organizer(s): Arnab Kumar Maity, Texas A&M University

Chair(s): Arnab Kumar Maity, Texas A&M University

8:35 a.m. Bayesian Tensor Regression for Neuroimaging Data—Montserrat Fuentes, Virginia Commonwealth University; ♦Hossein Moradi, South Dakota State University

9:00 a.m. Integrative Bayesian Models of High-Dimensional Count Data—♦Marina Vannucci, Rice University

9:25 a.m. Data-Driven and Science-Driven Bayesian Methods in Astronomy and Solar Physics—♦David A van Dyk, Imperial College London

9:50 a.m. Power Curve Estimation Using Piecewise Logistic Gaussian Processes—♦Bani Mallick, Texas A&M University

10:15 a.m. Floor Discussion

### 438

### CC-106

#### ■ ● Missing Data Issues in Public Health Studies and Survey Sampling in the Era of Data Science—Invited

Section on Statistics in Epidemiology, ENAR, Survey Research Methods Section

Organizer(s): Peisong Han, University of Michigan

Chair(s): Peisong Han, University of Michigan

8:35 a.m. Multilevel Multiple Imputation for Electronic Health Record and Survey Data: Your Flexible Friend—♦James Robert Carpenter, London School of Hygiene & Tropical Medicine; Matteo Quartagno, London School of Hygiene & Tropical Medicine

9:00 a.m. New Predictive Mean Matching Imputation Methods for Cluster Randomized Trials—♦Brittney Bailey, Amherst College; Rebecca Andridge, The Ohio State University College of Public Health

9:25 a.m. IT's NOT ALL ABOUT BIG DATA, but SOME of it IS—♦Thomas Louis, Johns Hopkins Bloomberg SPH

9:50 a.m. Robust 'Squared' Estimators to Account for Selection Bias Due to Death in Estimating the Effect of Wealth Shock on Cognition for the Health Retirement Study—♦Yaoyuan Vincent Tan, Rutgers University; Michael Elliott, University of Michigan; Carol A.C. Flannagan, University of Michigan, Transport Research Institute; Lindsay Pool, Northwestern University

10:15 a.m. Floor Discussion

**439**

**■● Remembering Dr. Joan Staniswalis—Invited Memorial**

Organizer(s): Ori Rosen, University of Texas at El Paso  
Chair(s): Sally Cripps, University of Sydney

**CC-703**

8:35 a.m.	Adaptive Nonparametric Multivariate Spectral Analysis—♦Rob Krafty, University of Pittsburgh; Zeda Li, Baruch College CUNY
9:00 a.m.	AdapstSPEC Squared: a Bayesian Method for Locally Adaptive Non-Parametric Spectral Density Estimation for Non-Stationary Time Series—♦Nicholas James, Centre for Translational Data Science; Sally Cripps, University of Sydney; Ori Rosen, University of Texas at El Paso
9:25 a.m.	On Approximating Copulas by Finite Mixtures—♦Robert Kohn, University of New South Wales
9:50 a.m.	Disc: Maria Barraza-Rios, University of Texas at El Paso
10:10 a.m.	Floor Discussion

**440**

**■● Medallion Lecture IV—Invited IMS**

Organizer(s): Rajen D Shah, University of Cambridge  
Chair(s): Eric Kolaczyk, Boston University

**CC-607**

8:35 a.m.	Hierarchical Communities in Networks: Theory and Practice—♦Elizaveta Levina, University of Michigan
10:15 a.m.	Floor Discussion

**WEDNESDAY**

**441**

**Recent Advances in Nonparametric Statistics—Invited IMS**

Organizer(s): Cun-Hui Zhang, Rutgers University  
Chair(s): Cun-Hui Zhang, Rutgers University

**CC-504**

8:35 a.m.	ISOTONIC REGRESSION in MULTI-DIMENSIONAL SPACES and GRAPHS—♦Hang Deng, Rutgers University; Cun-Hui Zhang, Rutgers University
9:00 a.m.	Linear Classification and the Manski Model—♦Ya'acov Ritov, university of michigan; Debarghya Mukherjee, university of michigan; Moulinath Banerjee, university of michigan
9:25 a.m.	Estimating Rectangular Piecewise Constant Functions in Multiple Dimensions —♦Bohdhisattva Sen, Columbia University; Adityanand Guntuboyina, University of California at Berkeley; Billy Fang, University of California at Berkeley

9:50 a.m.

Trend Filtering on Images—Veeranjaneyulu Sadhanala, Carnegie Mellon; Yu-Xiang Wang, UC Santa Barbara; James Sharpnack, UC Davis; ♦Ryan Tibshirani, Carnegie Mellon University

10:15 a.m.

Floor Discussion

**442**

**■● State-Of-The-Art Inferential Approaches for Non-Probability Samples—Invited Survey Research Methods Section**

Organizer(s): Brady T. West, University of Michigan  
Chair(s): Brady T. West, University of Michigan

**CC-605**

8:35 a.m.	Measures of the Degree of Departure from Ignorable Sample Selection—♦Phil Boonstra, University of Michigan; Brady T. West, University of Michigan; Roderick J Little, University of Michigan School of Public Health; Rebecca Andridge, The Ohio State University College of Public Health
8:55 a.m.	Decomposing Selection Bias in Nonprobability Surveys—♦Andrew Mercer, Pew Research Center

9:15 a.m.

Sample Matching and Double Robust Estimation with Non-Probability Samples—♦Changbao Wu, University of Waterloo

9:35 a.m.

On Application of a Response Propensity Model to Estimation from Web Samples—♦Vladislav Beresovsky, National Center for Health Statistics

9:55 a.m.

Disc: Richard Valliant, University of Maryland - Emeritus Professor Retired

10:15 a.m.

Floor Discussion

**443**

**■● Making an Impact on Physical Activity and Sleep Research by Developing New Statistical Methods—Invited**

Korean International Statistical Society, Section on Statistics in Epidemiology, Section on Medical Devices and Diagnostics

Organizer(s): Jungwha "Julia" Lee, Northwestern University  
Chair(s): Kwang-Youn Kim, Northwestern University

**CC-301**

8:35 a.m.	Processing Accelerometer Data with an Automated Algorithm -an R Package <i>PhysicalActivity</i> —♦Leena Choi, Vanderbilt University Medical Center; Cole Beck, Vanderbilt University Medical Center; Zhouwen Liu, Vanderbilt University Medical Center; Maciej S Buchowski, Vanderbilt University Medical Center
8:50 a.m.	Sample Integrity in Physical Activity Experiments: R 'Accelmissing'—♦Jung Ae Lee, University of Arkansas

9:05 a.m.	Accelerometry Data: From Millivolts to Counts—♦Jiawei Bai, Johns Hopkins University
9:20 a.m.	New Methodology for Characterizing Circadian Rhythms in Actigraphy Data Collected from a Wearable Device—♦Paul Albert, National Cancer Institute; Sungduk Kim, NIH
9:35 a.m.	Integrative Analysis of Domains of Physical Activity, Sleep, and Circadian Rhythmicity Collected by Wearables—♦Junrui Di, Johns Hopkins Bloomberg School of Public Health; Vadim Zipunnikov, Johns Hopkins University
9:50 a.m.	Improving Sleep Classification Using Multivariate Actigraphy Measures—♦Haochang Shou, University of Pennsylvania
10:05 a.m.	Floor Discussion

<b>444</b>	<b>CC-505</b>
<b>● Modern and Practical Solutions to Difficult High-Dimensional Regression Problems—Invited</b>	
Section on Statistical Computing, International Association for Statistical Computing, Section on Statistical Learning and Data Science	
Organizer(s): Maryclare Griffin, Cornell University Center for Applied Mathematics	
Chair(s): Andee Kaplan, Duke University	

8:35 a.m.	Informative Priors for Clustering—♦Amy H Herring, Duke University; Sally Paganin, University of Padova; Andrew Olshan, UNC-Chapel Hill
8:55 a.m.	Bayesian Function-On-Scalars Regression for High-Dimensional Data—♦Daniel R Kowal, Rice University; Daniel Bourgeois, Rice University
9:15 a.m.	Computationally-Efficient High-Dimensional Interaction Modeling—Guo Yu, University of Washington; Ryan Tibshirani, Carnegie Mellon University; ♦Jacob Bien, University of Southern California
9:35 a.m.	Data-Adaptive Additive Modeling—♦Ashley Petersen, University of Minnesota; Daniela Witten, University of Washington
9:55 a.m.	Disc: Tian Zheng, Columbia University
10:15 a.m.	Floor Discussion

<b>445</b>	<b>CC-707</b>
<b>■ ● Communicating to the Masses: Sharing Statistics and Data Science in a World of Sound Bites, Social Media, and Popular Press—Invited</b>	
Section on Statistics and Data Science Education, Caucus for Women in Statistics	
Organizer(s): Jennifer L Green, Montana State University	

8:35 a.m.	Writing for Newspapers, Magazines, Comics and More: Making a Real Impact on the Broadest Audience—♦Regina Nuzzo, American Statistical Association
9:00 a.m.	The Art of Storytelling: Engaging Audiences with Podcasts and Curiosity Cafes—♦Jennifer L Green, Montana State University; Shannon Willoughby, Montana State University; Brock LaMeres, Montana State University; Bryce Hughes, Montana State University; Leila Sterman, Montana State University; Christopher Organ, Montana State University; Kent Davis, Montana State University
9:25 a.m.	Statistics and Data Science Outreach Using Twitter: Communicating the Power of Statistics in 280 Characters—♦Nicholas J. Horton, Amherst College
9:50 a.m.	Fake News Sells—♦Liberty Vittert, University of Glasgow
10:15 a.m.	Floor Discussion

<b>446</b>	<b>CC-101</b>
<b>■ ● New Statistical Methods in Evolutionary Biology—Invited</b>	
Biometrics Section, International Indian Statistical Association, WNAR	
Organizer(s): Arindam RoyChoudhury, Cornell University	

8:35 a.m.	Shannon Information Collapse for Phylogenetic Experimental Design—♦Jeffrey Peter Townsend, Yale University
9:00 a.m.	Inferring Tumor Phylogenies Using Single-Cell Sequencing Data—Jing Peng, The Ohio State University; ♦Laura Kubatko, The Ohio State University; Yuan Gao, The Ohio State University
9:25 a.m.	Neutrality Test on Evolutionary Tree Topologies: Where Statistics, Physics, and Geometric Analysis Meet—Dan D. Erdmann-Pham, University of California, Berkeley; ♦Yun S. Song, University of California, Berkeley; Jonathan Terhorst, University of Michigan
9:50 a.m.	Disc: Marc Suchard, UCLA
10:15 a.m.	Floor Discussion

<b>447</b>	<b>CC-201</b>
<b>■ ● Recent Advances in Propensity Score Methods for Observational Studies with Multiple Treatments—Invited</b>	
Health Policy Statistics Section, Biopharmaceutical Section, Section on Statistics in Epidemiology	
Organizer(s): Elande Baro, US Food and Drug Administration; Jessica Kim, US Food and Drug Administration	

Chair(s): Jessica Kim, US Food and Drug Administration

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

8:35 a.m.	Generalized Propensity Score Matching: Updates and Challenges Toward Establishing Best Practices— ♦Douglas Faries, Eli Lilly & Company; Zhanglin Cui, Eli Lilly & Company; Li Li, Eli Lilly & Company; Shu Yang, North Carolina State University; Shuhan Tang, The Ohio State University
9:00 a.m.	Approximate Bayesian Bootstrap Procedures to Estimate Multilevel Treatment in Observational Studies with Application to Type 2 Diabetes Treatment Regimens—♦Roe Gutman, Brown University; Anthony D. Scotina, Simmons University; Robert J Smith, Brown University; Andrew R Zullo, Brown University
9:25 a.m.	Utility of Regression Splines for Propensity Score Adjustment in Post Market Safety Analyses with Multiple Treatments—♦Elande Baro, US Food and Drug Administration; Yuxi Tian, University of California Los Angeles; Rongmei Zhang, Food and Drug Administration; Yuqin Wei, Acumen LLC; Mao Hu, Acumen LLC; Jiemin Liao, Acumen LLC; Sandia Akhtar, Acumen LLC; Michael Wernecke, Acumen LLC; Jeffrey Kelman, Centers for Medicare & Medicaid Services; David Graham, Acumen LLC
9:50 a.m.	Disc: Jessica M Franklin, Brigham and Women's Hospital and Harvard Medical School
10:00 a.m.	Disc: Yi Huang, University of Maryland Baltimore Country
10:10 a.m.	Floor Discussion

**448** **CC-702**  
**■● Statistics Impacting Challenges Within Academia, Industry, and Government—Invited**  
**Section on Physical and Engineering Sciences, Caucus for Women in Statistics**

Organizer(s): Claire McKay Bowen, Los Alamos National Laboratory

Chair(s): Claire McKay Bowen, Los Alamos National Laboratory

8:35 a.m.	Statistical Approaches to Tackling Data Privacy— ♦Everita Cuevas Eugenio, Sandia National Laboratory; Fang Liu, University of Notre Dame
9:00 a.m.	How Simple Statistics Are Implemented and Control Molecular Dynamic Simulations—♦Suzanne Marie Neidhart, Northwestern University
9:25 a.m.	How to Change an Industry with Statistics—♦Lois Keller Smith, Facebook
9:50 a.m.	Hierarchical Bayesian Change-Point Models for Chemical Properties Inference—♦Amanda Koepke, National Institute of Standards and Technology; Felix Jimenez, University of Colorado, NIST; Kenneth Kroenlein, National Institute of Standards and

10:15 a.m.	Technology; Chris Muzny, National Institute of Standards and Technology
	Floor Discussion

**449** **CC-205**  
**● Evaluating Risk Predictions for Use in Decision-Making—Invited**  
**ENAR, Biometrics Section, Section on Risk Analysis**  
**Organizer(s): Hormuzd Katki, US National Cancer Institute**  
**Chair(s): Qing Pan, George Washington University**

8:35 a.m.	Monitoring with Repeatedly Measured Marker: Assessing Incremental Value of Additional Measurements— ♦Paramita Saha Chaudhuri, McGill University; James Hanley, McGill University; Hormuzd Katki, US National Cancer Institute
8:55 a.m.	A General Framework for Using the Overall Concordance Statistic to Assess the Discriminatory Ability of Risk Predictions—♦Li Cheung, National Cancer Institute; Qing Pan, George Washington University; Barry Graubard, National Cancer Institute
9:15 a.m.	Quantifying Risk Stratification Provided by Diagnostic Tests and Risk Predictions—♦Hormuzd Katki, US National Cancer Institute
9:35 a.m.	On Optimal Screening Schedules for Chronic Diseases— ♦Ionut Bebu, The George Washington University; John Lachin, The George Washington University
9:55 a.m.	Assessing the Time-Varying Prediction Accuracy of Joint Models of Biology, Behavior and Fecundity for Dynamic Decision-Making—♦Rajeshwari Sundaram, Eunice Kennedy Shriver National Institute of Child Health and Human Development
10:15 a.m.	Floor Discussion

**450** **CC-203**  
**■● Quantitative Inference for the Global Carbon Cycle—Invited**  
**Section on Statistics and the Environment, WNAR, Section on Physical and Engineering Sciences**  
**Organizer(s): Jonathan Hobbs, Jet Propulsion Laboratory**  
**Chair(s): William Kleiber, University of Colorado**

8:35 a.m.	Spatial Retrievals of Carbon Dioxide from the OCO-2 Satellite—♦Matthias Katzfuss, Texas A & M University; Jonathan Hobbs, Jet Propulsion Laboratory; Jenny Brynjarsdottir, Case Western Reserve University; Anirban Mondal, Case Western Reserve University; Daniel Zilberman
9:00 a.m.	Obtaining Carbon Dioxide Flux Estimates from Atmospheric Inversions of Carbon Dioxide Data: Current

	Methodologies, Successes and Challenges—♦ Andrew Eugene Schuh, Cooperative Institute for Research in the Atmosphere
9:25 a.m.	The Role of Satellite Data in Making Bayesian Inference on Carbon Dioxide Fluxes: Where, When, How Much, and How Certain?—♦ Noel Cressie, University of Wollongong; Andrew Zammit-Mangion, University of Wollongong
9:50 a.m.	Influence of Prior Covariance Structure on Inverse Estimates of Co2 Fluxes in Los Angeles Basin—♦ Vineet Yadav, Jet Propulsion Laboratory, California Institute of Technoloty
10:15 a.m.	Floor Discussion

## 451 CC-705

### Herbert F. Spirer Memorial—Invited Memorial

Organizer(s): Megan Price, Human Rights Data Analysis Group  
Chair(s): Megan Price, Human Rights Data Analysis Group

8:35 a.m.	Mentor, Colleague, and Friend: Memories of Herbert F. Spirer—♦ Patrick Ball, Human Rights Data Analysis Group
9:00 a.m.	Herb Spirer's Lifesaving Work—♦ Doug Samuelson, InfoLogix, Inc.
9:25 a.m.	Herb Spirer Changed My Life—♦ Beth Daponte, Social Science Consultants
9:50 a.m.	Floor Discussion

### Topic Contributed Sessions 8:30 a.m.—10:20 a.m.

## 452 CC-710

### ■ ● Geometric Statistical and Computational Methods in Imaging—Topic Contributed

Section on Statistics in Imaging, International Indian Statistical Association, Section on Statistical Computing

Organizer(s): Sebastian Kurtek, The Ohio State University  
Chair(s): Sebastian Kurtek, The Ohio State University

8:35 a.m.	Density Estimation Under Multimodal Shape Constraints—♦ Anuj Srivastava, Florida State University
8:55 a.m.	Catalyst Acceleration for Non-Convex Optimization on Manifolds—Lizhen Lin, University of Notre Dame; ♦ Bayan Saparbayeva, University of Notre Dame; Michael Minyi Zhang, Princeton University; David Dunson, Duke University
9:15 a.m.	Geometric Aspects of Warped Functional Data, and Local Regression—♦ Karthik Bharath, University of Nottingham

9:35 a.m.	Signal Subgraph Learning for Longitudinal Structural Brain Networks—♦ Lu Wang, Central South University
9:55 a.m.	Object Data Driven Discovery—♦ Ian L Dryden, University of Nottingham
10:15 a.m.	Floor Discussion

## 453 CC-102

### ■ ● Advances on the Analysis of Single-Cell Sequencing Data—Topic Contributed

Section on Statistics in Genomics and Genetics, WNAR, ENAR

Organizer(s): Lingling An, University of Arizona

Chair(s): Xiaoxiao Sun, University of Arizona

8:35 a.m.	Accurate Correction on Dropout Events in Single-Cell RNASeq Data—♦ Lingling An, University of Arizona; Di Ran, University of Arizona; Shanshan Zhang, University of Arizona; Nick Lytal, University of Arizona
8:55 a.m.	Advantages of Modeling Zero-Inflation in ScRNA-Seq Data—♦ Davide Risso, University of Padova
9:15 a.m.	From Bulk to Single-Cell RNA-Seq Data: Differential Gene Expression Analysis—♦ Jingyi Jessica Li, University of California, Los Angeles; Yiling Chen, University of California, Los Angeles
9:35 a.m.	Exploring Topologically Associating Domains (TADs) for Single-Cell Hi-C Data—Qunhua Li, Penn State University; ♦ Di Wu, University of North Carolina at Chapel Hill
9:55 a.m.	Novel Methods for Analyzing Population-Based Single Cell Transcriptomic Data—♦ Wei Chen, University of Pittsburgh
10:15 a.m.	Floor Discussion

## 454 CC-506

### ■ ● Recommender Systems and Large-Margin Machines: From Statistics Perspectives—Topic Contributed

Section on Statistical Learning and Data Science, Section on Non-parametric Statistics, WNAR

Organizer(s): Helen Zhang, University of Arizona

Chair(s): Helen Zhang, University of Arizona

8:35 a.m.	Flexible Low-Rank Statistical Modeling with Missing Data and Side Information—♦ Rahul Mazumder, MIT; William Fithian, University of California at Berkeley
8:55 a.m.	Two Improvements to the Matrix Factorization Approach for Recommender Systems—♦ Mu Zhu, University of Waterloo

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

9:15 a.m.	Smooth Recommender Systems—Ben Dai, University of Minnesota; ♦Xiaotong Shen, University of Minnesota; Annie Qu, University of Illinois at Urbana-Champaign
9:35 a.m.	Disc: Feng Liang, University of Illinois at Urbana-Champaign
9:55 a.m.	Disc: Boxiang Wang, University of Iowa
10:15 a.m.	Floor Discussion

**455 CC-502**

● Recent Advances in Bayesian Computation: Theory and Methods—Topic Contributed  
IMS, International Society for Bayesian Analysis (ISBA), Section on Bayesian Statistical Science

Organizer(s): Vivekananda Roy, Iowa State University

Chair(s): Aixin Tan, University of Iowa

8:35 a.m.	Convergence Complexity Analysis of MCMC Algorithms—♦James Hobert,
8:55 a.m.	Weighted Batch Means Estimators in Markov Chain Monte Carlo—♦James Flegal, University of California, Riverside
9:15 a.m.	Convergence Complexity of Gibbs Samplers for Bayesian Vector Autoregressive Processes—♦Galin Jones, University of Minnesota; Karl Oskar Ekvall, University of Minnesota
9:35 a.m.	Recent Advances in Bayesian Computation: Theory and Methods—♦Murali Haran, Penn State University; Jaewoo Park, Penn State University
9:55 a.m.	Bayesian Registration of Functions with a Gaussian Process Prior—♦Radu Herbei, Ohio State University; Yi Lu, Drew University; Sebastian Kurtek, The Ohio State University
10:15 a.m.	Floor Discussion

**456 CC-207**

■● Design and Analysis of Cancer Immunotherapy Trials with Complex Survival Patterns—Topic Contributed

Biopharmaceutical Section, International Chinese Statistical Association, Biometrics Section

Organizer(s): Zhenzhen Xu , FDA

Chair(s): Bifeng Ding, Amgen

8:35 a.m.	Survival Analysis Using a 5-STAR Approach in Randomized Clinical Trials—♦Devan Mehrotra, Merck & Co., Inc; Rachel Marceau West, Merck & Co., Inc.
8:55 a.m.	Designing Cancer Immunotherapy Trials with Complex Survival Patterns—♦Zhenzhen Xu , FDA; BIN ZHU,

NIH/NCI; YONGSOEK PARK, University of Pittsburgh, Department of Biostatistics

9:15 a.m. Robust Group Sequential Designs for Immunotherapy Trials—♦Pranab Ghosh, Cytel Inc.; Cyrus Mehta, Cytel

9:35 a.m. A Flexible Test/Estimation Coherent Approach to Evaluate the Treatment Effect of Immunotherapy on Time-To-Event Outcomes—♦Hajime Uno, Dana-Farber Cancer Institute; Miki Horiguchi, Kitasato University; Lu Tian, Stanford University School of Medicine

9:55 a.m. Disc: Shiojen Lee, FDA

10:15 a.m. Floor Discussion

**457 CC-503**

■● Novel Statistical Approaches to Time Series of Networks—Topic Contributed

Section on Nonparametric Statistics, Section on Physical and Engineering Sciences, Section on Statistics in Imaging

Organizer(s): Hernando Ombao, King Abdullah University of Science and Technology (KAUST)

Chair(s): Hernando Ombao, King Abdullah University of Science and Technology (KAUST)

8:35 a.m.	Network Granger Causality: Visualization and Extensions—♦Ali Shojaie, University of Washington
8:55 a.m.	New Developments for Network Time Series—♦Guy Nason, University of Bristol
9:15 a.m.	Quantile-Frequency Analysis and Functional Principal Components for Discriminant Analysis of Time Series—♦Ta-Hsin Li, IBM T. J. Watson Research Center
9:35 a.m.	Modeling Evolution of Spectral Properties in Stationary Processes of Varying Dimensions—♦Raajnu Sundararajan, King Abdullah University of Science and Technology; Hernando Ombao, King Abdullah University of Science and Technology (KAUST)
9:55 a.m.	Floor Discussion

**458 CC-708**

■● Differential Privacy Research and Applications at the U.S. Census Bureau—Topic Contributed  
Government Statistics Section, Social Statistics Section, Survey Research Methods Section

Organizer(s): Robert Ashmead, Ohio Colleges of Medicine Government Resource Center

Chair(s): Nathan Cruze, USDA National Agricultural Statistics Service

8:35 a.m. Census Barriers Attitudes and Motivators Study: a Case Study in Differential Privacy at the U.S. Census Bureau—

8:55 a.m.	◆Caleb Floyd, U.S. Census Bureau; Rolondo Rodríguez, U.S. Census Bureau
9:15 a.m.	Rationing Out Privacy-Loss: Proportional Budget Expenditure in the 2020 Decennial Census Disclosure Avoidance System—♦William Sexton, U.S. Census Bureau
9:35 a.m.	Ensuring Output: Complex Constraints and Feasible Microdata Under Differential Privacy—♦Philip Leclerc, US Census Bureau
9:55 a.m.	Estimating the Variance of Complex Differentially Private Algorithms—♦Robert Ashmead, Ohio Colleges of Medicine Government Resource Center
	Floor Discussion

459	CC-111
<b>● Rethinking Intercurrent Events and Estimators Within the ICH E9(R1) Estimand Framework—Topic Contributed</b>	
Biopharmaceutical Section, Biometrics Section, ENAR	
Organizer(s): Dong Xi, Novartis	
Chair(s): Forrest Williamson, Eli Lilly	

8:35 a.m.	A Constructive Critique of the Draft ICH E9 Addendum—♦Daniel Scharfstein, Johns Hopkins School of Hygiene & Public Health
8:55 a.m.	Estimands in Clinical Trials with Intercurrent Events—♦Shanthi Sethuraman, Eli Lilly and Company; Yongming Qu, Eli Lilly and Company; Linda Shurzinske, Eli Lilly and Company
9:15 a.m.	Comparison of Assumptions Required for Estimating Different Parameters in the Presence of Intercurrent Events—♦Michael Rosenblum, Johns Hopkins Bloomberg School of Public Health
9:35 a.m.	Some Thoughts on Recurrent Event Estimands and Estimators—♦Dong Xi, Novartis; Jiawei Wei, Novartis; Tobias Muetze, Novartis
9:55 a.m.	Disc: Thomas Permutt, U.S. Food and Drug Administration
10:15 a.m.	Floor Discussion

460	CC-104
<b>● Advances in Time Series Methodology—Topic Contributed</b>	
Business and Economic Statistics Section, Government Statistics Section, Biometrics Section	
Organizer(s): James Livsey, U.S. Census Bureau	
Chair(s): Rebecca Hutchinson, US Census Bureau	

8:35 a.m.	Quadratic Prediction of Time Series via Auto-Cumulants—♦Tucker McElroy, US Census Bureau; Soumendra N Lahiri, North Carolina State University; Dhrubajyoti Ghosh, North Carolina State University
8:55 a.m.	Seasonal Adjustment Subject to Frequency Aggregation Constraints—♦Osbert Pang, U.S. Census Bureau; Tucker McElroy, US Census Bureau; Brian Monsell, U.S. Census Bureau
9:15 a.m.	Seasonal Adjustment of Aggregate Time Series with Components Containing Meagre Values—♦Richard Penny, Statistics New Zealand; Tucker McElroy, US Census Bureau
9:35 a.m.	Post Selection Inference for High-Dimensional Time Series—♦Anand Vidyashankar, George Mason University; Jeffrey Collamore, University of Copenhagen
9:55 a.m.	Regularized Estimation of High-Dimensional Auto- and Cross-Covariance Matrices—♦Tommaso Proietti, University of Rome Tor Vergata; Alessandro Giovannelli, Ministry of Economics and Finance, Italy
10:15 a.m.	Floor Discussion

461	CC-704
<b>■ ● Bayesian Statistical Methods for High-Throughput Toxicity Testing and Risk Assessment—Topic Contributed</b>	
Section on Risk Analysis, Section on Statistics and the Environment, Section on Bayesian Statistical Science	
Organizer(s): Michael Pennell, Ohio State University	

9:15 a.m.	Chair(s): Jonathan Race, The Ohio State University
8:35 a.m.	Using ToxCast Data for Statistical Research in Chemical Risk Assessment.—♦Matthew W Wheeler, CDC/NIOSH
8:55 a.m.	Nonparametric Bayesian Joint Modeling of High-Throughput and Low-Throughput Genotoxicity Data—♦Michael Pennell, Ohio State University; Matthew W Wheeler, CDC/NIOSH
9:15 a.m.	Bayesian Partially Shared Latent Factor Joint Model for Chemical Structure and Dose Response Curves—♦Kelly R. Moran, Duke University; Amy H Herring, Duke University; David Dunson, Duke University
9:35 a.m.	Linked Matrix Factorization—♦Michael O'Connell, Miami University
9:55 a.m.	Hierarchical Bayesian Methods for High-Throughput in Vitro Population-Based Chemical Screening—♦Weihsueh Chiu, Texas A&M University; Fred A Wright, North Carolina State University; Ivan Rusyn, Texas A&M University
10:15 a.m.	Floor Discussion

**462**

**■● Making an Impact When Things Make Impacts—Topic Contributed**

**Uncertainty Quantification in Complex Systems Interest Group**

Organizer(s): Earl Christopher Lawrence, Los Alamos National Laboratory

Chair(s): Earl Christopher Lawrence, Los Alamos National Laboratory

8:35 a.m.	Calibrating Strength Model Parameters Using Taylor Anvil Data—♦Kathleen Schmidt, Lawrence Livermore National Laboratory; Jason Bernstein, Lawrence Livermore National Laboratory; Ana Kupresanin, Lawrence Livermore National Laboratory; Nathan Barton, Lawrence Livermore National Laboratory; David Rivera, Lawrence Livermore National Laboratory; Jeffrey Florando, Lawrence Livermore National Laboratory
8:55 a.m.	Autoencoders for Emulation and Calibration of Dynamic Compression Experiments—♦Natalie Klein, Carnegie Mellon University; Earl Christopher Lawrence, Los Alamos National Laboratory
9:15 a.m.	Emulating Satellite Drag from Large Simulation Experiments—♦Furong Sun, Virginia Tech; Robert Gramacy, Virginia Tech; Ben Haaland, University of Utah; Earl Christopher Lawrence, Los Alamos National Laboratory; Andrew Walker, Los Alamos National Laboratory
9:35 a.m.	Crashing into the Moon by Partitioning Large Simulations—♦Kary Myers, Los Alamos National Laboratory
9:55 a.m.	Uncertainty Quantification for Binary Black Hole Formation—♦Derek Bingham, Simon Fraser University; Luyao Lin, Simon Fraser University; Ilya Mandel, University of Birmingham
10:15 a.m.	Floor Discussion

**Contributed Sessions 8:30 a.m.—10:20 a.m.**

**463**

**SPEED: Methodological Advances in Time Series:**

**BandE Speed Session, Part 1—Contributed**

**Business and Economic Statistics Section, Text Analysis Interest Group**

Chair(s): Jane L Harvill, Baylor University

8:35 a.m.	Functional Tail Dependence Coefficients for Copula—♦Keying Ye, University of Texas at San Antonio; Zhiruo Liu, University of Texas at San Antonio; Donald Lien, University of Texas at San Antonio
-----------	--

**CC-712**

8:40 a.m.	Modeling Time Series of Count Data Using a Periodic Conditional Poisson Model—♦Yi Zhang, Missouri University of Science and Technology; V A Samaranayake, Missouri University of Science and Technology
8:45 a.m.	CROPS: Fast Converging and Robust Optimum Path Selection Method for Continuous-Time Markov-Switching GARCH—♦Yinan Li, University of Notre Dame; Fang Liu, University of Notre Dame
8:50 a.m.	A New Method for Estimating Within-Industry Corporate Default Correlation—♦Gary Witt, Temple University; Marcus Sobel, Temple University
8:55 a.m.	Statistical Methodologies in Streaming Experimentation at Netflix—♦Julie Novak, Netflix
9:00 a.m.	The Inequality Process' PDF Approximation Model for Heavy-Tailed Financial Distributions—♦John Angle, The Inequality Process Institute LLC
9:05 a.m.	Bayesian Estimation of Local Volatility with Gaussian Process—♦Kai Yin, Case Western Reserve University; Anirban Mondal, Case Western Reserve University
9:10 a.m.	To Adjust or Not to Adjust? An Empirical Evaluation of Time Series with Unstable Seasonal Patterns—♦Demetra Lytras, U.S. Census Bureau
9:15 a.m.	Application of Linear and Nonlinear Models into Trend Analysis of U.S. Cotton Export (1996-2017)—♦Zahra Saki, NC State University; Marguerite Moore, NC State University; Lori H. Rothenberg, North Carolina State Un.
9:20 a.m.	Nonparametric Estimation of a General Equilibria—♦John Schuler,
9:30 a.m.	Optimal Forecast in the Presence of Structural Break—♦Shahnaz Parsaeian,
9:35 a.m.	Application of Statistical Methods to Discovery of Anomalies in Accounting Data—♦Eugene Yankovsky, EY; Ana Yankovsky, Intuitive; Loren Williams, EY
9:40 a.m.	Testing Simultaneous Diagonalizability of Random Matrices—♦Yuchen Xu, Cornell University; David Matteson, Cornell University
9:45 a.m.	Forecasting Daily Service Call Volume Using Nonparametric Transfer Function Approach—♦Jun Liu,
9:50 a.m.	Empirical Testing of an Option Pricing Model with Memory—♦Flavia Sancier-Barbosa, Colorado College; Lochana Siriwardena, University of Indianapolis
9:55 a.m.	The Development of a Calculation of Composite Coincident Indicator (CCI) for the United States—♦Brian Sloboda, University of Phoenix; Chandra Putcha, California State University at Fullerton
10:00 a.m.	Functional Stochastic Volatility—♦Phillip Jang, Cornell University; David Matteson, Cornell University
10:05 a.m.	Testing for Unit Roots Using Artificial Neural Networks—♦Rukman Ekanayake, ; V A Samaranayake, Missouri University of Science and Technology
10:10 a.m.	Forecasting Daily Electricity Load Profile Using Functional Principal Components and Transfer Function Models—

◆ Abdelmonaem Jornaz, Northwest Missouri State University; V A Samaranayake, Missouri University of Science and Technology	9:15 a.m.	Using Social Contact Data to Improve the Overall Effect Estimate of a Cluster-Randomized Influenza Vaccination Program in Senegal—♦Gail Potter, The Emes Corporation; Nicole Carnegie, Montana State University; Jonathan Sugimoto, Fred Hutchinson Cancer Research Center; Aldiouma Diallo, Institut de Recherche pour le Developpement; John C Victor, PATH; Kathleen Neuzil, University of Maryland; M Elizabeth Halloran, University of Washington and Fred Hutchinson Cancer Research Center	
10:15 a.m.	Communication Among Business and Statistics Journals: Citation Analysis and Text Analytics with Topic Analysis—Mary Whiteside, The University of Texas At Arlington; Mark Eakin, The University of Texas at Arlington; ♦Qiang Ruan, The University of Texas at Arlington	9:20 a.m.	Detecting Hierarchical Geographical Clusters of Disease Using Heterogeneity Patterns of Varying Incidence Intensity—♦Chih-Chieh Wu, National Cheng Kung University; Sanjay Shete, UT MD Anderson Cancer Center
		9:30 a.m.	Functional Central Limit Theorem for Susceptible-Infected Process on Configuration Model Graphs—♦Wasiru R. KhudaBukhsh, Ohio State University; Casper Woroszylo, BHP Billiton; Grzegorz A. Rempa?a, Ohio State University; Heinz Koepl, TU Darmstadt
		9:35 a.m.	Subsample Estimation for Multivariate Spatial Models—♦Mark May, Creighton University; Joey Higgins, Creighton University; Aimee Schwab-McCoy, Creighton University
8:35 a.m.	Zoster Vaccine Live Coverage Among Adults 50-59 and ?60 Years in the United States, 2013-2017—♦Pengjun Lu, CDC; Mei-Chuan Hung, CDC; Anup Srivastav, Centers for Disease Control and Prevention/Leidos Inc; Walter W Williams, Centers for Disease Control and Prevention; Kathleen Dooling, CDC	9:40 a.m.	A Bayesian Hierarchical Model for Generating Fully Synthetic Point Process Data—♦Adam Walder,
8:40 a.m.	Cost-Effective Analysis for Influenza Vaccination Coverage and Timing in Tropical and Subtropical Climate Settings: a Modeling Study—♦Mu Yue, National University of Singapore	9:45 a.m.	Evaluation of Semiparametric Single Index Model for Characterizing Effects of Correlated Exposures—♦Yuyan Wang, New York University; Mengling Liu, New York University
8:45 a.m.	Assessing the Association Between Sex Ratio and Dowry Deaths in Uttar Pradesh Using Spatio-Temporal Random Effects Models—♦Tomas Goicoa, Public University of Navarre; MARIA DOLORES UGARTE, PUBLIC UNIVERSITY OF NAVARRE; Aritz Adin, Public University of Navarre; JIM HODGES, UNIVERSITY OF MINNESOTA	9:50 a.m.	Estimate Booster Vaccination Effect on the Distribution of Antibody Level Using Mixture Model—♦Li Deng, Centers for Disease Control and Prevention
8:50 a.m.	Small Area Estimation for Small Groups—♦Diba Khan, CDC; Brady Hamilton, CDC; Andrew B Lawson, Medical University of South Carolina ; Yulei He, CDC	9:55 a.m.	A Method for High-Dimensional Variable Selection in Presence of Collinearity—♦Jiyeong Jang, University of Illinois at Chicago; Sanjib Basu, University of Illinois at Chicago
8:55 a.m.	Bayesian Compartmental Model for an Infectious Disease with Multiple Infectious States—♦Marie Ozanne, University of Iowa	10:00 a.m.	Transporting Cross-Sectional Incidence Estimation Algorithms Between Populations—♦Douglas Morrison, UCLA; Oliver Laeyendecker, Johns Hopkins University; Ron Brookmeyer, UCLA
9:00 a.m.	Small Area Estimation of HIV Incidence Using Bayesian Hierarchical Model—♦Ben Sheng, Penn State University; Le Bao, Pennsylvania State University; Ray Shiraishi, CDC; Steven Gatreuter, CDC; Jeffrey Eaton, Imperial College London	10:05 a.m.	A Comparison of Spatial Scan Methods for Cluster Detection—♦Mohammad Meysami, University of Colorado Denver; Joshua French, University of Colorado Denver; Lauren M Hall, University of Colorado Denver; Minh Chau Nguyen, University of Colorado Denver; Lee Panter, University of Colorado Denver; Nicholas Weaver, University of Colorado Denver
9:05 a.m.	Source-Specific Contributions of Particulate Matter to Asthma-Related Emergency Department Utilization—♦Mohammad Alfrad Nobel Bhuiyan , Cincinnati Children's Hospital Medical Center; Cole Brokamp, Cincinnati Children's Hospital Medical Center	10:10 a.m.	A Multivariate Spatio-Temporal Model of the Opioid Epidemic in Ohio: a Factor Model Approach—♦David Kline, The Ohio State University; Yixuan Ji, Wake Forest University; Staci Hepler, Wake Forest University
9:10 a.m.	Density Estimation of Spatio-Temporal Point Patterns Using Moran's Statistic—♦Norou Diawara, Old Dominion University; Jennifer Lorio, Old Dominion University	10:15 a.m.	A Non-Homogeneous Hidden Markov Model of HIV Progression in Patients on ART—♦Sanam Sanei, Pennsylvania State University; Le Bao, Pennsylvania State University; Amirali Kani, University of Guelph; Leigh Johnson, University of Cape Town

**465**

**SPEED: Statistical Computing: Methods, Implementation, and Application, Part 1—Contributed Section on Statistical Computing**

Chair(s): Michael Weylandt, Rice University

8:35 a.m.	Sure Independence Screening (SIS) for Multiple Functional Regression Model—♦Yuan Yuan, Auburn University; Nedret Billor, Auburn University
8:40 a.m.	Creation of an R Shiny Application to Illustrate and Accompany the Growclusters Package—♦Randall Powers, U.S. Bureau of Labor Statistics; Terrance Savitsky, Bureau of Labor Statistics; Wendy L Martinez, Bureau of Labor Statistics
8:45 a.m.	Generalized Causal Mediation and Path Analysis and Its R Package <i>igmediation</i> —♦Jang Ik Cho, Eli Lilly and Company; Jeffrey M Albert, Case Western Reserve University
8:50 a.m.	Spatial DNA: Measuring Similarity of Geolocation Data Sets with Applications to Forensics—♦Christopher Galbraith, University of California, Irvine; Padhraic Smyth, University of California, Irvine
8:55 a.m.	Sampling Using Langevin Diffusion—♦Riddhiman Bhattacharya, University of Minnesota
9:00 a.m.	Rapid Numerical Approximation of Spatial Covariance Functions Over Irregular Data Regions—♦Peter Simonson, Colorado School of Mines; Doug Nychka, Colorado School of Mines; Soutir Bandyopadhyay, Colorado School of Mines
9:05 a.m.	Predicting Lattice Reduction on Ideal Lattices (PeRIL)—♦Bryan Ek, Space and Naval Warfare Systems Center Atlantic; Bryan Williams, Space and Naval Warfare Systems Center Atlantic; Emily Nystrom, Naval Information Warfare Center Atlantic; Jamie Lyle, Space and Naval Warfare Systems Center Atlantic; Peter Curry, Space and Naval Warfare Systems Center Atlantic; Scott Batson, Space and Naval Warfare Systems Center Atlantic
9:10 a.m.	Exact Inference for Analyzing Contingency Tables in Finite Populations—♦Shiva Dabaj, UT MD Anderson Cancer Center; Gregory Wilding, SUNY at Buffalo; Graham Warren, University of Kentucky
9:15 a.m.	A Simple Recipe for Making Accurate Parametric Inference in Finite Sample—♦Mucyo Karemra, Penn State University; Stephane Guerrier, University of Geneva; Samuel Orso, University of Geneva; Maria-Pia Victoria-Feser, University of Geneva
9:20 a.m.	The Variance of the Interaction Term as Goal for Estimation—♦Iman Jaljuli, Tel-Aviv University; Yoav Benjamini, Tel Aviv University
9:30 a.m.	A New Approach in Distribution Fitting for Grouped Data and Its Application in Measuring Income Distribution—♦Ying-Ju Chen, University of Dayton; Tatjana Miljkovic, Miami University

**CC-501**

9:35 a.m.	Spatial Location-Based Trajectory Modeling: Predicting the Success of an Crowdfunding Campaign—♦Han Yu, University of Northern Colorado
9:40 a.m.	Embarrassingly Parallel Inference for Gaussian Processes—♦Michael Minyi Zhang, Princeton University; Sinead Williamson, UT Austin
9:45 a.m.	Estimating Subgroups for Spatial Areal Data with Repeated Measures—♦Xin Wang, Miami University; Zhengyuan Zhu, Iowa State University; Helen Zhang, University of Arizona
9:50 a.m.	Tensor Variate Models Applied to Sensor Data—♦Peter Tait, McMaster University; Paul D McNicholas, McMaster University
9:55 a.m.	Using Information Criteria to Select Among Polynomial and itruly"Nonlinear Multilevel Models—♦Wendy Christensen, University of California, Los Angeles; Jennifer Krull, University of California, Los Angeles
10:00 a.m.	Clustering Smoothed Dissimilarities in Tertiary Data: a Shrinkage-Based Approach—♦Bridget Manning, University of South Carolina; David Hitchcock, University of South Carolina
10:05 a.m.	Incorporating Spatial Statistics into Routine Analysis of Agricultural Field Trials—♦Julia Piaskowski, University of Idaho; Chad Jackson, University of Idaho; Juliet Marshall, University of Idaho; William J Price, University of Idaho
10:10 a.m.	Bootstrap in the Linear Model: a Comprehensive R Package—♦Megan Heyman, Rose-Hulman Institute of Technology
10:15 a.m.	Tidi_MIBI: a Tidy Pipeline for Microbiome Analysis and Visualization in R—♦Charlie Carpenter, University of Colorado-Biostatistics

**466**

**Personalized/Precision Medicine I—Contributed Biometrics Section**

Chair(s): Theresa Kim, Patient-Centered Outcomes Research Institute (PCORI)

8:35 a.m.	Personalized Treatment Selection Using Data from Crossover Designs with Carry Over Effects—♦Chathura Siriwardhana, University of Hawaii; K.B. Kulasekera, University of Louisville; Somnath Datta, University of Florida
8:50 a.m.	Augmented Tree-Based Reinforcement Learning to Incorporate Patient Preferences into the Estimation of Optimal Dynamic Treatment Regimes—♦Yingchao Zhong, University of Michigan; Lu Wang, University of Michigan

**CC-109**

**Personalized/Precision Medicine I—Contributed**

**Biometrics Section**

Chair(s): Theresa Kim, Patient-Centered Outcomes Research Institute (PCORI)

8:35 a.m.	Personalized Treatment Selection Using Data from Crossover Designs with Carry Over Effects—♦Chathura Siriwardhana, University of Hawaii; K.B. Kulasekera, University of Louisville; Somnath Datta, University of Florida
8:50 a.m.	Augmented Tree-Based Reinforcement Learning to Incorporate Patient Preferences into the Estimation of Optimal Dynamic Treatment Regimes—♦Yingchao Zhong, University of Michigan; Lu Wang, University of Michigan

9:05 a.m.	Robust Estimation for Optimal Dynamic Treatment Regimes with Restricted Arms Using Observational Data—♦Nina Zhou, University of Michigan; Lu Wang, University of Michigan; Daniel Almirall, University of Michigan
9:20 a.m.	Personalized Biopsy Schedules for Prostate Cancer Using Joint Models—♦Dimitris Rizopoulos, Erasmus University Medical Center
9:35 a.m.	Classification of Distinct Trajectories in Longitudinal Data with Irregular Spaced Intervals: Heterogeneous Linear Mixed Model Vs Mixture Modeling of BLUPs from Linear Mixed Model—♦Md Jobayer Hossain, Nemours children Healthcare Systems; Benjamin E. Leiby, Thomas Jefferson University
9:50 a.m.	A Parsimonious Personalized Dose Finding Model via Dimension Reduction—♦Wenzhuo Zhou, 1993; Ruqiang Zhu, University of Illinois Urbana-Champaign
10:05 a.m.	Optimizing the Personalized Timing for Treatment Initiation with Continuous or Multiple Random Decision Points—♦Ming Tang, University of Michigan; Lu Wang, University of Michigan; Haoda Fu, Eli Lilly and Company; Yebin Tao, Google

<b>467</b>	<b>CC-113</b>
<b>Modeling, Design Strategies and Assessment of Biomarkers—Contributed</b>	
<b>Biopharmaceutical Section</b>	
Chair(s): Yodit Seifu, Merck	

8:35 a.m.	Modeling the Prediction Classifier of Overall Survival with Clinical and Gene Expression Data of Leukemia Patients - a Case Study—♦Kao-Tai Tsai, Celgene
8:50 a.m.	A New Method for the Analysis of Categorical Data with Repeated Measurements - Demonstrated by Precision Data Analysis for Clinical Diagnostics—♦Tinghui Yu, AstraZeneca
9:05 a.m.	Learning Moral Graphs in Construction of High-Dimensional Bayesian Networks for Mixed Data—♦Bochao Jia, Eli Lilly and Company; Suwa Xu, University of Florida; Faming Liang, Purdue University
9:20 a.m.	Biomarker Enrichment Subgroup Analysis - a Case Study—Rui Qin, Johnson & Johnson; Steven Sun, J&J; ♦Grace Liu, Johnson & Johnson
9:35 a.m.	Design Strategies to Assess Benefit for Biomarker Sub-Populations in Phase III Clinical Trials—♦Bharani Dharan, Novartis Pharmaceuticals; Ekkehard Glimm, Novartis Pharma AG
9:50 a.m.	Exact Bayesian Screening for Rapidly Identifying Uninformative Features from High-Dimensional Biomedical Arrays—♦A Lawrence Gould, Merck Research Laboratories; Richard Baumgartner, Merck Research Laboratories

10:05 a.m.	Prognostic Models from Data Integration of Clinical Characteristics and Gene Expression Data Using Bayesian Networks—♦Duncan Rotich, University of Kansas Medical Center; Jeffrey A. Thompson, University of Kansas Medical Center
------------	--

<b>468</b>	<b>CC-112</b>
<b>Statistical Methods in Clinical Trials—Contributed</b>	
<b>Biopharmaceutical Section</b>	

Chair(s): Geng Chen, Alnylam

8:35 a.m.	Percent Change from Baseline as an Endpoint in Clinical Trials—♦Jitendra Ganju, Ganju Clinical Trials, LLC; Kefei Zhou, Jazz Pharma
8:50 a.m.	Network Meta-Analysis for Benefit-Risk Assessment—♦Sammy Yuan, Merck; Chang Liu, North Carolina State University
9:05 a.m.	Baseline-Covariate Adjusted Confidence Interval for Proportional Difference Between Two Treatment Groups in Clinical Trials—♦JINGJING CHEN, Takeda Pharmaceuticals; Fang Liu, Merck
9:20 a.m.	Bayesian Computation in Clinical Research - an Overview of Some Currently Available Tools and Their Functionality—♦Melvin Munsaka, AbbVie, Inc.; Mani Lakshminarayanan, CHEORS
9:35 a.m.	A Flexible Bayesian Method to Individualized Treatment Allocation—♦Saptarshi Chatterjee, Northern Illinois University; Sanjib Basu, University of Illinois at Chicago
9:50 a.m.	Practical Determining the Late Effect Parameter in Fleming-Harrington Test Using Asymptotic Relative Efficiencies with Prototypical Lag Models Under Delayed Treatment Effect—♦Yuichiro Kaneko, Astellas Pharma; Satoshi Morita, Kyoto University
10:05 a.m.	Nonparametric Estimation of a Mixing Distribution for Pharmacokinetic Stochastic Models—♦Alona Kryshchenko, CSU Channel Islands; Alan Schumitzky, University of Southern California; Mike van Guilder, Laboratory of Applied Pharmacokinetics and Bioinformatics, Children's Hospital-LA; Michael Neely, Laboratory of Applied Pharmacokinetics and Bioinformatics, Children's Hospital-LA

<b>469</b>	<b>CC-709</b>
<b>Using and Linking Administrative and Auxiliary Data—Contributed</b>	
<b>Government Statistics Section</b>	
Chair(s): MoonJung Cho, U.S. Bureau of Labor Statistics	

8:35 a.m.	The Research and Methodology on Staggering the 2020 Census Mailings—♦Ioana (Julia) Marasteanu, U.S. Census Bureau; Sarah Konya, U.S. Census Bureau
-----------	--

8:50 a.m.	Analyzing Tradeoff Between Administrative Records Enumeration and Count Imputation—♦ Andrew Keller, U.S. Census Bureau	Research, Department of Radiology, University of Minnesota
9:05 a.m.	Estimating the Probability of Race Change—♦ Larry Sink, US Census Bureau	Smoothed Empirical Likelihood Inference for the Youden Index Subject to Limit of Detection—♦ Dongliang Wang, SUNY Upstate Medical University
9:20 a.m.	Ethical Principles for the All Data Revolution—Repurposing Administrative and Opportunity Data—♦ Stephanie Shipp, University of Virginia, Biocomplexity Institute & Initiative, Social & Decision Analytics; Sallie Keller, University of Virginia, Biocomplexity Institute & Initiative, Social & Decision Analytics; Aaron S Schroeder, Social & Decision Analytics Division, BII, UVA	Analyzing Wearable Device Data Using Marked Point Processes—♦ Yuchen Yang, Johns Hopkins University; Mei-Cheng Wang, Johns Hopkins University
9:35 a.m.	The Promises and Challenges of Linked Rent Data from the Consumer Expenditure Survey and Housing and Urban Development—♦ Garret Christensen, US Census Bureau; Nikolas Pharris-Ciurej, U.S. Census Bureau; Laura Erhard, Bureau of Labor Statistics; Thesia Garner, Bureau of Labor Statistics; Brett Butler, Bureau of Labor Statistics; John Voorheis, US Census Bureau	BayesCT: a Tool for Simulation and Analysis of Adaptive Bayesian Clinical Trials—♦ Thevaa Chandereng, University of Wisconsin-Madison; Donald Musgrave, Medtronic; Tarek Haddad, Medtronic ; Graeme Hickey, Medtronic; Tim Hanson, Medtronic ; Theodore Lystig, Medtronic; Rick Chappell, University of Wisconsin-Madison
9:50 a.m.	Measurement of Type I and Type II Record Linkage Error—♦ Dean Resnick, National Opinion Research Center (NORC); Jana Lynn Asher, Slippery Rock University	Constructed Composite Response: a Framework for Constructing Targeted Latent Variables—♦ Christopher Barbour, National Institutes of Health; Mark Greenwood, Montana State University; Dominique Zosso, Montana State University; Bibiana Bielekova, National Institute of Allergy and Infectious Diseases
10:05 a.m.	Assessment of Computer Availability and Internet Access Statistics to Improve the Planning Database's Low Response Score—♦ Luke Larsen, U.S. Census Bureau; Kathleen Kephart, U.S. Census Bureau	

**470**

**Biomarker Evaluation and Winning Student Papers on Medical Devices and Diagnostics—Contributed Section on Medical Devices and Diagnostics**

Chair(s): Barbara Wendelberger, Berry Consultants, LLC

**CC-108**

8:35 a.m.	Shock Prediction Using Vital Sign Time Series—♦ Iris Bennett, North Carolina State University; Bill Rand, North Carolina State University
8:50 a.m.	Combining Biomarker Trajectories to Improve Diagnostic Accuracy in Prospective Cohort Studies with Verification Bias—♦ Hong Li, Medical University of South Carolina; Constantine Gatsonis, Brown University
9:05 a.m.	Bayesian Hierarchical Models for Voxel-Wise Classification of Prostate Cancer Accounting for Spatial Correlation and Between-Patient Heterogeneity in the Multi-Parametric MRI Data—♦ Jin Jin, Division of Biostatistics, University of Minnesota; Joseph Koopmeiners, University of Minnesota; Lin Zhang, Division of Biostatistics, University of Minnesota; Ethan Leng, Center for Magnetic Resonance Research, Department of Radiology, University of Minnesota; Gregory Metzger, Center for Magnetic Resonance

WEDNESDAY

**471**

**Advances in High-Dimensional Inference and Multiple Testing—Contributed Section on Statistical Learning and Data Science**

Chair(s): Rina Friedberg, Stanford University

**CC-507**

8:35 a.m.	Testing High-Dimensional Null Hypothesis Against High-Dimensional Alternative for Generalized Linear Models—♦ Jinsong Chen, University of Illinois at Chicago; Hua Yun Chen, University of Illinois at Chicago
8:50 a.m.	High-Dimensional Inference via Adaptive Bayes—♦ Jiapeng Liu, Purdue University; Yixuan Qiu, Carnegie Mellon University; Xiao Wang, Purdue University
9:05 a.m.	Cross Validation Importance Learning—♦ Chenglong Ye, University of Minnesota; Yuhong Yang, University of Minnesota
9:20 a.m.	Two-Sample Tests for Graphs with Applications in Neuroscience—♦ Xixi Hu, Indiana University Bloomington; Michael Trosset, Indiana University Bloomington; Minh Tang, Johns Hopkins University
9:35 a.m.	Optimal and Maximin Procedures for Multiple Testing Problems—♦ Saharon Rosset, Tel Aviv University; Ruth Heller, Tel-Aviv University; Amichai Painsky, Hebrew University Jerusalem; Ehud Aharoni, IBM Research
9:50 a.m.	Method of Contraction-Expansion (MOCE) for Simultaneous Inference in Linear Models—♦ Fei Wang, CarGurus; Ling Zhou, Southwestern University of Finance and Economics; Lu Tang, University of Pittsburgh; Peter X.K. Song, School of Public Health, University of Michigan

10:05 a.m. Hypothesis Testing for Vectorized Persistence Diagrams—♦Chul Moon, Southern Methodist University; Sangjin Kim, The University of Texas at El Paso

**472** **CC-107**  
**Statistical Methods for Causal Inference—Contributed Section on Statistics in Epidemiology**  
Chair(s): Charles Hall, Albert Einstein College of Medicine

8:35 a.m. A Two-Stage Estimation Procedure for Nonlinear Structural Equation Models—♦Esben Budtz-Jorgensen, University of Copenhagen Dept. of Biostat; Klaus Holst, MERSK

8:50 a.m. Bayesian Kernel Machine Causal Mediation Analysis—♦Katrina Devick, Harvard TH Chan School of Public Health; Jennifer F Bobb, Kaiser Permanente Washington Health Research Institute; Maitreyi M Mazumdar, Boston Children's Hospital; Birgit Claus Henn, Boston University School of Public Health; David C Bellinger, Boston Children's Hospital; David C Christiani, Harvard TH Chan School of Public Health; Robert O Wright, Icahn School of Medicine at Mount Sinai; Paige L Williams, Harvard TH Chan School of Public Health; Brent A. Coull, Harvard T. H. Chan School of Public Health; Linda Valeri, Columbia University Mailman School of Public Health

9:05 a.m. Detecting Heterogeneous Treatment Effect with Instrumental Variables in Causal Inference—♦Michael Johnson, University of Wisconsin-Madison; Hyunseung Kang, University of Wisconsin-Madison

9:20 a.m. Weak-Instrument Robust Estimators and Tests for Two-Sample Summary Mendelian Randomization—Sheng Wang, University of Wisconsin-Madison; ♦Hyunseung Kang, University of Wisconsin-Madison

9:35 a.m. An Evaluation of Model-Based and Design-Based Variance Estimators in Completely Randomized Experiments—♦Stanley Lubanski, University of Wisconsin-Madison; Peter Steiner, University of Wisconsin

9:50 a.m. Contamination in Stepped-Wedge Randomized Trials and Its Impact on Public Health Interventions—♦Lior Rennert, Clemson University; Moonseong Heo, Clemson University; Victor De Gruttola, Harvard T.H. Chan School of Public Health

10:15 a.m. Floor Discussion

**473** **CC-302**  
**For the Love of the Game: Applications of Statistics in Sports—Contributed Section on Statistics in Sports**  
Chair(s): Jerome Keating, The University of Texas at San Antonio

8:35 a.m. An Analysis of "Weak Goals" as an Additional Tool for Evaluating Ice Hockey Goalies—♦Ryan Savitz, Neumann University; Helen Cooney, Neumann University

8:50 a.m. The Home Run Explosion—♦Jim Albert, Bowling Green State University

9:05 a.m. Do Golf Handicaps Always Level the Playing Field?—♦David Trindade, STAT-TECH

9:20 a.m. Soccer Analytics with Two Sheets of Paper and a Pencil—♦Michael Rutter, Penn State Behrend

9:35 a.m. Using Recruiting Rankings and Team Level Measurements to Predict College Football Team Success—♦Ross Gosky, Appalachian State University; Sydney Singleton, Appalachian State University

9:50 a.m. Assessing Referee Bias in College Basketball—♦Joshua Patrick, Baylor University

10:05 a.m. Statistical Analysis of the 2016 Olympic Men's Volleyball Data—♦Earvin Balderama, California State University, Fresno

**474** **CC-701**  
**Survey Sampling and Variance Estimation: Recent Innovations—Contributed Survey Research Methods Section**  
Chair(s): Craig A. Hill, RTI International

8:35 a.m. Deriving Asymptotic Properties of Survey Sampling Estimators—♦Ismael Flores Cervantes, Westat

8:50 a.m. Expanding Variance Function Coverage in the Current Population Survey—♦Justin McIlce, U.S. Bureau of Labor Statistics

9:05 a.m. Fully Bayesian Estimation Under Informative Sampling—♦Luis Leon Novelo, University of Texas-Health Science Center At Houston-School of Public Health; Terrance Savitsky, Bureau of Labor Statistics

9:20 a.m. Comparing Alternative Estimation Methods When Using Multi-Hit Approach to PSU Selection—♦Sadeq R Chowdhury, Agency for Healthcare Research and Quality

9:35 a.m. Overview of the 2016-2025 National Health Interview Survey Sample Design—♦Chris Moriarity, National Center for Health Statistics; Van Parsons, National Center for Health Statistics; Kim Jonas, U.S. Census Bureau

9:50 a.m. Targeted Data Collection: Statistical Sampling to Enable Collection of Variables Not in the Surveillance, Epidemiology, and End Results (SEER) Database—♦Sarah Michalak, Los Alamos National Labs; Tanmoy Bhattacharya, Los Alamos National Laboratory; Nick Hengartner, Los Alamos National Laboratory; Donna Rivera, National Cancer Institute; Xiao-Cheng Wu, Louisiana Tumor Registry; Lynne Penberthy, National Cancer Institute

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

<p>10:05 a.m. An Elementary Derivation of Kadane's Optimal Dynamic Sampling Plan—♦Tommy Wright, US Census Bureau/Center for Statistical Research &amp; Methodology</p> <p><b>475</b> <span style="float: right;"><b>CC-706</b></span>  <b>Understanding Threats to People, Data, and Privacy—Contributed</b>  <b>Social Statistics Section, Caucus for Women in Statistics</b>  Chair(s): Lynda Laughlin, U.S. Census Bureau</p> <p>8:35 a.m. US Mass Shootings as a Non-Homogeneous Poisson Process—♦Yew-Meng Koh, Hope College</p> <p>8:50 a.m. Classification of US Mass Shooting Incidents—♦Tyler Gast, ; Yew-Meng Koh, Hope College</p> <p>9:05 a.m. A Study of Spatial Misalignment with an Application to Urban Crime—♦Claire Kelling, ; Murali Haran, Penn State University; Corina Graif, Penn State; Aleksandra Slavkovic, Penn State University; Gizem Korkmaz, Social &amp; Decision Analytics Division, BII, UVA</p> <p>9:20 a.m. Mapping Opioid Use Trajectories in Veterans Undergoing Thoracic Surgery via Latent Classes—♦Michael Bishop, University of Iowa, College of Public Health; Emine Bayman, University of Iowa, Carver College of Medicine</p> <p>9:35 a.m. Do Economists Experience the Sense of Justice?—♦Guillermina Jasso, New York University</p> <p>9:50 a.m. Protecting Privacy of Household Panel Data—♦Shaobo Li, University of Kansas; Matthew Schneider, Drexel University; Yan Yu, University of Cincinnati; Sachin Gupta, Cornell University</p> <p>10:05 a.m. A Curious Variation on the Warner Device for Use in Randomized Response—♦Stephen Sedory, Texas A &amp; M University-Kingsville; Zakry Zapata, Texas A&amp;M University-Kingsville; Sarjinder Singh, Texas A&amp;M University-Kingsville</p>	<p>9:05 a.m. Bayesian Multinomial Latent Variable Model to Detect Driver Distraction at Intersections—♦Ning Li, University of Washington; Linda Ng Boyle, University of Washington</p> <p>9:20 a.m. Safety Effects of Wet-Weather Pavement Markings—♦Eun Sug Park, Texas A&amp;M Transportation Institute; Paul J. Carlson, Road infrastructure, Inc.; Adam Pike, Texas A&amp;M Transportation Institute</p> <p>9:35 a.m. Predictive Modeling of Errors in Child Restraint System Use—♦Elizabeth Petraglia, Westat; Doreen De Leonardi, Westat; Amy Benedick, Westat</p> <p>9:50 a.m. Charging Behavior Modeling of Battery Electric Vehicles on Long-Distance Trips—♦Yanbo Ge, University of Washington; Don MacKenzie, University of Washington</p> <p>10:05 a.m. Floor Discussion</p>
<b>Invited Sessions 10:30 a.m.—12:20 p.m.</b>	
<p><b>477</b> <span style="float: right;"><b>CC-710</b></span>  <b>● Complex Time Series Analysis—Invited</b>  <b>IMS</b>  Organizer(s): Qiwei Yao, London School of Economics  Chair(s): Rong Chen, Rutgers University</p> <p>10:35 a.m. Highly Comparative Time-Series Analysis as Statistical Learning Across a Massive Interdisciplinary Feature Library—♦Ben David Fulcher, University of Sydney</p> <p>11:00 a.m. Testing for Trends in High-Dimensional Time Series—♦Likai Chen, Washington University in Saint Louis; Wei Biao Wu, University of Chicago</p> <p>11:25 a.m. Multivariate Spatial-Temporal Prediction on Latent Low-Dimensional Functional Structure with Non-Stationarity—♦YI CHEN, Princeton University; Qiwei Yao, London School of Economics; Rong Chen, Rutgers University</p> <p>11:50 a.m. High-Dimensional Change-Point Estimation with Heterogeneous Noise—♦Yining Chen, London School of Economics</p> <p>12:15 p.m. Floor Discussion</p>	<p><b>478</b> <span style="float: right;"><b>CC-707</b></span>  <b>■ ● Scalable Bayesian Models for Time Series and Dynamic Networks: Making an Impact in Business and Socio-Economic Applications—Invited</b>  <b>Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA), Business and Economic Statistics Section</b>  Organizer(s): Mike West, Duke University  Chair(s): Mike West, Duke University</p>

10:35 a.m.	Bayesian Forecasting of High-Dimensional Count-Valued Time Series: Massive Data in Consumer Sales Forecasting—♦Lindsay Berry, Duke University; Mike West, Duke University; Paul Helman, 84.51∞
11:00 a.m.	Bayesian Decouple/Recouple Modeling for Large-Scale Dynamic Network Flow Studies—♦Xi Chen, LinkedIn Corporation; David Banks, SAMSI/Duke University; Mike West, Duke University
11:25 a.m.	Online Learning and Variable Selection for High-Dimensional Time Series with Simultaneous Graphical Dynamic Linear Models—♦Lutz F Gruber, QuantCo, Inc.; Mike West, Duke University
11:50 a.m.	A Bayesian Approach to Trajectory-Based Longitudinal Networks, with Application to the European Interbank Market—♦Antonietta Mira, Università della Svizzera italiana and Università dell'Insubria; Federica Bianchi, Università della Svizzera italiana; Stefano Peluso, Cattolica University and Università della Svizzera italiana; Francesco Bartolucci, University of Perugia
12:15 p.m.	Floor Discussion

479	CC-207
<b>■ ● Complex Innovative Designs in Practice of Early Phase Drug Development—Invited</b>	
Biopharmaceutical Section, ENAR, Society for Clinical Trials	
Organizer(s): Vladimir Dragalin, Janssen R&D	
Chair(s): Sue-Jane Wang, Center for Drug Evaluation and Research U.S. Food and Drug Administration	
10:35 a.m.	Incorporating Time-To-Event Total Toxicity Burden into Dose-Finding Trials—♦Ji Lin, Sanofi US; Yuan Ji, The University of Chicago; Meizi Liu, University of Chicago
10:50 a.m.	Novel Designs to Accelerate Phase I Oncology Trials—♦Daniel Li, Juno Therapeutics, A Celgene Company
11:05 a.m.	Adaptive Designs for Drug Combination Informed by Longitudinal Model for the Response—♦Tobias Mielke, Janssen
11:20 a.m.	Bayesian Optimal Interval (BOIN) Design in Phase 1 Oncology Dose-Finding Trials: An Industry Experience—♦Wijith Prasantha Munasinghe, AbbVie Inc
11:35 a.m.	Phase 1/2 Seamless Design—♦Inna Perevozskaya, GSK; Rosemary Schroyer, GSK; Helen Chen, GSK
11:50 a.m.	Disc: Yuan Ji, The University of Chicago
12:05 p.m.	Floor Discussion

480	CC-203
<b>■ ● Novel Statistical Methods for Bioinformatics and Computational Biology—Invited</b>	
Section on Statistics in Genomics and Genetics, Section on Statistical Computing, WNAR	
Organizer(s): Ping Ma, University of Georgia	

Chair(s): Ping Ma, University of Georgia

10:35 a.m.	Statistical Methods for Single Cell Regulomics—♦Sunduz Keles, UW Madison; Daniel Conn, University of Wisconsin
11:00 a.m.	Bayesian Detection of Convergent Rate Changes of Conserved Noncoding Elements on Phylogenetic Trees—Scott V Edwards, Harvard University; ♦Jun S. Liu, Harvard University; Zhirui Hu, Harvard University; Timothy B Sackton, Harvard University
11:25 a.m.	Reference-Free Learning with Multiple Metagenomic Samples—♦Wenxuan Zhong, University of Georgia
11:50 a.m.	B-Scaling: A Novel Nonparametric Data Fusion Method—Yiwen Liu, University of Arizona; ♦Xiaoxiao Sun, University of Arizona; Wenxuan Zhong, University of Georgia; Bing Li, The Pennsylvania State University
12:15 p.m.	Floor Discussion

**481 CC-708****● Random Matrices and High-Dimensional Statistics—Invited**  
IMSOrganizer(s): Iain Johnstone, Stanford University  
Chair(s): Iain Johnstone, Stanford University

10:35 a.m.	Large Random Matrices: Spiked Models, Stationary Processes and Applications—♦Jamal Najim, CNRS and UniversitéParis-Est
11:00 a.m.	Testing High-Dimensional Cointegration—♦Alexei Onatski, Cambridge University
11:25 a.m.	Edge Statistics of Sparse Random Sample Covariance Matrices—♦Kevin Schnelli, KTH Royal Institute of Technology
11:50 a.m.	Random Matrices and the Bootstrap in Moderate and High-Dimensions—♦Noureddine El Karoui, Criteo AI Lab and UC, Berkeley; Elizabeth Purdom, UC, Berkeley
12:15 p.m.	Floor Discussion

**482 CC-702****■ ● Statistical Methods in the Analysis of High-Order Structural Data with Possible Structural Changes—Invited**

Section on Statistical Learning and Data Science, International Chinese Statistical Association, ENAR

Organizer(s): Peter X.K. Song, School of Public Health, University of Michigan

Chair(s): Peter X.K. Song, School of Public Health, University of Michigan

10:35 a.m.	Tensor Regression and Imaging-Based Inference— ♦Heping Zhang, Yale University; Long Feng, Yale University; Xuan Bi, University of Minnesota
11:00 a.m.	Correlation Tensor Decomposition and Its Application in Spatial Imaging Data—♦Xiwei Tang, University of Virginia; Annie Qu, University of Illinois at Urbana-Champaign; Yujia Deng, University of Illinois Urbana and Champaign
11:25 a.m.	Simultaneous Change Point Detection and Structure Recovery for High-Dimensional Gaussian Graphical Models—♦Yufeng Liu, University of North Carolina at Chapel Hill
11:50 a.m.	Generative Link Prediction for Incomplete Networks with Node Features—♦Ji Zhu, University of Michigan
12:15 p.m.	Floor Discussion

**483 CC-504**

**■● Teaching Statistics: Stepping Out of the Classroom—Invited**  
**Section on Teaching of Statistics in the Health Sciences, Section on Statistics and Data Science Education, American Educational Research Association**

Organizer(s): Jaya M Satagopan, Memorial Sloan Kettering Cancer Center; Ananda Sen, University of Michigan  
 Chair(s): Ananda Sen, University of Michigan

10:35 a.m.	Out of the Classroom and into the “Real” World: Learning Statistics by Doing Statistics with “The Islands”—♦Ann M Brearley, University of Minnesota; Laura J Le, University of Minnesota
11:05 a.m.	Using and Building Shiny Apps for Teaching Introductory Biostatistics—♦Adam Ciarleglio, The George Washington University
11:35 a.m.	Biostatistics for Public Health Students: What Benefits Does a iFlipped“Classroom Have?—♦Thomas M Braun, University of Michigan School of Public Health
12:05 p.m.	Floor Discussion

**484 CC-Four Seasons 1**

**■● Wald Lecture III—Invited**  
**IMS**  
 Organizer(s): Piotr Fryzlewicz, London School of Economics  
 Chair(s): Gareth James, University of Southern California

10:35 a.m.	Wald III: Statistical Learning with Sparsity—♦Trevor J Hastie, Stanford University
11:35 a.m.	Disc: Ming Yuan, Columbia University
11:55 a.m.	Disc: Hui Zou, University of Minnesota
12:15 p.m.	Floor Discussion

**485 CC-102**

**■● Decision Making in Tech Giants Through A/B Testing, Prediction and Optimization—Invited**  
**Quality and Productivity Section, Section on Physical and Engineering Sciences, Section on Statistical Learning and Data Science**  
 Organizer(s): Tirthankar Dasgupta, Rutgers University  
 Chair(s): Tirthankar Dasgupta, Rutgers University

10:35 a.m.	A Multi-Objective Optimization for Web Based Ranking Problems—♦Souvik Ghosh, LinkedIn Corporation
11:00 a.m.	Improving External Validity of A/B Testing Using Jackknife—Yu Wang, University of California, Berkeley; Somit Gupta, Microsoft Corporation; ♦Jiannan Lu, Microsoft Corporation; Ali Mahmoudzadeh, Microsoft Corporation; Sophia Liu, Microsoft Corporation
11:25 a.m.	Limitations of Design-Based Causal Inference and A/B Testing Under Arbitrary and Network Interference—♦Guillaume Basse, UC Berkeley; Edoardo Airoldi, Temple University
11:50 a.m.	Disc: Edoardo M Airoldi, Harvard University
12:15 p.m.	Floor Discussion

**486 CC-301**

**■● Developing the Methodological Foundations for Replication Sciences—Invited**  
**Social Statistics Section, American Educational Research Association, Statistics and Public Policy**  
 Organizer(s): Vivian Wong, University of Virginia  
 Chair(s): Vivian Wong, University of Virginia

10:35 a.m.	A Six-Arm Design Replication Study: Design, Results, and Implications—♦Bryan Keller, Columbia University
10:55 a.m.	A Causal Replication Framework for Designing and Assessing Replication Efforts—♦Peter Steiner, University of Wisconsin; Vivian Wong, University of Virginia
11:15 a.m.	Studying Replication: Lessons from Applied Statistics and Empirical Research—♦Jacob Schauer, Northwestern University
11:35 a.m.	Disc: Larry Hedges, Northwestern University
11:55 a.m.	Disc: Jennifer L Hill, New York University
12:15 p.m.	Floor Discussion

**487 CC-111**

**■● Spatio-Temporal Statistics in Health Applications—Invited**  
**ENAR, Section on Statistics in Epidemiology, Section on Statistics and the Environment**

Organizer(s): Abhi Datta, Johns Hopkins Bloomberg School of Public Health

Chair(s): Abhi Datta, Johns Hopkins Bloomberg School of Public Health

10:35 a.m. Using Air Quality Data Fusion Products for Epidemiological Research—♦Howard Chang, Emory

11:00 a.m. A Multivariate Spatio-Temporal Model for Dengue, Zika, and Chikungunya Outbreaks in Rio De Janeiro, Brazil—♦Alexandra Schmidt, McGill University

11:25 a.m. A Unified Exposure Prediction Approach for Multivariate Spatial Data—♦Roman Jandarov, University of Cincinnati College of Medicine; Zheng Zhu, University of Cincinnati College of Medicine

11:50 a.m. Estimating and Explaining Spatially Varying Seasonal Cycles of RSV—♦Matthew Heaton, Brigham Young University; Celeste Ingersoll, Brigham Young University; Brian Hartman, Brigham Young University; Candace J. Berrett, Brigham Young University; Chantel Sloan, Brigham Young University

12:15 p.m. Floor Discussion

**488**

**Gottfried E. Noether Lectures—Invited Noether Award Committee**

Organizer(s): Raymond J. Carroll, Texas A & M University  
Chair(s): Douglas William Nychka, NCAR

**CC-607**

10:45 a.m. Challenges in Privacy with Functional Data—♦Matthew Reimherr, Penn State University

11:20 a.m. Some Recent Developments and Open Questions in Precision Medicine—♦Michael Kosorok, University of North Carolina at Chapel Hill

12:05 p.m. Floor Discussion

**489**

**Monroe G. Sirken Lecture—Invited Sirken Award**

Organizer(s): John Czajka, Mathematica Policy Research  
Chair(s): John Czajka, Mathematica Policy Research

**CC-605**

10:35 a.m. Is Survey Research a Fact-Based Endeavor?—♦Judith T. Lessler, Harlan's Creek Farm, LLC & Alston-Degraffenreid, LLC

12:10 p.m. Floor Discussion

**490**

**CC-201  
Professor David Blackwell's 100th Birthday Celebration: Impact on Diversity and Statistics—Invited Committee on Minorities in Statistics**

Organizer(s): Sastry G. Pantula, California State University- San Bernardino  
Chair(s): Nandini Kannan, National Science Foundation

10:35 a.m. Diversity in Our Profession—♦Jacqueline Hughes-Oliver, North Carolina State University

11:00 a.m. An Overview of David Blackwell's Search for 'Understanding' in Statistics—♦Peter J Bickel, University of California, Berkeley

11:25 a.m. David Blackwell's Student Looks at David Blackwell's Work—♦Richard Lockhart, Simon Fraser University

11:50 a.m. Disc: Sastry G. Pantula, California State University- San Bernardino

12:15 p.m. Floor Discussion

---

**Invited Panels 10:30 a.m.—12:20 p.m.**

---

**491**

**CC-703  
■ Database Lock to Data Safety Monitoring Board Meeting -More Than a Click of a Button—Invited Section for Statistical Programmers and Analysts, Biopharmaceutical Section, Section on Statistical Consulting**

Organizer(s): Vipin Arora, Eli Lilly and Company  
Chair(s): Vipin Arora, Eli Lilly and Company

Panelists: ♦Natasa Rajicic, Cytel Inc  
♦David Prince, Axio Research  
♦Lisa Weissfeld, Stats Collaborative  
♦Kevin Buhr, University of Wisconsin

12:15 p.m. Floor Discussion

WEDNESDAY

**492**

**CC-205  
■ ● Data Fabrication and Falsification: Protecting the Credibility and Impacts of Surveys—Invited Government Statistics Section, Survey Research Methods Section, ENAR**

Organizer(s): Linda J Young, USDA National Agricultural Statistics Service

Chair(s): Kerrie Leslie,

Panelists: ♦James Dahlhamer, US Centers for Disease Control and Prevention  
♦Jill DeMatteis, Westat

<p>◆ Linda J Young, USDA National Agricultural Statistics Service</p> <p>12:15 p.m. Floor Discussion</p>	<p>11:15 a.m. Observational Studies of Peer Effects—♦ Dean Eckles, MIT; Eytan Bakshy, Facebook</p> <p>3:05 p.m. Disc: Elizabeth Ogburn, Johns Hopkins Bloomberg School of Public Health</p> <p>3:25 p.m. Disc: Linda Valeri, Columbia University Mailman School of Public Health</p> <p>12:05 p.m. Floor Discussion</p>
<b>Topic Contributed Sessions 10:30 a.m.—12:20 p.m.</b>	
<p><b>493</b> <span style="float: right;">CC-506</span></p> <p><b>■ ● Leveraging Historical Data and Real World Evidence in Drug Development Program Evaluation—Topic Contributed</b></p> <p>Health Policy Statistics Section, Biopharmaceutical Section, International Chinese Statistical Association</p> <p>Organizer(s): Freda Cooner, Amgen Inc.</p> <p>Chair(s): Yang Wang, Amgen</p> <p>10:35 a.m. From Quantitative Drug Safety to Real-World Evidence: Activities at the US FDA—♦ Hana Lee, U.S. Food and Drug Administration; Mark Levenson, FDA CDER</p> <p>10:55 a.m. Leveraging Historical Data in Diabetes Cardiovascular Outcome Trials—♦ Shuang Li, Southern Methodist University; Freda Cooner, Amgen</p> <p>11:15 a.m. Sources of Data and Statistical Strategies for Design and Analysis: Real World Insights—♦ Olga Marchenko, Bayer</p> <p>11:35 a.m. Real World Evidence Use in CBER—♦ Jennifer Kirk, FDA, Center for Biologics Evaluation and Research (CBER)</p> <p>11:55 a.m. Disc: Freda Cooner, Amgen Inc.</p> <p>12:15 p.m. Floor Discussion</p>	<p><b>495</b> <span style="float: right;">CC-502</span></p> <p><b>■ ● Changepoints: Making an Impact—Topic Contributed</b></p> <p>Royal Statistical Society, Section on Statistical Computing, Business and Economic Statistics Section</p> <p>Organizer(s): Rebecca Killick, Lancaster University, UK</p> <p>Chair(s): David Matteson, Cornell University</p> <p>10:35 a.m. Distinguishing Short and Long-Memory When Testing for Changepoints in Climate Time-Series: Application to Surface Temperature Records—♦ Claudio Beaulieu, University of California, Santa Cruz; Rebecca Killick, Lancaster University, UK</p> <p>10:55 a.m. Detection and Estimation of Local Signals—♦ David Siegmund, ; Xiao Fang, Chinese University of Hong Kong</p> <p>11:15 a.m. Detecting Changes in Mean in the Presence of Autocovariance—♦ Euan McGonigle, Lancaster University; Rebecca Killick, Lancaster University, UK; Matthew Nunes, University of Bath</p> <p>11:35 a.m. Changepoint Analysis of Historical Battle Deaths—♦ Marina Knight, University of York; Brennen Fagan, University of York; Niall MacKay, University of York; Jamie Wood, University of York</p> <p>11:55 a.m. Influence Measures for Changepoint Segmentations—♦ Ines Wilms, Maastricht University; Rebecca Killick, Lancaster University, UK; David Matteson, Cornell University</p> <p>12:15 p.m. Floor Discussion</p>
<p><b>494</b> <span style="float: right;">CC-113</span></p> <p><b>■ ● Identifying and Addressing Sources of Bias in Causal Inference—Topic Contributed</b></p> <p>Biometrics Section, Section on Statistics in Epidemiology, Health Policy Statistics Section</p> <p>Organizer(s): Linda Valeri, Columbia University Mailman School of Public Health; Caleb Miles, Columbia</p> <p>Chair(s): Joseph Antonelli, University of Florida</p> <p>10:35 a.m. Measurement Error-Robust Causal Inference via Synthetic Instrumental Variables—♦ Caleb Miles, Columbia; Brent A. Coull, Harvard T. H. Chan School of Public Health; Linda Valeri, Columbia University Mailman School of Public Health</p> <p>10:55 a.m. Causal Mediation Analysis for Stochastic Interventions—♦ Ivan Diaz, Weill Medical College, Cornell University</p>	<p><b>496</b> <span style="float: right;">CC-603</span></p> <p><b>■ ● Estimand Framework and Its Impact on Drug Development in Oncology—Topic Contributed</b></p> <p>Lifetime Data Science Section, Biopharmaceutical Section, Biometrics Section</p> <p>Organizer(s): Kaspar Rufibach, F. Hoffmann-La Roche; Evgeny Degtyarev, Novartis</p> <p>Chair(s): Rui Tang, Servier</p> <p>10:35 a.m. Estimand Framework in Oncology Drug Development -Impact and Opportunities—♦ Evgeny Degtyarev,</p>

Novartis ; Kaspar Rufibach, F. Hoffmann-La Roche; Jonathan Siegel, Bayer HealthCare Pharmaceuticals Inc.; Viktoriya Stalbovskaya, Merus; Steven Sun, J&J	10:55 a.m.	Importance of Censoring Mechanisms in Selecting Appropriate Estimands—♦ Jonathan Siegel, Bayer HealthCare Pharmaceuticals Inc.; Michelle Casey , Pfizer; Hans-Jochen Weber, Novartis; Anja Schiel, EMA BSWP/ SAWP; Stefan Englert, AbbVie Deutschland GmbH & Co KG; Steven Sun, J&J; Kaspar Rufibach, F. Hoffmann-La Roche
Sensitivity Analysis Vs Supportive Analysis Under Estimand Framework: a Case Study in Hematological Malignancies—♦ Steven Sun, J&J; Hans-Jochen Weber, Novartis; Marie-Laure Casadebaig, Celgene; Emily Butler, GlaxoSmithKline; Satrajit Roychoudhury, Pfizer Inc ; Kaspar Rufibach, F. Hoffmann-La Roche; Viktoriya Stalbovskaya, Merus	11:15 a.m.	
Estimand Framework -Are We Asking the Right Questions? a Case Study in the Solid Tumor Setting—♦ Michelle Casey , Pfizer; Evgeny Degtyarev, Novartis ; Maria Jose Lechuga, Pfizer, Inc.; Paola Aimone, Novartis Pharma AG; Feng Feng Liu, AstraZeneca; Viktoriya Stalbovskaya, Merus; Rui Tang, Servier; Emily Butler, GlaxoSmithKline; Oliver Sailer, Boehringer Ingelheim Pharma GmbH & Co	11:35 a.m.	
Disc: Kunthel By, Division of Biometrics V, OB/OTS/CDER FDA	11:55 a.m.	
Floor Discussion	12:15 p.m.	

Multi-Resolution Filters for Massive Spatio-Temporal Data—♦ Marcin Jurek, Texas A & M University; Matthias Katzfuss, Texas A & M University	10:35 a.m.	<b>497</b> <b>CC-507</b> ■ ● ENVR Student Paper Awards—Topic Contributed Section on Statistics and the Environment
Adaptive Ensemble Learning for Spatiotemporal Processes with Calibrated Predictive Uncertainty: a Bayesian Nonparametric Approach—♦ Jeremiah Liu,	10:55 a.m.	
Matching on Generalized Propensity Scores with Continuous Exposures—♦ Xiao Wu, Harvard University; Fabrizia Mealli, University of Florence; Mariangiela Kioumourtzoglou, Mailman School of Public Health, Columbia University; Francesca Dominici, Harvard T.H. Chan School of Public Health; Danielle Braun, Harvard University	11:15 a.m.	
Vector Autoregressive Models with Spatially Structured Coefficients for Time Series on a Spatial Grid—♦ Yuan Yan, Dalhousie University; Marc Genton, King Abdullah University of Science and Technology; Hsin-Cheng Huang, Academia Sinica	11:35 a.m.	

11:55 a.m.	Disc: Joseph Guinness, Cornell University	<b>498</b> <b>CC-505</b>
12:15 p.m.	Floor Discussion	
10:35 a.m.	Genome-Wide Association Studies of PTSD in 2 Cohorts of US Army Soldiers—♦ Steven Heeringa, University of Michigan Institute for Social Research	<b>■ ● Designs and Statistical Methods Used in Genetics and Mental Health for Army Study to Assess Risk and Resilience in Servicemembers (Army STARRS)—Topic Contributed</b>
10:55 a.m.	Genome Wide Association Studies of Suicide Attempts in US Soldiers—♦ Erin Ware, ; Murray B. Stein, UCSD; Colter M Mitchell, University of Michigan; Chia-Yen Chen, Broad Institute of MIT and Harvard; Jordan W Smoller, Harvard Medical School	
11:15 a.m.	A Genome-Wide Gene-By-Trauma Interaction Study of Alcohol Misuse in Two Independent Cohorts Identifies PRKG1 as a Risk Locus—♦ Renato Polimanti, ; Joan Kaufman, Johns Hopkins School of Medicine; Hongyu Zhao, Yale; Henry R. Kranzler, University of Pennsylvania School of Medicine; Robert J Ursano, Uniformed Services University of the Health Sciences; Ron Kessler, Harvard Medical School; Joel Gelernter, Yale University; Murray B. Stein, UCSD	
11:35 a.m.	Disc: Tamar Sofer, Brigham and Women's Hospital, Harvard Medical School	
11:55 a.m.	Disc: Wei-Ting Hwang, University of Pennsylvania	
12:15 p.m.	Floor Discussion	
10:35 a.m.	More Efficient Computation of Smoothing Splines via Space-Filling Basis Selection—♦ Cheng Meng,	<b>499</b> <b>CC-709</b>
10:55 a.m.	Efficient Manifold Approximation with Spherelets—♦ Didong Li, Duke University; Minerva Mukhopadhyay, Indian Statistical Institute, Kolkata; David Dunson, Duke University	

11:15 a.m.	A Unified Approach to Nonparametric Variable Importance Assessment—♦Brian Williamson, University of Washington; Noah Simon, University of Washington; Marco Carone, University of Washington
11:35 a.m.	Model-Free Confidence Intervals for Optimal Treatment Regimes—♦Yunan Wu, University of Minnesota; Lan Wang, University of Minnesota
11:55 a.m.	A Novel Consistent Information Criterion for Model Selection Based on Empirical Likelihood—♦Chixiang Chen, Pennsylvania State University; Ming Wang, Pennsylvania State University; Rongling Wu, Pennsylvania State University; Runze Li, Penn State University
12:15 p.m.	Floor Discussion

**500**

**■ ● Statistical Challenges and Recent Advances in Finance and Business Analytics—Topic Contributed Business and Economic Statistics Section**

Organizer(s): Kai-Sheng Song, University of North Texas  
Chair(s): Ta-Hsin Li, IBM T. J. Watson Research Center

10:35 a.m.	Virtual Standard Currency and Exchange Rates—♦Zhengjun Zhang, University of Wisconsin
10:55 a.m.	Identification of Technical Analysis Patterns with Smoothing Splines for Bitcoin Prices—♦Guoyi Zhang, University of New Mexico; Nikolay Miller, University of New Mexico; Yiming Yang, University of New Mexico; Bruce Sun, The state university of New York, Buffalo
11:15 a.m.	What Do Low Frequency of Transaction Costs Really Measure?—♦Filip Zikes, Board of Governors of the Federal Reserve System; Mohammad Jahan-Parvar, Federal Reserve Board
11:35 a.m.	An Accurate and Globally Convergent Algorithm for Estimating General Stable Distributions with Financial Applications—♦Kai-Sheng Song, University of North Texas
11:55 a.m.	Realtime Detection from Customer's Behavior Sequence -Explore a Smart Customer Maintenance Algorithm—♦Mingfei Li, Bentley University
12:15 p.m.	Floor Discussion

**501**

**■ Innovative Methods for Measurement Error Correction—Topic Contributed Section on Statistics in Epidemiology, ENAR, Biometrics Section**  
Organizer(s): Caroline P Groth, Feinberg School of Medicine, Northwestern University  
Chair(s): Harrison Quick, Drexel University

10:35 a.m.	Calibrating Validation Samples When Correcting for Measurement Error in Intervention Study Outcomes—♦Benjamin Ackerman, Johns Hopkins Bloomberg School of Public Health; Elizabeth A Stuart, Johns Hopkins Bloomberg School of Public Health; Juned Siddique, Feinberg School of Medicine, Northwestern University
10:55 a.m.	A Bayesian Approach for Handling Covariate Measurement Error When Estimating Population Treatment Effect—♦Hwanhee Hong, Juned Siddique, Feinberg School of Medicine, Northwestern University; Elizabeth A Stuart, Johns Hopkins Bloomberg School of Public Health

11:15 a.m.	Flexibly Accounting for Exposure Measurement Error in Counterfactual Risk Functions—♦Jessie Edwards, University of North Carolina at Chapel Hill
11:35 a.m.	Longitudinal Latent Class Modeling for Measurement Error Correction—♦Caroline P Groth, Feinberg School of Medicine, Northwestern University; David Aaby, Northwestern University Feinberg School of Medicine; Linda Van Horn, Northwestern University Feinberg School of Medicine; Michael Daniels, University of Florida; Juned Siddique, Feinberg School of Medicine, Northwestern University
11:55 a.m.	Covariate Measurement Error in Propensity Score Analysis: Leveraging the Covariate's Posterior Mean—♦Trang Q Nguyen, Johns Hopkins Bloomberg School of Public Health
12:15 p.m.	Floor Discussion

**502**

**● Propensity Score Methods to Conduct Observational Studies Using Complex Survey Data—Topic Contributed Survey Research Methods Section, Biometrics Section, Social Statistics Section**

Organizer(s): Hyunshik James Lee, Westat  
Chair(s): Natalia Weil, Westat

10:35 a.m.	Estimating Generalized Propensity Scores with Survey and Nonresponse Weighted Data—♦Beth Ann Griffin, RAND Corporation; Michael Robbins, RAND Corporation; Brian G. Vegetable, RAND Corporation; Daniel F. McCaffrey, Educational Testing Service
10:55 a.m.	Causal Inference Using Propensity Score Methods with Clustered Survey Data—♦Hyunshik James Lee, Westat; Duck-He Yang, Westat; Ning Rui, Westat
11:15 a.m.	Assessing the Causal Effect of Cumulative Load for Recurrent Injury Events in Professional Tennis Using a Flexible Cox Marginal Structural Model—♦Stephanie Kovalchik, Tennis Australia/Victoria University
11:35 a.m.	Robust Estimation of the Causal Effect of Time-Varying Neighborhood Factors on Health Outcomes—♦Michael Robbins, RAND Corporation; Beth Ann Griffin, RAND

11:55 p.m.	Disc: Eva Hisako DuGoff, University of Maryland
12:15 p.m.	Floor Discussion

**503 CC-106**

**■ ● Small Area Estimation with Relaxed Modeling Assumptions—Topic Contributed**  
**Survey Research Methods Section, Government Statistics Section, International Statistical Institute**  
Organizer(s): Andreea Erciulescu, Westat  
Chair(s): Jane Li, Westat

10:35 a.m.	Small Area Estimation of Entropy Inequality Measures: a Comparison Between Alternative Distribution Models—♦Silvia Pacei, University of Bologna; Maria Rosaria Ferrante, University of Bologna
10:55 a.m.	Small Area Models for Skewed Brazilian Business Survey Data—♦Fernando Moura, IM-UFRJ; Denise Britz Nascimento Silva, ENCE-IBGE; Andre Felipe Neves, IBGE
11:15 a.m.	Clustering Model for Estimation of Idiosyncratic Domains—♦Julie Gershunskaya, U.S. Bureau of Labor Statistics; Terrance Savitsky, Bureau of Labor Statistics
11:35 a.m.	Bayesian Monte Carlo Method for Estimating Small Area Complex Parameters Under Unit-Level Models with Skew-Normal Errors—♦Mamadou Diallo,
11:55 a.m.	Hierarchical Bayesian Models for Small Areas with Dirichlet Processes—♦Balgobin Nandram, Worcester Polytechnic Institute
12:15 p.m.	Floor Discussion

**504 CC-705**

**■ ● The Future of Statistical Consulting and Collaboration—Topic Contributed**  
**Section on Statistical Consulting**  
Organizer(s): Eric Vance, LISA-University of Colorado Boulder  
Chair(s): Eric Vance, LISA-University of Colorado Boulder

10:35 a.m.	Stats, Glass and Crime: Let's Make the Right Decision—♦Felix Jimenez, University of Colorado, NIST; Amanda Koepke, National Institute of Standards and Technology; Ruthie Corzo, National Institute of Standards and Technology; Eric Steel, National Institute of Standards and Technology
10:55 a.m.	Personalized Statistics, Case Studies from an Isolated Statistician: Breaking Free of Convention and Implementing Impactful Analyses That Make the Scientific Team Happy—♦Naomi Brownstein, Moffitt Cancer Center

11:15 a.m.	Understanding the Research to Clarify the Research Question—♦Nicholas Varberg, University of Colorado Boulder
11:35 a.m.	The POWER Structure and Why an 80% Correct Solution Is Sometimes Better Than a 100% Correct Solution—♦Ian Laga,
11:55 a.m.	Multiple Change Point Analysis on Noisy Nonlinear Data with an Application to Modeling Crack Growth in Additively Manufactured Titanium—♦Lucas Koepke, University of Colorado, NIST; Jolene Splett, National Institute of Standards and Technology; Tim Quinn, National Institute of Standards and Technology; Nik Hrabe, National Institute of Standards and Technology; Jake Benzing, National Institute of Standards and Technology; Michael Frey, National Institute of Standards and Technology

12:15 p.m.	Floor Discussion
------------	------------------

**Topic Contributed Panels 10:30 a.m.—12:20 p.m.**

**505 CC-503**

**● Formal Privacy: Making an Impact at Large Organizations—Topic Contributed**  
**Committee on Privacy and Confidentiality, Business and Economic Statistics Section, Government Statistics Section**  
Organizer(s): Lars Vilhuber, Cornell University  
Chair(s): Aleksandra Slavkovic, Penn State University

Panelists:	♦Simson Garfinkel, US Census Bureau ♦Ilya Mironov, Google ♦Juan Lavista Ferres, Microsoft ♦Shiva Kasiviswanathan, Amazon
12:10 p.m.	Floor Discussion

**Contributed Sessions 10:30 a.m.—12:20 p.m.**

**506 CC-112**

**Categorical Data—Contributed**  
**Biometrics Section**  
Chair(s): Lior Rennert, Clemson University

10:35 a.m.	Profiling Dialysis Facilities for Adverse Recurrent Events—♦Danh V Nguyen, University of California At Irvine; Jason P Estes, Research, Pratt & Whitney; Yanjun Chen, UC Irvine; Damla Senturk, UCLA; Connie M Rhee, UC Irvine; Esra Kurum, UC Riverside; Amy S You, UC Irvine; Elani Streja, UC Irvine; Kamyar Kalantar-Zadeh, UC Irvine
------------	---

11:50 a.m.	Network Meta-Regression for Ordinal Outcomes Under Different Links—◆ Yeongjin Gwon, University of Nebraska Medical Center; Mo May, Amgen Inc; Ming-Hui Chen, University of Connecticut; Zhiyi Chi, University of Connecticut; Juan Li, Eli Lilly and Company; Amy Xia, Amgen Inc; Joseph G Ibrahim, UNC	11:50 a.m.	Statisticianís Perspective of Meta-Analysis to Establish Non-Inferiority Margin for Phase 3 Study—◆ Aparna Raychaudhuri, CSL Behring; Fanny Mitrani-Gold, GlaxoSmithKline
11:05 a.m.	Likelihood Analysis of Gaussian Copula Distributions with Incomplete Correlated Binary or Mixed Data—◆ Mingchen Ren, University of Calgary; Ying Yan, Sun Yat-sen University; Alexander De Leon, University of Calgary	12:05 p.m.	A Framework for Considering the Risk-Benefit Trade-Off in Designing Trials Using Non-Inferiority or Composite Outcome Approaches—◆ Ritesh Ramchandani, Harvard University; Grace Montepiedra, Harvard University; Soyeon Kim, Harvard University; Sachiko Miyahara, Harvard University
11:20 a.m.	Small Sample Corrections for Longitudinal RNAseq Data—◆ Roula Tsonaka, Leiden University MC		
11:35 a.m.	On the Comparison of Two Correlated Proportions in the Analysis of Clustered Binary Data—◆ Krishna Saha, Central Connecticut State University; Suojin Wang, Texas A&M University		
11:50 a.m.	Number Needed to Treat: Controversies and Extensions—◆ Chunlei Ke, Biogen		
12:05 p.m.	An Overview of the Assessment of Logistic Regression Models—◆ Justin Shang, University of Wyoming; Covance Inc.; Tim Robinson, University of Wyoming; Shaun Wulff, University of Wyoming		
<b>507</b>	<b>CC-210/212</b>		
	<b>Non-Inferiority, Biosimilarity and Related Topics—Contributed</b>		
	Biopharmaceutical Section		
	Chair(s): Junjing Lin, AbbVie		
10:35 a.m.	Use of Tolerance Intervals for Assessing Biosimilarity—◆ Chian Chen, Institute of Population Health Sciences, National Health Research Institutes; Chin-Fu Hsiao, National Health Research Institutes	10:35 a.m.	Estimation of Model-Free Implied Variance—◆ Shuang Zhang, Peking University; Song Xi Chen, Peking University; Lei Lu, University of Manitoba
10:50 a.m.	Incomplete Data Analysis of Non-Inferiority Clinical Trials: Difference in Binomial Proportions Case—◆ Yulia Sidi, University of Connecticut; Ofer Harel, Dept of Statistics, U of Connecticut	10:50 a.m.	Inference for Volatility Functionals of Ito Semimartingales Observed with Noise—◆ Richard Chen, University of Chicago
11:05 a.m.	Theory and Practice of Equivalence and Non-Inferiority Analyzes—◆ Kallappa M. Koti, FDA (Retired)	11:05 a.m.	Long-Horizon Return Predictability with Realized Volatility from Pure Jump Point Process—◆ Meng-Chen Hsieh, Rider University; Clifford Hurvich, New York University
11:20 a.m.	Assessing the Ratio of Means as a Causal Estimand in Clinical Endpoint Bioequivalence Studies in the Presence of Intercurrent Events—◆ Yiyue Lou, University of Iowa College of Public Health; Michael P. Jones, University of Iowa College of Public Health; Wanjie Sun, FDA	11:20 a.m.	Creating Stock Portfolios Using Hidden Markov Models—◆ Qing Ji, University of Maryland, Baltimore County; Nagaraj Neerchal, University of Maryland, Baltimore County
11:35 a.m.	New Approaches for Testing Non-Inferiority for Three-Arm Trials with Poisson Distributed Outcomes—◆ Erina Paul, Merck & Co Inc.; Samiran Ghosh, Wayne State University; Shrabanti Chowdhury, Icahn School of Medicine at Mount Sinai	11:35 a.m.	PREDICTING RECESSIONS in MAJOR TEXAS METROPOLITAN ECONOMIES USING YIELD SPREADS and OTHER ECONOMIC INDICATORS—◆ Aaron Nazarian, Border Region Modeling Project; Thomas Fullerton, UTEP
		11:50 a.m.	Forecasting and Modeling Financial Volatility Using Conditional Autoregressive Range Models Under Time-Varying Unconditional Volatility—◆ Isuru Ratnayake, Missouri University of Science and Technology; V A Samaranayake, Missouri University of Science and Technology
		12:05 p.m.	Floor Discussion
<b>509</b>	<b>CC-712</b>		
	<b>Statistical Methodology—Contributed</b>		
	IMS		
	Chair(s): Rong Ma, Univ of Pennsylvania		
10:35 a.m.	Covariate Assisted Principal Regression for Covariance Matrix Outcomes—◆ Yi Zhao, Johns Hopkins Bloomberg		

	School of Public Health; Bingkai Wang, Johns Hopkins Bloomberg School of Public Health; Stewart Mostofsky, Johns Hopkins University; Brian Caffo, Johns Hopkins Bloomberg School of Public Health; Xi Luo, The University of Texas Health Science Center at Houston
10:50 a.m.	Integrating Multi-Source Block-Wise Missing Data in Model Selection—♦ Fei Xue, University of Illinois at Urbana-Champaign; Annie Qu, University of Illinois at Urbana-Champaign
11:05 a.m.	Analysis of Variance Models Through Information Theory—♦ Chathurangi Heshani Pathiravasan, Southern Illinois University; Bhaskar Bhattacharya, Southern Illinois University
11:20 a.m.	Sample Size Calculations in Simple Linear Regression: Exact Approach—♦ Marepalli Rao, University of Cincinnati; Tianyuan B Guan, University of Cincinnati
11:35 a.m.	Covariance Based Moment Equations for Improved Variance Component Estimation—♦ Sanjay Chaudhuri, National University of Singapore
11:50 a.m.	Causality and Intervention in the Context of Stochastic Differential Equation Models—♦ Paromita Banerjee, Case Western Reserve University; Wojbor Woyczyński, Case Western Reserve University; Jeffrey M Albert, Case Western Reserve University
12:05 p.m.	Controlling False Discoveries with Confidence: a Theoretical Investigation in the Asymptotic Variance of the False Discovery Proportion—♦ Meng Mei, Oregon State University; Yuan Jiang, Oregon State University
<b>510</b>	<b>CC-501</b>  <b>Recent Development in Semiparametric and Nonparametric Methods—Contributed</b> <b>International Chinese Statistical Association</b> Chair(s): Qi Qi, University of Connecticut
10:35 a.m.	Asymptotically Constant Risk Estimator of the Time-Average Variance Constant—♦ Chun-Yip Yau, Chinese University of Hong Kong
10:50 a.m.	Nonparametric Estimation of Distributions Based on Group Testing Results with Differential Misclassification—♦ Wei Zhang, Eunice Kennedy Shriver National Institute of Child Health and Human Development, NIH; Aiyi Liu, Eunice Kennedy Shriver National Institute of Child Health and Human Development, NIH; Qizhai Li, Academy of Mathematics and Systems Science, Chinese Academy of Science; Paul Albert, National Cancer Institute
11:05 a.m.	Regression Analysis of Sparse Asynchronous Longitudinal Data with Informative Observation Times—♦ Dayu Sun, University of Missouri; Hui Zhao, Zhongnan University of Economics and Law; Jianguo Sun, University of Missouri

11:20 a.m.	Bayesian Penalized Spline Estimation for Generalized Partially Linear Single Index Models Using JAGS—♦ Zhaohu(Jonathan) Fan, University of Cincinnati; Yan Yu, University of Cincinnati
11:35 a.m.	Nonparametric Tests for Multivariate Growth Curve Data: Practical Procedures in Finite Samples—♦ Ting Zeng, University of Kentucky; Solomon W. Harrar, University of Kentucky
11:50 a.m.	Nonparametric Multivariate Tests for Association—♦ Yan Xu, ; Solomon W. Harrar, University of Kentucky
12:05 p.m.	Floor Discussion

<b>511</b>	<b>CC-104</b>  <b>Statistical Applications in the Physical Sciences—Contributed</b> <b>Section on Physical and Engineering Sciences</b> Chair(s): David Corliss, Peace-Work
------------	---

10:35 a.m.	Characterizing Lane Change Behavior from Trajectory Data—♦ Alan Karr, RTI International
10:50 a.m.	Circuit Fault Diagnosis Using Simulation and Bayesian Inference—♦ Qianqian Shan, Iowa State University; Stephen Holland, Iowa State University; William Q. Meeker, Iowa State University
11:05 a.m.	Robust Anomaly Detection in Large-Scale Multi-Type Sensor Systems—♦ Sierra Merkes, Virginia Tech Statistics Department
11:20 a.m.	Estimating Error Rates for Firearm Evidence Identifications by Using Correlated Binomial Distributions—♦ Nien-Fan Zhang, NIST
11:35 a.m.	Estimating Regional Phase Amplitudes with Left Censored Data in the Middle East—♦ Haya Aldossary, University of Missouri ; Scott H. Holan, University of Missouri/U.S. Census Bureau; Eric Sandovl, University of Missouri; Hongjun Hui, University of Missouri
11:50 a.m.	Simulation Study of Time Series Models Generated by Underlying Dynamics—♦ Evidence Matangi, ; Alexander Gluhovsky, Purdue University
12:05 p.m.	Floor Discussion

<b>512</b>	<b>CC-704</b>  <b>Predicting and Evaluating Risk Models Within Distributions and Across Time—Contributed</b> <b>Section on Risk Analysis</b>
	Chair(s): Aric LaBarr, Elder Research Inc.

10:35 a.m.	Use Machine Learning to Improve Reject Inference Methodology in Credit Risk Modeling—♦ Xuejing Mao, AT&T; Jeff Louallen, AT&T; Hariharan Sunder, AT&T
------------	---

<p><b>WEDNESDAY</b></p>	<p><b>513</b> <span style="float: right;"><b>CC-706</b></span></p> <p><b>Topics in Monte Carlo Simulation—Contributed Section on Statistical Computing</b></p> <p>Chair(s): Sam Tyner, Iowa State University</p>	<p><b>514</b> <span style="float: right;"><b>CC-302</b></span></p> <p><b>■● Teaching Data Science: R, Git, and the Undergraduate Curriculum—Contributed Section on Statistics and Data Science Education</b></p> <p>Chair(s): Daniel Kaplan, Macalester College</p>
	<p>10:50 a.m. One Parameter Extensions of the FGM Copula with Applications to Bimodal and Negative Dependence Data—♦Kahadawala Cooray, Central Michigan University</p>	<p>10:35 a.m. DemoR: Tools for Teaching and Presenting R Code—♦Kelly Bodwin, California Polytechnic State University; Hunter Glanz, California Polytechnic State University</p>
	<p>11:05 a.m. Asymmetric Extremal Dependence Modeling, with Application to Cryptocurrency Market Data—♦Yan Gong, KAUST; Raphael Huser, King Abdullah University of Science and Technology</p>	<p>10:50 a.m. Ghclass: An R Package for Managing Classes with GitHub—♦Colin Rundel, Duke University</p>
	<p>11:20 a.m. Comparison of Some Approximations to the Distribution of Random Sum—♦Ranee Thiagarajah, Illinois State University</p>	<p>11:05 a.m. Using GitHub and RStudio to Facilitate Authentic Learning Experiences in a Regression Analysis Course—♦Maria Tackett, Duke University</p>
	<p>11:35 a.m. Consistency of the Hill Estimator for Time Series Observed with Measurement Errors—♦Mihyun Kim, Colorado State University; Piotr Kokoszka, Colorado State University</p>	<p>11:20 a.m. Teaching Introductory Statistics with Online Tools and Open Source Data—♦Shiju Zhang, St Cloud State University</p>
	<p>11:50 a.m. A Simulation Approach to Predicting Time to Terminal Event in Joint Dynamic Modeling—♦Piaomu Liu, Dept. of Mathematical Sciences, Bentley University; Edsel A Pena, University of South Carolina</p>	<p>11:35 a.m. Teaching Soft Skills in Data Science Curriculum—♦Hunter Glanz, California Polytechnic State University; Dennis L Sun, Cal Poly and Google; Alexander Dekhtyar, California Polytechnic State University</p>
	<p>12:05 p.m. AUC as a Measure of the Probability of Benefit in the Context of Randomized Controlled Trials.—♦Olga Demler, Harvard Medical School</p>	<p>11:50 a.m. Developing an Undergraduate Major in Data Science: a Statistics Educator's Perspective—♦Amy Froelich, Iowa State University</p>
		<p>12:05 p.m. The Evolution of an Undergraduate Data Science Program -a Reflection of the Past Five Years—♦Christopher Malone, Winona State University; Silas Bergen, Winona State University; Brant Deppa, Winona State University; Todd Iverson, Winona State University; Tisha Hooks, Winona State University; April Kerby, Winona State University</p>
		<p><b>515</b> <span style="float: right;"><b>CC-105</b></span></p> <p><b>Visualization for Distributions, Networks and Statistical Inference—Contributed Section on Statistical Graphics</b></p> <p>Chair(s): Harold Gomes, U.S. Bureau of Labor Statistics</p>

11:50 a.m. Semiparametric Dynamic Adaptive Robust Estimations for High-Dimensional Networks—♦Tzu-Chun Wu, University of Cincinnati; Emily Lei Kang, University of Cincinnati

12:05 p.m. Lady Tasting Tea Lineups for Visual Statistical Inference—♦Karsten Maurer, Miami University; Seonjin Kim, Miami University; George Woodbury, Miami University

**516** **CC-107**  
 ■ ● Case Studies of Scalar-On-Image Regression—Contributed  
 Section on Statistics in Imaging  
 Chair(s): Wei Chen, University of Pittsburgh

10:35 a.m. Sparse Groupwise Envelope Model for Response Variable Selection in Imaging Genetic Analysis—♦Yeonhee Park, Medical University of South Carolina; Zhihua Su, University of Florida; Hongtu Zhu, DiDi Chuxing and UNC-Chapel Hill

10:50 a.m. Sparse Tensor Co-Inertia Analysis with Application to Integrative Analysis of Genomic Data and Imaging Data—♦Eun Jeong Min, University of Pennsylvania; Shen Li, University of Pennsylvania; Qi Long, University of Pennsylvania

11:05 a.m. The Statistical Performance of Hierarchical Shrinkage Priors in Modeling Outcomes with Imaging Data—♦Justin Leach, University of Alabama at Birmingham; Inmaculada Aban, University of Alabama at Birmingham

11:20 a.m. Reproducible Image Processing by Journaling—♦Paul Thompson, Thompson Biostatistical Solutions; Norman Matloff, University of California at Davis

11:35 a.m. Bayesian Spatial Binary Regression for Label Fusion in Structural Neuroimaging—♦Andrew Brown, Clemson University; Christopher McMahan, Clemson University; Russell Shinohara, University of Pennsylvania; Kristin Linn, University of Pennsylvania

11:50 a.m. A Statistical Model for Longitudinal Analysis of Radiographic Lung Change Following Radiotherapy of Lung Cancer—♦Viviana Alejandra Rodriguez, Virginia Commonwealth University; Nitai Mukhopadhyay, Virginia Commonwealth University; Elisabeth Weiss, Virginia Commonwealth University

12:05 p.m. Long-Term Prognostic Value of Coronary Computed Tomography angiography—♦Alomgir Hossain, University of Ottawa Heart Institute; Benjamin Chow, University of Ottawa Heart Institute

**517** **CC-701**

Deep Learning: Advances and Applications—Contributed

Section on Statistical Learning and Data Science

Chair(s): Devin Francom, Los Alamos

10:35 a.m. Reinforcement Learning as a Solution to Systematic Social Bias in Deep Learning—♦Kathleen Gatlieff, University of Colorado Denver; Audrey E Hendricks, University of Colorado Denver

10:50 a.m. Deep Model-X Knockoff Generator Through Latent Variables—♦Ying Liu, Medical College of Wisconsin; Cheng Zheng, University of Wisconsin at Milwaukee

11:05 a.m. Online Batch Decision Making with High-Dimensional Covariates—♦Chi-Hua Wang, Purdue University; Guang Cheng, Purdue Statistics

11:20 a.m. Uncertainty-Aware Black-Box Predictors with Coverage Guarantees—♦Jean Feng, University of Washington; Arjun Sondhi, University of Washington; Jessica Perry, University of Washington; Noah Simon, University of Washington

11:35 a.m. Signed Graph Neural Network—♦Mohammadreza Armandpour, Texas A&M University; Debdeep Pati, Texas A&M University

11:50 a.m. A Two-Stage Approach to Evaluate Predictive Accuracy of Deep Neural Networks—♦Georgianna Campbell, Naval Information Warfare Center Atlantic; Emily Nystrom, Naval Information Warfare Center Atlantic; Hunter R. Lake, Naval Information Warfare Center Atlantic

12:05 p.m. Semi-Supervised Sequence Learning Using Deep Generative Models with Applications to Healthcare Data—♦Wei Jing Tang, University of Michigan; Ji Zhu, University of Michigan

**518** **CC-110**

Statistical Methods for Complex Interactions and Genetic and Environmental Epidemiology—Contributed

Section on Statistics in Epidemiology

Chair(s): Laura Boehm Vock, Gustavus Adolphus College

10:35 a.m. Screening of Interaction Effects for Prediction Modeling of Environmental Chemical Mixture Exposures—♦Li Luo, University of New Mexico

10:50 a.m. Interaction of a Mixture of Lead, Mercury, Arsenic, Cadmium, Aluminum, and Manganese with GSTP1 in Relation to Autism Spectrum Disorder in Jamaican Children—♦Mohammad Rahbar, Center for Clinical & Translational Sciences-UTHealth; Maureen Samms-Vaughan, The University of the West Indies;

	MinJae Lee, University of Texas McGovern Medical School; Jing Zhang, School of Public Health-UTHealth; MacKinsey A. Bach, Center for Clinical & Translational Sciences-UTHealth; Jan Bressler, Division of Epidemiology, Human Genetics, and Environmental, School of Public Health-UTHealth; Manouchehr Hessabi, Center for Clinical & Translational Sciences-UTHealth; Megan L. Grove, Human Genetics Center, School of Public Health-UTHealth; Sydonnie Shakespeare-Pellington, The University of the West Indies; Compton Beecher, The University of the West Indies; Wayne McLaughlin, Caribbean Genetics (CARGEN), The University of the West Indies; Katherine A. Loveland, McGovern Medical School-UTHealth		of Science and Technology; V A Samaranayake, Missouri University of Science and Technology
11:05 a.m.	A Rare Haplotype Association Method for Two Correlated Binary Phenotypes—♦Swati Biswas, University of Texas at Dallas; Xiaochen Yuan, University of Texas at Dallas	3	CROPS: Fast Converging and Robust Optimum Path Selection Method for Continuous-Time Markov-Switching GARCH—♦Yinan Li, University of Notre Dame; Fang Liu, University of Notre Dame
11:20 a.m.	JointMM: Joint Modeling of Longitudinal Microbiome and Time-To-Event Data with Application to a Type I Diabetes Study—♦Jiyuan Hu, New York University School of Medicine; Chan Wang, Division of Biostatistics, NYU School of Medicine; Martin Blaser, New York University School of Medicine and Rutgers University; Huilin Li, NYU School of Medicine	4	A New Method for Estimating Within-Industry Corporate Default Correlation—♦Gary Witt, Temple University; Marcus Sobel, Temple University
11:35 a.m.	Autoregressive Zero Inflated Mixed-Effect Model on Time Series Microbiome Data—♦Linchen He, New York University; Huilin Li, NYU School of Medicine	5	Statistical Methodologies in Streaming Experimentation at Netflix—♦Julie Novak, Netflix
11:50 a.m.	Discover Optimal Logic Rules as Complex Interaction in Longitudinal Study—♦Tan Li, Florida International University; Wensong Wu, Florida International University; Ingrid Gonzalez, Florida International University	6	The Inequality Process' PDF Approximation Model for Heavy-Tailed Financial Distributions—♦John Angle, The Inequality Process Institute LLC
12:05 p.m.	Multi-Block Sparse Functional Principal Components Analysis for Longitudinal Microbiome Data—♦Lingjing Jiang, University of California, San Diego; Wesley Kurt Thompson, University of California, San Diego; Rob Knight, UC San Diego	7	Bayesian Estimation of Local Volatility with Gaussian Process—♦Kai Yin, Case Western Reserve University; Anirban Mondal, Case Western Reserve University
		8	To Adjust or Not to Adjust? An Empirical Evaluation of Time Series with Unstable Seasonal Patterns—♦Demetra Lytras, U.S. Census Bureau
		9	Application of Linear and Nonlinear Models into Trend Analysis of U.S. Cotton Export (1996-2017)—♦Zahra Saki, NC State University; Marguerite Moore, NC State University; Lori H. Rothenberg, North Carolina State Un.
		10	Nonparametric Estimation of a General Equilibria—♦John Schuler,
		11	Optimal Forecast in the Presence of Structural Break—♦Shahnaz Parsaeian,
		12	Application of Statistical Methods to Discovery of Anomalies in Accounting Data—♦Eugene Yankovsky, EY; Ana Yankovsky, Intuitive; Loren Williams, EY
		13	Testing Simultaneous Diagonalizability of Random Matrices—♦Yuchen Xu, Cornell University; David Matteson, Cornell University
		14	Forecasting Daily Service Call Volume Using Nonparametric Transfer Function Approach—♦Jun Liu,
		15	Empirical Testing of an Option Pricing Model with Memory—♦Flavia Sancier-Barbosa, Colorado College; Lochana Siriwardena, University of Indianapolis
		16	The Development of a Calculation of Composite Coincident Indicator (CCI) for the United States—♦Brian Sloboda, University of Phoenix; Chandra Putcha, California State University at Fullerton
		17	Functional Stochastic Volatility—♦Phillip Jang, Cornell University; David Matteson, Cornell University
		18	Testing for Unit Roots Using Artificial Neural Networks—♦Rukman Ekanayake, ; V A Samaranayake, Missouri University of Science and Technology
		19	Forecasting Daily Electricity Load Profile Using Functional Principal Components and Transfer Function Models—♦Abdelmonaem Jornaz, Northwest Missouri State University; V A Samaranayake, Missouri University of Science and Technology

## Contributed Poster Presentations 10:30 a.m.—11:15 a.m.

519

CC-Hall C

**SPEED: Methodological Advances in Time Series: BandE Speed Session, Part 2—Contributed Business and Economic Statistics Section, Text Analysis Interest Group**

Chair(s): Jane L Harvill, Baylor University

**Business and Economic Statistics Section**

- 1 Functional Tail Dependence Coefficients for Copula—♦Keying Ye, University of Texas at San Antonio; Zhiruo Liu, University of Texas at San Antonio; Donald Lien, University of Texas at San Antonio
- 2 Modeling Time Series of Count Data Using a Periodic Conditional Poisson Model—♦Yi Zhang, Missouri University

20 Communication Among Business and Statistics Journals: Citation Analysis and Text Analytics with Topic Analysis—Mary Whiteside, The University of Texas At Arlington; Mark Eakin, The University of Texas at Arlington; ♦Qiang Ruan, The University of Texas at Arlington

**520** CC-Hall C

**SPEED: Infectious Diseases, Spatial Modeling and Environmental Exposures, Speed 2—Contributed**

**Section on Statistics in Epidemiology**

Chair(s): Nancy L Murray, Emory University

**Section on Statistics in Epidemiology**

21 Zoster Vaccine Live Coverage Among Adults 50-59 and ?60 Years in the United States, 2013-2017—♦Pengjun Lu, CDC; Mei-Chuan Hung, CDC; Anup Srivastav, Centers for Disease Control and Prevention/Leidos Inc; Walter W Williams, Centers for Disease Control and Prevention; Kathleen Dooling, CDC

22 Cost-Effective Analysis for Influenza Vaccination Coverage and Timing in Tropical and Subtropical Climate Settings: a Modeling Study—♦Mu Yue, National University of Singapore

23 Assessing the Association Between Sex Ratio and Dowry Deaths in Uttar Pradesh Using Spatio-Temporal Random Effects Models—♦Tomas Goicoa, Public University of Navarre; MARIA DOLORES UGARTE, PUBLIC UNIVERSITY OF NAVARRE; Aritz Adin, Public University of Navarre; JIM HODGES, UNIVERSITY OF MINNESOTA

24 Small Area Estimation for Small Groups—♦Diba Khan, CDC; Brady Hamilton, CDC; Andrew B Lawson, Medical University of South Carolina ; Yulei He, CDC

25 Bayesian Compartmental Model for an Infectious Disease with Multiple Infectious States—♦Marie Ozanne, University of Iowa

26 Small Area Estimation of HIV Incidence Using Bayesian Hierarchical Model—♦Ben Sheng, Penn State University; Le Bao, Pennsylvania State University; Ray Shiraishi, CDC; Steven Gutreuter, CDC; Jeffrey Eaton, Imperial College London

27 Source-Specific Contributions of Particulate Matter to Asthma-Related Emergency Department Utilization—♦Mohammad Alfrad Nobel Bhuiyan , Cincinnati Children's Hospital Medical Center; Cole Brokamp, Cincinnati Children's Hospital Medical Center

28 Density Estimation of Spatio-Temporal Point Patterns Using Moran's Statistic—♦Norou Diawara, Old Dominion University; Jennifer Lorio, Old Dominion University

29 Using Social Contact Data to Improve the Overall Effect Estimate of a Cluster-Randomized Influenza Vaccination Program in Senegal—♦Gail Potter, The Emmes Corporation; Nicole Carnegie, Montana State University; Jonathan Sugimoto, Fred Hutchinson Cancer Research Center; Aldiouma Diallo, Institut de Recherche pour le Developpement; John C Victor, PATH; Kathleen Neuzil, University of Maryland; M Elizabeth Halloran, University of Washington and Fred Hutchinson Cancer Research Center

30 Detecting Hierarchical Geographical Clusters of Disease Using Heterogeneity Patterns of Varying Incidence Intensity—♦Chih-Chieh Wu, National Cheng Kung University; Sanjay Shete, UT MD Anderson Cancer Center

31 Functional Central Limit Theorem for Susceptible-Infected Process on Configuration Model Graphs—♦Wasiru R. KhudaBukhsh, Ohio State University; Casper Woroszylo, BHP Billiton; Grzegorz A. Rempa?a, Ohio State University; Heinz Koepll, TU Darmstadt

32 Subsemble Estimation for Multivariate Spatial Models—♦Mark May, Creighton University; Joey Higgins, Creighton University; Aimee Schwab-McCoy, Creighton University

33 A Bayesian Hierarchical Model for Generating Fully Synthetic Point Process Data—♦Adam Walder,

34 Evaluation of Semiparametric Single Index Model for Characterizing Effects of Correlated Exposures—♦Yuyan Wang, New York University; Mengling Liu, New York University

35 Estimate Booster Vaccination Effect on the Distribution of Antibody Level Using Mixture Model—♦Li Deng, Centers for Disease Control and Prevention

36 A Method for High-Dimensional Variable Selection in Presence of Collinearity—♦Jiyeong Jang, University of Illinois at Chicago; Sanjib Basu, University of Illinois at Chicago

37 Transporting Cross-Sectional Incidence Estimation Algorithms Between Populations—♦Douglas Morrison, UCLA; Oliver Laeyendecker, Johns Hopkins University; Ron Brookmeyer, UCLA

38 A Comparison of Spatial Scan Methods for Cluster Detection—♦Mohammad Meysami, University of Colorado Denver; Joshua French, University of Colorado Denver; Lauren M Hall, University of Colorado Denver; Minh Chau Nguyen, University of Colorado Denver; Lee Panter, University of Colorado Denver; Nicholas Weaver, University of Colorado Denver

39 A Multivariate Spatio-Temporal Model of the Opioid Epidemic in Ohio: a Factor Model Approach—♦David Kline, The Ohio State University; Yixuan Ji, Wake Forest University; Staci Hepler, Wake Forest University

40 A Non-Homogeneous Hidden Markov Model of HIV Progression in Patients on ART—♦Sanam Sanei, Pennsylvania State University; Le Bao, Pennsylvania State University; Amirali Kani, University of Guelph; Leigh Johnson, University of Cape Town

WEDNESDAY

**Contributed Poster Presentations 10:30 a.m.—12:20 p.m.**

**521** CC-Hall C

**Contributed Poster Presentations: Mental Health Statistics Section—Contributed**  
**Mental Health Statistics Section**

Chair(s): Wendy Meiring, University of California At Santa Barbara

**Mental Health Statistics Section**

- 1 ERP Algorithmic Source Separation (ERPASS) in Multi-Task EEG Experiments—♦Emilie Campos, UCLA
- 2 Non-Abstinent Treatment Outcomes in Cannabis Use Disorder—♦Martina Pavlicova, Columbia University; Cale Basaraba, NYSPI; Daniel Brooks, NYSPI; John Mariani, NYSPI; Frances Levin, NYSPI

**522**

**CC-Hall C**

**Contributed Poster Presentations: Biometrics Section—Contributed Biometrics Section**

Chair(s): Wendy Meiring, University of California At Santa Barbara

**Biometrics Section**

- 3 Inferring Multimotor Dynamics of Gold Nanoparticles on Curved Microtubules—♦Lauren Crow
- 4 Incorporating Subgroups in a Surrogate Endpoint Setting—♦Emily Roberts, ; Jeremy Taylor, University of Michigan; Michael Elliott, University of Michigan
- 5 Sensitivity Analysis for Publication Bias in Meta-Analyzes—♦Maya B Mathur, Harvard University; Tyler VanderWeele, Harvard University
- 6 Behavioral Phenotyping Using Nonlinear Mixed Models for the Running Wheel—♦Sandra McBride, Social & Scientific Systems, Inc; Gaylia Jean Harry, Ph.D., National Institute of Environmental Health Sciences; Keith Shockley, Ph.D., National Institute of Environmental Health Sciences; Helen Cuny, Ph.D., National Institute of Environmental Health Sciences
- 7 Order Constraint ROC Regression—♦Xiaochen Zhu, George Mason University
- 8 Adaptation of Random Survival Forests for Predicting Interval Censored Outcome Using a Longitudinal Biomarker: Application to Tacrolimus and Antibody Formation in Kidney Transplant—♦Kaci Pickett, Krithika Suresh, University of Colorado; Kristen Campbell, University of Colorado; Elizabeth Juarez-Colunga, University of Colorado Denver
- 9 Robust Inference on the Causal Effects of Stochastic Interventions Under Two-Phase Sampling, with Applications in Vaccine Efficacy Trials—♦Nima Hejazi, UC Berkeley
- 10 The Most Powerful Exact Test for Comparing Two Proportions—♦Peter Calhoun,
- 11 Imputation of Organ Dysfunction Scores in NICU Data MNAR—♦Lucia Chen, UCLA; David Elashoff, UCLA; Anil Sapru, UCLA
- 12 Statistical Modeling and Inference for Infectious Disease Dynamics: a Time-Series Approach—♦Nilofar Ramezani, George Mason University

**WEDNESDAY**

- 13 Testing Equality of Two-Sample Means in High Dimension—♦Huaiyu Zhang, Kansas State University; Haiyan Wang, Kansas State University; Xukun Li, Kansas State University
- 14 Predicting On-Target CRISPR-Cas9 Cleavage Efficiency—♦Oscar Zarate, Northwestern University; Ji-Ping Wang, Northwestern University
- 15 Comparing Normalization Methods and the Impact of Noise—♦Thao Vu,
- 16 Optimal Surrogate in Targeted Adaptive Sequential Trials—♦Ivana Malenica, U.C. Berkeley; Mark van der Laan, UC Berkeley
- 17 A Joint Model for the Analysis of Recurrent Events and a Dependent Terminal Event: Application to a Large Cardiovascular Outcomes Trial—♦Shahidul Islam, SUNY Downstate Medical Center
- 19 Modeling Metabolic Syndrome with Biomarkers.—♦Alexander Nielson, Weber State University; Adam Baker, Weber State University; David Aguilar-Alvarez, Weber State University; Julian Chan, Weber State University
- 20 Prediction Accuracy and Robustness to Non-Normality of Two Methods of Predicting Random Effects in Linear Mixed Effects Models: Empirical Bayes vs. Quadratic Inference Functions—♦Zhiwen Wang, University of Kansas Medical Center ASA Student Chapter; Francisco Diaz, The University of Kansas Medical Center; John D Keighley, University of Kansas Medical Center; Jianghua (Wendy) He, The University of Kansas Medical Center; Jo Wick, University of Kansas Medical Center
- 21 Validation and Application of Risk Prediction Models Using Medical Records in Taiwan—♦Hsing-Yi Chang, National Health Research Institute; Ching-Yu Huang, Industrial Technology Research Institute; Hsin-Ling Fang, NHRI
- 22 Genome-Wide Causal Study of Schizophrenia—♦Rong Jiao, UT Health
- 23 Integrative Analysis of Irregularly Measured Biomarkers of Mixed Types in Electronic Health Records—♦Jitong Lou, University of North Carolina At Chapel Hill; Yuanjia Wang, Columbia University; Pengyue Zhang, Ohio State University; Lang Li, Ohio State University; Donglin Zeng, UNC Chapel Hill
- 24 Bivariate Nonlinear Gaussian Processes with Applications to Brain Signals—♦Guillermo Granados Garcia, King Abdullah University of Science and Technology; Hernando Ombao, King Abdullah University of Science and Technology (KAUST); Wagner Barreto-Souza, Universidade Federal de Minas Gerais
- 25 Modeling Population and Subject-Specific Growth in a Latent Trait Measured by Multiple Instruments Over Time Using a Hierarchical Bayesian Framework—♦Caitlin Ward, ; Jacob J Oleson, University of Iowa; Elizabeth Walker, University of Iowa; Bruce Tomblin, University of Iowa
- 26 A Bayesian Method for Preliminary Proof of Concept in Early Phase Oncology Studies with a Basket Design—♦Lei Gao, Vertex Pharmaceuticals; Jin Jin, Division of Biostatistics, University of Minnesota; Qianying Liu, Sanofi; Wei Zheng, Comprehend (Suzhou) Information Technology Inc; Zhenming Shun, Daiichi Sankyo, Inc; Tun Tun Lin, Sanofi; Yingwen Dong, Sanofi

27 Spatially Balanced Sampling Using the Halton Sequence—♦Blair Robertson, University of Canterbury; Trent McDonald, Western EcoSystems Technology Inc; Jennifer Brown, University of Canterbury; Chris Price, University of Canterbury

28 Tobacco Smoking and Dementia in a Kentucky Cohort: a Competing Risk Analysis—♦Richard Kryscio, Univ of Kentucky; Erin L Abner, University of Kentucky; Peter T Nelson, University of Kentucky; Gregory A Jicha, University of Kentucky; Gregory E Cooper, Baptistit Neurology Center; David Fardo, University of Kentucky; Frederick A Schmitt, University of Kentucky

29 Negative Binomial Regression Model Assessing Factors Associated with Nodal Involvement in Oral Cancer Patients—♦Sada Nand Dwivedi, All India Institute of Medical Sciences

30 Smoothed Change-Point Renewal Process Framework for Modeling Hazards of Pulmonary Exacerbations in Cystic Fibrosis—♦Rachel Johnson, Colorado School of Public Health; Elizabeth Juarez-Colunga, University of Colorado Denver; John Rice, Colorado School of Public Health; Brandie Wagner, Colorado School of Public Health; Edith Zemanick, University of Colorado School of Medicine and Children's Health Colorado; Margaret Rosenfeld, Seattle Children's Hospital

31 A Longitudinal Bayesian Mixed Effects Model with Hurdle Conway-Maxwell-Poisson Distribution—♦Tong Kang, University of Florida; Somnath Datta, University of Florida; Jeremy T. Gaskins, University of Louisville

32 A Framework for Covariate Balance Using Bregman Distances—♦Kevin Patrick Josey, Colorado School of Public Health; Elizabeth Juarez-Colunga, University of Colorado Denver; Debashis Ghosh, University of Colorado Anschutz Medical Campus

33 Bivariate Hierarchical Bayesian Model for Combining Estimates from Multiple Sources and Domains—♦Yujing Yao, Columbia University; Todd Ogden, Columbia University; Qixuan Chen, Columbia University

34 Compass Plots Revisited: a Combination of Kiviat Diagram (Star Plots) and Analysis of Means (ANOM)—♦Charles Eugene Smith, North Carolina State University; Kamon Budsaba, Thammasat University, Rangsit Center

35 Factor Analysis for Spatial Surfaces Using a Bayesian Non-Parametric Prior—♦Samuel Berchuck, Duke University; Mark Janko, Duke University; Sayan Mukherjee, Duke University

36 A Novel Design for Evaluating Cell-Type Deconvolution Methods - Application to Pancreatic Cancer—♦Virginia Ma, Columbus Academy

37 Constructing Causal Methylation Network by Additive Noise Model (ANM)—♦Shudi Li, University of Texas School of Public Health; Rong Jiao, UT Health; Momiao Xiong, University of Texas School of Public Health

38 Penalized Random Survival Forests—♦Sarah Formentini, University of Illinois Urbana-Champaign Statistics Department; Ruojing Zhu, University of Illinois Urbana-Champaign

39 Statistical Inference and Modeling of Hematopoietic Stem Cells Dynamics and Barcoding—♦Siyi Chen, Rice Univ Dept of Statistics; Marek Kimmel, Rice Univ Dept of Statistics; Katherine King, Baylor College of Medicine

40 Reference Effect Measures for Quantifying, Comparing and Visualizing Variation from Random and Fixed Effects in Non-Normal Multilevel Models—Gary Grunwald, University of Colorado Anschutz Medical Campus; ♦Thomas J Glorioso, US Veterans Administration; Michael Ho, US Veterans Administration; Thomas M Maddox, Washington University School of Medicine

41 A Guide to Modeling Strategies for Tissue Analyzes with Nested Sampling Structures—♦Claire Levek, University of Colorado; Gary Grunwald, University of Colorado Anschutz Medical Campus; Elizabeth Juarez-Colunga, University of Colorado Denver; Elizabeth Connick, University of Arizona; Amie Meditz, Boulder Community Hospital; Samantha MaWhinney, University of Colorado Anschutz Medical Campus

42 Joint Models for Integrating Information from Multiple Resources—Chris Liu, University of Michigan-School of Nursing; ♦Chang Li, University of Michigan Ann Arbor

## 523 CC-Hall C

### Contributed Poster Presentations: ENAR—Contributed ENAR

Chair(s): Wendy Meiring, University of California At Santa Barbara

#### ENAR

43 A Nonnegative Matrix Factorization Method for Rank Normalized Data—♦Danielle Demateis, The College of New Jersey

44 Interactions Between Polygenic Risk Score and Non-Genetic Risk Factors in Young-Onset Breast Cancer—♦Min Shi, NIEHS; Katie O'Brien, NIEHS, EB; Clarice Weinberg, National Institute of Environmental Health Sciences

45 A Statistical Method for Comparing Co-Abundance Networks in Microbiome Data—♦Youngchul Kim, Moffitt Cancer Center; Syeda Mahrukh Hussnain Naqvi, Moffitt Cancer Center

46 Average Relative Effect Tests for Composite Outcomes: In Rescue of the Less Frequent Components—♦Edward Mascha, Cleveland Clinic

47 Simultaneous Estimations for Contrasts of Quantiles—♦Gemechis Djira, South Dakota State University; Lawrence Segbeho, South Dakota State University; Frank Schaarschmidt, Leibniz Universität Hannover

48 Causal Relationship Between ENDS Use and Subsequent Cigarette Initiation Among Adolescents: a Propensity Score Analysis Using Data of the PATH Study—♦Shu Xu, New York University; Bin Liu, New York University; Yifan Xu, New York University; jiarui he, new york university; Raymond Niaura, New York University; Donna L. Coffman, Temple University

**524****CC-Hall C****Contributed Poster Presentations: Lifetime Data Science Section—Contributed**  
**Lifetime Data Science Section, Section on Teaching of Statistics in the Health Sciences**

Chair(s): Wendy Meiring, University of California At Santa Barbara

**Lifetime Data Science Section**

49 Infinite Parameter Estimates in Proportional Hazards Regression—♦John E Kolassa, Rutgers, the State University of New Jersey; Juan Zhang, Allergan Pharmaceuticals

50 Estimating Causal Effect of Multiple Treatments with Censored Data in Observational Studies—♦Youfei Yu, University of Michigan; Min Zhang, University of Michigan; Bhramar Mukherjee, University of Michigan

**525****CC-Hall C****Contributed Poster Presentations: Section on Statistics in Defense and National Security—Contributed**  
**Section on Statistics in Defense and National Security**

Chair(s): Wendy Meiring, University of California At Santa Barbara

**Section on Statistics in Defense and National Security**

51 Neural Shrubs—♦Kyle Caudle, South Dakota School of Mines and Technology; Randy A Hoover, South Dakota School of Mines and Technology

52 On Generalizing the Foldover Technique to 3-Level Regular Fractional Factorial Designs—♦R. Vincent Paris, Iowa State University; Max Morris, Iowa State University

**526****CC-Hall C****Contributed Poster Presentations: Section on Statistical Consulting—Contributed**  
**Section on Statistical Consulting**

Chair(s): Wendy Meiring, University of California At Santa Barbara

**Section on Statistical Consulting**

53 Using Linear Discriminant Analysis to Classify Patients with Variant Von Willebrand Disease (VWD)—♦Ke Yan, Medical College of Wisconsin; Jonathan C Roberts, Bleeding & Clotting Disorders Institute; Robert Montgomery, Blood Center of Wisconsin; Pamela Christopherson, Blood Center of Wisconsin; Pippa Simpson, Medical College of Wisconsin

54 Comparing Statistical Methods Modeling Disease Progression in Presence of Informative Censoring—♦Tahmineh Romero, ; Tristan Grogan, Department of Medicine Statistics Core (DOMStat); David Elashoff, UCLA

**527****CC-Hall C****Contributed Poster Presentations: Section on Statistics in Genomics and Genetics—Contributed****Section on Statistics in Genomics and Genetics**

Chair(s): Wendy Meiring, University of California At Santa Barbara

**Section on Statistics in Genomics and Genetics**

55 HierCM: a Hierarchical Mixture Model Approach for Detecting Chromatin Interactions in Hi-C Data—♦Frank Shen, Penn State University; Qunhua Li, Penn State University; Naomi S Altman, Pennsylvania State University

56 Sparse Probabilistic NMF for Single Cell RNA Sequencing—♦Xiaotian Wu, Brown University; Zhipin Wu, Brown University

57 Detection of Inversely Enriched Pathways in PBMC Cells in Alzheimer's Disease and Cancer—♦Lisa Neums, University of Kansas Medical Center; Jeffrey A. Thompson, University of Kansas Medical Center

58 A Novel Statistical Framework for Trio-Based Transcriptome-Wide Association Study—♦Kunling Huang, University of Wisconsin-Madison, Statistics Department

59 Evaluation of Modern Approaches for the Complex Trait Prediction Using Genetic Data—♦Miao Zhang, Ancestry.com; Julie Granka, Ancestry.com

60 Probabilities of Unranked and Ranked Anomaly Zones Under Birth-Death Models—♦Anastasiia Kim, University of New Mexico; James Degnan, University of New Mexico; Noah Rosenberg, Stanford University

61 Separating Subtype Specific Signals from Mixed Tumor Genomic Data—♦Liuqing Yang, AbbVie; Hongtu Zhu, DiDi Chuxing and UNC-Chapel Hill; Steve Marron, University of North Carolina at Chapel Hill

62 Establishing Single Cell RNA-Seq Data Analysis Pipeline in the Industry Setting—♦Oleg Mayba, Genentech, Inc; Milena Duerrbaum, Genentech, Inc; Robert Piskol, Genentech, Inc; Leonard Goldstein, Genentech, Inc; Kevin Huang, Genentech, Inc; Josh Kaminker, Genentech, Inc; Aaron Lun, Genentech, Inc; Kiran Mukhyala, Genentech, Inc; Luz Orozco-Guerra, Genentech, Inc; Thomas Wu, Genentech, Inc; Matthew Chang, Genentech, Inc; Brad Friedman, Genentech, Inc; Jason Hackney, Genentech, Inc

63 Mendel's Laws of Inheritance—♦Ryan Rulkens, JMPAP Statistics and SAT Club

64 Inferring Complex Phylogenetic Networks Efficiently—♦Cora Allen-Coleman, University of Wisconsin - Madison; Cécile Ané, University of Wisconsin - Madison

65 Assessment of Differential Expression Methods for 10x Genomics Data Sets—♦Jacob Gagnon, Biogen; Wenting Wang, Biogen; Eugenia Lyashenko, Biogen; Dann Huh, Biogen; Dipen Sangurdekar, Biogen; Liping Hou, BioStat Solutions, Inc

66 Integrating GWAS and Omics QTL Summary Statistics in Elucidating Molecular Mechanisms of Trait-Associated SNPs

and Detecting Pleiotropy in Human Complex Traits—♦Kevin J Gleason, University of Chicago; Fan Yang, University of Colorado Denver; Lin Chen, University of Chicago	77	Iowa State University; Heike Hofmann, Iowa State University; Ulrike Genschel, Iowa State University
Maximizing the Usability of Biomedical Big Data by Predicting Missing Clinical Information Using Machine Learning Methods—♦Pei-Yau Lung, Florida State University; Xiaodong Pang, Florida State University; Jinfeng Zhang, Florida State University	78	Bayesian Nonparametric Inference on the Dynamic Connectivity States—♦Meini Tang, King Abdullah University of Science and Technology; Chee-Ming Ting, KAUST; Hernando Ombao, King Abdullah University of Science and Technology (KAUST)
Proposed Methylation Processing Pipeline for Meta Analyzes Using Illumina's 450K and EPIC Platforms—♦Lauren A Vanderlinden, Colorado School of Public Health; Randi K Johnson, Colorado School of Public Health; Patrick M Carry, Colorado School of Public Health; Fran Dong, Colorado School of Public Health; Ivana V Yang, Colorado School of Public Health; Jill M Norris, Colorado School of Public Health; Katerina Kechris, Colorado School of Public Health	79	Using R to Conduct Retrospective Analyzes of EHR and Imaging Data: a Case Study in MS—♦Melissa Martin, University of Pennsylvania; Russell Shinohara, University of Pennsylvania
A GWAS Analysis to Identify Genotypes Corresponding to Delayed Senescence in Maize—♦Brandon Lumsden, Clemson University; Yuan Yang, Clemson University; Christopher McMahan, Clemson University; William C. Bridges Jr., Clemson University	80	Approaches for Modeling Spatially Varying Associations Between Multi-Modal Images—♦Alessandra Valcarcel, University of Pennsylvania; Simon N. Vandekar, University of Pennsylvania; Tinashe Tapera, University of Pennsylvania; Azeez Adegbime, University of Pennsylvania; David Roalf, University of Pennsylvania; Armin Raznahan, Child Psychiatry Branch, National Institute of Mental Health, NIH; Theodore Satterthwaite, University of Pennsylvania; Russell Shinohara, University of Pennsylvania; Kristin Linn, University of Pennsylvania
Comprehensive Analysis of Differential Alternative Splicing in Multi-Isoform Splicing Modules Using RNA-Seq—♦Levon Demirdjian, Children's Hospital of Philadelphia; Shihao Shen, Children's Hospital of Philadelphia; Yan Gao, Children's Hospital of Philadelphia; Ying Nian Wu, UCLA; Yi Xing, Children's Hospital of Philadelphia	81	Low Dimensional Stationary Subspace Representation of High-Dimensional Time Series with Applications to Brain Signals—♦Anass El Yaagoubi Bourakna, Hernando Ombao, King Abdullah University of Science and Technology (KAUST); Raanju Sundararajan, King Abdullah University of Science and Technology
Testing Complex Survey Data for Hardy-Weinberg Equilibrium on the X Chromosome: Utilizing Male and Female Data—♦John R. Pleis, NCHS	82	A Reduced Rank Regression Framework for Interpretable Image-On-Scalar Regression with Application to Alzheimer's Disease—♦Tianyu Ding, University of Pittsburgh; Rob Krafty, University of Pittsburgh; Dana Tudorascu, University of Pittsburgh; Annie Cohen, University of Pittsburgh
Integration of Metabolomics and Transcriptomics to Improve Pediatric Drug Dosing—♦Christopher Wilson, ; Brooke Fridley, Moffitt Cancer Center	83	A Bayesian Method for Clustering Diffusion Tensors Using Mixture of Von Mises Fisher Distribution—♦Siddhesh Kulkarni, University of Louisville; Subhadip Pal, University of Louisville
Integrating Gene Regulatory Pathways into Differential Network Analysis of Gene Expression Data—♦Tyler Grimes, ; Somnath Datta, University of Florida	84	Analysis of Manganese Accumulation in the Pituitary Gland, Olfactory Bulb, and Hippocampus of Smelter Workers Using High Resolution 3D T1-Weighted MRI—Alison Jeffries, Purdue University; Molly Cromer, Purdue University; ♦Zeinab Aly, Purdue University; Ulrike Dydak, Purdue University; Eric Cameron, Purdue University
The Additive Model in Genetic Association Studies—♦Zhengyang Zhou, University of North Texas Health Science Center; HUNG-CHIH KU, DePaul University; Chao Xing, UT Southwestern Medical Center	85	A Local Group Differences Test for Subject-Level Multivariate Density Neuroimaging Outcomes—♦Jordan Dworkin, Kristin Linn, University of Pennsylvania; Theodore Satterthwaite, University of Pennsylvania; Armin Raznahan, Child Psychiatry Branch, National Institute of Mental Health, NIH; Rohit Bakshi, Harvard Medical School; Russell Shinohara, University of Pennsylvania
Effectiveness of Genomic Selection by Response to Selection for Winter Wheat Variety Improvement—♦Lan Zhu, Oklahoma State University; Xiaowei Hu, Oklahoma State University; Charles Chen, Oklahoma State University		Data Visualization and Exploratory Analysis of Spectral Features in Non-Stationary Time Series—♦Abdulrahman Althobaiti, KAUST; Hernando Ombao, King Abdullah University of Science and Technology (KAUST); Ron Frostig, U.C. Irvine
<b>528</b> <b>Contributed Poster Presentations: Section on Statistics in Imaging—Contributed Section on Statistics in Imaging</b> Chair(s): Wendy Meiring, University of California At Santa Barbara <b>Section on Statistics in Imaging</b>		<b>CC-Hall C</b>
76 Repeatability and Reproducibility of Automated Bullet Comparisons Using High-Resolution 3D Scans—♦Kiegan Rice,		

86	Identification of Differences in Cortical Thickness in Multiple Sclerosis Patients Based on Race—♦Jiajing Niu, Clemson University; Andrew Brown, Clemson University; Jagannadha R Avasarala, Greenville Health System	94	Data Design Issues to Consider in Studies Utilizing Smart Devices to Monitoring Treatment Adherence—♦Mary Morrow, Colorado School of Public Health; Samantha MaWhinney, University of Colorado Anschutz Medical Campus; Ryan Huntley, University of Colorado School of Pharmacy; Kristina Brooks, University of Colorado School of Pharmacy; Jennifer Kiser, University of Colorado School of Pharmacy
87	Bayesian Homogeneity Pursuit with Thresholded Dirichlet Process Priors—♦Andrew Whiteman, University of Michigan; Jian Kang, University of Michigan	95	Extension of Three Mode Principal Components Analysis for Use with Various Distance Measures with Application to Microbiome Data—♦Kayla Williamson, Colorado School of Public Health; J. Kirk Harris, University of Colorado, Anschutz Medical Cam; Debashis Ghosh, University of Colorado Anschutz Medical Campus; Brandie Wagner, Colorado School of Public Health
88	Population-Level Representational Mapping Based on Intracranial EEG Subjects with Varying Spatial Sampling—♦Peter W. Elliott, Carnegie Mellon University; Max G'Sell, Carnegie Mellon University		

**529****CC-Hall C****Contributed Poster Presentations: WNAR—****Contributed****WNAR**

Chair(s): Wendy Meiring, University of California At Santa Barbara

**WNAR**

89	Non-Inferiority Designs Comparing Placebo to a Proven Therapy for Childhood Pneumonia in Low Resource Settings—♦Susanne May, University of Washington; Siobhan Brown, University of Washington; Robert Schmicker, University of Washington; Scott Emerson, University of Washington; Evangelyn Nkwopara, Save the Children; Amy Ginsburg, Save the Children		
90	An Adjusted Partial Least Squares Regression Framework for Environmental Mixture Data Analysis—♦Ruofei Du, University of New Mexico Comprehensive Cancer Center; Timothy Ozechowski, University of New Mexico Health Sciences Center		
91	Outcome Dependent Sampling Designs for Longitudinal Studies Utilizing Existing Cohort Studies: Quantifying Possible Biases Due to Study Dropout—♦Melissa Wilson, Colorado School of Public Health - Denver Anschutz, Dept. Biostatistics and Informatics; Samantha MaWhinney, University of Colorado Anschutz Medical Campus; Jose Castillo-Mancilla, University of Colorado - Denver Anschutz, Dept. of Medicine, Division of Infectious Diseases; Kristine Erlandson, University of Colorado - Denver Anschutz, Dept. of Medicine, Division of Infectious Diseases		
92	A Semiparametric Approach to Modeling Nonlinear Longitudinal Drug Concentration Data Utilizing Standard Software—♦Samantha MaWhinney, University of Colorado Anschutz Medical Campus; Mary Morrow, Colorado School of Public Health; Jose Castillo-Mancilla, University of Colorado - Denver Anschutz, Dept. of Medicine, Division of Infectious Diseases; Peter Anderson, University of Colorado, School of Pharmacy		
93	Causes, Impact, and Methods for Mitigation of Covariate Imbalance by Treatment Arm in Stepped Wedge Designs—♦Erin Leister Chaussee, Colorado School of Public Health; Diane Fairclough, Colorado School of Public Health; Debashis Ghosh, University of Colorado Anschutz Medical Campus		

WEDNESDAY

**530****CC-Hall C****Contributed Poster Presentations: Section on Statistics in Marketing—Contributed****Section on Statistics in Marketing**

Chair(s): Wendy Meiring, University of California At Santa Barbara

**Section on Statistics in Marketing**

96	Using Hierarchical Logistic Normal Distribution to Capture Customer Decision Process—♦XIEBIN LIU, the University of Iowa
97	Classification of Social Media Users Through Generalized Multilevel Functional Model—♦Anthony Weishampel, North Carolina State University; Bill Rand, North Carolina State University; Ana-Maria Staicu, North Carolina State University

**Contributed Poster Presentations 11:35 a.m.—12:20 p.m.****531****CC-Hall C****SPEED: Statistical Computing: Methods, Implementation, and Application, Part 2—Contributed****Section on Statistical Computing, Section for Statistical Programmers and Analysts**

Chair(s): Michael Weylandt, Rice University

**Section on Statistical Computing**

1	Sure Independence Screening (SIS) for Multiple Functional Regression Model—♦Yuan Yuan, Auburn University; Nedret Billor, Auburn University
2	Creation of an R Shiny Application to Illustrate and Accompany the Growclusters Package—♦Randall Powers, U.S. Bureau of Labor Statistics; Terrance Savitsky, Bureau of Labor Statistics; Wendy L Martinez, Bureau of Labor Statistics
3	Generalized Causal Mediation and Path Analysis and Its R Package "gmediation"—♦Jang Ik Cho, Eli Lilly and Company; Jeffrey M Albert, Case Western Reserve University

4 Spatial DNA: Measuring Similarity of Geolocation Data Sets with Applications to Forensics—♦Christopher Galbraith, University of California, Irvine; Padhraic Smyth, University of California, Irvine

5 Sampling Using Langevin Diffusion—♦Riddhiman Bhattacharya, University of Minnesota

6 Rapid Numerical Approximation of Spatial Covariance Functions Over Irregular Data Regions—♦Peter Simonson, Colorado School of Mines; Doug Nychka, Colorado School of Mines; Soutir Bandyopadhyay, Colorado School of Mines

7 Predicting Lattice Reduction on Ideal Lattices (PeRIL)—♦Bryan Ek, Space and Naval Warfare Systems Center Atlantic; Bryan Williams, Space and Naval Warfare Systems Center Atlantic; Emily Nystrom, Naval Information Warfare Center Atlantic; Jamie Lyle, Space and Naval Warfare Systems Center Atlantic; Peter Curry, Space and Naval Warfare Systems Center Atlantic; Scott Batson, Space and Naval Warfare Systems Center Atlantic

8 Exact Inference for Analyzing Contingency Tables in Finite Populations—♦Shiva Dibaj, UT MD Anderson Cancer Center; Gregory Wilding, SUNY at Buffalo; Graham Warren, University of Kentucky

9 A Simple Recipe for Making Accurate Parametric Inference in Finite Sample—♦Mucyo Karemra, Penn State University; Stephane Guerrier, University of Geneva; Samuel Orso, University of Geneva; Maria-Pia Victoria-Feser, University of Geneva

10 The Variance of the Interaction Term as Goal for Estimation—♦Iman Jaljuli, Tel-Aviv University; Yoav Benjamini, Tel Aviv University

11 A New Approach in Distribution Fitting for Grouped Data and Its Application in Measuring Income Distribution—♦Ying-Ju Chen, University of Dayton; Tatjana Miljkovic, Miami University

12 Spatial Location-Based Trajectory Modeling: Predicting the Success of an Crowdfunding Campaign—♦Han Yu, University of Northern Colorado

13 Embarrassingly Parallel Inference for Gaussian Processes—♦Michael Minyi Zhang, Princeton University; Sinead Williamson, UT Austin

14 Estimating Subgroups for Spatial Areal Data with Repeated Measures—♦Xin Wang, Miami University; Zhengyuan Zhu, Iowa State University; Helen Zhang, University of Arizona

15 Tensor Variate Models Applied to Sensor Data—♦Peter Tait, McMaster University; Paul D McNicholas, McMaster University

16 Using Information Criteria to Select Among Polynomial and "truly" Nonlinear Multilevel Models—♦Wendy Christensen, University of California, Los Angeles; Jennifer Krull, University of California, Los Angeles

17 Clustering Smoothed Dissimilarities in Tertiary Data: a Shrinkage-Based Approach—♦Bridget Manning, University of South Carolina; David Hitchcock, University of South Carolina

**Section on Statistical Consulting**

18 Incorporating Spatial Statistics into Routine Analysis of Agricultural Field Trials—♦Julia Piaskowski, University of Idaho; Chad Jackson, University of Idaho; Juliet Marshall, University of Idaho; William J Price, University of Idaho

**Section for Statistical Programmers and Analysts**

19 Bootstrap in the Linear Model: a Comprehensive R Package—♦Megan Heyman, Rose-Hulman Institute of Technology

20 Tidi\_MIBI: a Tidy Pipeline for Microbiome Analysis and Visualization in R—♦Charlie Carpenter, University of Colorado-Biostatistics

**Invited Sessions 2:00 p.m.—3:50 p.m.****541****CC-504****Recent Progresses in Bayesian Inference in Large Parameter Spaces: Jayanta K. Ghosh Memorial Session—Invited**

Memorial, International Indian Statistical Association, International Society for Bayesian Analysis (ISBA)

Organizer(s): Subhashis Ghoshal, North Carolina State University  
Chair(s): Malay Ghosh, University of Florida

2:05 p.m. Bayesian Sparse Signal Recovery: Gaussian Models and Beyond—♦Jyotishka Datta, University of Arkansas

2:25 p.m. Sorted L-One Penalized Estimation—♦Malgorzata Bogdan, University of Wroclaw

2:45 p.m. Leveraging the Order-Dependence of Predictive Recursion for Uncertainty Quantification About a Mixing Density—♦Ryan Martin, North Carolina State University; Vaidehi Dixit, North Carolina State University

3:05 p.m. Extreme Value Analysis with Semiparametric Density Models—♦Surya Tokdar, Duke University

3:25 p.m. Disc: Bhramar Mukherjee, University of Michigan

3:45 p.m. Floor Discussion

WEDNESDAY

**542****CC-507****■ ● New Research Synthesis Methods in Data Science—Invited**

International Chinese Statistical Association, Section on Statistics in Epidemiology, Health Policy Statistics Section

Organizer(s): Haitao Chu, University of Minnesota

Chair(s): Jing Zhang, University of Maryland College Park

2:05 p.m. Bayesian Inference for Network Meta-Regression Using Multivariate Random Effects with Applications to Cholesterol-Lowering Drugs—♦Joseph G Ibrahim,

<p><b>543</b></p> <p>● <b>Making Sense of Complex Featured Data with Statistical Methods—Invited</b></p> <p><b>SSC, Canadian Statistical Sciences Institute</b></p> <p>Organizer(s): Grace Yi, University of Waterloo</p> <p>Chair(s): Grace Yi, University of Waterloo</p>	<p>UNC; Sungduk Kim, NIH; Ming-Hui Chen, University of Connecticut; Arvind Shah, Merck, Inc.; Jianxin Lin, Merck, Inc.; Hao Li, Boehringer Ingelheim; Andrew Tershakovec, Merck, Inc</p> <p>2:30 p.m. Innovative Methods for Assessing Publication Bias in Meta-Analysis—♦Lifeng Lin, Florida State University</p> <p>2:55 p.m. Bayesian Meta-Regression Model Using Heavy-Tailed Random-Effects with Missing Sample Sizes for Self-Thinning Meta-Data—Zhihau Ma, Jinan University and University of Connecticut ; ♦Ming-Hui Chen, University of Connecticut; Yi Tang, Liaoning University</p> <p>3:20 p.m. Bias Correction and Sensitivity Analysis for Meta-Analysis of Studies with Zero-Inflated Outcomes—Zhengyang Zhou, University of North Texas Health Science Center; ♦Minge Xie, Rutgers University; Thomas Trikalinos, Brown University; Eun-Young Mun, University of North Texas Health Science Center</p> <p>3:45 p.m. Floor Discussion</p>	<p><b>544</b></p> <p>■ ● <b>Dynamic Graphical Models and Networks with Applications—Invited</b></p> <p><b>International Indian Statistical Association, Section on Statistical Learning and Data Science, Section on Statistical Computing</b></p> <p>Organizer(s): Sharmodeep Bhattacharyya, Oregon State University</p> <p>Chair(s): Sharmodeep Bhattacharyya, Oregon State University</p> <p>2:05 p.m. Mixed Membership Stochastic Blockmodels for Heterogeneous Networks—♦Yuguo Chen, University of Illinois at Urbana-Champaign</p> <p>2:20 p.m. On the CUSUM Changepoint Estimator for Network Data—♦Shirshendu Chatterjee, City University of New York, City College; Sharmodeep Bhattacharyya, Oregon State University; Peter J Bickel, University of California, Berkeley; Soumendu Sundar Mukherjee, Indian statistical Institute</p> <p>2:35 p.m. Inference in Vector Autoregressive Models with Union of Intersections for Sparse, Accurate, and Predictive Dynamic Causal Networks at Scale—♦Kristofer Bouchard, Lawrence Berkeley National Laboratory</p> <p>2:50 p.m. Network Modeling of High-Dimensional Time Series—♦Sumanta Basu, Cornell University</p> <p>3:05 p.m. Disc: Peter J Bickel, University of California, Berkeley</p> <p>3:20 p.m. Disc: Sofia C Olhede, University College London</p> <p>3:25 p.m. Floor Discussion</p>
	<b>CC-505</b>	
	<b>CC-506</b>	
	<b>CC-607</b>	
	<p>■ ● <b>Towards Perfect and Scalable Distributional Computation—Invited</b></p> <p><b>IMS, International Society for Bayesian Analysis (ISBA), Section on Statistical Computing</b></p> <p>Organizer(s): Xiao-Li Meng, Harvard University</p> <p>Chair(s): David Jones, Texas A&amp;M University</p>	
	<p>2:05 p.m. Exact Estimation with Markov Chain Monte Carlo—♦Aguemon Yves Atchade, Boston University</p> <p>2:30 p.m. The Never-Ending MCMC Revolution: Making Dempster-Shafer Modeling Practical—♦Ruobin Gong, Rutgers University; Xiao-Li Meng, Harvard University</p> <p>2:55 p.m. Fiducial Selector: Scalable Statistical Inference for High-Dimensional Regression Problems—♦Thomas C. M. Lee, UC Davis; Jan Hannig, UNC Chapel Hill; Randy Lai, U of Maine; Chunzhe Zhang, UC Davis</p> <p>3:20 p.m. Disc: Keli Liu, Stanford University</p> <p>3:45 p.m. Floor Discussion</p>	

546

CC-501

● Recent Advances in Time Series and Point Process—Invited

Business and Economic Statistics Section, Section on Risk Analysis, Section on Statistical Computing

Organizer(s): Xialu Liu, San Diego State University

Chair(s): Xialu Liu, San Diego State University

2:05 p.m.	A Factor Model Approach for High-Dimensional Dynamic Tensor Time Series—♦Rong Chen, Rutgers University; Dan Yang, Rutgers University; Cun-Hui Zhang, Rutgers University
2:30 p.m.	A Bivariate Point Process Model with Application to Social Media User Content Generation—♦Yongtao Guan, University of Miami
2:55 p.m.	Time Series Forecasting with Random Forests and Nonparametric Models—♦Barbara Ann Bailey, San Diego State University
3:20 p.m.	A Class of Generalized Self-Normalizers for Inference of Time Series and Its Optimal Weighting—♦Ting Zhang, Boston University
3:45 p.m.	Floor Discussion

547

CC-Four Seasons 1

Annals of Statistics Special Invited Session: Selected Papers—Invited

IMS

Organizer(s): Edward George, University of Pennsylvania; Tailen Hsing, University of Michigan

Chair(s): Tailen Hsing, University of Michigan

2:05 p.m.	Testing in High-Dimensional Spiked Models—♦Iain Johnstone, Stanford University; Alexei Onatski, Cambridge University
2:30 p.m.	Convergence Rates of Least Squares Regression Estimators with Heavy-Tailed Errors—Qiyang Han, Rutgers University; ♦Jon A. Wellner, University of Washington
2:55 p.m.	The Two-to-Infinity Norm and Singular Subspace Geometry—♦Carey E Priebe, Johns Hopkins University; Minh Tang, Johns Hopkins University; Joshua Cape, Johns Hopkins University
3:20 p.m.	Efficient Nonparametric Bayesian Inference for X-Ray Transforms—♦Richard Nickl, University of Cambridge
3:45 p.m.	Floor Discussion

548

CC-603

■ ● Total Survey Errors in the Combination of Probability and Nonprobability Samples—Invited

Survey Research Methods Section, Government Statistics Section, Social Statistics Section

Organizer(s): Michael Yang, NORC at the University of Chicago

Chair(s): Michael Yang, NORC at the University of Chicago

2:05 p.m.	Combining Data from a Probability and Nonprobability Sample Using a Composite Estimator—♦Burton Levine, RTI International
2:25 p.m.	Total Survey Error: Approaches for Measuring Bias and Variance Components When Combining Probability and Non-Probability Samples—♦Nadarajah Sundaram Ganesh, NORC at the University of Chicago; Edward Mulrow, NORC at the University of Chicago; Vicki Pineau, NORC at the University of Chicago; Michael Yang, NORC at the University of Chicago
2:45 p.m.	Multilevel Regression and Post-Stratification with Misreporting and Selection Bias—♦Douglas Rivers, Stanford University
3:05 p.m.	Disc: Jill DeMatteis, Westat
3:25 p.m.	Disc: Andrew Mercer, Pew Research Center
3:45 p.m.	Floor Discussion

549

CC-107

■ ● Optimal Designs for Modeling Asymmetries in Big Data—Invited

WNAR, IMS, International Chinese Statistical Association

Organizer(s): Milan Stehlík, Johannes Kepler University and University of Valparaiso

Chair(s): Ying Lu, Stanford University

2:05 p.m.	Optimal Experimental Designs for Skewed Data via Cuckoo Algorithm—Guanghao Qi, Johns Hopkins University; ♦Weng Kee Wong, UCLA
2:30 p.m.	Subdata Selection Methods—♦John Stufken, Arizona State University
2:55 p.m.	Adjusting for Bias Induced by Informative Adaptive Designs—♦Nancy Flournoy, University of Missouri; Assaf P Oron, Institute for Disease Modeling
3:20 p.m.	Disc: Milan Stehlík, Johannes Kepler University and University of Valparaiso
3:40 p.m.	Floor Discussion

**550**

**■● Statistics on Street Corners—Invited**

**Section on Statistical Graphics, Section on Statistical Computing, Section on Bayesian Statistical Science**

Organizer(s): Dianne Cook, Monash University

Chair(s): Heike Hofmann, Iowa State University

2:05 p.m.	Visual Inference for Model Checking—♦ Adam Loy, Carleton College; Heike Hofmann, Iowa State University; Dianne Cook, Monash University
2:20 p.m.	Can You Become Skillful Over Time to Influence Visual Inference—♦ Mahbubul Majumder, University of Nebraska at Omaha; Dianne Cook, Monash University; Heike Hofmann, Iowa State University
2:35 p.m.	Deep Visual Inference: Teaching Computers to See Rather Than Calculate Correlation—♦ Giora Simchoni, vFunction
2:50 p.m.	Statistical Lineups for Bayesians—♦ Susan Vanderplas, Iowa State University; Heike Hofmann, Iowa State University
3:05 p.m.	Disc: Hadley Wickham, RStudio
3:20 p.m.	Disc: Andreas Buja, Wharton School, University of Pennsylvania
3:35 p.m.	Floor Discussion

**551**

**■● Risk Prediction Methods and Applications in Risk Stratified Prevention—Invited**

**ENAR, Lifetime Data Science Section, Section on Statistics in Epidemiology**

Organizer(s): Parichoy Pal Choudhury, National Cancer Institute

Chair(s): Yei Eun Shin, National Cancer Institute

2:05 p.m.	Using Deep Learning to Build Risk Prediction Models for Time-to-Event Outcomes—♦ Jon Steingrimsson, Brown University; Samantha Morrison, Brown University; Constantine Gatsonis, Brown University
2:25 p.m.	Case-Only Analysis of Gene-Environment Interactions Using Polygenic Risk Scores—♦ Allison Meisner, Johns Hopkins Bloomberg School of Public Health; Nilanjan Chatterjee, Johns Hopkins University
2:45 p.m.	Generalized Meta-Analysis for Combining Disparate Risk Factor Information Across Studies: Inference on Multiple Regression Based Risk Prediction Models—♦ Prosenjit Kundu, The Johns Hopkins University Bloomberg School of Public Health; Runlong Tang, The Johns Hopkins University Bloomberg School of Public Health; Nilanjan Chatterjee, Johns Hopkins University
3:05 p.m.	Development and Validation of Breast Cancer Risk

**CC-605**

**Prediction Models Using ICARE and Projections for Future Risk Stratification—♦ Amber Wilcox, National Cancer Institute; Parichoy Pal Choudhury, National Cancer Institute; Montserrat Garcia-Closas, National Cancer Institute; Nilanjan Chatterjee, Johns Hopkins University**

3:25 p.m.	Racial and Ethnic Fairness in Clinical Risk Prediction with an Application to Suicide Risk Prediction—♦ Rebecca Yates Coley, Kaiser Permanente Washington Health Research Institute; Eric Johnson, Kaiser Permanente Washington Health Research Institute; Susan Shortreed, Kaiser Permanente Washington Health Research Institute
3:45 p.m.	Floor Discussion

**552**

**JASA, AandC Invited Session—Invited**

**JASA, Applications and Case Studies**

Organizer(s): Montserrat Fuentes, Virginia Commonwealth University

Chair(s): Montserrat Fuentes, Virginia Commonwealth University

2:05 p.m.	Penalized Spline of Propensity—♦ Roderick J Little, University of Michigan School of Public Health; Tingting Zhou, University of Michigan School of Public Health; Michael Elliott, University of Michigan
2:30 p.m.	Disc: Shu Yang, North Carolina State University
2:40 p.m.	Disc: Michael Daniels, University of Texas
2:50 p.m.	Disc: Andrew J. Spieker, Vanderbilt University Medical Center
3:00 p.m.	Disc: Fan Li, Duke University
3:10 p.m.	Disc: Cindy Chen, Vanderbilt
3:20 p.m.	Floor Discussion

**553**

**Memorial Session for Tom Short—Invited**

**Memorial**

Organizer(s): Allan Rossman, Cal Poly - San Luis Obispo

Chair(s): Allan Rossman, Cal Poly - San Luis Obispo

2:05 p.m.	Tom Short's Contributions to Statistics Education: Writings and Workshops—♦ Roxy Peck, Cal Poly - San Luis Obispo
2:20 p.m.	Tom Short's Contributions to Statistics Education: AP Statistics—♦ Jessica Utts, University of California - Irvine
2:35 p.m.	Tom Short's Contributions to Statistics Education: Journal Editorships—♦ Christine A Franklin, American Statistical Association and University of Georgia

2:50 p.m.	Tom Shortis Contributions to Statistics Education: Local Activities—♦Michael Posner, Villanova University
3:05 p.m.	Floor Discussion

**Invited Panels 2:00 p.m.—3:50 p.m.**

554	CC-503
<b>■ ● Interdisciplinary Research and Leadership: How to Make an Impact in the Data Science Age—Invited</b>	
IMS, Section on Statistical Learning and Data Science, Royal Statistical Society	
Organizer(s): Bin Yu, UC Berkeley	
Chair(s): Bin Yu, UC Berkeley	
Panelists:	♦Alicia Carriquiry, Iowa State University ♦Christopher Genovese, Statistics, CMU ♦Jasjeet Sekhon, UC Berkeley ♦Simon Tavare, Inst of Cancer Dynamics and Statistics, Columbia University ♦Hongyu Zhao, Yale ♦Tamara Tamara Greasby, Data Science at The Trade Desk
3:45 p.m.	Floor Discussion

555	CC-704
<b>■ ● A Historical Perspective on the Application of Sampling Theory and Methods to Statistical—Invited</b>	
Statistical Auditing Interest Group, History of Statistics Interest Group, Survey Research Methods Section	
Organizer(s): Roger C. Pfaffenberger, Ryan, LLC	
Chair(s): Roger C. Pfaffenberger, Ryan, LLC	
Panelists:	♦Donald Roberts, University of Illinois - Emeritus Professor Retired ♦Wendy Rotz, Grant Thornton ♦Richard Valliant, University of Maryland - Emeritus Professor Retired ♦Ron Bartczak, Internal Revenue Service - Retired ♦Alan H. Kvanli, University of North Texas
3:45 p.m.	Floor Discussion

556	CC-205
<b>● Census 2020:—Invited</b>	
Committee on Scientific Freedom and Human Rights	
Organizer(s): Robin Mejia, Carnegie Mellon University	
Chair(s): Robin Mejia, Carnegie Mellon University	
Panelists:	♦Hansi Lo Wang, National Public Radio ♦Connie Citro, The National Academies of Sciences, Engineering, and Medicine ♦Edward Kissam, CIRS
3:45 p.m.	Floor Discussion

**Topic Contributed Sessions 2:00 p.m.—3:50 p.m.**

557	CC-108
<b>■ ● Data Monitoring Committees -the Multi-Disciplinary Approach to Drug Safety Assessment—Topic Contributed</b>	
Biopharmaceutical Section, International Indian Statistical Association, Section for Statistical Programmers and Analysts	
Organizer(s): Amit Bhattacharyya, Alexion Pharmaceuticals	
Chair(s): William (Bill) Wang, Merck Research Lab	
2:05 p.m.	EMERGING CHANGES in DMC OVERSIGHT— ♦Susan S. Ellenberg, University of Pennsylvania
2:25 p.m.	A Journey Through Guidelines for DMC in Addressing Evolving Paradigm Changes -What Really Matters— ♦Estelle Russek-Cohen, FDA CDER
2:45 p.m.	The Perfect DMC -a Multi-Disciplinary Approach to Monitor Patient Safety:—♦Jonathan Seltzer, ACI Clinical
3:05 p.m.	Implementing Effective DMC Decision-Making in Complex Clinical Trial Designs—♦Paul Gallo, Novartis Pharmaceutical
3:25 p.m.	Are Interactive Graphics in a DMC Ready for Prime-Time, for Better Safety Reviews?—♦James Buchanan, Covilance LLC
3:45 p.m.	Floor Discussion

558	CC-207
<b>■ ● The Big Data Revolution in Health Care: Promise and Potential—Topic Contributed</b>	
Biopharmaceutical Section, Health Policy Statistics Section, Society for Clinical Trials	
Organizer(s): Satrajit Roychoudhury, Pfizer Inc	
Chair(s): Satrajit Roychoudhury, Pfizer Inc	
2:05 p.m.	Perspectives on Use of Real-World Evidence in Drug Development—♦Demissie Alemayehu, Pfizer, Inc.; Satrajit Roychoudhury, Pfizer Inc

2:25 p.m.	Reliable Healthcare Evidence from the Large-Scale Evidence Generation Across a Network of Databases (LEGEND) Study—♦Marc Suchard, UCLA
2:45 p.m.	Longitudinal Causal Inference Using EHRs—♦Roy Adams, Johns Hopkins University; Katharine E Henry, Johns Hopkins University; Hossein Soleimani, University of California - San Francisco; Michael Rosenblum, Johns Hopkins Bloomberg School of Public Health; Suchi Saria, Johns Hopkins University
3:05 p.m.	Disc: Aloka Chakravarty, Office of Biostatistics of CDER/FDA
3:25 p.m.	Disc: Ram Tiwari, CDRH, FDA
3:45 p.m.	Floor Discussion

**559 CC-301**

● **Randomized Algorithms for Optimization Problems in Statistics—Topic Contributed**

Section on Statistical Learning and Data Science, IMS, Section on Statistical Computing

Organizer(s): Miles Lopes, UC Davis

Chair(s): Miles Lopes, UC Davis

2:05 p.m.	Statistical Properties of Stochastic Gradient Descent—Panagiotis Toulis, University of Chicago Booth School of Business; ♦Jerry Chee, University of Chicago
2:25 p.m.	Randomized Sparse PCA Using the Variable Projection Method—♦N. Benjamin Erichson, Univ of California - Berkeley
2:45 p.m.	Randomized Linear Algebra and Its Applications in Second-Order Optimization and Deep Learning—♦Zhewei Yao, UC Berkeley
3:05 p.m.	Understanding the Acceleration Phenomenon via High-Resolution Differential Equations—♦Weijie Su, University of Pennsylvania
3:25 p.m.	Random Projections for Faster Non-Convex Optimization—♦Mert Pilanci, Stanford University

**560 CC-111**

■ ● **Using Large Healthcare Databases and Modern Statistical Methods to Impact Health Policy—Topic Contributed**

ENAR, Health Policy Statistics Section, International Indian Statistical Association

Organizer(s): Nandita Mitra, University of Pennsylvania

Chair(s): Nandita Mitra, University of Pennsylvania

2:05 p.m.	Innovations to Assess Program Attribution and Calculate Return on Investment in Large-Scale Health Programs—♦Jiaqi Li, Booz Allen Hamilton; Ping Yu, Booz Allen Hamilton
-----------	--

2:25 p.m.	A Fresh Look at Models, Assumptions, and Confounders in Diff-In-Diff—♦Bret Zeldow, Harvard Medical School; Laura A Hatfield, Harvard Medical School
2:45 p.m.	Hierarchical Bayesian Estimation of Subgroup Effects in Large Healthcare Policy Evaluations—♦Jonathan Gellar, Mathematica Policy Research; Mariel Finucane, Mathematica Policy Research; Ignacio Martinez, Mathematica Policy Research
3:05 p.m.	Bayesian Nonparametric Model for Zero-Inflated Outcomes: Clustering, Prediction, and Causal Inference—♦Arman Oganisian, Univ of Pennsylvania; Nandita Mitra, University of Pennsylvania; Jason Roy, Rutgers University
3:25 p.m.	Disc: Jason Roy, Rutgers University
3:45 p.m.	Floor Discussion

**561 CC-105**

■ ● **Small Data, Big Impact—Topic Contributed**

Section on Statistics in Defense and National Security, Section on Statistics and the Environment, Section on Physical and Engineering Sciences

Organizer(s): Lyndsay Shand, Sandia National Laboratories

Chair(s): Alexander Foss, Sandia National Laboratories

2:05 p.m.	Combining Information to Assess the Reliability of Complex Systems—♦Alyson Wilson, North Carolina State University
2:25 p.m.	Big Datum: Modeling the Universe and Other Smaller Things—♦Earl Christopher Lawrence, Los Alamos National Laboratory
2:45 p.m.	Sea Ice Computer Model Calibration Using Space Filling Curves—♦Derek Tucker, Sandia National Laboratories; Joel Upston, University of New Mexico; Deborah Sulsky, University of New Mexico
3:05 p.m.	Gradient Boosting Trees for Spatial Data Prediction—♦Bo Li, University of Illinois at Urbana-Champaign; Peng Wang, University of Cincinnati; Yunzhang Zhu, The Ohio State University
3:25 p.m.	Spatial Statistics for the Computational Simulation of Complex Material Microstructures—♦Lyndsay Shand, Sandia National Laboratories; Dan Bolintineanu, Sandia National Laboratories
3:45 p.m.	Floor Discussion

**562 CC-106**

**Advances in Nonparametric Methods in Causal Inference—Topic Contributed**

Section on Statistics in Epidemiology, Biometrics Section, Section on Nonparametric Statistics

Organizer(s): Ted Westling, Center for Causal Inference, University of Pennsylvania Perelman School of Medicine  
 Chair(s): Ted Westling, Center for Causal Inference, University of Pennsylvania Perelman School of Medicine

2:05 p.m.	Doubly-Robust Inference for Causal Effects—♦ Marco Carone, University of Washington; Ted Westling, University of Massachusetts Amherst; David Whitney, University of Washington
2:25 p.m.	Bayesian Causal Forests with Targeted Smoothing for Heterogeneous Treatment Effect Estimation—♦ Jennifer Starling,
2:45 p.m.	Model-Free Policy Evaluation—♦ Rina Friedberg, Stanford University; Stefan Wager, Stanford University; Susan Athey, Stanford University
3:05 p.m.	Sensitivity Analysis via the Proportion of Unmeasured Confounding—♦ Matteo Bonvini, Carnegie Mellon University; Edward Kennedy, Carnegie Mellon University
3:25 p.m.	Causal Inference with Confounders Missing Not at Random—♦ Linbo Wang, University of Toronto; Shu Yang, North Carolina State University; Peng Ding, University of California, Berkeley
3:45 p.m.	Floor Discussion

**563** **CC-709**  
 ● Recent Advances in Bayesian Structure Learning—  
 Topic Contributed  
 Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA), International Indian Statistical Association  
 Organizer(s): Jyotishka Datta, University of Arkansas  
 Chair(s): Daniel Taylor-Rodriguez, Portland State University

2:05 p.m.	Nonparametric Graphical Model for Counts—♦ Arkaprava Roy, Duke University; David Dunson, Duke University
2:25 p.m.	Bayesian Structure Learning in Graphical Models Using Shrinkage Priors—♦ Sayantan Banerjee, Indian Institute of Management Indore
2:45 p.m.	Recent Advances in Bayesian Structure Learning—♦ Nilabja Guha,
3:05 p.m.	Bayesian Inference in Nonparanormal Graphical Models—♦ Jami Mulgrave, ; Subhashis Ghoshal, North Carolina State University
3:25 p.m.	Bayesian Semiparametric Functional Mixed Models—♦ Abhra Sarkar, The University of Texas at Austin; Giorgio Paulon, The University of Texas at Austin; Bharath Chandrasekaran, University of Pittsburgh; Fernando Llanos, University of Pittsburgh
3:45 p.m.	Floor Discussion

**564** **CC-112**  
 ■ ● Analysis of Left-Censored Data (E.G., Below Detection): Real-World Problems in Need of Statisticians—Topic Contributed

Biometrics Section, Lifetime Data Science Section, Section on Statistics and the Environment

Organizer(s): Brenda W Gillespie, University of Michigan  
 Chair(s): Alexander C McLain, University of South Carolina

2:05 p.m.	How Many Licks Does it Take? Measuring Beryllium in the Workplace—♦ Brian Weaver, ; Kimberly Kaufeld, Los Alamos National Laboratory; Richard Warr, Brigham Young University
2:25 p.m.	Quantifying Information in Left-Censored Data: Why the Percent Censored Is a Misleading Metric—♦ Brenda W Gillespie, University of Michigan
2:45 p.m.	Profile Likelihood Estimation of the Correlation Coefficient in the Presence of Left, Right or Interval Censoring and Missing Data—♦ Yanming Li, University of Michigan; Brenda W Gillespie, University of Michigan; Kerby Shedden, University of Michigan; John Gillespie, University of Michigan -Dearborn
3:05 p.m.	Accommodating Multiple Correlated Measurements Subject to Left-Censoring Due to Assay Limits of Detection: a Novel Application of Multivariate Time-To-Event Regression—♦ Shanshan Zhao, National Institute of Environmental Health Sciences; Ling-Wan Chen, NIEHS
3:25 p.m.	Disc: William Q. Meeker, Iowa State University
3:45 p.m.	Floor Discussion

**565** **CC-705**  
 ■ ● Time Series in Government and National Statistics—Topic Contributed

Government Statistics Section, Business and Economic Statistics Section, Survey Research Methods Section

Organizer(s): James Livsey, U.S. Census Bureau  
 Chair(s): James Livsey, U.S. Census Bureau

2:05 p.m.	Trend-Cycle Filters Comparison for Real Time Macroeconomic Data—♦ Estella Dagum, University of Bologna; Silvia Bianconcini, University of Bologna
2:25 p.m.	Using Daily Payment Processor Data to Determine Existence and Length of Retail Shopping Event Effects—♦ Rebecca Hutchinson, US Census Bureau; Nicole Czaplicki, U.S. Census Bureau
2:45 p.m.	Estimating the Variance of Seasonally Adjusted Series of Monthly Statistics Canada Surveys—♦ Francois Verret, Statistics Canada; Catalin Dochitoiu, Statistics Canada

3:05 p.m.	Assessing Residual Seasonality in the U.S. National Income and Product Accounts (NIPA) Aggregates—♦ Baoline Chen, Bureau of Economic Analysis; Tucker McElroy, US Census Bureau; Osbert Pang, U.S. Census Bureau
3:25 p.m.	Dealing with Discontinuities in Survey Reporting Periods and Their Impact on Seasonal Adjustment of Time Series—♦ Charlotte Gaughan, Office for National Statistics; Atanaska Nikolova, Office for National Statistics
3:45 p.m.	Floor Discussion

**566** **CC-101**

**■● Analytics in Insurance Operations: Novel Statistical Methods and Applications—Topic Contributed**

**Casualty Actuarial Society, Committee on Applied Statisticians, Business and Economic Statistics Section**

Organizer(s): Peng Shi, University of Wisconsin-Madison

Chair(s): Peng Shi, University of Wisconsin-Madison

2:05 p.m.	Incorporating Frequency-Severity Dependence into Collective Risk Models—♦ Zifeng Zhao, University of Notre Dame; Peng Shi, University of Wisconsin-Madison
2:25 p.m.	Loss Reserving Models for the Unearned Premium Risk—♦ Mathieu Pigeon, UQAM; Jean-Philippe Boucher, UQAM; Sebastien Jessup, UQAM
2:45 p.m.	Multi-Peril Ratemaking for Property Insurance Using Longitudinal Data—♦ Lu Yang, University of Amsterdam; Peng Shi, University of Wisconsin-Madison
3:05 p.m.	Deductible Ratemaking and Related Issues—♦ Gee Lee, Michigan State University
3:25 p.m.	A New Perspective from a Dirichlet Model for Insurance Loss Reserving—♦ Karthik Sriram, Indian Institute of Management Ahmedabad
3:45 p.m.	Floor Discussion

**567** **CC-103**

**■● Digital Phenotyping -What Can Wearables and Smartphones Tell Us About Our Mental Health?—Topic Contributed**

**Mental Health Statistics Section, Section on Statistical Learning and Data Science, Biometrics Section**

Organizer(s): Samprit Banerjee, Weill Medical College, Cornell University

Chair(s): Ivan Diaz, Weill Medical College, Cornell University

2:05 p.m.	Digital Phenotyping: Opportunities and Challenges—♦ Jukka-Pekka Onnela,
3:40 p.m.	Floor Discussion

2:25 p.m.	Biostatistical Methods for Wearable and Implantable Technology (WIT)—♦ Ciprian Crainiceanu, Johns Hopkins University
2:45 p.m.	Functional Data Analysis Approaches for Analyzing Mobile Health Data—♦ Jihui Lee, Weill Cornell Medicine; Samprit Banerjee, Weill Medical College, Cornell University
3:05 p.m.	Clustering of Functional Data to Discover Patterns of Behavioral Trajectories Using Smartphone Data—♦ Samprit Banerjee, Weill Medical College, Cornell University; Jihui Lee, Weill Cornell Medicine
3:25 p.m.	Modeling Smartphone-Based Social Communication with Circadian Trends—♦ Ian Barnett, University of Pennsylvania; Grace Choi, University of Pennsylvania
3:45 p.m.	Floor Discussion

**Topic Contributed Panels 2:00 p.m.—3:50 p.m.**

**568**

**■● Experimentation at Scale: Current Challenges in A/B Testing—Topic Contributed**

**Section on Statistics in Marketing, Section on Statistical Learning and Data Science, Committee on Applied Statisticians**

Organizer(s): Martin Tingley, Netflix

Chair(s): Dean Eckles, MIT

Panelists:	♦ Martin Tingley, Netflix
	♦ Eytan Bakshy, Facebook
	♦ David Afshartous, Amazon
	♦ Kathy Zhong, Google

3:40 p.m.	Floor Discussion
-----------	------------------

**569**

**● Student Engagement and Interaction in Online/Hybrid Courses—Topic Contributed**

**Section on Teaching of Statistics in the Health Sciences, ASA-MAA Joint Committee on Undergraduate Statistics, Section on Statistics and Data Science Education**

Organizer(s): Hollylynne S Lee, NC State University

Chair(s): Jacqueline Milton Hicks, Boston University

Panelists:	♦ Hollylynne S Lee, NC State University
	♦ Sabrina Ripp, Tulsa Community College
	♦ Emily Slade, University of Kentucky
	♦ Matt Brems, General Assembly
	♦ Melissa Pittard, University of Kentucky
	♦ Christy Brown, Clemson University

3:40 p.m.	Floor Discussion
-----------	------------------

**Contributed Sessions 2:00 p.m.—3:50 p.m.**

<p><b>570</b> <span style="float: right;">CC-110</span></p> <p>● <b>Joint Modeling of Longitudinal and Survival Data—Contributed</b> Biometrics Section</p> <p>Chair(s): David Kline, The Ohio State University</p> <p>2:05 p.m. Joint Modeling of Longitudinal Continuous, Longitudinal Ordinal, and Time-To-Event Outcomes—♦ Abdus Sattar, Khurshid Alam, Case Western Reserve University; Arnab Maity, North Carolina State University; Sanjoy Sinha, Carleton University; Dimitris Rizopoulos, Erasmus University Medical Center</p> <p>2:20 p.m. A Joint Modeling Approach of Repeated Measure and Time-To-Event Data for Differentially Expressed/Spliced Isoform Transcripts—♦ Huining Kang, University of New Mexico; Xichen Li, University of New Mexico; Li Luo, University of New Mexico; Scott A Ness, University of New Mexico</p> <p>2:35 p.m. Joint Modeling of Multivariate Longitudinal Outcomes and Multiple Time-To-Events in Presence of Informative Censoring—♦ Md Akhtar Hossain, University of South Carolina; Alexander C McLain, University of South Carolina; Hrishikesh Chakraborty, Duke Clinical Research Institute, Duke University</p> <p>2:50 p.m. Novel Joint Models for Identifying Determinants of Cognitive Decline in the Presence of Informative Drop-Out and Observation Times—♦ Kendra Plourde,</p> <p>3:05 p.m. Optimizing Personalized Biomarker Screening by Predicting Quantiles of Residual Lifetime in the Presence of Longitudinal Biomarkers—♦ Phillip Schulte, Mayo Clinic; Fang-Shu Ou, Mayo Clinic; Martin Heller, Mayo Clinic</p> <p>3:20 p.m. A Bayesian Approach for Semiparametric Regression Analysis of Bivariate Panel Count Data—♦ Chunling Wang, University of South Carolina; Xiaoyan Lin, University of South Carolina</p> <p>3:35 p.m. Joint Spline Models for Continuous Time Causal Mediation Analysis—♦ Jeffrey M Albert, Case Western Reserve University; Tanujit Dey, Cleveland Clinic Foundation; Youjun Li, Case Western Reserve University; Jiayang Sun, Case Western Reserve University; Wojbor Woyczyński, Case Western Reserve University; Rujia Liu, Case Western Reserve University; Meeyoung Min, Case Western Reserve University</p>	<p><b>571</b> <span style="float: right;">CC-210/212</span></p> <p>Special Topics and Case Studies in Clinical Trials—Contributed</p> <p>Biopharmaceutical Section</p> <p>Chair(s): Margaret Gamalo-Siebers, Eli Lilly</p> <p>2:05 p.m. Analysis of Multiple Outcome Measures with Applications to Disability Improvement in Multiple Sclerosis—♦ Wenting Cheng, Biogen; Yangqing Deng, University of Minnesota; Lili Yang, Biogen; Shifang Liu, Biogen; Chunlei Ke, Biogen</p> <p>2:20 p.m. Use of Extended Kaplan-Meier and Time-Dependent Cox Model in EU Submission of Kymriah—♦ Jufen Chu,</p> <p>2:35 p.m. Assessing Similarity of Curves: An Application in Assessing Similarity Between Pediatric and Adult Exposure-Response Curves—♦ Yodit Seifu, Merck; Mathangi Gopalakrishnan, University of Maryland; Junshan Qiu, FDA/CDER; Junjing Lin, AbbVie; Margaret Gamalo-Siebers, Eli Lilly</p> <p>2:50 p.m. Making an Impact: the Filing Story of ZINPLAVA—♦ Alison Pedley,</p> <p>3:05 p.m. Assessing Similarity to Support Pediatric Extrapolation—♦ Forrest Williamson, Eli Lilly</p> <p>3:20 p.m. Dealing with Issues of Pediatric Clinical Trials—♦ Aobo Wang, Merck</p> <p>3:35 p.m. Evaluation of Impacts of Concomitant Use of Acetylcholinesterase Inhibitors and Memantine on Cognitive Decline in ADNI Data—♦ Hui Zheng, AbbVie Inc.; Weining Robieson, AbbVie Inc.; Deli Wang, AbbVie; Hana Florian, AbbVie</p>
<p><b>572</b> <span style="float: right;">CC-708</span></p> <p>Sparsity and Variable Selection in Posterior Inference—Contributed</p> <p>Section on Bayesian Statistical Science</p> <p>Chair(s): Santosh Sutradhar, Merck &amp; Co., Inc.</p> <p>2:05 p.m. A Fully-Bayesian Approach to Sparse Reduced-Rank Multivariate Regression—♦ Dunfu Yang, Kansas State University; Gyuhyeong Goh, Kansas State University; Haiyan Wang, Kansas State University</p> <p>2:20 p.m. Bayesian Selection of Best Subsets in High-Dimensional Regression—♦ Shiqiang Jin, Kansas State University; Gyuhyeong Goh, Kansas State University</p> <p>2:35 p.m. A Bayesian Sparse Hierarchical Factor Model for Simultaneous Covariance Estimation—♦ Debamita Kundu, University of Louisville; Jeremy T. Gaskins, University of Louisville; Riten Mitra, University of Louisville</p>	<p><b>WEDNESDAY</b></p>

<p><b>WEDNESDAY</b></p>	<p>2:50 p.m. Bayesian Regularization of Gaussian Graphical Models with Measurement Error—♦Michael Byrd, Southern Methodist University; Linh Hoang Nghiem, Southern Methodist University; Monnie McGee, Southern Methodist University</p> <p>3:05 p.m. Spike-And-Slab Group Lassos for Grouped Regression and Sparse Generalized Additive Models—♦Ray Bai, ; Gemma Moran, University of Pennsylvania; Joseph Antonelli, University of Florida</p> <p>3:20 p.m. Revisiting High-Dimensional Bayesian Model Selection for Gaussian Regression—♦Zikun Yang, Indiana University Bloomington; Andrew Womack, Indiana University</p> <p>3:35 p.m. A Random Neighborhood Method for Bayesian Semiparametric Conditional Density Estimation—♦Nong Shang, CDC</p>	<p><b>574</b> <span style="float: right;"><b>CC-302</b></span></p> <p><b>Recent Advances in Software—Contributed Section on Statistical Computing, Text Analysis Interest Group</b></p> <p>Chair(s): Julie Bessac, Argonne National Laboratory</p> <p>2:05 p.m. ICBayes: a Package for Bayesian Semiparametric Regression Analysis of Interval-Censored Data—♦Chun Pan, Hunter College; Bo Cai, University of South Carolina; Lianming Wang, University of South Carolina; Xiaoyan Lin, University of South Carolina</p> <p>2:20 p.m. The Fundamental Instruction Set Operation Codes Support Function Library—♦Timothy Hall, PQI Consulting</p> <p>2:35 p.m. Analytical Likelihood Derivatives for State Space Forecasting Models—♦Jonathan Hosking, Amazon.com; Ramesh Natarajan, Amazon.com</p> <p>2:50 p.m. Graph Matching Algorithms Using the IGraphMatch R Package—♦Zihuan Qiao, ; Daniel L Sussman, Boston University</p> <p>3:05 p.m. Feature Level Sentiment Analysis Using SAS—♦Da Young Lee, SAS Institute Inc.; JeeHyun Hwang, SAS Institute Inc.; Xu Yang, SAS Institute Inc.</p> <p>3:20 p.m. Language Modeling Using SAS—♦JeeHyun Hwang, SAS Institute Inc.; Xu Yang, SAS Institute Inc.; Haipeng Liu, SAS Institute Inc.</p> <p>3:35 p.m. Analyzing Interval-Valued Spatial Data in the Intkrige R Package—♦Brennan Bean,</p>
	<p><b>573</b> <span style="float: right;"><b>CC-710</b></span></p> <p><b>Simulation and Stochastic Bayesian Modeling—Contributed Section on Bayesian Statistical Science</b></p> <p>Chair(s): Zhenyi Xue, AbbVie</p>	
	<p>2:05 p.m. Dirichlet Process Gaussian Process Model for Photometric Redshift—♦Arindam Fadikar, ; David Higdon, Virginia Tech; Jonas Chaves-Montero, Argonne National Lab; Salman Habib, Argonne National Lab</p> <p>2:20 p.m. Computer Model Emulation with High-Dimensional Zero-Inflated Spatial Data: An Application to Storm Surge—♦Pulong Ma, SAMSI/Duke University</p> <p>2:35 p.m. Spatio-Temporal Causal Intervention Effects for Opiate Overdose Incidents in Cincinnati, Ohio—♦Zehang Richard Li, Yale University; Forrest W Crawford, Yale School of Public Health; Joshua Warren, Yale University; Katie McConnell, Yale University; Gregg Gonsalves, Yale School of Public Health</p> <p>2:50 p.m. Bayesian Multi-Dimensional Functional Data Analysis—♦John Shamshoian, UCLA School of Public Health; Donatello Telesca, UCLA</p> <p>3:05 p.m. Posterior Model Consistency with G-Priors in High-Dimensional Regression Models—♦Min Hua, Kansas State University; Gyuhyeong Goh, Kansas State University</p> <p>3:20 p.m. Bayesian Stochastic Frontier Models for Productivity Index—♦Ehsan Soofi, Univ of Wisconsin-Milwaukee; Jessie Nouri, University of Wisconsin-Milwaukee</p> <p>3:35 p.m. Floor Discussion</p>	
	<p><b>575</b> <span style="float: right;"><b>CC-113</b></span></p> <p><b>■● Statistical Methods for Batch Effect Correction and Cell Type Deconvolution—Contributed Section on Statistics in Genomics and Genetics</b></p> <p>Chair(s): Di Wu, University of North Carolina at Chapel Hill</p>	
	<p>2:05 p.m. Assessing Reproducibility of High-Throughput Experiments in Case of Missing Data—♦Roopali Singh, ; Qunhua Li, Penn State University</p> <p>2:20 p.m. ComBat-Seq: Batch Correction Algorithm for RNA-Seq Count Data—♦Yuqing Zhang, Boston University; Giovanni Parmigiani, Dana-Farber Cancer Institute; W. Evan Johnson, Boston University</p> <p>2:35 p.m. Learning from Unobserved Covariates for Improved Classification Accuracy—♦Yujia Pan, University of Michigan; Johann A Gagnon-Bartsch, University of Michigan</p> <p>2:50 p.m. Surrogate Variable Analysis Based Deconvolution of Transcriptomics Data—♦Li Dong, University of North Carolina at Chapel Hill; Xiaojing Zheng, University of North Carolina at Chapel Hill; Fei Zou, University of North Carolina at Chapel Hill</p>	

3:05 p.m. Analysis of Longitudinal Metabolite Data with Substantial Missingness and Batch Effects—♦Evan Sticca, University of Colorado Anschutz Medical Campus; Audrey E Hendricks, University of Colorado Denver; Stephanie P Gilley, University of Colorado Anschutz Medical Campus; K Michael Hambidge, University of Colorado Anschutz Medical Campus; Nancy F Krebs, University of Colorado Anschutz Medical Campus; Sarah J Borengasser, University of Colorado Anschutz Medical Campus

3:20 p.m. An Empirical Bayes Method for Deconvolving Multi-Measure Bulk Gene Expression—♦Jiebiao Wang, Carnegie Mellon University; Bernie Devlin, University of Pittsburgh; Kathryn Roeder, Carnegie Mellon University

3:35 p.m. Determining Brain Cell-Types in the Presence of Complex Biology—♦Gregory Hunt, William & Mary; Johann A Gagnon-Bartsch, University of Michigan

## 576 CC-706

### ■ ● Brain Connectivity Studies—Contributed Section on Statistics in Imaging

Chair(s): Andrew Brown, Clemson University

2:05 p.m. A Dynamic Stochastic Block Model for Change Detection in Community Structure of Brain Networks—♦Chee-Ming Ting, KAUST; Siti Balqis Samdin, King Abdullah University of Science and Technology; Hernando Ombao, King Abdullah University of Science and Technology (KAUST)

2:20 p.m. Bayesian Joint Modeling of Multiple Brain Functional Networks—♦Joshua D. Lukemire, Emory University; Suprateek Kundu, Emory University; Giuseppe Pagnoni, University of Modena and Reggio Emilia; Ying Guo, Emory University

2:35 p.m. A Spatial-Temporal Model for Detecting the Effect of Cocaine Dependence on Brain Connectivity—♦Jifang Zhao, Virginia Commonwealth University; Montserrat Fuentes, Virginia Commonwealth University; Liangsu Ma, Virginia Commonwealth University; Frederick Moeller, Virginia Commonwealth University; Qiong Zhang, Clemson University

2:50 p.m. A Simulation-Based Comparison of Dynamic Connectivity Methods in fMRI—♦Heather Shappell, Johns Hopkins University; Brian Caffo, Johns Hopkins Bloomberg School of Public Health; James Pekar, F.M. Kirby Research Center for Functional Brain Imaging; Martin Lindquist, Johns Hopkins University

3:05 p.m. The Association Between White Matter Tracts and Executive Function in Six Year Old Children Using Robust Scale-Invariant Canonical Correlation Analysis—♦Benjamin Langworthy, University of North Carolina - Chapel Hill; Jason Fine, University of North Carolina - Chapel Hill; John Gilmore, University of North Carolina - Chapel Hill; Rebecca Stephens, University of North Carolina - Chapel Hill

3:20 p.m. Joint Analysis of Neuroimaging and Psychosocial Factors—♦Raphiel Murden, Emory Univ, Rollins School of SPH; Benjamin Risk, Emory University; Ying Guo, Emory University

3:35 p.m. Spatial and Temporal Correlation Analysis with an Application to fMRI Data—♦Jun Ke, ; Xuefei Cao, Brown University; Xi Luo, Brown University

## CC-104

### 577 Statistical Models in Ecology—Contributed Section on Statistics and the Environment

Chair(s): Jonathan Hobbs, Jet Propulsion Laboratory

2:05 p.m. A Spatial Field Decomposition Approach to Evaluate Biodiversity Indices on Dominant Scales—♦Roman Charles Flury, University of Zurich; Reinhard Furrer, University of Zurich

2:20 p.m. Identifying and Characterizing Extrapolation in Multivariate Response Data—♦Meridith Bartley, Penn State University; Ephraim Hanks, Pennsylvania State University; Tyler Wagner, Penn State University ; Erin Schliep, University of Missouri; Patricia Soranno, Michigan State University

2:35 p.m. Bayesian Hierarchical Normal Intrinsic Conditional Autoregressive Model for Stream Networks—♦Yingying Liu, Biogen; Kate Cowles, University of Iowa

2:50 p.m. A Time Series Clustering Approach for Classification of Intermittent Streams—♦Claudio Fuentes, Oregon State University; Jeffrey Mintz, Oregon State University; Xiaohui Chang, Oregon State University; James Molyneux, Oregon State University; Ivan Arismendi, Oregon State University

3:05 p.m. Integrating Spatial-Capture Recapture Models into Spatially Explicit Disease Simulations—♦Robin Russell, US Geological Survey; Daniel Walsh, US Geological Survey; Tonie Rocke, US Geological Survey; Martin Grunnill, US Geological Survey and University of Wisconsin

3:20 p.m. Uncovering Statistical Idiosyncrasies of Acoustic Bat Data—♦Kathryn Irvine, US Geological Survey; Wilson Wright, Montana State University; Katharine Banner, Montana State University; Thomas Rodhouse, National Park Service; Andrea Litt, Montana State University

3:35 p.m. Accounting for Location Uncertainty in Model-Based Distance Sampling Methods—♦Trevor Hefley, Kansas State University; Alice Boyle, Kansas State University; Narmadha Mohankumar, Kansas State University

**578**

**Bayesian Methodologies in Sports Statistics—Contributed**

**Section on Statistics in Sports, International Society for Bayesian Analysis (ISBA), Section on Bayesian Statistical Science**

Chair(s): Stephanie Kovalchik, Tennis Australia/Victoria University

2:05 p.m.	Bayesian Prediction of Metrics in Professional Sports—♦Richard Warr, Brigham Young University; Gil Fellingham, Brigham Young University
2:20 p.m.	Model Based Estimation of Baseball Batting Metrics—♦Lahiru Wickramasinghe, University of Manitoba; Alexandre Leblanc, University of Manitoba; Saman Muthukumarana, University of Manitoba
2:35 p.m.	Forecasting Seasonal Batting Outcomes via a Mixed Effects Multinomial-Logistic-Normal Model—♦Eric A. E. Gerber, Purdue University; Bruce A. Craig, Purdue University
2:50 p.m.	Probabilistic Forecasts for Chess Player Elo Ratings—♦Bradford Westgate, Alma College
3:05 p.m.	Bayesian Hierarchical Modeling of Field Goals in the NFL—♦Sudipto Banerjee, UCLA; Jay Xu, University of California, Los Angeles
3:20 p.m.	Ranking NCAA Women's Volleyball Teams Accounting for Scoring Inequities—♦Scott Grimshaw, Brigham Young University; Gil Fellingham, Brigham Young University
3:35 p.m.	A Bayesian Model for Predicting Point Differentials in Sports Using Ratios—♦Andrew Swift, University of Nebraska at Omaha; Andrew Tew, University of Nebraska at Omaha

**579**

**CC-702 Sampling, Variance Estimation, and Advancements**

**with Auxiliary Data—Contributed**

**Survey Research Methods Section**

Chair(s): Maria Cuellar, University of Pennsylvania

2:05 p.m.	Primary Sampling Unit Matching for Variance Estimation in Stratified Two-Stage Sampling—♦Khoa Dong, U.S. Census Bureau; Timothy Trudell, ; Yang Cheng, U.S. Census Bureau; Eric Slud, U.S. Census Bureau
2:20 p.m.	Alternative Optimization Techniques for Sample Allocation in Surveys with National and Sub-National Precision Requirements—♦Thomas John Chesnut, U.S. Census Bureau; Shawn Baker, U.S. Census Bureau
2:35 p.m.	TRUMP: Tuned Regression Unbiased Mean Predictor—♦Sarjinder Singh, Texas A&M University-Kingsville; Stephen Sedory, Texas A&M University-Kingsville

**CC-502**

2:50 p.m.

Generalized Variance Functions for Longitudinal Survey Data—♦Yan Lu, University of New Mexico; Guoyi Zhang, University of New Mexico; Yang Cheng, US Census Bureau

3:05 p.m.

Benefit of Probability-Proportional-To-Size Sampling in Cluster Randomized Experiments—♦Yeng Xiong, ; Michael Higgins, Kansas State University

3:20 p.m.

New Methodology of Calibration in Stratified Random Sampling—♦Shameem Alam, ; Sarjinder Singh, Texas A & M University-Kingsville; Javid Shabbir, Quaid-e-Azam University Islamabad

3:35 p.m.

Assessing the Utility of 2015 Medicare Advantage Encounter Data to Improve MCBS Estimates—♦Holly Hagerty, NORC at the University of Chicago; Nicholas Davis, NORC at the University of Chicago; Michael Trierweiler, NORC at the University of Chicago

**580**

**CC-707 Methodological Developments and Implications for Social Scientists—Contributed**

**Social Statistics Section**

Chair(s): Anthony G. Tersine, U.S. Census Bureau

2:05 p.m.

Did You Conduct a Sensitivity Analysis? a New Weighting-Based Approach for Evaluations of the Average Treatment Effect for the Treated—♦Guanglei Hong, University of Chicago; Fan Yang, University of Colorado Denver; Xu Qin, University of Pittsburgh

2:20 p.m.

The P-LOOP Estimator: Covariate Adjustment in Paired Experiments—♦Edward Wu, University of Michigan; Johann A Gagnon-Bartsch, University of Michigan

2:35 p.m.

Covariate Selection in Small Randomized Studies—♦David Judkins, Abt Associates, Inc.

2:50 p.m.

LOWERING the CRAMER-RAO LOWER BOUND of VARIANCE in RANDOMIZED RESPONSE SAMPLING—♦Tonghui Xu, Texas A&M University-Kingsville; Stephen Sedory, Texas A & M University-Kingsville; Sarjinder Singh, Texas A&M University-Kingsville

3:05 p.m.

Sensitivity Analysis for Causal Mediation Analysis in the Presence of Unmeasured Pretreatment Confounding—♦Xu Qin, University of Pittsburgh; Fan Yang, University of Colorado Denver

3:20 p.m.

A Review and Update of the Two-Decks of Cards Method in Randomized Response Sampling—♦Augustus Jayaraj, Cornell University; Oluseun Odumade, Deloitte & Touche LLP; Sarjinder Singh, Texas A&M University-Kingsville

3:35 p.m.

Causal Mediation Analysis Under Partial Compliance in Randomized Trials—♦Fan Yang, University of Colorado Denver; Guanglei Hong, University of Chicago

**581****CC-701****Advancement in Theoretical and Applied Aspects of Modeling—Contributed**

Government Statistics Section, Section on Statistics and the Environment, Section on Statistics in Epidemiology

Chair(s): Anne Parker, Internal Revenue Service

2:05 p.m. Zero-Inflated Count Time Series Models Using Gaussian Copula—♦ Mohammed Alqawba, ; Norou Diawara, Old Dominion University; Rao Chaganty, Old Dominion University

2:20 p.m. Revisiting the Linear Models with Exchangeably Distributed Errors—♦ Anuradha Roy, The University of Texas at San Antonio; Timothy Opheim, The University of Texas at San Antonio

2:35 p.m. Tolerance Limits Under Poisson Regression Models—♦ Zachary Zimmer,

2:50 p.m. A Generalized Z Score for Both Symmetric and Asymmetric Distribution—♦ Mian Adnan, Indiana University

3:05 p.m. Time Series for Boolean Random Sets—♦ Kofi Wagya, University of Northern Colorado; Khalil Shafie, University of Northern Colorado

3:20 p.m. Sample Splitting as an M-Estimator—♦ Eli Kravitz, Texas A&M Statistics; Raymond J. Carroll, Texas A & M University; David Ruppert, Cornell Department of Statistics and Operations Research

3:35 p.m. Probability of Flaw Detection for Quasi-Separated Data—♦ Christine Henry, Air Force Institute of Technology; Christine Schubert Kabban, Air Force Institute of Technology

**582****CC-712****Nonparametric Methods for Statistical Inference—Contributed**

Section on Nonparametric Statistics

Chair(s): Jiae Kim, The Ohio State University

2:05 p.m. Non-Parametric Test and Similarity Measure for Matching Bullets—♦ Ganesh Krishnan, Center for Statistics and Applications in Forensic Evidence (CSAFE) and Iowa State University; Heike Hofmann, Iowa State University

2:20 p.m. Improved Exact Confidence Intervals for a Proportion Using Ranked-Set Sampling—♦ Yimin Zhang, Villanova University; Jesse Frey, Villanova University

2:35 p.m. Maximum Approximate Bernstein Likelihood Estimation in Proportional Hazard Model for Interval-Censored Data—♦ Zhong Guan, Indiana University South Bend

2:50 p.m.

Proxy Variables to Common Factors and Parameter Estimation in Factor Copula Models—♦ Pavel Krupskiy, University of Melbourne; Harry Joe, University of British Columbia

3:05 p.m.

A Study of Performances of Some Algorithms for Multivariate Data—♦ Jin Wang, Northern Arizona University

3:20 p.m.

A Generalized Additive Cox Model with L1-Penalty for Heart Failure Time-To-Event Outcomes and Comparison to Other Machine Learning Approaches—♦ Matthias Kormaksson,

3:35 p.m.

Estimation of an Improved Surrogate Model in Uncertainty Quantification by Neural Networks—♦ Sebastian Kersting, TU Darmstadt; Michael Kohler, Technische Universitaet Darmstadt; Benedict Gtz, TU Darmstadt

**Invited Sessions 4:00 p.m.—5:50 p.m.****583****CC-Four Seasons 2-4****COPSS Awards and Fisher Lecture—Invited**

Committee of Presidents of Statistical Societies, JSM Partner Societies

Chair(s): Huixia Judy Wang, The George Washington University

4:05 p.m. An Observational Study Used to Illustrate Methodology for Such Studies—♦ Paul Rosenbaum, University of Pennsylvania

5:30 p.m.

Floor Discussion.

# THURSDAY AUG. 1

## Invited Sessions 8:30 a.m.—10:20 a.m.

### 584 CC-505

#### ● Empirical Processes: Theory and Applications—Invited

##### IMS, Section on Nonparametric Statistics

Organizer(s): Jon A. Wellner, University of Washington

Chair(s): Jon A. Wellner, University of Washington

8:35 a.m. Limit Distribution Theory for Multiple Isotonic Regression—♦ Qiyang Han, Rutgers University; Cun-Hui Zhang, Rutgers University

9:05 a.m. Jackknife Multiplier Bootstrap: Finite Sample Approximations to the U-Process Supremum with Applications—♦ Kengo Kato, Cornell University; Xiaohui Chen, University of Illinois at Urbana-Champaign

9:35 a.m. On Nonhomogeneous Random Matrices—♦ Ramon van Handel, Princeton University

10:05 a.m. Floor Discussion

### 585 CC-102

#### ■ ● Exploiting Latent Structure for Network Inference—Invited

##### Section on Statistical Computing, Section on Statistical Learning and Data Science, Section on Bayesian Statistical Science

Organizer(s): Avanti Athreya, Johns Hopkins University

Chair(s): Minh Tang, Johns Hopkins University

8:35 a.m. Leveraging Exchangeability Assumptions to Make Inference in Regression with Network Outcomes—♦ Bailey Fosdick, Colorado State University

9:00 a.m. Overlapping Clustering Models, and One (Class) SVM to Bind Them All.—♦ Purnamrita Sarkar, University of Texas, Austin

9:25 a.m. 'Statistics 101' for Network Data Objects—♦ Eric Kolaczyk, Boston University

9:50 a.m. Consistency in Vertex Nomination—♦ Vince Lyzinski, University of Massachusetts Amherst

10:15 a.m. Floor Discussion

THURSDAY

### 586

### CC-106

#### Frontiers of Multivariate Spatial Methodology—Invited Section on Statistics and the Environment

Organizer(s): Matthew Heaton, Brigham Young University

Chair(s): Matthew Heaton, Brigham Young University

8:35 a.m. Bayesian Models for Count-Valued Spatio-Temporal Data That Are Correlated with Continuous-Valued Spatio-Temporal Data—♦ Jonathan R. Bradley, Florida State University

9:00 a.m. Multivariate Analysis of High-Dimensional Non-Negative Responses Over Large Spatial Domains Using NNGPs—♦ Daniel Taylor-Rodriguez, Portland State University; Andrew Finley, Michigan State University

9:25 a.m. Modeling Non-Stationary Multivariate Spatial Data Using Deep Compositional Spatial Models—♦ Andrew Zammit-Mangion, University of Wollongong

9:50 a.m. Pushing the Limits of Multivariate Spatial Models: How Many Is Too Many?—♦ William Kleiber, University of Colorado; Mitchell Krock, University of Colorado at Boulder; Dorit Hammerling, National Center for Atmospheric Research

10:15 a.m. Floor Discussion

### 587

### CC-506

#### ■ ● Post-Selection Inference—Invited

##### IMS

Organizer(s): Robert Tibshirani, Stanford University

Chair(s): Robert Tibshirani, Stanford University

8:35 a.m. Selective Inference, Epistemology and Higher-Order Asymptotics—♦ Todd Kuffner, Washington University

9:05 a.m. Inference After Black Box Selection—♦ Jelena Markovic, Stanford University

9:35 a.m. Be Careful What You Ask For: How to Ask Statistically "Cheap" (But Useful) Questions for Your Data—♦ Keli Liu, Stanford University

10:05 a.m. Floor Discussion

### 588

### CC-203

#### ● Statistical Analysis of Tensor Data—Invited

##### Section on Nonparametric Statistics, ENAR, Section on Statistical Learning and Data Science

Organizer(s): Xin Zhang, Florida State University

Chair(s): Bing Li, The Pennsylvania State University

8:35 a.m.	Statistical Analysis of Spiked Tensor Models—♦Qing Yang, Purdue University; Xiao Han, Marshall school of business, University of Southern California; Guang Cheng, Purdue Statistics
8:55 a.m.	ISLET: Fast and Optimal Low-Rank Tensor Regression via Importance Sketching—♦Anru Zhang, University of Wisconsin-Madison; Yuetian Luo, University of Wisconsin-Madison; Garvesh Raskutti, University of Wisconsin-Madison; Ming Yuan, Columbia University
9:15 a.m.	Getting Multiway Arrays in Order with Co-Manifold Learning—♦Eric Chi, North Carolina State University; Gal Mishne, Yale University; Ronald Coifman, Yale University
9:35 a.m.	Covariate-Adjusted Tensor Classification in High Dimensions—♦Qing Mai, Florida State University
9:55 a.m.	Model-Based Clustering of Tensor Data—♦Xin Zhang, Florida State University
10:15 a.m.	Floor Discussion

<b>589</b>	<b>CC-207</b>
<b>● Learning from the Past -a History of Censuses—Invited</b>	
Government Statistics Section, History of Statistics Interest Group, Committee on Professional Ethics	
Organizer(s): Wendy L Martinez, Bureau of Labor Statistics	
8:35 a.m.	Who Writes Census History, and Why?—♦Margo Anderson, University of Wisconsin - Milwaukee
9:05 a.m.	Evolution of the US Census: Politics, Society, Opportunity, and Innovation—♦Howard Hogan, U. S. Census Bureau
9:35 a.m.	The Role of German Census Taking in the Holocaust: Facts, Obscurities, Legacy—♦Hans Kiesl, OTH Regensburg
10:05 a.m.	Floor Discussion

<b>590</b>	<b>CC-205</b>
<b>■ ● Better Deciding Through Discretizing: The State of the Art in Uncertainty Visualization—Invited</b>	
Section on Statistical Graphics, Section on Statistics and Data Science Education, Journal of Statistics Education	
Organizer(s): Jessica R Hullman, Northwestern University	
8:35 a.m.	Uncertainty Displays for Helping Engineers Make Better Decisions—♦Mike Kirby, University of Utah Scientific Visualization
9:05 a.m.	Uncertainty Displays for Helping Laypeople Make Better Decisions—♦Matthew Kay, University of Michigan

9:35 a.m.	Cognitive Sources of Reasoning Errors with Uncertainty Visualization—♦Lace R Padilla, Northwestern University
10:05 a.m.	Floor Discussion
<b>591</b>	<b>CC-502</b>
<b>● Recent Advances in the Bayesian Modeling of Large Scale Neuroimaging Data for Brain Activation and Connectivity—Invited</b>	
Section on Bayesian Statistical Science, Section on Statistics in Imaging, Section on Statistical Learning and Data Science	
Organizer(s): Rajarshi Guhaniyogi, University of California, SC	
Chair(s): Donatello Telesca, UCLA	
8:35 a.m.	Multi-Scale Factor Analysis of High-Dimensional Connectivity in Brain Networks—♦Hernando Ombao, King Abdullah University of Science and Technology (KAUST); Chee-Ming Ting, KAUST
9:00 a.m.	Bayesian Approaches for Dynamic Brain Connectivity—♦Michele Guindani, University of California, Irvine; Marina Vannucci, Rice University; Erik Erhardt, University of New Mexico
9:25 a.m.	Bayesian Supervised Tensor Modeling for Large Scale Imaging Data—♦Rajarshi Guhaniyogi, University of California, SC
9:50 a.m.	On the Bayesian Spatial Analysis of Brain Activation in fMRI—♦John Kornak, University of California, San Francisco
10:15 a.m.	Floor Discussion
<b>592</b>	<b>CC-702</b>
<b>■ ● Evaluating Impact in Networks: Causal Inference with Interference—Invited</b>	
Biometrics Section, Section on Statistics in Epidemiology, ENAR	
Organizer(s): Michael Hudgens, University of North Carolina at Chapel Hill	
Chair(s): Michael Hudgens, University of North Carolina at Chapel Hill	
8:35 a.m.	Individualistic Effects in Randomized Trials Under Contagion—♦Olga Morozova, Yale School of Public Health; Daniel Eck, Yale School of Public Health; Forrest W Crawford, Yale School of Public Health
8:55 a.m.	Matching Methods for Networked Causal Inference—♦Alexander Volfovsky, Duke University
9:15 a.m.	Causal Inference with Misspecified Exposure Mappings—♦Fredrik Sölvjöe, Yale University
9:35 a.m.	Auto-G-Computation of Causal Effects on a Network—♦Eric Tchetgen Tchetgen, University of Pennsylvania

9:55 a.m.	Disc: Dean Eckles, MIT	9:25 a.m.	Unified Multivariate Longitudinal Analysis Using Dynamic Copula Models—Wei Zhang, Eunice Kennedy Shriver National Institute of Child Health and Human Development, NIH; ♦Colin O. Wu, National Heart, Lung and Blood Institute, National Institutes of Health; Xin Tian, National Heart, Lung and Blood Institute, National Institutes of Health; Qizhai Li, Academy of Mathematics and Systems Science, Chinese Academy of Science
10:15 a.m.	Floor Discussion	9:50 a.m.	Longitudinal Predictive Risk Modeling—♦Seonjin Kim, Miami University; Hyunkeun Cho, University of Iowa, College of Public Health; Mi-Ok Kim, University of California San Francisco; Zhuangzhuang Liu, University of Iowa
		10:15 a.m.	Floor Discussion
<b>593</b>	<b>CC-712</b>		
<b>■● Statistical Challenges and New Developments in Genomics—Invited</b>			
Section on Statistics in Genomics and Genetics, Biometrics Section, ENAR			
Organizer(s): Nancy Zhang, University of Pennsylvania			
Chair(s): Nancy Zhang, University of Pennsylvania			
8:35 a.m.	Evaluation of Cell Clustering in Single Cell Data—♦Zhijin Wu, Brown University		
9:00 a.m.	Removing Unwanted Variation Reveals the Impact of Genetic Variation on 3D Genome Structure—♦Kasper Daniel Hansen, Johns Hopkins University		
9:25 a.m.	Transfer Learning in Single Cell Transcriptomics—Nancy Zhang, University of Pennsylvania; Divyansh Agarwal, University of Pennsylvania; Zilu Zhou, University of Pennsylvania; Mo Huang, University of Pennsylvania; Gang Hu, Nankai University; Chengzhong Ye, Tsinghua University; ♦Jingshu Wang, The University of Chicago		
9:50 a.m.	GeneFishing: a Computational Method to Reconstruct Comprehensive Context-Specific Portraits of Biological Processes and Its Application to Cholesterol Metabolism—♦Haiyan Huang, University of California, Berkeley		
10:15 a.m.	Floor Discussion		
<b>594</b>	<b>CC-708</b>		
<b>■● Recent Advances in Statistical Modeling for Multivariate/Correlated/Time-Varying Longitudinal Data—Invited</b>			
WNAR, Korean International Statistical Society			
Organizer(s): Byung S Park, Oregon Health & Science University			
Chair(s): Byung S Park, Oregon Health & Science University			
8:35 a.m.	Quantile Regression Based Methods for Characterizing Highly Correlated Behavioral Data in Relation to Longitudinal Biomarkers with Censored Values—♦MinJae Lee, University of Texas McGovern Medical School; Michelle Vidoni, Univ. of Texas Health Science Center at Houston; Belinda Reininger, Univ. of Texas School of Public Health		
9:00 a.m.	Statistical Inference in a Growth Curve Quantile Regression Model—♦Hyunkeun Cho, University of Iowa, College of Public Health		
<b>595</b>	<b>CC-107</b>		
<b>■● Global Estimates of Morbidity and Mortality—Invited</b>			
Health Policy Statistics Section, Section on Statistics in Epidemiology, Biometrics Section			
Organizer(s): Laura A Hatfield, Harvard Medical School			
Chair(s): Laura A Hatfield, Harvard Medical School			
8:35 a.m.	A Retrospective Control Study of the Millennium Villages Project—♦Shira Mitchell, NYC Mayor's Office of Data Analytics		
9:00 a.m.	Monitoring Maternal Mortality by the United Nations (UN MMEIG): Improved Estimates of Levels, Trends and Reporting Errors Through Bayesian Multilevel Temporal Regression Modeling—♦Leontine Alkema, University of Massachusetts Amherst; Emily Peterson, University of Massachusetts Amherst; Doris Chou, World Health Organization; Ann Beth Moller, World Health Organization; Lale Say, World Health Organization		
9:25 a.m.	All-Cause and Cause-Specific Mortality Estimation in the Global Burden of Disease Study: a Systematic Approach to Deal with Sparse and Biased Empirical Data—♦Haidong Wang, University of Washington		
9:50 a.m.	Making Inference in Global Health When There Is Limited (Or No) Data—♦Bethany Hedt-Gauthier, Harvard Medical School		
10:15 a.m.	Floor Discussion		
<b>596</b>	<b>CC-605</b>		
<b>■● Statistical and Mathematical Methods in Cancer Etiology and Cancer Early Detection—Invited</b>			
ENAR, Section on Statistics in Genomics and Genetics, Section on Medical Devices and Diagnostics			
Organizer(s): Cristian Tomasetti, Johns Hopkins University			
Chair(s): Cristian Tomasetti, Johns Hopkins University			

8:35 a.m.	Statistical Methods Behind the CancerSEEK Blood Test and the DYNAMICS Study—♦Kamel Lahouel, Johns Hopkins University
9:05 a.m.	Statistical and Mathematical Approaches to Cancer Etiology—Cristian Tomasetti, Johns Hopkins University; ♦Lu Li, Johns Hopkins University
9:35 a.m.	Mutational Signatures and Cancer Etiology—♦Bahman Afshari, Johns Hopkins University
10:05 a.m.	Floor Discussion

**Invited Panels 8:30 a.m.—10:20 a.m.**

<b>597</b>	<b>CC-503</b>
■ ● Vision 2020: Making Impact with Statistics in the Era of Data Science—Invited	
Committee of Presidents of Statistical Societies, ENAR, Section on Statistical Learning and Data Science	
Organizer(s): Huixia Judy Wang, The George Washington University	
Chair(s): Bhramar Mukherjee, University of Michigan	
Panelists:	♦Jeffrey Leek, Johns Hopkins Bloomberg School of Public Health ♦Xiao-Li Meng, Harvard University ♦John Quackenbush, Harvard University ♦Rachel Schutt, BlackRock ♦Hadley Wickham, RStudio ♦Tian Zheng, Columbia University
10:15 a.m.	Floor Discussion

**Topic Contributed Sessions 8:30 a.m.—10:20 a.m.**

<b>598</b>	<b>CC-113</b>
■ ● Statistical Learning with Unconventional Missing Data—Topic Contributed	
International Chinese Statistical Association, Section on Statistical Learning and Data Science, IMS	
Organizer(s): Gen Li, Columbia University	
Chair(s): Jiayi Ji, Icahn School of Medicine at Mount Sinai	
8:35 a.m.	Generalized Integrative Principal Component Analysis for Multi-Type Data with Block-Wise Missing Structure—♦Gen Li, Columbia University; Eric Lock, University of Minnesota; Huichen Zhu, Columbia University

8:55 a.m.	How Not to Estimate the Nonignorable Missingness Mechanism—♦Jiwei Zhao, State University of New York At Buffalo
9:15 a.m.	Optimal Sparse Linear Prediction for Block-Missing Multi-Modality Data Without Imputation—♦Guan Yu, The State University of New York at Buffalo
9:35 a.m.	Using Multivariate Mixed-Effects Selection Models for Analyzing Batch-Processed Proteomics Data with Non-Ignorable Missingness—♦Lin Chen, University of Chicago; Jiebiao Wang, Carnegie Mellon University; Pei Wang, Icahn School of Medicine at Mount Sinai; Donald Hedeker, University of Chicago
9:55 a.m.	Floor Discussion

<b>599</b>	<b>CC-507</b>
● Resampling Methods for High-Dimensional Inference—Topic Contributed	
IMS, Section on Nonparametric Statistics, International Indian Statistical Association	
Organizer(s): Miles Lopes, UC Davis	
Chair(s): Panagiotis Toulis, University of Chicago Booth School of Business	
8:35 a.m.	Higher Order Asymptotic Properties of the Bootstrap in Post Model Selection Inference in High Dimensions—♦Soumendra N Lahiri, North Carolina State University
8:55 a.m.	One-Way Functional ANOVA via Basis Expansion and Bootstrapping—♦Zhenhua Lin, University of California, Davis; Miles Lopes, UC Davis; Hans Mueller, UC Davis
9:15 a.m.	New Non-Asymptotic Results About Accuracy of Bootstrapping Procedures in Multivariate Setting—♦Mayya Zhilova, Georgia Institute of Technology
9:35 a.m.	Finite Sample Unbiasedness in High Dimensions via the Iterative Bootstrap—♦Stephane Guerrier, University of Geneva
9:55 a.m.	Floor Discussion

<b>600</b>	<b>CC-111</b>
● Less Can Be More: Smart Sampling in Data and Engineering Sciences—Topic Contributed	
Section on Physical and Engineering Sciences, Quality and Productivity Section, Section on Statistical Learning and Data Science	
Organizer(s): Xinwei Deng, Virginia Tech; C. Devon Lin, Queen's University	
Chair(s): Xinwei Deng, Virginia Tech	

8:35 a.m.	Replication or Exploration? Sequential Design for Stochastic Simulation Experiments—♦Robert Gramacy, Virginia Tech; Mickael Binois, Argonne National Laboratory; Jiangeng Huang, Virginia Tech; Mike Ludkovsku, UC Santa Barbara
8:55 a.m.	Choosing the Best Partition for the Output from a Large-Scale Simulation—♦Emily Casleton, Los Alamos National Laboratory; Chelsea Challacombe, University of California-San Diego; Jonathan Woodring, Los Alamos National Laboratory
9:15 a.m.	Support Points: An Optimal and Model-Free Method for Subsampling Big Data—♦Roshan Vengazhiyil, Georgia Institute of Technology; Simon Mak, Georgia Institute of Technology
9:35 a.m.	Varying Coefficient Frailty Models with Applications in Single Molecular Experiments—♦Jiazhao Zhang, Rutgers University; Ying Hung, Rutgers University; Tirthankar Dasgupta, Rutgers University
9:55 a.m.	Meta-Modeling for ICU Contamination Transmission Simulations: Using Smart Sampling and Machine Learning to Link Data to Simulation Parameters—♦Ben Haaland, University of Utah; Damon Toth, University of Utah; Molly Leecaster, University of Utah
10:15 a.m.	Floor Discussion

601	CC-705
■ Recent Advances in Variable Selection for Linear and Nonlinear Models—Topic Contributed	
Biometrics Section, Section on Statistical Learning and Data Science, IMS	
Organizer(s): Marinela Capanu, Memorial Sloan Kettering Cancer Center	

Chair(s): Colin Begg, Memorial Sloan Kettering Cancer Center

8:35 a.m.	Optimized Variable Selection via Repeated Data Splitting—♦Marinela Capanu, Memorial Sloan Kettering Cancer Center; Colin Begg, Memorial Sloan Kettering Cancer Center; Mithat Gonen, Memorial Sloan Kettering Cancer Center
8:55 a.m.	Thresholding Least-Squares for High-Dimensional Regression Models—♦Mihai Giurcanu,
9:15 a.m.	Metropolized Knockoff Sampling—♦Stephen Bates, Stanford; Emmanuel Candes, Stanford University; Lucas Janson, Harvard University; Wenshuo Wang, Harvard University
9:35 a.m.	Nonuniformity of P-Values Can Occur Early in Diverging Dimensions—♦Emre Demirkaya, University of Southern California
9:55 a.m.	Model Selection Bias Invalidates Goodness of Fit Tests—♦Joshua Loftus, New York University
10:15 a.m.	Floor Discussion

602	CC-201
■ ● Game Analytics: How Data Science Transforms the Game Industry—Topic Contributed	
Section on Statistical Learning and Data Science, Section on Statistics in Marketing, Committee on Applied Statisticians, Business Analytics/Statistics Education Interest Group	
Organizer(s): Qiaolin Chen, Tencent	
Chair(s): Dong Xi, Novartis	
8:35 a.m.	Machine Learning and Big Data Analytics at Tencent Games—♦Qiaolin Chen, ; Xu Cheng, Tencent; Jiachun Du, Tencent; Botao Li, Tencent; Zeng Zhao, Tencent
8:55 a.m.	Combining Advanced Statistics and Machine Learning to Improve Games at Ubisoft—Antoine Rebecq, ; ♦Jean-Michel Daignan, Ubisoft
9:15 a.m.	Product Diffusion on a Dynamic Matching Platform: The Case of a MMOG—♦Chenyu Yang, University of Rochester
9:35 a.m.	Online Skill Rating Algorithms—♦Nicolas Grenon-Godbout, ; Jonathan Dumas , Ubisoft; Simon Fontaine, Ubisoft; Gabrielle Rit, Ubisoft; Timothy Park, Ubisoft
9:55 a.m.	Disc: Xiaoyang Yang, Riot Games
10:15 a.m.	Floor Discussion

603	CC-210/212
● New Development on Statistics in Imaging—Topic Contributed	
Section on Statistics in Imaging	
Organizer(s): Linglong Kong, University of Alberta	
Chair(s): Mihye Ahn, University of Nevada, Reno	
8:35 a.m.	High-Dimensional Robust Scalar-On-Image Regression via Thresholding Function and Nonconvex Learning—♦Bingyuan Liu, Pennsylvania State University; Qi Zhang, Nankai University; Lingzhou Xue, Pennsylvania State University; Jian Kang, University of Michigan; Peter X.K. Song , School of Public Health, University of Michigan
8:55 a.m.	Semiparametric Modeling of Time-Varying Activation and Connectivity in Task-Based fMRI Data—♦Jun Young Park, University of Minnesota; Joerg Polzehl, Weierstrass Institute for Applied Analysis and Stochastics; Snigdhansu Chatterjee, University of Minnesota; AndréBrezhmann, Leibniz-Institute for Neurobiology; Mark Fiecas, Univ Minnesota
9:15 a.m.	Multivariate Spline Estimation and Inference for Varying Coefficient Models with Imaging Data—♦Shan Yu, Iowa State University; Guannan Wang, College of William and Mary; Li Wang, Iowa State University; Lijian Yang, Tsinghua University
9:35 a.m.	Correlation Tensor Decomposition and Its Application in Spatial Imaging Data—♦Yujia Deng, University of Illinois Urbana and Champaign; Xiwei Tang, University of Virginia; Annie Qu, University of Illinois at Urbana-Champaign

9:55 a.m. Disc: Yize Zhao, Weill Cornell Medical College  
10:15 a.m. Floor Discussion

**604 CC-112**

**■ ● Bayesian Inference in Discrete Choice Analysis of Consumer Behavior—Topic Contributed**

Business and Economic Statistics Section, Section on Bayesian Statistical Science, Section on Statistics in Marketing

Organizer(s): Kali Chowdhury, University of California, Irvine

Chair(s): Imran Currim, University of California, Irvine

8:35 a.m. Flexible Functional Specification in Hierarchical Bayesian Estimation of Discrete Choices—♦Kali Chowdhury, University of California, Irvine  
8:55 a.m. A Flexible Method for Demand Forecasting with Structural Decomposition—♦Mingyu Joo, UC Riverside; Chul Kim, Baruch College (CUNY); Dongsoo Kim, Ohio State University  
9:15 a.m. A Model for Built Environment Effects on Mode Usages—♦Kai Yoshioka, University of California, Irvine; Tomomi Miyazaki, Kobe University  
9:35 a.m. Disc: Cheryl Hild, Lincoln Memorial University  
9:55 a.m. Floor Discussion

**605 CC-603**

**■ ● Innovations in Use of Historical Control Data in Clinical Trials—Topic Contributed**

Biopharmaceutical Section, Section on Medical Devices and Diagnostics, Biometrics Section, Section on Statistical Consulting, Statistics and Pharmacometrics Interest Group

Organizer(s): Steven Schwager, Cornell University

Chair(s): Steven Schwager, Cornell University

8:35 a.m. Exploring External Controls Using Prior Clinical Trial Data—♦Pallavi Mishra-Kalyani, US Food and Drug Administration  
8:55 a.m. Composite Likelihood Approach for Incorporating the Entropy Balance Weighting of Real World Data (RWD) in Uncontrolled and Randomized-Controlled Trials (RCTs)—♦Guanglei Yu, Eli Lilly and Company; Margaret Gamalo-Siebers, Eli Lilly  
9:15 a.m. Incorporation of Historical Information in Pediatric Trials—♦James Travis, FDA  
9:35 a.m. Real World Data for Oncology Drug Development: Promise and Pitfalls—♦Catherine Tuglus, Amgen; Qui Tran, Amgen; Chris Holland, Immunocore

9:55 a.m. Strengthening Clinical Trials Through Synthetic Control Arms—♦Antara Majumdar, Medidata Solutions; Ruthie Davi, Medidata Solutions; Steven Schwager, Medidata Solutions  
10:15 a.m. Floor Discussion

**606 CC-301**

**■ Address-Based Frame Enhancement: Recent Experience and Developments—Topic Contributed**  
Survey Research Methods Section

Organizer(s): Michael Jones, Westat

Chair(s): Rachel Harter, RTI International

8:35 a.m. A Review of the Address Coverage Enhancement Scheme for In-Person Household Surveys—♦Michael Jones, Westat; Sylvia M Dohrmann, Westat; Graham Kalton, Westat

8:55 a.m. Evaluation of Dwelling Unit Frame Coverage Enhancement: Case Study of the 2017 PIAAC Survey—♦Wendy Van de Kerckhove, Westat; Tom Krenzke, Westat; Leyla Mohadjer, Westat; Weijia Ren, Westat

9:15 a.m. Enhanced Listing for Improving Address Frame Coverage: a Review—♦Ned English, NORC at the University of Chicago; Colm O'Muircheartaigh, NORC at the University of Chicago; Katie Archambeau, NORC at the University of Chicago

9:35 a.m. Developing and Evaluating a New Metric for Address-Based Sampling Frame Quality Assessment—♦Stephanie Zimmer, RTI International; Ashely Amaya, RTI International

11:55 a.m. Disc: Jay Breidt, Colorado State University

10:15 a.m. Floor Discussion

**607 CC-607**

**Effective Application of Modeling, Simulation and Knowledge Sharing in Drug Development—Topic Contributed**

Statistics and Pharmacometrics Interest Group

Organizer(s): Stacey Tannenbaum, Astellas; Mike Smith, Pfizer

Chair(s): Bret Musser, Regeneron

8:35 a.m. Integration of Pharmacometrics and Statistics to Support Study Design Optimization—♦Michael Heathman, Metrum Research Group

8:55 a.m. Meta-Data and Software for Bayesian Emax Dose Response Models—♦Neal Thomas, Pfizer

9:15 a.m.	Adaptive Borrowing of Adult Data for Pediatric Trials: Collaborative Research at the Intersection of Pharmacometrics and Statistics—♦Chyi-Hung Hsu, Janssen, R&D
9:35 a.m.	Trial Simulations to Support Proof of Concept Study Design: Application to Immunology—♦John Gibbs, AbbVie
9:55 a.m.	Disc: Gary Rosner, Johns Hopkins University
10:15 a.m.	Floor Discussion

## Topic Contributed Panels 8:30 a.m.—10:20 a.m.

608	CC-704
<b>Patient-Focused Clinical Trials: Challenges and Considerations for Trial Design, Endpoints, and Analysis—Topic Contributed</b>	
Biopharmaceutical Section, Health Policy Statistics Section	
Organizer(s): Jessica Roydhouse, US Food and Drug Administration; Pallavi Mishra-Kalyani, US Food and Drug Administration	
Chair(s): Jessica Roydhouse, US Food and Drug Administration	
Panelists:	♦ Melanie Bell, University of Arizona ♦ Mallorie H Fiero, US Food and Drug Administration ♦ Stacie Hudgens, Clinical Outcomes Solutions ♦ Stephanie Manson, Novartis Oncology
10:10 a.m.	Floor Discussion

## Contributed Sessions 8:30 a.m.—10:20 a.m.

609	CC-703
<b>● New Approaches to Improving Accuracy, Precision, and Robustness of Survival Analysis—Contributed</b>	
Biometrics Section	
Chair(s): Yimei Li, University of Pennsylvania	
8:35 a.m. On Objective Biomarker Development for Regression Calibration—♦Cheng Zheng, University of Wisconsin at Milwaukee; Yiwen Zhang, University of Wisconsin-Milwaukee; Ying Huang, Fred Hutchinson Cancer Research Center; Ross L. Prentice, Fred Hutchinson Cancer Research Center	
8:50 a.m. Efficient Estimation of a Hazard-Based Partial Sufficient Dimension Reduction Model for Right-Censored Data—♦Ming-Yueh Huang, Academia Sinica	
9:05 a.m. Predicting Events from Longitudinal Data: The Imputed Cox Model—♦James Troendle, National Institutes of Health; Eric Leifer, National Heart, Lung and Blood	

9:20 a.m.	Institute; Xin Tian, National Heart, Lung and Blood Institute, National Institutes of Health
9:35 a.m.	Joint Testing of Overall and Simple Effects for the 2-By-2 Factorial Trial Design—♦Eric Leifer, National Heart, Lung and Blood Institute; James Troendle, National Institutes of Health; Alexis Kolecki, National Heart, Lung, and Blood Institute; Dean Follmann, National Institute of Allergy and Infectious Diseases
9:50 a.m.	A Machine Learning Approach to Multivariate Frailty Models—♦Jing Wang, The University of Texas at Arlington
10:05 a.m.	Semiparametric Model for Bivariate Survival Data Subject to Biased Sampling—♦Jin Piao, University of Southern California; Jing Ning, The University of Texas MD Anderson Cancer Center; Yu Shen, The University of Texas MD Anderson Cancer Center
	Misspecification of Covariate Functional Form in the Nested Case-Control Design—♦Michelle M. Nuñez, University of California, Irvine; Daniel L. Gillen, University of California, Irvine

610	CC-706
<b>Power, Sample Size, and Applications to Time-To-Event—Contributed</b>	
Biopharmaceutical Section	
Chair(s): Wenting Cheng, Biogen	
8:35 a.m. Sample Size Calculations for Comparing Two Groups of Count Data—♦Chunpeng Fan, Sanofi US Inc; Lin Wang, Sanofi US Inc.	
8:50 a.m. Joint Modeling of Longitudinal and Time-To-Event Data with Application to Multiple Myeloma—♦Liangcai Zhang, Johnson & Johnson; Hong Tian, Janssen Pharmaceutical	
9:05 a.m. A Unified Approach to Sample Size Determination for Common Nonlinear Regression Models—♦Michael J. Martens, The Emes Corporation; Brent R. Logan, Medical College of Wisconsin	
9:20 a.m. Prediction of Number of Events Based on Blinded or Partially Blinded Survival Data—♦Youyi Shu, Janssen R&D	
9:35 a.m. Analysis of Covariance (ANCOVA) in Randomized Trials: More Precision and Valid Confidence Intervals, Without Model Assumptions—♦Bingkai Wang, Johns Hopkins Bloomberg School of Public Health; Michael Rosenblum, Johns Hopkins Bloomberg School of Public Health; Elizabeth Ogburn, Johns Hopkins Bloomberg School of Public Health	
9:50 a.m. Power Calculations for Common, Nonparametric Tests in Survival—♦Godwin Yung, Takeda Pharmaceuticals; Yi Liu, Nektar Therapeutics	
10:05 a.m. Floor Discussion	

**611**

**Applications in Business and Markets—Contributed  
Section on Statistical Learning and Data Science, Text Analysis Interest Group**

Chair(s): Ya-Hui Kate Hsu, Celgene

8:35 a.m. Using Simple Descriptive Statistics to Drive Critical Decision Making—♦Peter John De Chavez, PepsiCo

8:50 a.m. Interactive Visualization for Predictive Analytics—♦Mia L. Stephens, SAS Institute / JMP Division; Ruth Hummel, SAS Institute, JMP Division

9:05 a.m. Artificial Intelligence in Social Media Marketing: How Brands Can Leverage Deep Learning—♦Brahim Brahim, InfoVisuCA; Andrea Shillington, Brands for the heart Inc.

9:20 a.m. For the Love of Crocs: Text Mining Product Reviews—♦Ruth Hummel, SAS Institute, JMP Division; Mia L. Stephens, SAS Institute / JMP Division

9:35 a.m. Customer Classification Using XGBoost: Accurate and Scalable Prediction of Customer Cluster Membership—♦Joseph Retzer, ACT-MRSolutions; Ewa Nowakowska, ey

9:50 a.m. Analysis of Break-Points in Non-Stationary Time Series—♦Jean Remy Habimana, University of Arkansas

10:05 a.m. Impact of Exports and Imports on Economic Growth of Nepal—♦Mitra Lal Devkota, University of North Georgia; Humnath Panta, Brenau University

**CC-103**

9:35 a.m.

**Statistical Methods for Clinical Study Site Selection—**

♦Jianjin Xu, FDA/CDRH; Lan Huang, FDA/CDRH; Zhihao Yao, FDA/CDRH; Zhiheng Xu, FDA/CDRH; Jyoti Zalkikar, FDA/CDRH; Ram Tiwari, CDRH, FDA

9:50 a.m.

**Strategy for Similarity Margin Selection in Comparative Clinical Biosimilar Studies—♦Mengdie Yuan, Food and Drug Administration; Yabo Niu, Texas A&M University; Lei Nie, FDA; Thomas Gwise, FDA; Gregory Levin, FDA; Shein-Chung Chow, FDA**

10:05 a.m.

**Floor Discussion**

**612**

**Statistics for Clinical Trials and Medical Research—Contributed**

ENAR

Chair(s): Jesus Arroyo, Johns Hopkins University

**CC-710**

8:35 a.m. A Joint Model for Binary Longitudinal and Right-Censored Survival Data in the Context of Antibody Mediated Rejection After Kidney Transplantation—♦Maarten Coemans, KU Leuven; Aleksandar Senev, KU Leuven; Marie-Paule Emonds, KU Leuven; Maarten Naesens, KU Leuven; Geert Verbeke, Catholic University of Leuven

8:50 a.m. Estimating Bidirectional Mediation Effects with Application to the Relationship Between Obesity and Diabetes—♦Rajesh Talluri, University of Mississippi Medical Center; Sanjay Shete, UT MD Anderson Cancer Center

9:05 a.m. The Impact of Design Variability on Power of Wald-Type Tests for Treatment Comparisons Under Adaptive Designs—♦Selvakkadunko Selvaratnam, University of Alberta; Alwell Oyet, Memorial University of Newfoundland; Yanqing Yi, Memorial University of Newfoundland

9:20 a.m. A Comparative Analysis of Optimal Cut-Off Selection Methods for Multiple Continuous Biomarkers in Immuno-Oncology Research—♦Hong Wang, Sameera Wijayawardana; Hillary T Graham, Eli Lilly and Company

**CC-504**

613

**Robust Learning and Posterior Summary—Contributed  
Section on Bayesian Statistical Science**

Chair(s): Stephanie M Coffey, U.S. Census Bureau

8:35 a.m.

**Bayesian Multiple Testing Using Student's T-Distribution—♦G. M. Nilupika Kumari Herath, Department of Mathematical Sciences, University of Cincinnati, Ohio 45221; Siva Sivaganesan, University of Cincinnati**

8:50 a.m.

**An Empirical G-Wishart Prior for Sparse High-Dimensional Gaussian Graphical Models—♦Chang Liu, North Carolina State University; Ryan Martin, North Carolina State University**

9:05 a.m.

**High-Dimensional Multivariate Posterior Contraction Rate Under Shrinkage Priors—♦Ruoyang Zhang, University of Florida; Malay Ghosh, University of Florida**

9:20 a.m.

**Consistent Group Selection with Bayesian High-Dimensional Modeling—♦Xinming Yang, University of Illinois at Urbana-Champaign; Naveen Naidu Narisetty, University of Illinois at Urbana Champaign**

9:35 a.m.

**Interpretable Posterior Summaries Using the Wasserstein Distance—♦Eric Arthur Dunipace, Harvard TH Chan School of Public Health; Lorenzo Trippa, Dana-Farber Cancer Institute**

9:50 a.m.

**A Bayesian Hierarchical Mixture Model with Applications in Forensic Handwriting Analysis—♦Amy Crawford, Iowa State University; Danica Ommen, Iowa State University; Alicia Carriquiry, Iowa State University**

10:05 a.m.

**A Hierarchical Spatial Finlay-Wilkinson Model for Multi-Environment Trial Analysis—♦Xingche Guo, Iowa State University; Somak Dutta, Iowa State University; Dan Nettleton, Iowa State University**

**614**

**CC-501**

**Statistical Methods for Longitudinal and Other Dependent Data—Contributed  
Section on Nonparametric Statistics**

Chair(s): Tianhong Sheng, The Pennsylvania State University

<p><b>615</b>  <b>■ Statistical Process Control—Contributed</b>  <b>Quality and Productivity Section</b>  Chair(s): Samaneh Pourmojib, North Carolina State University</p>	<p>8:35 a.m. Modeling Longitudinal Data with Interval Censored Anchoring Events—♦Chenghao Chu, Vertex Pharmaceuticals; Ying Zhang, University of Nebraska Medical Center; Wanzhu Tu, Indiana University</p>	<p>9:20 a.m. EWMA Chart in Nonstandard Situations—♦Yuhui Yao, The University of Alabama; Subhabrata Chakraborti, University of Alabama</p>
	<p>8:50 a.m. Estimation and Inference for the Mediation Effect in a Time-Varying Mediation Model—♦Xizhen Cai, Williams College; Donna L. Coffman, Temple University; Megan Piper, University of Wisconsin; Runze Li, Penn State University</p>	<p>9:35 a.m. A Nonparametric Cumulative Summation Control Chart for Multiple Stream Processes Based on the Extended Median Test—♦Austin Brown, University of Northern Colorado; Jay Schaffer, University of Northern Colorado</p>
	<p>9:05 a.m. Statistical Analysis of Longitudinal Data on Riemannian Manifolds—♦Xiongtao Dai, Iowa State University; Zhenhua Lin, University of California, Davis; Hans Mueller, UC Davis</p>	<p>9:50 a.m. Bayesian Based Acceptance Criteria for SPC Applications—♦Hesham Fahmy, AbbVie; Yanbing Zheng, AbbVie; Yuanyuan Duan, AbbVie</p>
	<p>9:20 a.m. Comprehensive Simultaneous Inference on Trend-Cycle Model—♦Sayar Karmakar, University of Florida; Wei Biao Wu, University of Chicago</p>	<p>10:05 a.m. Effective Disease Screening by Online Risk Monitoring—♦Lu You, University of Florida; Peihua Qiu, University of Florida</p>
	<p>9:35 a.m. Estimation of a Star-Shaped Distribution Function—♦Ganesh Malla, University of Cincinnati-Clermont</p>	
	<p>9:50 a.m. Adaptation in Log-Concave Density Estimation—♦Oliver Feng, University of Cambridge; Richard Samworth, University of Cambridge; Arlene Kyoung Hee Kim, Sungshin University; Adityanand Guntuboyina, University of California at Berkeley</p>	
	<p>10:05 a.m. Robust Matrix-Based Measures of Agreement Based on L-Statistics for Repeated Measures—♦Elahe Tashakor, Pennsylvania State University; Vernon Chinchilli, Pennsylvania State University</p>	
		<b>CC-104</b>
		<p><b>616</b>  <b>Multidisciplinary Advances in Computing—Contributed Section on Statistical Computing</b>  Chair(s): Anirban Mondal, Case Western Reserve University</p>
		<p>8:35 a.m. On the Fractional Moments of a Truncated Centered Multivariate Normal Distribution—♦Mitsunori Ogawa, The University of Tokyo; Kazuki Nakamoto, Keio University; Tomonari Sei, The University of Tokyo</p>
<p><b>CC-109</b></p>	<p>8:50 a.m. Applications of Quantum Annealing in Statistics—♦Robert Foster, Los Alamos National Laboratory</p>	
	<p>9:05 a.m. Nearly Best Wald Confidence Intervals—♦George Terrell, VA Poly. Inst. &amp; State Univ.</p>	
	<p>9:20 a.m. Noncentral Algorithm Assessments—♦Jerry Lewis, Biogen Idec</p>	
	<p>9:35 a.m. Distance-Distributed Design for Gaussian Process Surrogates—♦Boya Zhang, Virginia Tech; Robert Gramacy, Virginia Tech</p>	
	<p>9:50 a.m. A Simple and Fast Divide-And-Conquer Approach in Multivariate Survival Analysis—♦Wei Wang, Rutgers University Department of Biostatistics and Epidemiology; Shou-En Lu, Rutgers University Department of Biostatistics and Epidemiology; Jerry Q. Cheng, Rutgers University Office of Advanced Research Computing</p>	
	<p>10:05 a.m. A Most Informative Index of Severity of Mental Health—♦Barbara Clothier, CCDOR-Mpls VAHCS; Maureen Murdoch, CCDOR-Mpls VAHCS and University of MN; Siamak Noorbaloochi, CCDOR-Mpls VAHCS and University of MN</p>	
<p><b>617</b>  <b>Testing—Contributed</b>  <b>Biometrics Section</b>  Chair(s): Ian Barnett, University of Pennsylvania</p>	<p>8:35 a.m. Correlation of Sequential Binomial Variables and Its Application to Multiple Testing—♦Lin Fei, Cincinnati</p>	<p style="text-align: right;"><b>CC-701</b></p>

	Children's Hospital Medical Center; Changchun Xie, University of Cincinnati
8:50 a.m.	Testing for Multi-Single Case Designs by Combined Permutation Tests—♦ Luigi Salmaso, University of Padova; Riccardo Ceccato, University of Padova; Rosa Arboretti, University of Padova
9:05 a.m.	From One Environment to Many: The Problem of Replicability of Statistical Inferences—♦ Michael Higgins, Kansas State University; James J. Higgins, Kansas State University; Jinguang Lin, Kansas State University
9:20 a.m.	Inference Without Compatibility—♦ Michael Law, University of Michigan; Ya'acov Ritov, University of Michigan
9:35 a.m.	Bayes Multiple Intervals Estimator with Thresholding—♦ Taeho Kim, University of South Carolina; Edsel A Pena, University of South Carolina
9:50 a.m.	COMPLEX TESTING PROBLEMS for MULTIVARIATE DATA and SMALL SAMPLE SIZES: a NONPARAMETRIC APPROACH—♦ Stefano Bonnini, University of Ferrara
10:05 a.m.	Floor Discussion

**618** **CC-101**  
**Machine Learning for Big Data—Contributed**  
**Section on Statistical Learning and Data Science**  
Chair(s): Chad He, Fred Hutchinson Cancer Research Center

8:35 a.m.	SUPPLEMENTING TRAINING DATA by HALF-SAMPLING—♦ William Heavlin, Google, Inc.
8:50 a.m.	Complexity Analysis for Glucose Dynamics—♦ Xiaohua Douglas Zhang, University of Macau
9:05 a.m.	Integrative OMICs Analysis in Quantifying Tissue Specificity—♦ Meng Wang, Stanford University; Lihua Jiang, Stanford University; Hua Tang, Stanford University; Michael Snyder, Stanford University
9:20 a.m.	Patient Factors at Diagnosis and Overall Risk of Mortality in US Population-Based Pediatric Oncology: An Evaluation Using SEER Data—♦ Fatima Boukari, Delaware State University; Md Jobayer Hossain, Nemours Children's HealthCare Systems
9:35 a.m.	Using Smart Card Data to Quantify the Disruption Impact on Urban Metro Systems—♦ Nan Zhang, Imperial College London; Daniel Graham, Imperial College London; Jose M. Carbo, Imperial College London; Daniel Härcher, Imperial College London
9:50 a.m.	Relative Importance of Predictors of Artificial Neural Network Modeling Results with Applications to Evaluating Vasopressor Treatments for Subarachnoid Hemorrhage (SAH) Patients—♦ Duo Yu, University of Texas Health Science Center at Houston; Hulin MI Wu, University of Texas Health Science Center at Houston
10:05 a.m.	Floor Discussion

**619** **CC-105**  
**Topics in Defense and National Security—Contributed**  
**Section on Statistics in Defense and National Security, Text Analysis Interest Group**

Chair(s): Jade Freeman, US Army Research Laboratory

8:35 a.m.	Detection of Potential Pitting and Potential Crack Corrosion Events in Laser Confocal Microscope Images of Nuclear Material Container Walls—♦ James Wendelberger, Los Alamos National Laboratory and University of New Mexico
8:50 a.m.	A New Military Retention Prediction Model: Machine Learning for High-Fidelity Prediction—♦ Michael Guggisberg, Julie Pechacek, Institute for Defense Analyses; Alan Gelder, Institute for Defense Analyses; James Bishop, Institute for Defense Analyses; Cullen Roberts, Institute for Defense Analyses; Joseph King, Institute for Defense Analyses; Yevgeniy Karpichevsky, Institute for Defense Analyses
9:05 a.m.	Detecting Illicit Fishing Activity by Combining Open Source Data—♦ Karl Pazdernik, Pacific Northwest National Lab; Shari Matzner, Pacific Northwest National Laboratory; Lauren Charles, Pacific Northwest National Laboratory; Theodore Nowak, Pacific Northwest National Laboratory
9:20 a.m.	Utilizing Distributional Measurements of Material Characteristics from SEM Images for Inverse Prediction—♦ Daniel Ries, Sandia National Laboratories; John Lewis, Sandia National Laboratories; Adah Zhang, Sandia National Laboratories; Christine M Anderson-Cook, Los Alamos National Laboratory; Marianne Wilkerson, Los Alamos National Laboratory; Gregory L Wagner, Los Alamos National Laboratory; Julie Gravelle, Los Alamos National Laboratory; Jacquelyn Dorhout, Los Alamos National Laboratory
9:35 a.m.	What Do Network Motifs Tell Us About Robustness and Reliability of Complex Networks?—♦ Asim Dey, University of Texas at Dallas; Yulia Gel, University of Texas at Dallas; H. Vincent Poor, Princeton University
9:50 a.m.	Time to Nuclear Armageddon—♦ Spencer Graves, EffectiveDefense.org
10:05 a.m.	Floor Discussion

**620** **CC-108**  
**Spatial and Spatiotemporal Modeling in Climate and Meteorology—Contributed**  
**Section on Statistics and the Environment**

Chair(s): Haozhe Zhang, Iowa State University

8:35 a.m.	Spatio-Temporal Reconstruction of Climate from Large Pollen Data Sets—♦ John Tipton, University of Arkansas; Basil Davis, University of Lausanne; Manuel Chevalier,
-----------	---

<p>University of Lausanne; Philipp Sommer, University of Lausanne</p> <p>8:50 a.m. Statistical Modeling of People's Perception of Threat and Decision-Making Under Probabilistic Tornado Hazard Information—♦Sujay Datta, University of Akron</p> <p>9:05 a.m. Estimating Atmospheric Motion Winds from Satellite Image Data Using Space-Time Drift Models—♦Indranil Sahoo, Wake Forest University; Joseph Guinness, Cornell University; Brian Reich, North Carolina State University</p> <p>9:20 a.m. Multi-Scale Dynamic Modeling of Precipitation in the Indus Watershed—♦Michael Christensen, Brigham Young University</p> <p>9:35 a.m. Bayesian Spatio-Temporal Modeling of Arctic Sea Ice Extent—♦Bohai Zhang, Nankai University</p> <p>9:50 a.m. Stochastically Downscaling High-Frequency Solar Irradiance Data—♦Wenqi Zhang, University of Colorado, Boulder; William Kleiber, University of Colorado; Bri-Mathias Hodge, University of Colorado, Boulder</p> <p>10:05 a.m. Probabilistic Contour Models of the Sea Ice Edge—♦Hannah Director, University of Washington; Adrian Raftery, University of Washington; Cecilia Bitz, University of Washington</p>	<p>9:50 a.m. Look at the Whole Picture: Quantile Regression in Developmental Disabilities Research—♦Lin Tian, CDC</p> <p>10:05 a.m. Methods to Study Thresholds of Hematocrit That Impact Blood Transfusion in Cardiac Surgery—♦Xiaoting Wu, University of Michigan; Chang He, The Michigan Society of Thoracic and Cardiovascular Surgeons Quality Collaborative; Donald Likosky, University of Michigan</p>
<p><b>621</b> <b>CC-707</b>  <b>Beyond Linear Regression: Nonlinear Association, Quantile Regression and Generalized Linear Models—Contributed</b>  <b>Section on Statistics in Epidemiology</b>  Chair(s): Tianwen Ma, University of Michigan</p> <p>8:35 a.m. An Examination of the Association Between Alcohol Consumption and Type 2 Diabetes in the Framingham Heart Study—♦Saryet Kucukemiroglu, FDA; Tingting Hu, Florida State University; Elizabeth Slate, Florida State University</p> <p>8:50 a.m. Estimating Disparities in Breast Cancer Mortality by Race and Ethnicity—♦Ronald Gangnon, University of Wisconsin; Christina Hunter Chapman, University of Michigan; Jennifer Bird, University of Wisconsin; Amy Trentham-Dietz, University of Wisconsin</p> <p>9:05 a.m. Modeling County-Level Rare Disease Prevalence Using Bayesian Hierarchical Zero-Inflated Beta—♦Hui Xie, CDC; Deborah Rolka, CDC; Lawrence Barker, CDC</p> <p>9:20 a.m. Assessing a Multi-Prediction Model with Applications in Reproductive Endocrinology—♦Katharine Correia, Amherst College</p> <p>9:35 a.m. Bayesian Methodology Applied on Blood Lead Data for Children—♦Shailendra Banerjee, Centers for Disease Control; Yu Sun, Georgia Department of Public Health</p>	<p><b>622</b> <b>CC-709</b>  <b>■ Statistical Methods for Genome- and Epigenome-Wide Association Studies and Gene Environment Interactions—Contributed</b>  <b>Section on Statistics in Genomics and Genetics</b>  Chair(s): Chao Xing, UT Southwestern Medical Center</p> <p>8:35 a.m. A Novel Method for Phenome-Wide GxE Analysis and Its Application to UK Biobank—♦Wenjian Bi, University of Michigan; Lars Fritsche, University of Michigan; Zhangchen Zhao, University of Michigan; Seunggeun Lee, University of Michigan</p> <p>8:50 a.m. Statistical Methods for Leveraging Public Controls in a Two-Stage Epigenome-Wide Association Study—♦Ziqiao Wang, The University of Texas MD Anderson Cancer Center; Yue Lu, The University of Texas MD Anderson Cancer Center; Donghui Li, The University of Texas MD Anderson Cancer Center; Peng Wei, The University of Texas MD Anderson Cancer Center</p> <p>9:05 a.m. Semiparametric Bayesian Variable Selection for Gene-Environment Interactions—♦Jie Ren, Kansas State University; Fei Zhou, Kansas State University; Cen Wu, Kansas State University</p> <p>9:20 a.m. A Parallel Algorithm for Penalized Variable Selection in Gene-Environment Interactions—♦Yinhao Du, Jie Ren, Kansas State University; Fei Zhou, Kansas State University; Cen Wu, Kansas State University</p> <p>9:35 a.m. Structured Variable Selection for High-Dimensional Data, with Applications in Gene-Environment Interactions in Longitudinal Studies—♦Fei Zhou, Kansas State University; Jie Ren, Kansas State University; Cen Wu, Kansas State University</p> <p>9:50 a.m. Floor Discussion</p> <p><b>623</b> <b>CC-302</b>  <b>Statistical Modeling: Benefits and Drawbacks—Contributed</b>  <b>Survey Research Methods Section</b>  Chair(s): Asaph Young Chun, Statistical Research Institute of Statistics Korea; ISR Foundation</p>

8:35 a.m.	A Reconsideration of the Gibbs Sampler for Small Area Estimation Models—♦William Bell, U.S. Census Bureau
8:50 a.m.	Assessing the Relationship of Multiple Metrics in Consumer Tests—♦Jason Parcon, PepsiCo; Lisa Handrick, PepsiCo
9:05 a.m.	Analysis of Familial Aggregation Using Recurrence Risk for Complex Survey Data—♦Cong Wang, FDA, Center for Biologics Evaluation and Research (CBER); Barry Graubard, National Cancer Institute; Zhaohai Li, The George Washington University
9:20 a.m.	Statistical Learning for Complex Survey Data: Using Cross-Validation for Model Selection in Generalized Linear Models—♦Darryl Creel,
9:35 a.m.	Estimating Means of Two Sensitive Quantitative Variables Simultaneously by Using Two Scrambled Responses—♦Maryam Murtaza, ; Sarjinder Singh, Texas A & M University-Kingsville; Zawar Hussain, Quaid-i-Azam University, Islamabad
9:50 a.m.	Utilizing Paradata to Examine and Improve the Web Data Collection Process in Agricultural Census and Survey Programs—♦Robyn Sirkis, USDA National Agricultural Statistics Service (NASS); Pamela McGovern, U.S. Department of Agriculture
10:05 a.m.	Estimations Based on Nonprobability Samples: a Simulation Study—♦Christian Bruch, GESIS; Barbara Felderer, University of Mannheim

**624** **CC-110**  
**Overcoming Challenges in Developing and Deploying Partially and Fully Online Statistics Courses—Contributed**

**Section on Teaching of Statistics in the Health Sciences**  
Chair(s): Terrie Vasilopoulos, University of Florida, College of Medicine

8:35 a.m.	Making the Switch: Practical Considerations for Moving an Introductory Biostatistics Course to an Online Format—♦Brandon George, Thomas Jefferson University
8:50 a.m.	A Journey Teaching Applied Statistics for Health Sciences in an Asynchronous Team Based Learning Format Using Data Science Ideas—♦Ben Barnard,
9:05 a.m.	Challenges of Student Evaluation in Online Learning and Teaching in Health Science—♦Suhwon Lee, Univ of Missouri
9:20 a.m.	Statistics in the J-Term Winter Intensive: 14 Days of Comprehensive Online Instruction—♦Esther Pearson, Lasell College
9:35 a.m.	Lessons Learned: Revising an Online Introductory Course—♦Erin E Blankenship, University of Nebraska-Lincoln; Ella Burnham, University of Nebraska- Lincoln

9:50 a.m.	Assessing Effects from the Flexible Component of a Blended Course—♦James Schmidt, University of Nebraska - Lincoln
10:05 a.m.	Student Outcomes and Perceptions in a Large, Online Introductory Course—♦Ella Burnham, University of Nebraska- Lincoln

**Invited Sessions 10:30 a.m.—12:20 p.m.**

**625** **CC-103**

● **Modern Non-Parametrics—Invited**  
**IMS**

Organizer(s): Veronika Rockova, University of Chicago  
Chair(s): Edward George, University of Pennsylvania

10:35 a.m.	Multi-Scale Analysis of BART Priors—♦Veronika Rockova, University of Chicago; Ismael Castillo, Sorbonne University
11:00 a.m.	Coverage of Bayesian Credible Sets for Monotone Regression—♦Subhashis Ghoshal, North Carolina State University; Moumita Chakraborty, North Carolina State University
11:25 a.m.	Statistical Risk Bounds for Deep Neural Networks—♦Johannes Schmidt-Hieber, Leiden University
11:50 a.m.	Just Interpolate: Kernel ‘Ridgeless’ Regression Can Generalize—♦Tengyuan Liang, University of Chicago Booth School of Business
12:15 p.m.	Floor Discussion

**626** **CC-104**

**Recent Advances in High-Dimensional Statistical Inference—Invited**

**IMS**

Organizer(s): Jinyuan Chang, Southwestern University of Finance and Economics

Chair(s): Wen Zhou, Colorado State University

10:35 a.m.	Subvector Inference in PI Models with Many Moment Inequalities—♦Alexandre Belloni, Duke University; Federico Bugni, Duke University; Victor Chernozhukov, MIT
10:55 a.m.	High-Dimensional Statistical Inferences with Over-Identification—♦Jinyuan Chang, Southwestern University of Finance and Economics; Song Xi Chen, Peking University; Cheng Yong Tang, Temple University; Tong Tong Wu, University of Rochester
11:15 a.m.	Individualized Treatment Selection: a Hypothesis Testing Approach in High-Dimensional Models—♦Zijian Guo, Rutgers University; T. Tony Cai, The Wharton School, University of Pennsylvania; Tianxi Cai, Harvard University

<p>11:35 a.m. Theoretical Support of Machine Learning Debugging—♦ Po-Ling Loh, UW-Madison</p> <p>11:55 a.m. Robust Statistics Meets Nonconvex Optimization—♦ Wenxin Zhou, University of California, San Diego; Qiang Sun, University of Toronto</p> <p>12:15 p.m. Floor Discussion</p>	<p>11:00 a.m. Mixed Location Scale Hidden Markov Model with an Application to Ecological Momentary Assessment Data—♦ Xiaolei Lin, Fudan University; Robin Mermelstein, University of Illinois at Chicago; Donald Hedeker, University of Chicago</p> <p>11:25 a.m. Identification of Distinct Disease-Activity Trajectories in Patients with Rheumatoid Arthritis—♦ David Gruben, Pfizer, Inc.</p> <p>11:50 a.m. Disc: Joseph C Cappelleri, Pfizer Inc</p> <p>12:10 p.m. Floor Discussion</p>
<p><b>627</b> <span style="float: right;"><b>CC-605</b></span></p> <p><b>■ ● Advancing the Statistical Analysis of Neuroimaging Data—Invited</b></p> <p>Section on Statistics in Imaging, Biometrics Section, WNAR</p> <p>Organizer(s): Xin Zhang, Florida State University</p> <p>Chair(s): Xin Zhang, Florida State University</p>	<p><b>629</b> <span style="float: right;"><b>CC-207</b></span></p> <p><b>■ ● The Impacts of Measurement Error in Scientific Discoveries—Invited</b></p> <p>Section on Statistics in Epidemiology, Biometrics Section, Section on Statistical Learning and Data Science</p>
<p>10:35 a.m. Deep Learning in Neuroimaging Genetics—♦ Wei Pan, University of Minnesota</p> <p>10:55 a.m. Tensor Clustering for Dynamic Functional Connectivity Analysis—♦ Will Wei Sun, Purdue University; Lexin Li, University of California at Berkeley</p> <p>11:15 a.m. Statistical Approaches for Disentangling the Nature of Brain Lesions—♦ Russell Shinohara, University of Pennsylvania</p> <p>11:35 a.m. Statistical Methods for Reliable and Reproducible Brain Network Analysis—♦ Ying Guo, Emory University; Suprateek Kundu, Emory University; Ixavier A. Higgins, Emory University; Joshua D. Lukemire, Emory University</p> <p>11:55 a.m. A Consolidated Nonparametric Analytical Approach for Neuroreceptor Mapping with PET Imaging Data—♦ Todd Ogden, Columbia University</p> <p>12:15 p.m. Floor Discussion</p>	<p>10:35 a.m. Covariate Measurement Error Models, Past Developments and Modern Advancements—♦ Jeffrey S Buzas, University of Vermont</p> <p>10:50 a.m. Weighted Causal Inference Methods with Misclassified Outcomes—♦ Grace Yi, University of Waterloo</p> <p>11:05 a.m. Bayesian Adjustment for Measurement Error: Bridging the Gap Between Concepts and Scientific Impact—♦ Paul Gustafson, University of British Columbia</p> <p>11:20 a.m. Measurement Error Correction for Change in Nutrient Intake—♦ Bernard Rosner, Channing Division of Network Medicine, Harvard Medical School</p> <p>11:35 a.m. The Centrality of Measurement Error Modeling to Advances in Nutritional Epidemiology—♦ Sharon I. Kirkpatrick, University of Waterloo</p> <p>11:50 a.m. Disc: Leonard Stefanski, NCSU</p> <p>12:05 p.m. Floor Discussion</p>
<p><b>628</b> <span style="float: right;"><b>CC-710</b></span></p> <p><b>■ ● Advances in Clinical Outcome Assessments—Invited</b></p> <p>Biopharmaceutical Section, Health Policy Statistics Section, Biometrics Section</p> <p>Organizer(s): Joseph C Cappelleri, Pfizer Inc</p> <p>Chair(s): Bellinda King-Kallimanis, U.S. Food and Drug Administration</p>	<p><b>630</b> <span style="float: right;"><b>CC-111</b></span></p> <p><b>■ ● Machine Learning in the Criminal Justice System—Invited</b></p> <p>Committee on Law and Justice Statistics, Statistics and Public Policy, Section on Statistical Learning and Data Science</p>
<p>10:35 a.m. Methods for Identifying Treatment-Emergent Symptomatic Adverse Events from the Patient Perspective with Application to the PRO-CTCAE—Gina Lynn Mazza, Mayo Clinic; Ethan Basch, University of North Carolina Lineberger Comprehensive Cancer Center; Lauren J. Rogak, Memorial Sloan Kettering Cancer Center; ♦ Amylou C. Dueck, Mayo Clinic</p>	<p>10:35 a.m. An Algorithm for Removing Sensitive Information: Application to Race-Independent Recidivism Prediction—♦ Kristian Lum, Human Rights Data Analysis Group</p>

11:00 a.m.	Fairness Tradeoffs in Criminal Justice Machine Learning Risk Assessments—♦Richard Berk, University of Pennsylvania; Ayya Elzarka, University of Pennsylvania
11:25 a.m.	Do We Need Black Box Models in Criminal Justice?—♦Cynthia Rudin, Duke University
11:50 a.m.	Floor Discussion

<b>631</b>	<b>CC-603</b>
<b>Small Area Estimation: iProducing Estimates for Small Areas from Sampled Dataî—Invited</b>	
<b>Survey Research Methods Section, Government Statistics Section</b>	
Organizer(s): Kelly McConville, Reed College	
Chair(s): Kelly McConville, Reed College	

10:35 a.m.	Two-Fold and Three-Fold Subarea Models for Small-Area Estimation: Some Theory and Model Checking—♦J. N. K. Rao, Carleton University
11:00 a.m.	Small Area Estimation for an Informative Sample Design—♦Emily Berg, Iowa State University
11:25 a.m.	Small Area Estimates Using Tree Based Models—♦Daniell Toth, U.S. Bureau of Labor Statistics; Kelly McConville, Reed College
11:50 a.m.	Interpolating Distributions for Populations in Nested Geographies Using Public-Use Data with Application to the American Community Survey—♦Scott H. Holan, University of Missouri/U.S. Census Bureau; Matthew Simpson, SAS; Christopher K. Wikle, University of Missouri; Jonathan R. Bradley, Florida State University
12:15 p.m.	Floor Discussion

<b>632</b>	<b>CC-203</b>
<b>● Advances in Statistical Disclosure Control Methodology—Invited</b>	
<b>SSC, Canadian Statistical Sciences Institute, Journal of Survey Statistics and Methodology</b>	

Organizer(s): Bei Jiang, University of Alberta  
Chair(s): Linglong Kong, University of Alberta

10:35 a.m.	Accounting for Longitudinal Data Structures When Disseminating Synthetic Data to the Public—♦Joerg Drechsler, Institute for Employment Research; Robin Mitra, University of Lancaster; Sana Rashid, Willis Towers Watson
10:55 a.m.	Optimal Inference Under Formal Privacy for Binomial Data—♦Aleksandra Slavkovic, Penn State University; Jordan Awan, Penn State University
11:15 a.m.	Balancing Inferential Integrity and Disclosure Risk via Model Targeted Masking and Multiple Imputation—♦Bei Jiang, University of Alberta; Adrian Raftery,

11:00 a.m.	University of Washington; Russell Steele, McGill University; Naisiyin Wang, U of Michigan
11:35 a.m.	Differential Privacy and Synthetic Data for Disclosure Control—♦Barrientos Felipe Andres, Duke University; Jerry Reiter, Duke University; Tom Balmat, Duke University
11:55 a.m.	Modernizing Access to Statistics Canada Information—♦Peter Wright, Statistics Canada; Steven Thomas, Statistics Canada
12:15 p.m.	Floor Discussion

<b>633</b>	<b>CC-102</b>
<b>Foundations of Data Science: Privacy-Preserving Inference—Invited</b>	
<b>Business and Economic Statistics Section, Royal Statistical Society, IMS, Section on Statistical Learning and Data Science</b>	

Organizer(s): Sofia C Olhede, University College London  
Chair(s): Sofia C Olhede, University College London

10:35 a.m.	Algorithmic Stability and Adaptive Data Analysis—♦Kobbi Nissim, Georgetown
11:00 a.m.	Privacy-Preserving Technologies Meet Machine Learning—♦Jeannette Wing, Columbia University, Data Science Institute
11:25 a.m.	Privacy-Preserving Prediction—Cynthia Dwork, Harvard University; ♦Vitaly Feldman, Google
11:50 a.m.	Disc: Patrick J Wolfe, Purdue University
12:15 p.m.	Floor Discussion

<b>634</b>	<b>CC-502</b>
<b>● Recent Advancements in Distance and Kernel-Based Metrics and Related Learning Methods—Invited</b>	
<b>Section on Statistical Learning and Data Science, Section on Non-parametric Statistics, National Science Foundation</b>	

Organizer(s): Shubhadeep Chakraborty, Texas A&M University  
Chair(s): Soutrik Mandal, National Cancer Institute

10:35 a.m.	Generalizing Distance Covariance to Measure and Test Multivariate Mutual Dependence via Complete and Incomplete V-Statistics—♦David Matteson, Cornell University; Ze Jin, Facebook
11:00 a.m.	A New Framework for Distance Metrics in High Dimension—♦Xianyang Zhang, Texas A&M University; Shubhadeep Chakraborty, Texas A&M University
11:25 a.m.	Classification with Imperfect Training Labels—Timothy I. Cannings, University of Edinburgh; Yingying Fan, University of Southern California; ♦Richard Samworth, University of Cambridge

# JSM 2019 | THURSDAY GENERAL PROGRAM SCHEDULE

● Themed Session ■ Applied Session ♦ Presenter CC = Colorado Convention Center H = Hyatt Regency Denver at Colorado Convention Center

11:50 a.m.	Distance Metrics for Measuring Joint Dependence with Application to Causal Inference—♦Shubhadeep Chakraborty, Texas A&M University; Xianyang Zhang, Texas A&M University	11:25 a.m.	Algebraic Geometry of Gaussian Graphical Models—♦Seth Sullivant, North Carolina State University
12:15 p.m.	Floor Discussion	11:50 a.m.	Minimax Prediction in Tree Ising Models—♦Guy Bresler, Massachusetts Institute of Technology (MIT)
		12:15 p.m.	Floor Discussion
<b>635</b>	<b>CC-707</b>	<b>637</b>	<b>CC-703</b>
<b>■● Monitoring Health Behaviors with Multi-Sensor Mobile Technology—Invited</b> ENAR, Biometrics Section, International Chinese Statistical Association		<b>■● Statistics in Biopharmaceutical Research Invited Session—Invited</b> Statistics in Biopharmaceutical Research Journal	
Organizer(s): Vadim Zipunnikov, Johns Hopkins University Chair(s): Jiawei Bai, Johns Hopkins University		Organizer(s): Frank Bretz, Novartis Pharma AG Chair(s): Frank Bretz, Novartis Pharma AG	
10:35 a.m.	Translational Biomarkers for Quality of Sleep—♦Dmitri Volfson, Takeda; Brian Tracey, Tufts; Derek Buhl, Takeda; Tamas Kiss, Hungarian Academy of Sciences	10:35 a.m.	Integration of Pharmacometric and Statistical Analyzes to Enhance Quantitative Decision Making in Clinical Drug Development—♦Kenneth G. Kowalski, Kowalski PMetrics Consulting, LLC
11:00 a.m.	Statistical Modeling of Cross-Systems Biomarkers—♦Vadim Zipunnikov, Johns Hopkins University; Mike Xiao, National Institute of Mental Health; Kathleen Merikangas, National Institute of Mental Health	11:00 a.m.	Leveraging Parametric Longitudinal Modeling to Improve Drug Development Efficiency—♦José Pinheiro, Janssen Pharmaceuticals
11:25 a.m.	Registration for Exponential Family Functional Data—Julia Wrobel, Columbia University; Vadim Zipunnikov, Johns Hopkins University; Jennifer Schrack, Johns Hopkins University; ♦Jeff Goldsmith, Columbia University	11:25 a.m.	Complex and Innovative Clinical Trials in Pharmaceutical Regulation—♦John Scott, FDA
11:50 a.m.	Wearable Sensor Data Fusion for Affect Liability Detection—♦Fengqing Zhang, Drexel University; Tinashe Tapera, Drexel University; Adrienne Juarascio, Drexel University	11:50 a.m.	Disc: Frank Harrell, Vanderbilt University
12:15 p.m.	Floor Discussion	12:10 p.m.	Floor Discussion
<b>636</b>	<b>CC-105</b>	<b>638</b>	<b>CC-504</b>
<b>■● Graphical Models: From Foundations to Applications—Invited</b> IMS		<b>Celebrating the New COPSS Florence Nightingale David Lecture—Invited</b> Committee of Presidents of Statistical Societies, History of Statistics Interest Group	
Organizer(s): Caroline Uhler, Massachusetts Institute of Technology Chair(s): Dominik Rothenhousler, UC Berkeley		Organizer(s): Amanda L. Golbeck, University of Arkansas for Medical Sciences; Craig A. Molgaard, University of Arkansas for Medical Sciences Chair(s): Wendy Lou, University of Toronto	
10:35 a.m.	Total Positivity and Graphical Models—Piotr Zwiernik, Universitat Pompeu Fabra; ♦Caroline Uhler, Massachusetts Institute of Technology	10:35 a.m.	Professor David in the World's First University Statistics Department—♦Amanda L. Golbeck, University of Arkansas for Medical Sciences
11:00 a.m.	On the Decomposition of Pairwise Association Measures Along the Paths of an Undirected Concentration Graph Model.—♦Alberto Roverato, University of Padua; Robert Castelo, Universitat Pompeu Fabra	11:05 a.m.	On the Ramparts: F. N. David Goes to War—♦Craig A. Molgaard, University of Arkansas for Medical Sciences
		11:35 a.m.	Games, Gods and Gambling: In the Classroom with F.N. David—♦Roxy Peck, Cal Poly - San Luis Obispo
		12:05 p.m.	Floor Discussion

**Invited Panels 10:30 a.m.—12:20 p.m.**

**639**

**CC-503**

**■ ● Women in Data Science: a Small N Sample—Invited**  
**Section for Statistical Programmers and Analysts, Section on Statistical Learning and Data Science, Caucus for Women in Statistics**  
**Organizer(s): Maria A Terres, Waymo**

**Chair(s): Maria A Terres, Waymo**

**Panelists:** ♦Moorea Brega, Pattern Ag  
♦Molly Davies, Stitch Fix  
♦Mary Beth Broadbent, Google/YouTube  
♦Cheryl Flynn, AT&T Research Labs  
♦Clara Yuan, Convoy Inc.

**12:05 p.m. Floor Discussion**

**640**

**CC-205**

**■ ● Providing Open Standards for Mobile Phone Data Statistics—Invited**

**International Statistical Institute, Stats. Partnerships Among Academe Indust. & Govt. Committee, Statistics Without Borders**

**Organizer(s): May Offermans, Statistics Netherlands**

**Chair(s): Tracey Li, Flowminder**

**Panelists:** ♦May Offermans, Statistics Netherlands  
♦Albrecht Wirthmann, EUROSTAT  
♦George Hodge, Pulse Lab Jakarta  
♦Omar Seido, Ghana Statistical Service  
♦Arne Jol, T-Mobile Netherlands

**12:15 p.m. Floor Discussion**

**Topic Contributed Sessions 10:30 a.m.—12:20 p.m.**

**641**

**CC-109**

**■ ● Recent Advances in Density Mixture Modeling and EM-Like Algorithms: Frequentist and Bayesian Views—Topic Contributed**

**Section on Nonparametric Statistics, Section on Statistical Learning and Data Science, International Indian Statistical Association**

**Organizer(s): Michael Levine, Purdue University**

**Chair(s): Matthew Reimherr, Penn State University**

**10:35 a.m. An Asynchronous Distributed Expectation Maximization Algorithm for Massive Data: The DEM Algorithm—**  
♦Sanvesh Srivastava, University of Iowa; Chuanhai Liu, Purdue University; Glen DePalma, Purdue University

**10:55 a.m.**

**A Regularization Based Approach to Estimation of a Two Component Nonparametric Density Mixture with a Known Component—**♦Michael Levine, Purdue University; Zuofeng Shang, IUPUI; Zhou Shen, J.P. Morgan

**11:15 a.m.**

**Singularity Structures of Mixture Models: Statistical and Computational Perspective—**♦Nhat Ho, University of California, Berkeley

**11:35 a.m.**

**Prediction Risk in Linear Regression Models Under Global-Local Mixture Priors—**♦Anindya Bhadra, Purdue University; Jyotishka Datta, University of Arkansas; Yunfan Li, Purdue University; Nicholas Polson, University of Chicago; Brandon Willard, University of Chicago

**11:55 a.m.**

**Mixture Methods for Panel Data Models—**♦Stephane Bonhomme, University of Chicago

**12:15 p.m.**

**Floor Discussion**

**642**

**CC-106**

**■ ● Advanced Statistical Methods for Large Data Sets—Topic Contributed**

**Social Statistics Section, International Chinese Statistical Association, Lifetime Data Science Section, Section on Statistical Learning and Data Science**

**Organizer(s): Xingqiu Zhao, The Hong Kong Polytechnic University**

**Chair(s): Jianguo Sun, University of Missouri**

**10:35 a.m.**

**Distributed Learning with Minimum Error Entropy Principle—**♦Xin Guo, The Hong Kong Polytechnic University; Ting Hu, Wuhan University; Qiang Wu, Middle Tennessee State University

**10:55 a.m.**

**Entropy Learning for Dynamic Treatment Regimes—**♦Binyan Jiang,

**11:15 a.m.**

**Efficient Fused Learning for Distributed Imbalanced Data—**♦Yuanyuan Lin,

**11:35 a.m.**

**Penalized Interaction Estimation for Ultrahigh Dimensional Quadratic Regression—**♦Cheng Wang, Shanghai Jiao Tong University

**11:55 a.m.**

**Penalized Generalized Empirical Likelihood with a Diverging Number of General Estimating Equations for Censored Data—**♦Xingqiu Zhao, The Hong Kong Polytechnic University; Niansheng Tang, Yunnan University; Xiaodong Yan, Shandong University

**12:15 p.m.**

**Floor Discussion**

**643**

**■● Detection of Changes and Structural Breaks in Business and Industrial Data Streams—Topic Contributed**

Quality and Productivity Section, Section on Physical and Engineering Sciences

Organizer(s): Emmanuel Yashchin, IBM Research

Chair(s): Julie Novak, Netflix

**CC-201**

10:35 a.m.	Testing and Estimation of Change-Points in LSHD Data Streams: Asymptotics and Application to Ozone Monitoring—♦ Ansgar Steland, Institute of Statistics
10:55 a.m.	Change Detection for Multi-Stage Multivariate Data—♦ Emmanuel Yashchin, IBM Research
11:15 a.m.	Pattern Detection via Bioclustering in High-Frequency Financial Time Series—♦ Haitao Liu, Worcester Polytechnic Institute; Nalini Ravishanker, University of Connecticut; Jian Zou, Worcester Polytechnic Institute
11:35 a.m.	Multiple Breakpoint Detection: Mixing Documented and Undocumented Changepoints—♦ Robert Lund, Clemson University; Yingbo Li, Clemson University
11:55 a.m.	Detection of Changes in Spatial Data—♦ Michael Baron, American University
12:15 p.m.	Floor Discussion

**644**

**■● Statistical Methods for the Co-Development of Drug and Companion Diagnostic in Oncology—Topic Contributed**

Section on Medical Devices and Diagnostics, Biopharmaceutical Section, Society for Medical Decision Making

Organizer(s): Rong Liu, Celgene

Chair(s): Frank Shen, Celgene Co.

**CC-607**

10:35 a.m.	Evaluation of Biomarker Threshold Designs in Cancer Therapy—♦ Kui Shen, Bayer U.S. LLC; Xiaowen Tian, University of Washington; Jonathan Siegel, Bayer HealthCare Pharmaceuticals Inc.
10:55 a.m.	A Case Study in Bridging for Companion Diagnostic Development: Pembrolizumab and PD-L1 Selected 2nd Line NSCLC Patients—♦ Jared Lunceford, Merck & Co., Inc.; Ellie Corigliano, Merck & Co., Inc.; Siddhartha Mathur, Merck & Co., Inc.; Ziwen Wei, Merck & Co., Inc.; Yue Shentu, Merck & Co., Inc.
11:15 a.m.	Drug-Device Co-Development in the Era of Precision Medicine: Industry Perspectives on Statistical Challenges—♦ Shunguang Wang, Novartis Institutes for BioMedical Research Inc.
11:35 a.m.	Logical Inference on Treatment Efficacy When Subgroups Exist—♦ Ying Ding, University of Pittsburgh

THURSDAY

11:55 a.m.

Innovative Designs for Drug-Device Co-Development in the Area of Precision Medicine—♦ Rui Tang, Servier

12:15 p.m.

Floor Discussion

**645**

**■● Bayesian Optimization—Topic Contributed**

Section on Bayesian Statistical Science, Section on Statistical Computing, International Society for Bayesian Analysis (ISBA)

Organizer(s): Tony Pourmohamad, Genentech

Chair(s): Jasper Snoek, Google Brain

10:35 a.m.

The Statistical Filter Approach to Constrained Optimization—♦ Herbert Lee, Univ of California, Santa Cruz

10:55 a.m.

Bayesian Optimization via Barrier Functions—♦ Tony Pourmohamad, Genentech; Herbert Lee, Univ of California, Santa Cruz

11:15 a.m.

Bayesian Optimization for Policy Search via Online-Offline Experimentation—Eytan Bakshy, Facebook; ♦ Benjamin Letham, Facebook

11:35 a.m.

Automating Bayesian Optimization with Bayesian Optimization—♦ Roman Garnett, Washington University in St. Louis; Gustavo Malkomes, Washington University in St. Louis

11:55 a.m.

Bayesian Optimization for Robotics—♦ Roberto Calandra, Facebook AI Research

12:15 p.m.

Floor Discussion

**646**

**■● Applications of Deep Learning in Pharmaceutical Development—Topic Contributed**

Biopharmaceutical Section, Section on Statistical Learning and Data Science, Biometrics Section, Text Analysis Interest Group

Organizer(s): Xin Huang, AbbVie Inc.

Chair(s): Weili He, AbbVie

10:35 a.m.

Deep Learning-Based Histology Image Analysis for Patient Diagnosis and Selection—♦ Xin Huang, AbbVie Inc.; Liuqing Yang, AbbVie; Yan Sun, AbbVie; Mufeng Hu, AbbVie

10:55 a.m.

Leveraging Free Text Data for Decision Making in Drug Development—♦ Yan Sun, AbbVie; Jiyeong Jang, University of Illinois at Chicago; Xin Huang, AbbVie Inc.; Hongwei Wang, AbbVie Inc.; Weili He, AbbVie

11:15 a.m.

Diagnosis of Diabetic Retinopathy Using Medical Images and Deep Learning Method—♦ Xuanyao He, Eli Lilly and Company

11:35 a.m.

Disc: Hongwei Wang, AbbVie Inc.

**CC-107**

11:55 a.m. Disc: Mandy Jin, Merck & Co., Inc.  
12:15 p.m. Floor Discussion

**647 CC-507**

**■● Statistical Advances in Population Research in the Developing World—Topic Contributed**

Government Statistics Section, Section on Statistics in Epidemiology, Social Statistics Section

Organizer(s): Zehang Richard Li, Yale University

Chair(s): Zehang Richard Li, Yale University

10:35 a.m. Assessing Data Contribution for Estimation of HIV Epidemics—♦Le Bao, Pennsylvania State University; Xiaoyue Niu, Penn State University; Jacob Parsons, Penn State University

10:55 a.m. Using Social Networks to Estimate Adult Mortality in the Developing World—♦Dennis Feehan, Univ of California - Berkeley; Matthew J. Salganik, Princeton University

11:15 a.m. The Learn as You Go Design for Rigorous Quantitative Adaptation of Multi-Component Intervention Packages in Global Public Health—♦Donna Spiegelman, Yale School of Public Health; Judith Lok, Boston University, Dept of Mathematics and Statistics; Daniel Nevo, Tel Aviv University

11:35 a.m. The Convergence of Data Science and Data Poverty—♦Rumi Chunara, New York University

11:55 a.m. Floor Discussion

**648 CC-702**

**■● Are Statistical Methods Developed for Bulk RNASeq Data Appropriate for Single Cell Data Sets?—Topic Contributed**

Biometrics Section, Section on Statistics in Genomics and Genetics, ENAR

Organizer(s): Roula Tsonaka, Leiden University MC

Chair(s): Roula Tsonaka, Leiden University MC

10:35 a.m. Assumptions and Methods for Normalizing Single-Cell RNA-Seq Data—♦Rhonda Bacher, University of Florida

10:55 a.m. Robust Normalisation and Differential Variability Testing for Noisy ScRNASeq Data—♦Catalina Vallejos, MRC Human Genetics Unit, University of Edinburgh

11:15 a.m. Statistical Methods for Flexible Differential Analysis of Cross-Sample Single-Cell RNA-Seq Data Sets—♦Mark Robinson, University of Zurich

11:35 a.m. Unlocking Bulk RNA-Seq Tools for Single Cell Applications—♦Lieven Clement, Ghent University

11:55 a.m. Characterization of Differential Correlation Across Single Cell Differentiation Trajectories with ScDCARS—♦Shila Ghazanfar, Cancer Research UK Cambridge Institute

12:15 p.m. Floor Discussion

**649 CC-108**

**● Recent Advances in Spatial and Spatial-Temporal Methods—Topic Contributed**

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA), Section on Statistics in Epidemiology, Section on Teaching of Statistics in the Health Sciences

Organizer(s): Cici Bauer, UTHealth

Chair(s): Caroline P Groth, Feinberg School of Medicine, Northwestern University

10:35 a.m. Using Spatiotemporal Models to Generate Synthetic Data for Public Use—♦Harrison Quick, Drexel University; Lance Waller, Emory University

10:55 a.m. A Spatially Varying Change Points Model for Monitoring Glaucoma Progression Using Visual Field Data—♦Joshua Warren, Yale University; Samuel Berchuck, Duke University; Jean-Claude Mwanza, UNC Chapel Hill

11:15 a.m. Spatio-Temporal Model to Predict Extreme Heat Events at Unobserved Locations—♦Erin Schliep, University of Missouri; Alan E Gelfand, Duke University

11:35 a.m. Stratified Space-time Infectious Disease Modeling, with an Application to Hand, Foot and Mouth Disease in China—♦Cici Bauer, UTHealth

11:55 a.m. Assessing Environmental Factors of Histoplasmosis: a Spatio-Temporal Analysis—♦Kimberly Kaufeld, Los Alamos National Laboratory

12:15 p.m. Floor Discussion

**650 CC-501**

**■● Quantum Computing: Optimization Algorithms and Applications—Topic Contributed**

Section on Statistical Computing, Biometrics Section, Biopharmaceutical Section

Organizer(s): Sergei Leonov, CSL Behring

Chair(s): James Wendelberger, Los Alamos National Laboratory and University of New Mexico

10:35 a.m. Quantum Computing in the Life Sciences—♦Mark Fingerhuth, ProteinQure

10:55 a.m. Treasure Hunt for Computational Problems That Can Be Solved Faster by Quantum Annealing—♦Barry Sanders, University of Calgary; Archismita Dalal, University of Calgary; Radhakrishnan Balu, United States Army Research Laboratory

11:15 a.m.	Quantum Computing at Lockheed Martin—♦Kristen Pudenz,
11:35 a.m.	Optimization Algorithms of Model-Based Design: Simulated Vs Quantum Annealing—♦Valerii Fedorov, ICONplc
11:55 a.m.	Disc: Sergei Leonov, CSL Behring
12:15 p.m.	Floor Discussion

**Topic Contributed Panels 10:30 a.m.—12:20 p.m.**

**651 CC-704**

**■● Funding Opportunities for (Undergraduate and Graduate) Students—Topic Contributed**

Section on Statistics and Data Science Education, Section on Teaching of Statistics in the Health Sciences, Committee on Women in Statistics

Organizer(s): Ming- Wen An,

Chair(s): Sujit Ghosh, North Carolina State Univ.

Panelists: ♦Lance Waller, Emory University

♦Nandita Mitra, University of Pennsylvania

♦Song Yang, NIH/NLBI

♦Branislav Vidakovic, NSF

♦Gideon Zamba, University of Iowa

12:10 p.m. Floor Discussion

**Contributed Sessions 10:30 a.m.—12:20 p.m.**

**652 CC-706**

**■● Genomics, Metabolomics, Microbiome and NextGen Sequencing—Contributed**

Biometrics Section

Chair(s): Pixu Shi, University of Wisconsin-Madison

10:35 a.m. Multivariate Association Analysis with Somatic Mutation Data—♦Chad He, Fred Hutchinson Cancer Research Center; Yang Liu, Wright State University; Ulrike Peters, Fred Hutchinson Cancer Research Center; Li Hsu, Fred Hutchinson Cancer Research Center, USA

10:50 a.m. Post-Selection Inference for Regression Models with Linear Constraints, with an Application to Microbiome Data—♦Jiarui Lu, University of Pennsylvania; Hongzhe Li, University of Pennsylvania

11:05 a.m. Multivariate Spatial Point Process Models for the Analysis of Spectral Imaging Data—♦Kyu Ha Lee, Harvard T.H. Chan School of Public Health; Brent A. Coull, Harvard T.H. Chan School of Public Health; Jacqueline R Starr, The Forsyth Institute

11:20 a.m. SBL -Bayesian Lasso for Detecting Rare Genetic Variants Associated with Survival Phenotypes—♦Xiaofei Zhou, Ohio State University; Shili Lin, The Ohio State University; Meng Wang, Nationwide Children's Hospital

11:35 a.m. Model-Based Clustering of Illumina Microbiome Amplicon Sequence Data—♦Xiyu Peng, Iowa State University; Karin Dorman, Iowa State University

11:50 a.m. Bayesian Curve Credible Bands Approach for Differentially Methylated Regions Detection—♦Chenggong Han, Interdisciplinary Ph.D. Program in Biostatistics, The Ohio State University; Shili Lin, The Ohio State University

12:05 p.m. A New Statistical Method to Investigate Translational Regulation Using Ribo-Profiling Data—♦Keren Li, Northwestern University; Matthew Hope, Northwestern University; Frank Fineis, Northwestern University; Xiaozhong Wang, Northwestern University; Ji-Ping Wang, Northwestern University

**653 CC-712**

**Machine Learning and Other Statistical Methods in Clinical Trials—Contributed**

Biopharmaceutical Section

Chair(s): Pallavi Mishra-Kalyani, US Food and Drug Administration

10:35 a.m. Deep Neural Networks for Survival Analysis Using Pseudo Values—♦Dai Feng, Merck; Lili Zhao, University of Michigan

10:50 a.m. Alternatives to Logistic Regression for Detecting Treatment by Covariate Interactions with Binary Endpoints—♦Radha Raikar, Merck & Co, Inc; Devan Mehrotra, Merck & Co, Inc

11:05 a.m. Comparison of Data Mining Methods for Signal Detection of Targeted Therapy Related Adverse Events in Breast Cancer Patients—♦Efstatia Polychronopoulou, UTMB; Sharon Giordano, MD Anderson Cancer Center; Lin-Na Chou, The University of Texas Medical Branch; Xiaoying Yu, UTMB; Yong-Fang Kuo, The University of Texas Medical Branch

11:20 a.m. Application of CART Regression in Early Discovery Efforts to Better Understand Proinsulin as Possible Therapeutic Target—♦Santosh Sutradhar, Merck & Co, Inc; Geoffrey Walford, Merck & Co, Inc; Tami Crumley, Merck & Co, Inc; Anita Lee, Merck & Co, Inc; Jennifer Abrams, Merck & Co, Inc.

11:35 a.m. Machine Learning Methods Evaluation for Small-Size Overlapping Data with Class Imbalance Issue—♦Guolin Zhao, Biogen Inc; Shuo Li, Boston University; Feng Gao, Biogen Inc.

11:50 a.m. Statistical Analysis and Machine Learning Using Data from Continuous Glucose Monitoring in Clinical Trials—♦Chen Gao, MedImmune; Yi-Ting Chang, MedImmune; Jay Zhang, MedImmune

12:05 p.m. Floor Discussion

**654**

**Evaluating and Reducing Nonsampling Errors in Surveys—Contributed**

**Government Statistics Section**

Chair(s): Andreea Erciulescu, Westat

10:35 a.m. Quarterly Financial Report Nonresponse Bias Analysis—♦Dhanapati Khatiwoda, U.S. Census Bureau

10:50 a.m. Blasting Farmers with Email and Text Survey Notifications: Modeling Response Rate Effects—♦Tyler Wilson, USDA, NASS; Shane T. Ball, NASS; Benjamin Martin Reist, USDA, NASS

11:05 a.m. Impact of Certified Mail on Nonresponse Rates—♦Redouane Betrouni, U.S. Census Bureau; Peter Schilling, U.S. Census Bureau; Dedrick Owens, U.S. Census Bureau; Bac Tran, U.S. Census Bureau

11:20 a.m. Approaches for Performing Age Adjustment During Trend Analysis—♦Xianfen Li, NCHS/CDC; Mary Ann Bush, NCHS

11:35 a.m. Estimating Canadian Cannabis Consumption Using Markers in the Wastewater—♦Andrew Brennan, Statistics Canada; GeneviÈve VÈzina, Statistics Canada; Laurie Reedman, Statistics Canada

11:50 a.m. Measuring the Substitution Effect in Producer Price Index Goods Data: 2002-2016—♦Jonathan Weinhagen, BLS

12:05 p.m. Estimating and Understanding the Language and Communication Needs of the Civilian Labor Force Population—JUSTIN WEST, US EEOC; Qi Wang, US EEOC; Jiashen You, US EEOC; ♦Benjamin Overholt, US EEOC

**CC-505**

11:20 a.m. Estimating Household Heating Consumption of Natural Gas Using Billing and Weather Data—♦Shaofen G. Deng, U.S. Energy Informatio Admrinstration; Greg Lawson, U.S. Energy Information Administration

11:35 a.m. Infectious Diseases Hospitalizations ó New York City, 2001ñ2014—♦Chaorui C Huang, New York City Department of Health and Mental Hygiene; David E Lucero, New York City Department of Health and Mental Hygiene; Sungwoo Lim, New York City Department of Health and Mental Hygiene; Yihong Zhao, Boston University Henry M. Goldman School of Dental Medicine; Robert Arciuolo, New York City Department of Health and Mental Hygiene; Joseph Burzynski, New York City Department of Health and Mental Hygiene; Demetre Daskalakis, New York City Department of Health and Mental Hygiene

11:50 a.m. Robust Estimation of Employment and Finance Data Using Bayesian Inference for T-Mixture of Linear Mixed Models—♦Giang Trinh, US Census Bureau; Noah Bassel, U.S. Census Bureau; Bac Tran, U.S. Census Bureau

12:05 p.m. How to Catch an Outlier: a Robust Method for Hours and Earnings Estimation in the Current Employment Statistics Survey—♦Paige Schroeder, U.S. Bureau of Labor Statistics

**655**

**CC-506**

**Applications in the Analysis of Survey Data—Contributed**

**Government Statistics Section**

Chair(s): Katherine J Thompson, U.S. Census Bureau

10:35 a.m. Statistical Analysis of Parent-Child Pair Data from the National Health Interview Survey -an Approach via Weighting and Domain Estimation—♦Guangyu Zhang, National Center for Health Statistics; Yulei He, CDC; Nathaniel Schenker, Retired; Van Parsons, National Center for Health Statistics; Chris Moriarity, National Center for Health Statistics; Stephen Blumberg, National Center for Health Statistics; Benjamin Zablotsky, National Center for Health Statistics; Aaron Maitland, National Center for Health Statistics; Suresh Srinivasan, National Center for Health Statistics; Matthew Bramlett, National Center for Health Statistics

10:50 a.m. Estimation of Student Attendance Threshold for K-12 Education—♦Xiaoyue Cheng, University of Nebraska at Omaha; Mahbubul Majumder, University of Nebraska at Omaha; Tamara Williams, University of Nebraska at Omaha

11:05 a.m. Using Vector Generalized Linear Models to Assess Kurdish Democratic Progress Under Erdogan—♦Ole Forsberg, Knox College

**656**

**CC-705**

**■● Using Unique Associations to Address Health Policy Questions—Contributed**

**Health Policy Statistics Section**

Chair(s): Jessica Lavery, Memorial Sloan Kettering Cancer Center

10:35 a.m. A Novel Cluster Sampling Design That Entwines Three Surveys to Support Multiple Statistical Modeling Objectives—♦A. James O'Malley, Dartmouth College; Seho Park, Dartmouth University

10:50 a.m. Use of Survey Databases in Statistical Consulting Projects—♦Heather Watson, Exponent

11:05 a.m. Integration of Clinical and National Health Care Survey Data to Inform Disparities—♦Steven Cohen, RTI International

11:20 a.m. Disparities in Potentially Achievable Vaccination Coverage by Selected Socio-Demographic Factors Among Children in the United States—♦Zhen Zhao, CDC; Holly A. Hill, CDC; Laurie D. Elam-Evans, CDC; James A. Singleton, CDC

11:35 a.m. A Unified Counterfactual Framework for Estimating Health Disparity—♦Chen-Pin Wang, University of Texas Health Science Center San Antonio

11:50 a.m. Local Item Response Theory for the Detection of Regional Differences in Contraceptive Knowledge, HIV/AIDS Knowledge, and Attitudes Towards Domestic Violence—♦Samantha Robinson, University

12:05 p.m.	of Arkansas	Outliers—♦ Abhijit Mandal, Wayne State University; Samiran Ghosh, Wayne State University
10:35 a.m.	Discovering Connection Among Emergency Rooms in Terms of Alerts at Maryland Region III—♦ Xu Zhang, ; Sean Barnes, University of Maryland, College Park; Bruce Golden, University of Maryland, College Park; Paul Smith, University of Maryland, College Park	On the Loss Robustness of Least Square Estimators—♦ Tamal Ghosh, University of Florida; Malay Ghosh, University of Florida; Tatsuya Kubokawa, The university of Tokyo
10:50 a.m.		A Graph-Based Multisample Test for High-Dimensional Compositional Data—♦ Thy Dao, University of Arkansas; Qingyang Zhang, University of Arkansas
11:05 a.m.		Log-Linear Model Selection and Inference for Contingency Tables—♦ Arnab Chowdhury, BRI, City of Hope, Duarte, CA; Subir Ghosh, University of California, Riverside
11:20 a.m.		A Flexible Finite Mixture Model Family for Analyzing Over- and Underdispersed Discrete Data, with Possibly Negative Weights—♦ Martial Luys, ; Geert Molenberghs, Universiteit Hasselt & Katholieke Universiteit Leuven; Geert Verbeke, Catholic University of Leuven; Koen Matthijs, Catholic University of Leuven
11:35 a.m.		A Single-Index Informative Summary—♦ Siamak Noorbaloochi, ; Barbara Clothier, CCDOR-Mpls VAHCS
12:05 p.m.		Floor Discussion
<b>657</b>	<b>CC-101</b>	
<b>Bayesian and Empirical Bayes—Contributed</b>		
<b>IMS</b>		
Chair(s): Satyajit Ghosh, Rutgers University		
10:35 a.m.	Hierarchical Bayesian Kernel Model with Applications to Prediction with Small Data—♦ Jin-Zhu Yu, ; Hiba Baroud, Vanderbilt University	
10:50 a.m.	A General Framework for Empirical Bayes Estimation in the Discrete Linear Exponential Family—♦ Trambak Banerjee, University of Southern California; Qiang Liu, University of Texas at Austin; Gourab Mukherjee, University of Southern California; Wenguang Sun, University of Southern California	
11:05 a.m.	Protecting Replicability in the Presence of Auxiliary Covariates—♦ Pallavi Basu, Indian School of Business; Hema Kollipara, Michigan State University (and Indian School of Business)	
11:20 a.m.	Posterior Inference Under Adaptive Penalization for Quantile Regression—♦ Yuanzhi Li, University of Michigan; Xuming He, University of Michigan	
11:35 a.m.	Information Content of High-Order Associations of the Human Gut Microbiota Network—♦ Weston Viles, University of Southern Maine; Juliette C. Madan, The Geisel School of Medicine at Dartmouth; Hongzhe Li, University of Pennsylvania; Jason H Moore, University of Pennsylvania; Margaret R. Karagas, The Geisel School of Medicine at Dartmouth; Anne G. Hoen, The Geisel School of Medicine at Dartmouth	
11:50 a.m.	Hierarchical Bayesian Link Model for Stochastic Frontier Production Function Model—♦ Seongho Song, University of Cincinnati; Younshik Chung, Pusan National University; David T. Yi, Xavier University	
12:05 p.m.	Floor Discussion	
<b>658</b>	<b>CC-112</b>	
<b>Regression, Selection and Complex Data—Contributed</b>		
<b>International Indian Statistical Association</b>		
Chair(s): Sourav Santra, Cytel		
10:35 a.m.	Penalized Variable Selection in the Presence of	
<b>659</b>	<b>CC-301</b>	
<b>Recent Advances in Dimension Reduction and Clustering—Contributed</b>		
<b>Section on Statistical Learning and Data Science</b>		
Chair(s): Yue Wang, Fred Hutchinson Cancer Center		
10:35 a.m.	Dimension Reduction and Classification of Imbalanced Data—♦ Elizabeth Chou, National Chengchi University	
10:50 a.m.	Gaussian Mixture Clustering Using Relative Tests of Fit—♦ Purvasha Chakravarti, Carnegie Mellon University; Larry Wasserman, Carnegie Mellon University; Sivaraman Balakrishnan, Carnegie Mellon University	
11:05 a.m.	Matrix Completion Under Low-Rank Missing Mechanism—♦ Xiaojun Mao, Fudan University; Raymond Wong, Texas A&M University; Song Xi Chen, Peking University	
11:20 a.m.	Bias in Joint Spectral Embeddings—♦ Benjamin Draves, Boston University ; Daniel L Sussman, Boston University	
11:35 a.m.	Cluster Analysis via Random Partition Distributions—♦ David Dahl, Brigham Young University; Brandon Carter, Brigham Young University	
11:50 a.m.	B-MuLe: Sparse Multi-View Representation Learning Problem with Application in Multi-Omics Studies—♦ Omid Shams Solari, ; James Bentley Brown, Uc Berkeley statistics	
12:05 p.m.	Efficient Local Kernel Estimation Using Structured Random Forests—♦ Joshua Loyal, University of Illinois Urbana-Champaign; Ruqing Zhu, University of Illinois	

Urbana-Champaign; Xin Zhang, Florida State University; Yifan Cui, University of Pennsylvania

**660**

**CC-302**

**Machine Learning: Advances and Applications—Contributed Section on Statistical Learning and Data Science**

Chair(s): Brandon Greenwell, 84.51J

10:35 a.m. A Two-Stage Approach to Multivariate Linear Regression with Sparsely Mismatched Data—♦Martin Slawski, George Mason Univ; Emanuel Ben-David, US Census Bureau

10:50 a.m. Beyond Test Scores: Scaling Item Response Theory Modeling for Large-Volume Machine-Learning Applications—♦Lauren Harrell, Google

11:05 a.m. Using Machine Learning Algorithms to Reduce Data Collection Costs—♦Gavin Corral, National Agricultural Statistics Service (NASS); Tyler Wilson, USDA, NASS

11:20 a.m. Where Do I Begin? Tuning Support Vector Machines and Boosted Trees—♦Jill Lundell, Utah State University

11:35 a.m. Classification and Regression Tree Analysis for Participation in Surveys with Physical Measurements—Kelly Diecker, ICF; ♦Richard (Lee) Harding, ICF

11:50 a.m. Regularized High-Dimensional Low Tubal Rank Tensor Regression and Its Applications—♦Samrat Roy, University of Florida; George Michailidis, University of Florida

12:05 p.m. Random Projection for Tensor—♦Rejaul Karim, Michigan State University; Taps Maiti, Michigan State University

**661**

**CC-701**

**● Statistical Models for Animal Behavior and Population Dynamics—Contributed**

Section on Statistics and the Environment

Chair(s): Joshua French, University of Colorado Denver

10:35 a.m. Combining Animal Movement and Spatial Disease Data for Prediction of Wildlife Disease Spread—♦Sahar Zarmehri, Penn State; Ephraim Hanks, Pennsylvania State University; Lynn Lin, Penn State University

10:50 a.m. Alternative Learning Strategies for Realistic Collective Animal Movement—♦Toryn Schafer, University of Missouri; Christopher K. Wikle, University of Missouri; Mitch D. Weegman, University of Missouri

11:05 a.m. Understanding Lake Winnipeg Basin Walleye Fish Movement Patterns Using Bayesian State-Space Models—♦Inesh Munaweera, University of Manitoba; Saman Muthukumarana, University of Manitoba; Darren Gillis, University of Manitoba; Douglas Watkinson, Fisheries and Oceans Canada; Colin Charles, Fisheries & Oceans Canada

11:20 a.m. An Irregular Sampling Design for Animal Movement—♦Elizabeth Eisenhauer, The Pennsylvania State University; Ephraim Hanks, Pennsylvania State University

11:35 a.m.

Bayesian Modeling of Fish Movement Using Stroniuim Isotopes—♦Edward L Boone, Virginia Commonwealth University; Ben Stewart-Koster, Griffith University; Michael Venarsky, Griffith University

11:50 a.m.

Nonlinear Reaction-Diffusion Process Models Improve Inference for Population Dynamics—♦Xinyi Lu, Colorado State University

12:05 p.m.

Machine Learning Methods for Modeling Animal Movement—♦Dhanushi Wijeyakulasuriya, Pennsylvania State University; Ephraim Hanks, Pennsylvania State University; Benjamin Shaby, Pennsylvania State University

**662**

**CC-210/212**

**Methods for Meta-Analysis, and Longitudinal and Clustered Data—Contributed Section on Statistics in Epidemiology**

Chair(s): Paul Albert, National Cancer Institute

10:35 a.m.

A Bayesian Multivariate Meta-Analysis of Prevalence Data—♦Lianne Siegel, University of Minnesota; Kyle Rudser, University of Minnesota; Siobhan Sutcliffe, Washington University School of Medicine; Alayne Markland, University of Alabama at Birmingham and Birmingham VA Medical Center; Linda Brubaker, University of California San Diego; Sheila Gahagan, University of California San Diego; Ann Stapleton, University of Washington; Haitao Chu, University of Minnesota

10:50 a.m.

Individual-Level Meta-Analysis for a Pooled Estimate of Incidence Rate for Rare Adverse Events—♦Qing Pan, George Washington University; Chen Chen, George Washington University; Yan Ma, George Washington University; Yong Ma, FDA

11:05 a.m.

Validation of Sleep Measures Derived from Phone-Based Activity Data Compared to Self-Report—♦Briana Cameron, 23andMe; Devika Dhamija, 23andMe; Matthew McIntyre, 23andMe; Robert Gentleman, 23andMe; 23andMe Research Team, 23andMe

11:20 a.m.

Quantification and Estimation of the Regression to the Mean for Bivariate Distributions—♦Manzoor Khan, University of New South Wales; Jake Olivier, University of New South Wales

11:35 a.m.

Estimating the Zero Cell of Multivariate Bernoulli Data from Partially-Sampled Clusters—♦John Preisser, University of North Carolina; Bahjat Qaqish, University of North Carolina

11:50 a.m.

Asymptotic Simultaneous Confidence Intervals of Odds Ratio in Many-To-One Comparison of Proportions for Correlated Paired Binary Data—♦Xuan Peng, State University of New York At Buffalo; Chang-Xing Ma, State University of New York At Buffalo

<p>12:05 p.m. Sample Size Considerations for Stratified Cluster Randomization Design with Binary Outcomes and Varying Cluster Size—♦XIAOHAN XU, University of Texas Southwestern Medical Center &amp; Southern Methodist University</p>	<p>♦John Hilton, Office of the Auditor General of Canada; Nicholas Brouwer, Office of the Auditor General of Canada; Johnathon Cziffra, Université de Montréal</p>
<p><b>663</b> <span style="float: right;"><b>CC-709</b></span>  <b>■ Regression, Clustering and Gene Set Methods in Genomics—Contributed</b>  <b>Section on Statistics in Genomics and Genetics</b>  Chair(s): Xuefeng Wang, MOFFITT Cancer Center</p>	<p>11:05 a.m. Using Regression Analysis to Improve the Quality and Efficiency of a Financial Audit Approach—♦Nicholas Brouwer, Office of the Auditor General of Canada; John Hilton, Office of the Auditor General of Canada</p>
<p>10:35 a.m. Robust Inference Based on High-Dimensional Multiple Regressions with Application to Biomarker Screening—♦Youngseok Song, Colorado State University; Wen Zhou, Colorado State University; Wenxin Zhou, University of California, San Diego; Kim Hoke, Colorado State University</p>	<p>11:20 a.m. Confidence Intervals for Proportion Estimates in Complex Samples for Performance Audits—♦James Ashley, Government Accountability Office; Carl Barden, United States Government Accountability Office; Danny Lee, United States Government Accountability Office</p>
<p>10:50 a.m. Moment-Based Estimation of Mixtures of Regression Models and Their Application in Genetic Studies—♦Claus Ekstrom, Biostatistics, University of Copenhagen</p>	<p>11:35 a.m. Construction of Strata Boundaries in Tax Auditing—♦Zachary Rhyne, Ryan, LLC; Roger C. Pfaffenberger, Ryan, LLC</p>
<p>11:05 a.m. Advances in the Hard Clustering of Categorical Data—♦Karin Dorman, Iowa State University</p>	<p>11:50 a.m. Subsampling Inference for Audit Sampling—♦Yongping Hao, HUD-OIG</p>
<p>11:20 a.m. FSCseq: Simultaneous Feature Selection and Clustering of RNA-Seq Data—♦David Lim, UNC Chapel Hill; Naim U. Rashid, University of North Carolina at Chapel Hill; Joseph G Ibrahim, UNC</p>	<p>12:05 p.m. Floor Discussion</p>
<p>11:35 a.m. Covariance Thresholding to Detect Differentially Co-Expressed Gene Sets—♦Hokeun Sun, Pusan National University; Mingyu Oh, Pusan National University; Kipoong Kim, Pusan National University</p>	<p><b>665</b> <span style="float: right;"><b>CC-110</b></span>  <b>Regression Methods for Longitudinal Data—Contributed</b>  <b>Section on Nonparametric Statistics</b>  Chair(s): Zachary R McCaw, Harvard T.H. Chan School of Public Health</p>
<p>11:50 a.m. Incorporating Prior Information into Signal-Detection Analyzes Across Biologically Informed Gene-Sets—♦Mengqi Zhang, Duke University; Sahar Gelfman, Institute of Genomic Medicine, Columbia University; Janice McCarthy, Duke University; David B Goldstein, Institute of Genomic Medicine, Columbia University; Andrew S Allen, Duke University</p>	<p>10:35 a.m. Efficient Estimation of Statistical Models for Longitudinal Data Under Local Box-Cox Transformation—♦Mohammed Chowdhury, Kennesaw State University</p>
<p>12:05 p.m. Integrating Pathway Information with Boosting to Construct a Sufficient Gene Set for Phenotype Classification—♦Nusrat Jahan, James Madison University; Huining Kang, University of New Mexico; Li Luo, University of New Mexico</p>	<p>10:50 a.m. Nonparametric Estimation of Time-Lagged Varying-Coefficient Models with Longitudinal Data—♦Xin Tian, National Heart, Lung and Blood Institute, National Institutes of Health; Colin O. Wu, National Heart, Lung and Blood Institute, National Institutes of Health; Xiaoying Yang, The George Washington University; Zhaohai Li, The George Washington University</p>
<p><b>664</b> <span style="float: right;"><b>CC-113</b></span>  <b>Making an Impact with Statistical Auditing—Contributed</b>  <b>Statistical Auditing Interest Group</b>  Chair(s): Brian Bucks, Consumer Financial Protection Bureau</p>	<p>11:05 a.m. Posterior Contraction and Credible Sets for Filaments of Regression Functions—♦Wei Li, Syracuse University; Subhashis Ghosal, North Carolina State University</p>
<p>10:35 a.m. Making an Impact: Combating Fraud with Forensic Statistical Analysis—♦Jonathan Woody, Mississippi State University</p>	<p>11:20 a.m. Prediction Intervals for Out-Of-Sample Forecasts Based on Spline Extrapolation—♦Jan Gertheiss, Helmut Schmidt University</p>
<p>10:50 a.m. Where Does Statistical Auditing Fit in a New Era of Artificial Intelligence and Machine Learning Solutions?—</p>	<p>11:35 a.m. Variable Bandwidth Kernel Regression Estimation—♦Janet Nakarmi, University of Central Arkansas; Hailin Sang, The University of Mississippi; Lin Ge, Mississippi State University</p>
	<p>11:50 a.m. Nonparametric Methods for Complex Multivariate Data: Asymptotics and Small Sample Approximations—♦Yue Cui, University of Kentucky; Solomon W. Harrar, University of Kentucky</p>
	<p>12:05 p.m. A Monotonic Relationship with an Ordinal Variable in Regression? How Many Degrees of Freedom Would That Use Up?—♦Julia Elizabeth (Kelsall) Crook, Mayo Clinic</p>

Name	Session	Name	Session	Name	Session	Name	Session
Aaby, David	501	Alam, Shameem	579	Anderson, Jana	402	Avasarala, Jagannadha R	528
Aakre, Jeremiah	402	Alamri, Faten	187	Anderson, Jeffrey	386	Avelar, Raul	188
Aban, Inmaculada	516	Alarcon Falconi, Tania	68	Anderson, Jerrod	416	Avogaro, Angelo	309
Abate Hoover, Marcey	57	Albaqshi, Amani	357	Anderson, Katrina	254	Avoundjian, Tigran	285
Abdalla, Abdelbaset	185	Albert, Paul	40, 245, 443, 510, 662	Anderson, Keaven	115	Awan, Jordan	133, 632
Abiero, Beatrice	169, 252	Albert, Carlo	107	Anderson, Kirk	330	Ayala, Mariana Saenz	406
Abner, Erin L	522	Albert, Jeffrey M	465, 509, 531, 570	Anderson, Margo	589	Ayilara, Olawale Fatai	167, 259, 534
Abowd, John M.	389	Albert, Jim	473	Anderson, Marti J.	615	Azoulay, Laurent	543
Abrams, Jennifer	653	Albin, Colton	28, 86	Anderson, Peter	529	Babu, G. Jogesh	222
Abreu, Denise A.	416	Aldahmani, Saeed	177	Anderson, Timothy Shawn	43, 87	Bach, MacKinsey A.	518
Acharyya, Satwik	162, 397	Aldirawi, Hani	126, 182	Anderson-Cook, Christine M	619	Bach, Peter B	174
Acharyya, Sudhasatta	221	Aldossary, Haya	511	Andrei, Adin-Cristian	16	Bacher, Rhonda	648
Ackerman, Benjamin	501	Alemayehu, Demissie	558	Andres, Barrientos Felipe	632	Bae, Yun Seo	236
Aðalgeirs Þóttir Guðfinna Th	162	Aleshin-Guendel, Serge	285	Andridge, Rebecca	153, 438, 442	Baele, Guy	237, 245, 287, 310
Adams, Bryan	125, 195	Alexander, Brian	239	AnÈ, CÈcile	527	Baer, Daniel R.	254
Adams, Roy	558	Alexander, Brittany	403	Angel, Diane	190	Baffour, Bernard	335
Adams, Ryan	286	Alexandrov, Boian	62	Angle, John	463, 519	Bagozzi, Benjamin E.	10, 320
Addona, Vittorio	232	Alexeev, Nikita	45	Ankerst, Donna	296, 361	Bai, Jiawei	443, 635
Adebimpe, Azeez	297, 362, 528	Algeri, Sara	222	Annan, Benjamin	294, 353	Bai, Jincheng	141, 254
Adegoke, Nurudeen A.	615	Alické, Bruno	170, 251	Antonelli, Joseph	494, 572	Bai, Ou	131
Adesnik, Hillel	271	Aljobaily, Hend	28, 86, 253	Aoki, Yutaka	338, 418	Bai, Peiliang	350
Adhikari, Samrachana	281	Alkema, Leontine	595	Apley, Daniel W	228	Bai, Ray	376, 572
Adin, Aritz	464, 520	Allen Moyer, Katherine	134	Appanna, Kalyanee	114, 170, 251	Bai, Shuyang	19, 122
Adnan, Mian	177, 241, 581	Allen, Andrew S	663	Arab, Ali	250	Bai, Yun	355
Adrian, Daniel	352	Allen, Genevera	60, 284, 294, 329, 353, 380	Arangdad, Shaghayegh	161	Bailer, John	16
Aeberhard, William	81	Allen, Larry	341	Arbeeva, Liubov	31	Bailey, Barbara Ann	546
Afsari, Bahman	596	Allen-Coleman, Cora	134, 527	Arbet, Jaron	43, 87	Bailey, Brittney	49, 438
Afshartous, David	568	Allore, Heather	167, 259	Arboretti, Rosa	617	Bainter, Sierra	238, 311
Agarwal, Amal	123	Almirall, Daniel	46, 301, 403, 466	Arbour, David	27, 88	Baiocchi, Michael	99, 281
Agarwal, Divyansh	593	Alomair, Gadir	257	Archambeau, Katie	606	Baker, Adam	522
Agarwal, Gaurav	414	Alonso Abad, Ariel	9	Archer, Kellie	305, 629	Baker, Shawn	579
Agarwala, Neha	128, 196	Alotaibi, Refah	254	Arciuolo, Robert	655	Bakoyannis, Giorgos	187
Agboola, Oluwagbenga	43, 87	Alothman, Ahmad	123	ArfÈ, Andrea	239	Bakshi, Rohit	528
Aggarwal, Ashish	355	Alqawba, Mohammed	581	Arguedas Leiva, Andres Esteban	238, 311	Bakshy, Eytan	494, 568, 645
Agniel, Denis	415	Alshattai, Danah	188	Arismendi, Ivan	577	Baladandayuthapani, Veera	37
Aguilar-Alvarez, David	522	Alshawabkeh, Akram N.	358	Armandpour, Mohammadreza	517	Balakrishnan, Narayanaswamy	35, 116
Ahanda, Benoit	81	Altan, Mehmet	420	Arnold, Richard	51, 76	Balakrishnan, Sivaraman	659
Aharoni, Ehud	471	Altan, Stan	383	Arora, Vipin	491	Balderama, Earvin	473
Ahearn, Thomas U.	40	Althobaiti, Abdulrahman	528	Arroyo, Jesus	413, 612	Baldi, Ileana	128, 196, 309
Ahmad, Ibrahim A	74	Altman, Naomi S	104, 527	Arshad, S. Hasan	180, 254	Baldoni, Pedro L.	170, 180, 251
Ahmed, Ashraf	74	Altwicker, Matthias	28, 86	Artemiou, Andreas	123	Balduccini, Marcello	297, 362
Ahmed, Azza	420	Alvarez, Carolina	31	Arthur, David	294, 353	Ball, Patrick	451
Ahn, Jaeil	171	Alverson, Clinton	419	Arunachalam, Vinayagam	296, 361	Ball, Sarah	358
Ahn, Jeongyoun	175, 184	Alwis, Priyan	132	Arvanitis, Matthew	187	Ball, Shane T.	654
Ahn, Mihye	603	Aly, Zeinab	528	Arya, Sakshi	35	Ballard, Timothy	335
Ahrens, Achim	274	Amaya, Ashely	419, 606	Aryee, Martin	351	Balmat, Tom	632
Ahrens, Maike	355	Amin, Atisha	169, 252	Aseltine, Robert	346	Balocchi, Cecilia	176
Aicher, Christopher	255	Amioka, Elise	423	Asher, Jana Lynn	469	Balu, Radhakrishnan	650
Aimone, Paola	496	Amit, Ohad	343	Ashley, James	664	Banack, Hailey	99
Airoldi, Edoardo	485	Amorim, Gustavo	375	Ashmead, Robert	458	Bandos, Andriy	227
Airoldi, Edoardo M	485	Ampudia, Miguel	395	Ashmead, Robert	29, 89	Bandyopadhyay, Dipankar	101, 322, 346
Ait Bihi Ouali, Laila	337, 417	An, Anjile	338, 418	Ashton, Teri	343	Bandyopadhyay, Soutir	121, 465, 531
Akande, Olanrewaju Michael	66	An, Lingling	351, 453	Atchade, Aguemon Yves	545	Bandyopadhyay, Dipankar	177
Aker, Amira M.	358	An, Ming-Wen	651	Athey, Susan	562	Banerjee, Anindita	299
Akhtar, Sandia	447	An, Xinning	144	Athreya, Avanti	585	Banerjee, Anjishnu	341
Al Abbas, Samar	74	Anacker, Tristan	127, 181	Aue, Alexander	56, 392	Banerjee, Chitrak	33
Al Snihi, Soham	358	Anand-Kumar, Vinayak	119	Ault, Kimberly	29, 89, 169, 252	Banerjee, Debapratim	45
Alam, Khurshid	570	Ances, Beau	212	Austin, Erin	71, 135, 255	Banerjee, Hiya	221
Alam, Morshed	173, 296, 361	Andalib, Vahid	349	Autenrieth, Maximilian	294, 353	Banerjee, Moulinath of	247, 345, 441

Name	Session	Name	Session	Name	Session	Name	Session
Banerjee, Paromita	509	Baumer, Ben	197	Beresovsky, Vladislav	423	Bisselou, Karl Stessy	128, 196
Banerjee, Prithish	129	Baumgartner, Richard	240, 467	Berg, Emily	295, 354, 631	Biswas, Bipasa	410
Banerjee, Samprit	200, 567	Baxter, Ron	352	Berg, Stephen	190	Biswas, Mityl	27, 88
Banerjee, Sayantan	563	Bay, Camden P	170, 251	Bergee, Rebecca	238, 311	Biswas, Swati	518
Banerjee, Shailendra	621	Bayati, Mohsen	213	Bergen, Silas	514	Bittner, Sean	256
Banerjee, Sudipto	121, 238, 254, 302, 311, 409, 578	Bayer, Damon	305	Berger, James	142, 317	Bitz, Cecilia	620
Banerjee, Trambak	657	Bayer, Valentina	100	Berk, Richard	630	Bjorkregen, Daniel	391
Banik, Asish	297, 362	Bayman, Emine	475	Bernhardt, Paul	128, 196	Black, Carla	358
Banker, Margaret	359	Beacham, Lauren	423	Bernstein, Jason	188, 462	Black, Joshua Curtis	403, 423
Banks, David	47, 50, 118, 210, 268, 478	Beaghen, Michael	242	Berrett, Candace J.	406, 487	Blackowicz, Michael	355
Banks, Duren	344	Bean, Brennan	574	Berrett, Thomas	243	Blades, Natalie	406
Banner, Katharine	340, 427, 577	Beatty, Paul	207	Berrocal, Veronica J.	10, 121, 335	Blair, Rachael Hageman	126, 182
Bannick, Marlena	420	Beauchamp, Michael	187	Berry, Don	115	Blake, Lewis	331
Banton, Dwaine	172, 383	Beaudry, Isabelle	14	Berry, Lindsay	478	Blandino, Andrew	392
Bao, Le	167, 190, 259, 464, 520, 647	Beaulieu, Claudio	495	Berry, Scott	6, 32, 111, 164	Blankenship, Erin E	445, 624
Bao, Weichao	326	Beavers, Daniel	31	Berzofsky, Marcus	169, 252	Blaser, Martin	234, 518
Bao, Weichao	299, 343	Bebu, Ionut	449	Bessac, Julie	249, 574	Blatchford, Patrick	170, 251, 355
Barbour, Christopher	470	Bechtel, Laura	153	Betancourt, Brenda	217, 286	Blei, David	154, 231
Barden, Carl	664	Beck, Cole	256, 443	Betensky, Rebecca	359	Blette, Bryan	167, 259
Bardenheier, Barbara	358	Becker, Stephen	414	Betrouni, Redouane	26, 654	Blizzard, Leigh	296, 361
Barker, Lawrence	621	Beckman, Matthew D	306	Beyene, Negasi	82	Blumberg, Stephen	655
Barnard, Ben	624	Bedford, Trevor	231	Bhadra, Anindya	253, 641	Blume, Jeffrey	223
Barnes, David	336	Bedi, Sandeep	77	Bharath, Karthik	37, 254, 452	Blumenstock, Joshua	35, 391
Barnes, Sean	656	Beecher, Compton	518	Bhargava, Karan	28, 86	Bobashev, Georgiy	29, 89, 178
Barnes, Tamsin	358	Beemer, Joshua	90	Bhattacharjee, Abhishek	40	Bobb, Jennifer F	472
Barnett, Ian	567, 617	Beer, Joanne C	38, 297, 362	Bhattacharjee, Arnab	274	Bobwin, Kelly	514
Baro, Elande	447	Beesley, Lauren	116	Bhattacharya, Anirban	34, 146, 162, 246, 254, 302, 340, 403, 427	Boe, Lillian	179
Baruñ, Anna	338, 418	Begg, Colin	279, 296, 361, 601	Bhattacharya, Bhaskar	509	Boehm Vock, Laura	84, 518
Baron, Michael	320, 643	Begg, Melissa	57	Bhattacharya, Indrabati	403	Boervinkle, Eric	137
Baroud, Hiba	657	Bejan, Cosmin A	256	Bhattacharya, Riddhiman	465, 531	Boettner, Bethany	120
Barraza-Rios, Maria	439	Bejko, Jonida	128, 196	Bhattacharya, Shrijita	39, 79	Bogdan, Malgorzata	541
Barreto-Souza, Wagner	358, 522	Bejleri, Valbona	300	Bhattacharyya, Amit	221, 399, 557	Bohm, Eric	167, 259
Barrientos, Felipe	286	Bekalarczyk, Dawid	337, 417	Bhattacharyya, Anwesha	254	Boiano, James M.	358
Barsan, William G	32	Belaskova, Silvie	187	Bhattacharyya, Arinjita	237, 310	Bolin, David	284
Barter, Rebecca	125, 195	Belin, Thomas	42, 171, 179	Bhattacharyya, Sharmodeep	544	Bolintineanu, Dan	561
Bartley, Meridith	577	Bell, Melanie	299, 608	Bhingare, Apurva	296, 361	Bon, Joshua	335
Barto, Lance	28, 86	Bell, William	138, 623	Bhuiyan, Mohammad Alfrad Nobel	464, 520	Bona, Jonathan	304
Bartolucci, Francesco	478	Bellinger, David C	472	Bi, Wenjian	622	Bondell, Howard D	499
Barton, Nathan	462	Belloni, Alexandre	626	Bi, Xuan	482	Bonhomme, Stephane	641
Bartyczak, Ron	555	Ben-David, Emanuel	660	Bian, Linkan	297, 362	Bonner, Elisa	36
Baryshnikov, Yuliy	7	Bender, Andrew	297, 362	Bianchi, Federica	478	Bonnery, Daniel	10, 153
Barzegary, Ebrahim	384	Bendjilali, Boualem	177	Bianconcini, Silvia	565	Bonnini, Stefano	617
Basak, Piyali	42	Bendjilali, Nasrine	177	Bickel, Peter J	490, 544	Bonvini, Matteo	562
Basaraba, Cale	521	Benecha, Habtamu	138, 416, 419	Bielekova, Bibiana	470	Bookhultz, Shane	422
Basch, Ethan	355, 628	Benedetti, Marco	335	Bien, Jacob	163, 284, 381, 444	Boone, Edward L	187, 661
Basse, Guillaume	485	Benedick, Amy	476	Bienkowska, Jadwiga R	296, 361	Boonstra, Phil	256, 376, 442
Bassel, Noah	655	Benesh, Bret	256	Bilder, Christopher	403	Booth, James	338, 418
Bastide, Paul	237, 310	Ben-Hur, Dano	215	Bilinski, Alyssa	167, 259	Borengasser, Sarah J	575
Bastone, Laurel	355	Benjamini, Yoav	160, 318, 465, 531	Billard, Lynne	50, 422	Borhan, Sayem	71
Basu, Pallavi	657	Benkeser, David	24	Billor, Nedret	465, 531	Bornkamp, Bjoern	299
Basu, Sanjay	256	Benn, Emma	224	Bingham, Derek	462	Boschi, Tobia	133
Basu, Sanjib	397, 464, 468, 520	Bennett, Iris	470	Bingham, Melissa	411	Bose, Arup	392
Basu, Saonli	81, 156, 237, 310	Bennette, Carrie	339, 426	Binkowitz, Bruce	364	Bose, Maitreyee	296, 361
Basu, Sumanta	544	Benoit, Julia	84	Binois, Mickael	600	Boss, Jonathan	358
Bates, Nancy	138	Benzing, Jake	504	Bird, Jennifer	621	Botelho, Anthony	391
Bates, Stephen	247, 601	Beran, Jan	290	Birrell, Carol	41	Bottigliengo, Daniele	128, 196, 309
Batool, Fatima	126, 182	Berchialla, Paola	128, 196, 309	Birrer?, Simon	222	Bottio, Tomaso	128, 196
Batson, Scott	465, 531	Berchick, Edward	275	Bishop, James	619	Bouajila, Sara	27, 88
Battacharya, Tanmoy	474	Berchuck, Samuel	522, 649	Bishop, Michael	475	Bouchard, Kristofer	544
Bauer, Cici	649	Beresovsky, Vladislav	442	Boucher, Jean-Philippe	566		

Name	Session	Name	Session	Name	Session	Name	Session
Boukari, Fatima	82, 618	Brown, Caitlin	238, 311	Buzas, Jeffrey S	629	Cardinal-Stakenas, Adam	149
Boukari, Hacene	82	Brown, Christy	569	By, Kunthel	496	Carlin, Bradley	334
Bourgeois, Daniel	444	Brown, David	423	Byrd, Michael	572	Carlin, Caroline	334
Bowden, Jack	27, 88	Brown, Ethan	306	C. Marques F., Paulo	254	Carlson, Nichole E	90, 297, 358, 362
Bowen, Claire McKay	134, 448	Brown, Grant D	85	Caffo, Brian	135, 509, 576	Carlson, Paul J.	476
Bower, Michael	90	Brown, James Bentley	659	Cafri, Guy	8	Carnegie, Nicole	464, 520
Bowman, Dale	304	Brown, Jennifer	522	Cahoon, Elizabeth K	304	Carnes, Neal	420
Boyle, Alice	577	Brown, Lisa	405	Cahoy, Dexter	254	Carone, Marco	393, 499, 562
Boyle, Linda Ng	29, 89, 136, 476	Brown, Nick	283	Cai, Biao	80	Carpenter, Charlie	465, 531
Bradbrook, Keighly	73	Brown, Roland	422	Cai, Bo	574	Carpenter, James Robert	438
Bradbury, Marcela	238, 311	Brown, Siobhan	529	Cai, Chunyan	257	Carriquiry, Alicia	2, 143, 399, 554, 613
Bradley, Jonathan R.	254, 334, 376, 586, 631	Brown, Taylor	29, 89, 135	Cai, Diana	286	Carroll, Raymond J.	72, 113, 488, 581
Bradley-Trietsch, Logan	256	Browning, Christopher R.	120, 245	Cai, Jianwen	179	Carrozzini, Massimiliano	128, 196
Brahim, Brahim	76, 611	Brownstein, Naomi	504	Cai, Junhui	288	Carry, Patrick M	527
Bramer, Lisa	62, 95	Brubaker, Linda	662	Cai, Liqian	274	Carter, Brandon	659
Bramlett, Matthew	655	Bruce, Scott Alan	71, 244	Cai, Na	237, 310	Carter, Jamylle	256
Branda, Megan	420	Bruch, Christian	623	Cai, T. Tony	103, 142, 243, 318, 345, 626	Casadebaig, Marie-Laure	496
Brantingham, P. Jeffrey	50	Brugarolas, James	351	Cai, Tianxi	9, 216, 626	Casey, Michelle	496
Brase, Jan Christoph	170, 251	Brummet, Quentin	28, 86	Cai, Tony	272	Casleton, Emily	62, 600
Brassell, Thomas	29, 89	Bryan, Jennifer	217	Cai, Xiaoxuan	250	Caspell-Garcia, Chelsea	339, 426
Brault, Matthew	174	Bryan, Stirling	532	Cai, Xizhen	614	Castelo, Robert	636
Braun, Alina	187	Brynjarsdottir, Jenny	450	Cai, Zhanrui	247	Castillo, Ismael	376, 625
Braun, Danielle	30, 309, 497	Brzyski, Damian	212	Calabrese, Raffaella	406	Castillo-Mancilla, Jose	529
Braun, Rosemary	394	Buchanan, Ashley	14	Calandra, Roberto	645	Castro, Jr., Edward C.	242
Braun, Thomas M	483	Buchanan, James	557	Calder, Catherine A.	120, 245	Castruccio, Stefano	64, 121
Braverman, Amy J	308	Buchowski, Maciej S	443	Calhoun, Peter	522	Catenacci, Victoria A	43, 87
Bravo, Hector Corrada	234	Bucks, Brian	395, 664	Callahan, Leigh	31	Cath, Tzahi	390
Brearley, Ann M	483	Budsaba, Kamon	522	Callegaro, Andrea	405	Caudle, Kyle	525
Brechmann, AndrÈ	603	Budtz-Jorgensen, Esben	472	Camacho, LuÈsa	155	Cawse-Nicholson, Kerry	308
Breeden, Larry	28, 86	Buesser, Beat	350	Cameron, Briana	662	Ceccato, Riccardo	617
Brega, Moorea	639	Bugni, Federico	626	Cameron, Eric	528	Cernat, Alexandru	169, 252
Breheny, Patrick	129	Buhl, Derek	635	Cameron, Kirk	168, 260	Cerqueira, Daniel	160
Breidt, F Jay	423	Bhlmann, Peter	145	Campbell, Alicyn	355	Cetinkaya-Rundel, Mine	388
Breidt, Jay	606	Buhr, Kevin	491	Campbell, Georgianna	517	Chaganty, Rao	581
Brems, Matt	569	Bui, Chinh	256	Campbell, Gregory	315	Chakrabarti, Avik	341
Brennan, Andrew	654	Buja, Andreas	550	Campbell, Kristen	522	Chakrabarti, Subhabrata	29, 89, 615
Brennan, Tegan	297, 362	Bullock, Dirk	242	Campbell, Trevor	67, 286	Chakrabarty, Paramita	254
Bresler, Guy	636	Bunn, Veronica	32, 170, 251, 343	Campos, Emilie	521	Chakrabarty, Avishek	409
Bressler, Jan	518	Burkhardt, Philipp	125, 195	Campos, Mauricio	168, 260	Chakrabarty, Bibhas	112
Bretz, Frank	399, 637	Burgette, Lane	407	Candes, Emmanuel	103, 247, 601	Chakrabarty, Dipnil	35
Bridge, Matthew F	190	Burghardt, Elliot	339, 426	Cannings, Timothy I.	85, 178, 634	Chakrabarty, Hrishikesh	570
Bridges Jr., William C.	256, 527	Burkhauser, Richard	106	Cano, Miguel Angel	27, 88	Chakrabarty, Moumita	246, 625
Bridges, William	419	Burnham, Ella	624	Cantoni, Eva	81	Chakrabarty, Nilanjana	340, 427
Brinkers, Katherine	420	Burr, Thomas	36	Cao, Charlie	343	Chakrabarty, Sanjukta	40
Brinkley, Jason	174	Burrill, Gail	117, 336	Cao, Guanqun	132	Chakrabarty, Saptarshi	254
Brittain, Erica	34, 128, 196	Bursac, Zoran	27, 88	Cao, Hongyuan	21	Chakrabarty, Saptarshi	279
Broadbent, Mary Beth	639	Burskirk, Trent	295, 354	Cao, Jian	19	Chakrabarty, Sayan	350
Broderick, Tamara	67, 146	Burton, David S.	126, 182	Cao, Ricardo	270	Chakrabarty, Shubhadeep	634
Brokamp, Cole	464, 520	Burzynski, Joseph	655	Cao, Xiangyang	129	Chakrabarty, Sounak	246
Broman, Karl	401	Bush, Mary Ann	654	Cao, Xuefei	576	Chakravarti, Purvasha	659
Brookmeyer, Ron	464, 520	Businelle, Michael	18	Cao, Xueyuan	126, 182	Chakravarty, Aloka	558
Brooks, Connor	344	Bussberg, Nicholas	308	Cao, Yi	167, 259	Chalise, Prabhakar	296, 361
Brooks, Daniel	521	Butera, Nicole	179	Capanu, Marinela	601	Challacombe, Chelsea	600
Brooks, Kristina	529	Butler III, Robert	40	Cape, Joshua	136, 307, 547	Chambers, Richard B.	403
Brophy, Juliet	79	Butler, Brett	469	Capel, Francesca	291	Champion, Daniel J.	62
Brouwer, Nicholas	664	Butler, Emily	496	Cappelleri, Joseph C	628	Chan, Julian	27, 88, 522
Brown, Allison C	358	Butt, Sarah	13	Capuano, Ana W.	346	Chan, Kwun Chuen Gary	316
Brown, Andrew	516, 528, 576	Butterworth, Trevor	26	Caram, Megan	167, 259	Chance, Beth	90, 388, 435
Brown, Andrew W.	283	Butts, Carter Tribley	340, 427	Carbo, Jose M.	618	Chandereng, Thevaa	470
Brown, Austin	421, 615	Buyse, Marc	9	Cardenas, Andres	168, 260	Chandola, Tarani	169, 252

Name	Session	Name	Session	Name	Session	Name	Session
Chandrasekaran, Bharath	563	Chen, Cong	128, 170, 196, 251, 343	CHEN, YI	241, 477	Choi, Grace	567
Chaney, Allison	384	Chen, Fang	536	Chen, Yilin	215	Choi, Hosik	175
Chang, Chi	294, 353, 358	Chen, Geng	468	Chen, Yiling	229, 453	Choi, Jeea	170, 251
Chang, Chung	129	Chen, Guanhua	102, 118	Chen, Ying	83	Choi, Leena	256, 405, 443
Chang, Chung-Chou H.	293	Chen, Han	27, 88, 137	Chen, Ying Qing	216, 404	Choi, Seunghee	90
Chang, Guang-Hwa Andy	294, 353	Chen, Hao	163, 175	Chen, Ying-Ju	465, 531	CHOO-WOSOBA, HYOYOUNG	40
Chang, Howard	414, 487	Chen, Haoyu	75	Chen, Yining	243, 477	Chou, Doris	595
Chang, Hsing-Yi	522	Chen, Helen	355, 479	Chen, Yixin	17	Chou, Elizabeth	659
CHANG, HSIUCHING	340, 427	Chen, Hua Yun	471	Chen, Yong	72, 273, 358	Chou, Lin-Na	358, 653
CHANG, Hsuan-Yu	84	Chen, Huaihou	128, 196	Chen, Yong	180	Choudhury, Arkopal	85
Chang, Jinyuan	626	Chen, Huichao	240	Chen, Yuan	393	Chow, Benjamin	516
Chang, Mark	17, 355	Chen, Jianfeng	116	Chen, Yuguo	340, 427, 544	Chow, Eric KH	27, 88
Chang, Matthew	527	Chen, Jie	240	Chen, Zhen	82, 296, 361	Chow, Shein-Chung	612
Chang, Patrick	297, 362	Chen, Jie	228	Chen, Zijuan	352	Chowdhury, Arnab	658
Chang, Victoria	277	CHEN, JINGJING	304, 468	Chen, Ziqiang	410	Chowdhury, Dhuly	169, 252
Chang, Won	249	Chen, Jinjie	358	Chen, Zixiang	141, 254	Chowdhury, Kali	604
Chang, Xiaohui	190, 577	Chen, Jinsong	471	Cheng, Bin	339, 426	Chowdhury, Mohammed	665
Chang, Xinyue	403	Chen, Jun	11, 225	Cheng, Chin-l	305	Chowdhury, Sadeq R	474
Chang, Yen-Chang	337, 417	Chen, Ke-Jie	350	Cheng, Chuchu	255	Chowdhury, Shrabanti	129, 507
Chang, Yin-Chu	408	Chen, Kun	298, 328, 346	Cheng, Chunrong	349	Christensen, Garret	469
Chang, Yi-Ting	653	Chen, Lei	33	Cheng, Guang	141, 254, 294, 307, 353, 517, 588	Christensen, Jared	114
Chan-Golston, Alec M	238, 311	Chen, Leqi	28, 86	Cheng, Jerry Q.	616	Christensen, Michael	620
Chao, Chang-Tai	41	Chen, Likai	477	Cheng, Kedai	338, 418	Christensen, Wendy	465, 531
Chao, Shih-Kang	307	Chen, Lin	527, 598	Cheng, Po-Yung	358	Christensen, William	249
Chapman, Chrstina Hunter	621	Chen, Ling	73	Cheng, Si	409	Christiani, David C	472
Chapman, Jessica	49	Chen, Ling-Wan	404, 564	Cheng, Wenting	571, 610	Christopherson, Pamela	526
Chapp, Christopher	337, 417	Chen, Lucia	522	Cheng, Xiaoyue	655	Chu, Chenghao	614
Chappell, Rick	470	Chen, Mason	29, 89, 230, 421	Cheng, Xu	602	Chu, Haitao	167, 259, 334, 358, 407, 542, 662
Chapple, Andrew	46	Chen, Ming-Hui	122, 254, 343, 506, 542	Cheng, Yang	10, 96, 208, 373, 434, 540, 579	Chu, Jen-hwa	351
Charles, Colin	661	Chen, Nan	31, 257	Cheng, Yu	303, 404	Chu, Jufen	571
Charles, Lauren	619	Chen, Patrick	138	Cheng, Yu-Chieh	131	Chu, Lynna	163
Chase, Elizabeth C	256	Chen, Qiaolin	602	Cheng, Yu-Jen	127, 181, 293	Chu, Su	167, 259
Chatterjee, Ayona	189	Chen, Qiaolin	602	Chernofsky, Ariel	82	Chua, Cheng Han	350
Chatterjee, Nilanjan	40, 156, 551	Chen, Qiusheng	343	Chernozhukov, Victor	626	Chun, Asaph Young	236, 623
Chatterjee, Saptarshi	129, 376, 468	Chen, Qixuan	391, 522	Chernyavskiy, Pavel	190	Chun, Paul	236
Chatterjee, Shirshendu	544	Chen, Richard	508	Chesnut, Thomas John	295, 354, 579	Chunara, Rumi	647
Chatterjee, Snigdhansu	10, 320, 382, 603	Chen, Rong	477, 546	Cheung, Li	449	Chung, Dongjun	175
Chaturvedi, Anil	358	Chen, Rui	284	Cheung, Ying Kuen Ken	12, 112, 339, 426	Chung, Hee Cheol	175
Chaudhry, Sharang	347	Chen, Shizhe	271	Chevalier, Manuel	620	Chung, Jongik	184
Chaudhuri, Sanjay	509	Chen, Sixia	158, 169, 252, 423	Chi, Eric	588	Chung, Younshik	657
Chauldhry, Sahil	301	Chen, Sixia	169, 252	Chi, Zhiyi	506	Ciarleglio, Adam	301, 483
Chaussee, Erin Leister	341, 529	Chen, Siyi	522	Chiang, Timothy	337, 417	Ciarleglio, Maria	206, 372, 539
Chaves-Montero, Jonas	573	Chen, Song Xi	132, 190, 508, 626, 659	Chiaromonte, Francesca	133	Cibelli Hibben, Kristen	13
Che, Menglu	30	Chen, Stone	422	Chib, Siddhartha	397	Cichos, Stephan	355
Chee, Jerry	220, 559	Chen, Su	254	Chicken, Eric	70, 254	Cieslak, Matthew	297, 362
Chen, Allshire	423	Chen, Te-Ching	27, 88, 238, 311	Chinchilli, Vernon	245, 408, 614	Cirkovic, Daniel	177
Chen, Baoline	565	Chen, Wanfang	64	Chiou, Yung-Huei	190	Cisneros, Daniela	190
Chen, Bei	350	Chen, Wei	403	Chipman, Jonathan	27, 88	Citro, Connie	556
Chen, Bin	58	Chen, Wei	453, 516	Chittams, Jesse	280	Clark, Ashley	83
Chen, Cathy W. S.	83	Chen, Weijie	85, 227	Chiu, Julianne	230, 421	Clark, Nicholas	125, 195, 235
Chen, Charles	29, 89, 230	Chen, Xi	478	Chiu, Weihsueh	461	Clark, Nicholas	235
Chen, Charles	527	Chen, Xi	127, 181, 220	Chkrebtii, Oksana	254	Clark, Nicholas	126, 182
Chen, Chen	355	Chen, Xiaofei	403	Chmiel, Joan	16	Clark, Sandra	157
Chen, Chen	662	Chen, Xiaohui	132, 411, 584	Cho, Hyunkeun	594	Claus Henn, Birgit	472
Chen, Chian	507	Chen, Xinyu	347	Cho, Jang Ik	465, 531	Clavner, Michal	360
Chen, Chia-Yen	498	Chen, Xiongzh	81	Cho, Michael	167, 259	Clayton, Murray	190
Chen, Chixiang	499	Chen, Xun	17	Cho, Min Ho	294, 353	Cleeland, Charles	420
Chen, Chun-Shu	190	Chen, Yanjun	341, 506	Cho, MoonJung	289, 469	Clement, Lieven	648
Chen, Chyong-Mei	244	Chen, Yao	329	Choi, Byeong Yeob	27, 88	Cleveland, Becki	31
Chen, Cindy	552	Chen, Yaqinq	133	Choi, Dongseok	377	Cleveland, Judah L.	190, 425

Name	Session	Name	Session	Name	Session	Name	Session
Cleynen, Alice	107	Cooper, Gregory E	522	Cummiskey, Kevin	125, 195	Datta, Somnath	466, 522, 527
Clifton, Jesse	112, 213	Cooper, Nigel G.F.	403	Cunanan, Kristen	326	Datta, Sujay	620
Clothier, Barbara	616, 658	Cooray, Kahadawala	305, 512	Cunningham, Erika	187	Datta, Susmita	233
Co, Carroll A	190	Copeland, Kennon	434	Cunningham, John	256	Dau, Andrew	119, 300, 333
Coakley, Kevin J	36	Corcoran, Chris	187	Cunny, Ph.D., Helen	522	Daughton, Ashlynn	320
Coar, William	367	Cordero, Jose F.	358	Cureg, Edgardo	238, 311	Davern, Michael	389
Cobb, Loren	250, 338, 418	Corigliano, Ellie	644	Currim, Imran	604	Davi, Ruthie	605
Cochran, James	152	Corinth, Kevin	106	Curry, Peter	465, 531	Davies, Katie	119
Coemans, Maarten	612	Corliss, David	26, 511	Curtiss, Phyllis	330	Davies, Molly	639
Coffey, Christopher	339, 426	Cornes, Fernando	188	Curto, Teresa	355	Davis, Basil	620
Coffey, Stephanie M	333, 613	Corrado, Carol	363	Cushman, Daniel	43, 87	Davis, Gary	424
Coffey, Todd	206	Corral, Gavin	333, 419, 660	Czajka, John	275, 489	Davis, Kenneth	76
Coffman, Donna L.	27, 88, 167, 259, 346, 523, 614	Correia, Katharine	621	Czaplicki, Nicole	300, 565	Davis, Kent	445
Cofield, Stacey S.	42	Corrigan, Matthew	138	Cziffra, Johnathon	664	Davis, Nicholas	579
Cohen, Achraf	256	Cortina-Borja, Mario	160	Daalmans, Jacco	153	Dawson, Jeffrey	346
Cohen, Alex	190	Corzo, Ruthie	504	D'Acunto, Laura	423	Dawson, Matthew	133
Cohen, Annie	528	Costa Araujo, Natalia	422	D'Agostino McGowan, Lucy	211	Dayton, James	29, 89, 295, 354
Cohen, Mike L.	50	Costa, Michael	180	Dagum, Estella	565	Daza, Eric J.	27, 88
Cohen, Mitchell Jay	187	Cotten, C. Michael	40	Dagum, Paul	144	de Andrade, Mariza	156
Cohen, Peter Lucas	27, 88	Couch, Melaine Oliveira	254	Dahl, David	659	De Chavez, Peter John	611
Cohen, Steven	656	Coulibaly, Siata	28, 86	Dahlhamer, James	492	De Gruttola, Victor	73, 472
Coifman, Ronald	588	Coull, Brent A.	168, 260, 340, 427, 472, 494, 652	Dai, Ben	59, 454	de Jong, Julie	13
Cole, Benjamin	337, 417	Couzens, Lance	344	Dai, Biyue	129	De Leon, Alexander	506
Cole, Stephen R.	358	Cowles, Kate	577	Dai, Fan	136, 294, 353	De Leonardis, Doreen	476
Coleman, Deidra	256	Cox, Kelsea	421	Dai, Hongying	128, 196, 408	De Moor, Carl	309, 355
Coleman, Jacob	340, 427	Crabill, Douglas	256	Dai, James	140	De Nadai, Alessandro	338, 418
Coleman, Timothy	90	Craig, Bruce A.	6, 173, 578	Dai, Wenlin	414	de Oliveira Otto, Marcia C	43, 87
Coleman-Jensen, Alisha	138	Craigmile, Peter F.	78, 346	Dai, Xiongtao	271, 403, 614	de Perio, Marie A.	358
Coles, Adrian	280	Crainiceanu, Ciprian	43, 87, 90, 352, 567	Daignan, Jean-Michel	602	de Queiroz, Gabriela	400
Coley, Rebecca Yates	551	Crawford, Amy	613	Dalal, Archismita	650	de Rochemonteix, Matthieu	156
Collamore, Jeffrey	460	Crawford, Forrest W	250, 321, 573, 592	Dalby, Sean	300	De Vito, Roberta	254
Collins, David H.	85	Crawford, Lorin	7	Dalla Valle, Luciana	160	De Waal, Ton	153
Collins, James	425	Creamer, John	275	Dallakyan, Aramayis	127, 181	Dean, Natalie E	321, 403
Collins, Sarah M	190	Creasy, Seth A.	43, 87	Dalmasso, Niccolo	43, 87, 303	Deb, Nabarun	243
Collins, Thomas	256	Creel, Darryl	623	Damaraju, CV	198	De Clercq, Josh	405
Collins, William	331	Crespi, Kate	298	Dambon, Jakob	308	Degnan, James	527
Colombo, Paolo	358	Cressie, Noel	450	Damiano, Luis	297, 362	Degnan, James	237, 310
Combs, Adam	340, 427	Cresswell, Kellen	180	D'Amour, Alexander	154	Degtyarov, Irina	167, 259
Comment, Leah	162	Cribben, Ivor	307	D'Amour, Alexander N	323	Dekhtyar, Evgeny	496
Cong, S	352	Crippa, Paola	64	Dan, Kazuhiro	358	Dekhtyar, Alexander	514
Conn, Daniel	480	Cripps, Sally	439	Daniel, Carrie R.	254	Del Valle, Sara	320
Connick, Elizabeth	522	Croft, Janet B.	403	Daniels, Michael	552	Del Zanna, Giulio	291
Conrad, Fred	295, 354	Cromer, Molly	528	Daniels, Michael	80, 167, 259, 298, 396, 501	de Lafontaine, Guillaume	168, 260
Constantinescu , Emil	249	Crook, Jonathan	406	Danks, David	384	DeLaura, Michael	37
Consul, Juliana Iworiukumo	254	Crook, Julia Elizabeth (Kelsall)	665	Danyluk, Andrea	388	Delcher, Chris	175
Contescu, Cristian	134	Cross, Chad	43, 87	Dao, Thy	658	delMas, Robert	306
Conway, Kristin	358	Crotty, Michael	214	Daponte, Beth	451	Demateis, Danielle	523
Cook, Dennis	319	Crouch, Dustin	38	Dart, Richard C	403	DeMatteis, Jill	492, 548
Cook, Dianne	19, 217, 314, 550	Crow, Lauren	522	Das, Jishnu	276	Demirdjian, Levon	527
Cook, Kaitlyn	404	Crumley, Tami	653	Das, Manjari	78	Demirkaya, Emre	601
Cook, Tyler	189, 294, 353	Cruz, Maricela	167, 259	Dasarathy, Gautam	60, 294, 353	Demler, Olga	512
Cook-Wiens, Galen	355	Cruze, Nathan	84, 138, 458	Dasgupta, Anirban	142	Demnati, Abdellatif	42
Cooley, Dan	382	Cubillos, Juan Sebastian	74	Dasgupta, Sayan	216	Dempsey, Walter	12, 309
Cooley, Laura A	298	Cuellar, Maria	309	Dasgupta, Sutanoy	403	Denaro, Kameryn	90, 125, 195
Cooley, Scott	134	Cuellar, Maria	579	Dasgupta, Tirthankar	485, 600	Denbaly, Mark	138
Coombes, Brandon	156	Cuevas, Sergio	337, 417	Daskalakis, Demetre	655	Deng, Chunqin	355
Cooner, Freda	398, 493	Cui, Yifan	278, 659	Datta, Abhi	37, 276, 409, 487	Deng, Chuyu	358
Cooner, Freda	1, 493	Cui, Yue	665	Datta, Jyotishka	233, 541, 563, 641	Deng, Grace	337, 417
Cooney, Helen	473	Cui, Zhanglin	447	Datta, Pratyay	411	Deng, Hang	441
Cooper, Alexia	169, 252	Cummings, Charisse	423	Datta, Rupa	289, 333	Deng, Jinliang	248

Name	Session	Name	Session	Name	Session	Name	Session
Deng, Li	464, 520	Dinse, Gregg E	190	Dudas, Gytis	231	Ekstrom, Claus	663
Deng, Shaofen G.	655	DiPietro, Kelsey	350	Dudek, Ania	403	Ekwall, Karl Oskar	455
Deng, Wenxuan	129	Director, Hannah	151, 620	Dudley, Joel	15	El Karoui, Noureddine	481
Deng, Xinwei	600	DiStefano, Charlotte	212	Dueck, Amylou C.	628	El Yaagoubi Bourakna, Anass	528
Deng, Xuan	355	Divani, Afshin	243	Duerrbaum, Milena	527	Elam-Evans, Laurie D.	242, 656
Deng, Yangqing	126, 182, 571	Dixit, Vaidehi	541	Dugan, Adam	137	Elashoff, David	522, 526
Deng, YangYang	183, 295, 354	Dixon, John	416	DuGoff, Eva Hisako	502	Eleish, Ahmed	297, 362
Deng, Yujia	482, 603	Djira, Gemechis	523	Dumas, Jonathan	602	Elias, Gabriel	173
Denny, Joshua C	256	Dmitrienko, Alex	339, 426	Dumbacher, Brian	248	Eliason, Jacob	43, 87
Deoni, Sean	271	Dmitrienko, Anastasia	256	Dumelle, Michael	190	Ellenberg, Susan S.	387, 557
DePalma, Glen	641	Do, Kim-Anh	279	Dumitrascu, Bianca	286	Ellinson, Leif	243, 403
Deppa, Brant	514	Do, Tuan	127, 181	Dunbar, Michael S.	296, 361	Elliott, Marc	174
Desai, Apurva Sunder	254	Dobriban, Edgar	272, 392	Duncan, Andrew	67	Elliott, Michael41, 167, 215, 259, 335, 379, 438, 522, 552	
Desai, Manisha	27, 88, 112, 203, 309	Dochitoiu, Catalin	565	Dunipace, Eric Arthur	613	Elliott, Peter W.	528
Desai, Saaketh	256	Dohrmann, Sylvia M	606	Dunson, David34, 105, 146, 231, 233, 254, 452, 461, 499, 513, 563		Ellis, Amanda Rae	189, 335
Deshmukh, Rahul	403	Dombrowski, Julia C	285	Duprey, Michael	333	Ellis, Renee	295, 354
Deshpande, Sameer K.	302, 323	Dominici, Francesca30, 65, 167, 256, 259, 497		Dupuis, Annie	192	Ellis, Rory	255
Devarajan, Karthik	126, 182	Donahue, Erin	128, 196	Durso, Catherine	346	Ellis, Shannon E.	219
Dever, Jill A	379, 419	Dong, Fran	527	Dusza, Stephen W	82	Elmi, Angelo F	194
Devick, Katrina	472	Dong, Gaohong	277	Dutta, Somak	135, 136, 190, 613	Elmore, Ryan	235
Devkota, Mitra Lal	611	Dong, Khoa	29, 89, 579	Dvorak, Justin	128, 196	Elnaiem, Rabab	355
Devlin, Bernie	575	Dong, Li	575	Dwivedi, Alok	131	Eltinge, John L.	69, 333, 540
DeWitt, Peter	358	Dong, Mei	192	Dwivedi, Sada Nand	131, 522	Elwell, James	106
Dey, Asim	382, 619	Dong, Qingli	270	Dwork, Cynthia	633	Elzarka, Ayya	630
Dey, Rajarshi	337, 417	Dong, Yingwen	522	Dworkin, Jordan	528	Emerson, Scott	529
Dey, Rounak	237, 310	Dong, Yuexiao	123	Dyda, Ulrike	528	Emonds, Marie-Paule	612
Dey, Tanujit	570	Dong, Zhiyuan	167, 259	Dzemidzic, Mario	212	Enamorado, Ted	285
DeYoreo, Maria	301	Dooling, Kathleen	464, 520	Dziak, John J.	346	Enders, Felicity	104
Dhamija, Devika	662	Dorazio, Leah	189	Dzyabura, Daria	384	Engelhardt, Barbara	254, 286, 384
Dhara, Kumaresh	298	Dorer, Brita	13	Eadie, Gwendolyn Marie	125, 195	Engle, Helen	328
Dharan, Bharani	114, 170, 251, 467	Dorhout, Jacquelyn	619	Eagan, Will A.	173	Englert, Stefan	496
Dharmarajan, Sai	244	Dori, Chrysanthi	355	Eakin, Mark	463, 519	English, Ned	161, 606
Di, Junrui	443	Dorman, Karin	652, 663	Earp, Morgan	416	Ensor, Katherine	56, 151
Di, Yanming	84	Dorn, Mary Frances	94, 202, 248, 348	Eaton, Jeffrey	464, 520	Entsuah, Richard	405
Diakonikolas, Ilias	269	Dorsey, Rashida	66	Ebert, David S.	161	Epasinghege Dona, Nirodha Mihirani	305
Diallo, Aldiouma	464, 520	Dorso, Claudio	188	Ebert-Uphoff, Imme	382	Erciulescu, Andreea	10, 503, 654
Diallo, Mamadou	503	Dougherty, Robert	144	Eck, Daniel	321, 592	Erdmann-Pham, Dan D.	446
Diao, Guoqing	277	Downs, Robert	297, 362	Eckel, Sandra P	297, 362	Erhard, Laura	469
Diawara, Norou	464, 520, 581	Dozmorov, Mikhail	180	Eckles, Dean	494, 568, 592	Erhardt, Erik	591
Diaz, Francisco	341, 522	Dragalin, Vladimir	115, 479	Eckley, Idris	67	Erhardt, Robert	190
Diaz, Ivan	358, 494, 567	Draves, Benjamin	659	Eckman, Stephanie	207	Erichson, N. Benjamin	559
Dibaj, Shiva	465, 531	Drechsler, Joerg	54, 98, 632	Eddy, Bill	143	Erickson, Tim	282
DiBenedetto, Alexa	169, 252, 295, 354	Drton, Mathias	163	Edwards, Ashley	275	Erlandson, Kristine	529
Dickens, Joseph	422	Dryden, Ian L	452	Edwards, Brad	13	Ertefaie, Ashkan	99, 139
Dickinson, Abigail	212	D'souza, Julius	110	Edwards, David	134, 187	Escobar, Michael	192
Diecker, Kelly	660	du Toit, Nola	25, 28, 86, 337, 417	Edwards, Don	85	Eskridge, Kent	134
Dietterich, Thomas G.	256	Du, Jiachun	602	Edwards, Jessie	501	Esslinger, George	90
Diez Roux, Ana	237, 310	Du, Jiejun	263	Edwards, Jonathan	340, 427	Estes, Jason P	506
DiMarco, David	125, 195	Du, Pang	159, 352	Edwards, Karen L.	237, 310	Etheridge, Alison	262
Dimmery, Drew	27, 88	Du, Ruofei	529	Edwards, Lisa	355	Etkin, Amit	144
Dimova, Rositsa	405	Du, Yeting	342	Edwards, Scott V	480	Etzioni, Ruth	93
Ding, Bifeng	456	Du, Yinhao	622	Efird, Jimmy	534	Eugenio, Evercita Cuevas	448
Ding, Jie	38	Du, Yu	148, 339, 426	Efromovich, Sam	35	Eustace, Deogratias	188
Ding, Kai	128, 196	Duan, Franklin	419	Eftekhari, Hamid	345	Evans, Ciaran	297, 362
Ding, Lei	136	Duan, Jiawei	403	Egan, Joel M	168, 260	Evans, Katherine	323
Ding, Peng	145, 288, 562	Duan, Lewei	167, 259	Egid, Adin	62	Evans, Scott R	342
Ding, Shanshan	48	Duan, Li	297, 362	Eisenhauer, Elizabeth	661	F. Lopes, Hedibert	254
Ding, Tianyu	528	Duan, Rui	72	Ek, Bryan	465, 531	Fadikar, Arindam	573
Ding, Ying	143, 403, 404, 644	Duan, Yuanyuan	615	Ekanayake, Rukman	463, 519		
Diniz, Marcio Augusto	254	Dubey, Paromita	133				

Name	Session	Name	Session	Name	Session	Name	Session
Fadini, Gian Paolo	309	Ferguson, Kelly K.	358	Formentini, Sarah	522	Fuentes, Montserrat	437, 552, 576
Fagan, Brennen	495	Fergusson, Anna	282	Forrest, William	170, 180, 251	Führer, Tobias	187
Fahmy, Hesham	615	Fern, Alan	256	Forsberg, Ole	655	Fukumizu, Kenji	150
Fairchild, Geoffrey	320	Fernandes, Marcelo	160	Forster, Jeri	358	Fulcher, Ben David	477
Fairdough, Diane	341, 529	Fernandez, Arturo	294, 353	Fortin, Jean-Philippe	180	Fulcher, Isabel	14
Fakhouri, Tala	238, 311	Ferrante, Maria Rosaria	503	Fortin, Norbert	173	Fuller, Wayne	169, 252
Famoye, Felix	36	Ferrari, Federico	286	Forzani, Liliana	319	Fullerton, Steven L.	406
Fan, Chunpeng	610	Ferreira, Marco	190, 255, 415	Fosdick, Bailey	254, 413, 585	Fullerton, Thomas	406, 508
Fan, Jianqing	103	Ferrer, Orlando	170, 251	Foss, Alexander	149, 561	Furgal, Allison	408
Fan, Juanjuan	8, 90, 294, 353	Fiecas, Mark	603	Foster, Elizabeth	28, 86	Furlong, Cathy	23
Fan, Li	342	Fiero, Mallorie H	608	Foster, Eric	339, 426	Furrer, Reinhard	308, 331, 577
Fan, Yingying	85, 103, 141, 436, 634	Fiksel, Jacob	276	Foster, Kevin M.	63	Gagnon, Jacob	527
Fan, Yiyi	38	Finazzi, Francesco	190	Foster, Robert	616	Gagnon-Bartsch, Johann	A295, 339, 354, 391, 426, 575, 580
Fan, Zhaohu(Jonathan)	510	Fine, Jason	239, 576	Fotopoulos, Stergios B	350	Gahagan, Sheila	662
Fan, Zhengyang	243	Fineis, Frank	652	Fougeres, Anne-Laure	108	Gaiha, Abhinav	238, 311
Fan, Zhou	3	Fingerhuth, Mark	650	Fout, Alex	238, 311	Gail, Mitchell Henry	102, 296, 322, 361
Fang, Billy	441	Fingerlin, Tasha	90, 297, 362	Fox, Eric	190	Gajewski, Byron	32, 403
Fang, Di	238, 311	Fingerson, Laura	25	Francis, Jack	297, 362	Gal, David	160, 223
Fang, Hsin-Ling	522	Finley, Andrew	121, 586	Franck, Christopher	6, 255, 340, 427	Galantucci, Ellen	344
Fang, Junhan	543	Finnoff, William	255	Franco, Carolina	138	Galatzer-Levy, Isaac	144
Fang, Weixiang	351	Finucane, Mariel	560	Francom, Devin	90, 348, 517	Galbraith, Christopher	465, 531
Fang, Xiao	495	Finzer, William	282, 435	Frank, Daniel	403	Galinsky, Kevin	129
Fang, Xiao	172	Fisch, Alexander	67	Frank, Guillermo	188	Gallaba, Dinuka	188
Fang, Yixin	61	Fiserova, Eva	187	Frank, John	254	Gallagher, Colin Mark	255
Farache, David	256	Fisher, Charles K.	355	Frank, Julieta	357	Gallis, John A	27, 88
Fardo, David	137, 522	Fisher, Justin	236	Frank, Luis	419	Gallo, Paul	557
Farhadi, Farnoush	127, 181	Fisher, Lisa	190	Franklin, Christine A	117, 336, 553	Gamalo-Siebers, Margaret	273, 571, 605
Faries, Douglas	355, 447	Fisher, Nicholas	428	Franklin, Jessica M	24, 447	Gameran, Victoria	100
Fassú, Alessandro	190	Fisher, Thomas J	28, 86, 177, 515	Frank-Pearce, Summer	18	Gan, Fah Fatt	615
Favarro, Stefano	286	Fithian, William	378, 454	Franz, Trenton	168, 260	Gan, Kevin	32, 128, 196
Fay, Michael	34	Fitzgerald, Kate	338, 418	Franzosa, Eric A.	234	Ganesh, Nadarajasundaram	423, 548
Fayer, Stella	124	Fitzgerald, Rory	13	Frazier, David	107	Gangnon, Ronald	621
Fearnhead, Paul	67, 146	Fitzpatrick, Ronan	355	Fredua, Benjamin	242	Ganju, Jitendra	468
Fedorov, Valerii	650	Fixler, Dennis	106	Freeman, Jade	619	Gao, Aijun	164
Feehan, Dennis	647	Flannagan, Carol A.C.	41, 438	Freeman, Laura	70	Gao, Chao	312
Fei, Lin	617	Fleck, Johannes	395	Freeman, Peter E.	232	Gao, Chen	653
Fei, S.	190	Fleck, Johannes	395	French, Joshua	84, 464, 520, 661	Gao, Feng	653
Feinstein, James	167, 259	Flegal, James	302, 455	Frerichs, Leah	167, 259	Gao, Heli	347
Felderer, Barbara	623	Floden, Lysbeth	299	Frey, Jesse	582	Gao, Jingru	424
Feldman, Vitaly	633	Floden, Lysbeth	355	Frey, Michael	188, 504	Gao, Lei	17, 522
Feller, Avi	209	Florando, Jeffrey	462	Fridley, Brooke	527	Gao, Leiwen	409
Fellingham, Gil	43, 87, 578	Floren, Michael	238, 311	Friedberg, Rina	471, 562	Gao, Lucy	284
Fellman, Bryan	257	Flores Cervantes, Ismael	29, 89, 169, 252, 474	Friedman, Brad	527	Gao, Ping	131, 342
Feng Liu, Feng	496	FlÚrez, Alvaro	341	Friedman, Jerome	136	Gao, Qingyi	329
Feng, Dai	240, 355, 653	Florian, Hana	571	Friedman, Samuel	14	Gao, Sujuan	355
Feng, Haotian	256	Flournoy, Nancy	549	Friendly, Michael	314	Gao, Tingran	7
Feng, Huijuan	30	Floyd, Caleb	458	FRIMPONG, Eric	301	Gao, Wenyu	176
Feng, Jean	248, 517	Flury, Roman Charles	577	Frisoli, Kayla	294, 353	Gao, Yan	527
Feng, Lei	403	Flynn, Cheryl	639	Fritsche, Lars	622	Gao, Yuan	446
Feng, Long	482	Flynn, Garrison	62	Froelich, Amy	514	Gao, Zhaoxing	56
Feng, Oliver	614	Fogarty, Colin B.	27, 88, 337, 417	Frost, Ryan	254	Gao, Zheng	108, 345
Feng, Qing	228	Follmann, Dean	609	Frostig, Ron	528	Garai, Broti	129
Feng, Wentao	405	Fong, Youyi	30, 129	FrJhwirth-Schnatter, Sylvia	217	Garcia Garcia, Hector M	358
Feng, Yang	229	Fonseca, Rodney	403	Fry, Elizabeth	306	Garcia Portugues, Eduardo	412
Feng, Yi	153	Fontaine, Simon	602	Frydman, H.	244	Garcia Trejo, Yazmín A.	138
Feng, Yiming	168, 260	Forber, Alyssa	423	Fryzlewicz, Piotr	132, 147, 262, 378, 484	Garcia-Closas, Montserrat	40, 551
Feng, Yingdong	159	Forbes, Catherine	22	Fu, Bo	355	Garfinkel, Simson	505
Feng, Yuanhua	290	Forbes, Jeff	388	Fu, Han	305	Garg, Shikha	423
Feng, Ziding	304	ford, janet	355	Fu, Haoda	58, 466	Garner, Thesia	469
Ferg, Robyn	295, 354	Forghani, Mozhdeh	75	Fuentes, Claudio	190, 577		

Name	Session	Name	Session	Name	Session	Name	Session
Garnett, Roman	645	Ghosal, Soutik	82	Goh, Gyuhyeong	116, 572, 573	Graves, Spencer	619
Garrepalli, Risheek	256	Ghosal, Subhashis	34, 43, 87, 246, 403, 665	Goicoa, Tomas	464, 520	Gray, Darren	119
Garrett, Robert C	515	Ghosh, Debasish	370, 400, 404, 420, 522, 529	Golbeck, Amanda L.	387, 589, 638	Gray, Mary	50
Garrett-Mayer, Elizabeth	355	Ghosh, Dhrubajyoti	460	Goldblum, Bethany	62	Graziadei, Helton	254
Garwood, Kathleen	125, 195, 297, 362	Ghosh, Indrajit	254	Golden, Bruce	656	Green, Jennifer L	445
Gascoigne, Karen	180	Ghosh, Joyee	245, 396	Golden, Cordell	289	Greenewald, Kristjan	256
Gaskins, Jeremy T.	522, 572	Ghosh, Kaushik	347	Golden, Richard	75	Greenhouse, Joel B	104
Gast, Tyler	475	Ghosh, Malay	376, 541, 613, 658	Goldfarb, David	338, 418	Greenlund, Kurt J.	403
Gastelum, Zoe	62	Ghosh, Pranab	456	Goldmann, Leonie Tabea	406	Greenwell, Brandon	660
Gastwirth, Joseph Lewis	143	Ghosh, Prasenjit	34, 254	Goldsmith, Jeff	127, 181, 635	Greenwood, Mark	127, 181, 470
Gatliffe, Kathleen	517	Ghosh, Samiran	91, 507, 658	Goldstein, David B	663	Greevy, Robert	27, 88
Gatsonis, Constantine	297, 362, 470	Ghosh, Santu	397	Goldstein, Leonard	527	Gregg, III, Boyd Alexander	161
Gatsonis, Constantine	551	Ghosh, Satyajit	409, 657	Golm, Gregory	299	Grego, John	254
Gaudig, Antonia	358	Ghosh, Souvik	485	Gomes, Harold	515	Gregori, Dario	128, 196, 309
Gaughan, Charlotte	119, 565	Ghosh, Subir	341, 658	Gonen, Mithat	601	Gregory, Karl	78, 127, 129, 181
Gauran, Iris Ivy	296, 361	Ghosh, Sucharita	132, 290	Gong, Ruobin	545	Grenon-Godbout, Nicolas	602
Gause, Christine	61	Ghosh, Sujit	74, 162, 651	Gong, Siliang	80	Grevstad, Nels	28, 86
Gauthier, Marine	415	Ghosh, Tamal	658	Gong, Yan	512	Griffin, Beth Ann	502
Gavish, Matan	392	Ghosh, Trinetri	35	Goni, Joaquin	212	Griffin, Marie R	27, 88
Gaynanova, Irina	113, 255, 328, 329	Ghoshal, Subhashis	541, 563, 625	Gonsalves, Gregg	573	Griffin, Maryclare	163, 444
Gaynor, Sheila	137, 237, 310	Giambartolomei, Claudia	237, 310	Gonzalez, Diana	238, 311	Griffith, Dylan	90
Gazes, Regina Paxton	340, 427	Giani, Paolo	64	Gonzalez, Ingrid	518	Griffith, Emily	324
Ge, Lin	665	Gibbs, John	607	Gonzalez, Jeffrey	83, 153, 289, 335	Griffith, Sandra	211
Ge, Qiyang	328	Gibson, Thomas	254	Gonzalez, Yarissa	300	Griffith, William S	421
Ge, Yanbo	476	Giessing, Alexander	345	Goo, Juna	187	Griffiths, Richard	169, 252
Gecili, Emrah	340, 347, 427	Giglio, Donata	249	Good, Jack	256	Grijalva, Carlos G	27, 88
Geertzen, Jeroen	256	Gignoux, Christopher	126, 182	Goodale, Sarah	419	Grimes, Tyler	527
Gejman, Pablo	40	Gilbert, J.	190	Goodburn, John	168, 260	Grimshaw, Scott	406, 578
Gel, Yulia	307, 335, 382, 619	Gilbert, Peter	393	Goode, Katherine	127, 181	Groenewold, Matthew	358
Gelaude, Deborah	420	Gile, Krista	14	Gopalakrishnan, Mathangi	571	Grogan, Tristan	526
Gelder, Alan	619	Gill, Mandev	245, 287	Gopalan, Giri	162	Grooms, Ian	190, 386
Gelernter, Joel	498	Gilleland, Eric	151	Gordon-Larsen, Penny	179	Grosskopf, Michael	348, 409
Gelfand, Alan E	176, 649	Gillen, Daniel L.	167, 170, 251, 259, 355, 609	Gorgun, Gullu	170, 251	Groth, Caroline P	501, 649
Gelfman, Sahar	663	Gillespie, Brenda W	564	Gorst-Rasmussen, Anders	170, 251	Grove, Megan L.	518
Gelfond, Jonathan	325	Gillespie, John	564	Gorvett, Rick	125, 195	Grubb, Christopher	190
Gellar, Jonathan	560	Gilley, Stephanie P	575	Gosky, Ross	473	Gruben, David	628
Geller, Nancy	57, 71	Gilliland, Frank D	297, 362	Gossmann, Alexej	85	Gruber, Lutz F	478
Gelman, Andrew	160, 391, 513	Gillis, Darren	661	Gotwalt, Chris	340, 349	Gr,n, Bettina	217
Gemoets, Darren	90	Gillison, Maura	358	G'tz, Benedict	582	Grundy, Thomas	175
Geng, Junxian	246	Gilmore, John	576	Gougeon, Deborah	189	Grunnill, Martin	577
Geng, Lijiang	122	Gindelsky, Marina	106	Gould, A Lawrence	467	Grunwald, Gary	404, 522
Genovese, Christopher	125, 195, 554	Ginexi, Elizabeth	213	Gould, Rob	282	G'Sell, Max	294, 297, 353, 362, 528
Genschel, Ulrike	528	Ginsburg, Amy	529	Gouskova, Natalia A.	239	Gu, Mengyang	90, 176
Gentleman, Robert	662	Giordano, Sharon	653	Govindarajulu, Usha	77	Gu, Tian	128, 196
Genton, Marc	19, 64, 121, 308, 414, 497	Giovannelli, Alessandro	460	Goward, Kenneth R	305	Gu, Wen	355
Georg, Heinze	358	Girkin, Zoe	28, 86	Grabski, Isabella	254	Gu, Yuqi	178, 476
George, Brandon	624	Gitelman, Alix	190	Gracely, Ed	402	Guan, Tianyuan B	509
George, E. Olusegun	304	Giulani, Pablo	340, 427	Grafton, Scott T.	297, 362	Guan, Yawen	249, 403, 414
George, Edward	547, 625	Giuliano, Patrick	230, 338, 418	Graham, Daniel	29, 89, 337, 417, 618	Guan, Yawen	226
Gerber, Eric A. E.	578	Giurcanu, Mihai	601	Graham, David	447	Guan, Yongtao	80, 546
Gerber, Florian	331	Glanz, Hunter	514	Graham, Hillary T	612	Guan, Zhong	582
Gerdes, Cheyenne	423	Gleason, Kevin J	527	Graham, James	420	Guarcello, Maureen	294, 353
Gerosa, Gino	128, 196	Glickman, Mark	6	Graif, Corina	475	Guardiola, Jose	412
Gershunskaya, Julie	503	Glimm, Ekkehard	114, 467	Gramacy, Robert	90, 231, 462, 600, 616	Guennewig, Boris	513
Gertheiss, Jan	665	Glorioso, Thomas J	522	Granados Garcia, Guillermo	522	Guerrero, Matheus Bartolo Bartolo	358
Ghadessi, Mercedeh	355	Gluhovsky, Alexander	511	Grandhi, Anjana	240	Guerrier, Stephane	465, 531, 599
Ghazanfar, Shila	648	Glynn, Christopher	47	Granka, Julie	527	Guggenmos, Greg	28, 86
Ghebremariam, Samson	170, 251	Godfrey, Blanton	161, 295, 354	Grau, Laura	43, 87	Guggisberg, Michael	619
Ghosal, Indrayudh	255	Goeman, Jelle	381	Graubard, Barry	158, 179, 296, 358, 361, 449, 623	Guha, Aritra	231
Ghosal, Rahul	79, 239	Gogate, Jagadish	198	Gravelle, Julie	619	Guha, Biraj	302

Name	Session	Name	Session	Name	Session	Name	Session
Guha, Nilabja	563	Hall, David	331	Harris, Trevor	403	Hecht, Jen	400
Guha, Subharup	233	Hall, Jordan	126, 182	Harrou, Fouzi	390	Hechtlanger, Yotam	303
Guhaniyogi, Rajarshi	90, 121, 297, 591	Hall, Lauren M	464, 520	Harry, Ph.D., Gaylia Jean	522	Hector, Emily Charlotte	76
Guillaumin, Arthur	290	Hall, Martica	71	Harter, Rachel	295, 354, 606	Hedayat, Samad	383
Guindani, Michele	591	Hall, Patrick	228	Hartford, Alan	240, 245, 327	Hedeker, Donald	18, 346, 598, 628
Guinness, Joseph	255, 331, 497, 620	Hall, Timothy	574	Hartley, Andrew Montgomery	128, 196	Hedges, Larry	486
Guinness, Joseph	101	Halloran, M Elizabeth	14, 321, 464, 520	Hartman, Brian	487	Hedt-Gauthier, Bethany	29, 89, 595
Gunasekera, Sumith	42, 347	Halpern, Allan	82	Hartman, Holly Elizabeth	355	Heeringa, Steven	498
Guntuboyina, Adityanand	243, 441, 614	Hamada, Michael S.	85	Harton, Joanna	30	Heffernan, Neil T	391
Gunzler, Douglas	301	Hamada, Nobuyuki	304	Hartwick, Meghan	68	Hefley, Trevor	168, 260, 403, 577
Guo, Brandon	256	Hamasaki, Toshimitsu	342	Hartzel, Jonathan	131	Heggeseth, Brianna	49
Guo, Feng	476	Hambidge, K Michael	575	Hartzes, Anastasia M.	42	Hein, Nicholas	298
Guo, Huizhong	476	Hamilton, Brady	464, 520	Harvill, Jane L	187, 463, 519	Heinrich, Claudio	168, 260
Guo, Meihui	350	Hamilton, Madeline	28, 86	Hasegawa, Raiden	145, 323	Heiny, Erik	187
Guo, Wenchuan	172	Hamm, Adam	17	Hassan, Menna	253	Heitjan, Daniel	403
Guo, Wenge	381	Hammerling, Dorit	90, 188, 331, 586	Hastie, Trevor J	147, 378, 484	Hejazi, Nima	522
Guo, Xiaoyang	187	Hammes, Andrew	358	Hatfield, Laura A	167, 259, 420, 560, 595	Hejblum, Boris P	415
Guo, Xin	642	Hammon, Angelina	54	Hattori, Satoshi	404	Heller, Martin	570
Guo, Xingche	613	Hampson, Lisa	170, 251	Haverty, Peter	180	Heller, Ruth	381, 471
Guo, Xinzhou	31	Hampton, Robert R.	340, 427	Haviland, Amelia M	65	Helman, Paul	478
Guo, Xu	247	Han, Bing	407	Hawes, Michael	389	Hemerik, Jesse	381
Guo, Ying	576, 627	Han, Chenggong	652	Hay, Karen	358	Henao, Ricardo	40
Guo, Zijian	626	Han, Daifeng	169, 252	Hayat, Matthew Jason	104	Henderson, Nicholas	177, 355
Gupta, Resmi	254	Han, David	349	Hayati Rezvan, Panteha	171	Hendricks, Audrey E	125, 126, 182, 195, 237, 310, 517, 575
Gupta, Sachin	475	Han, John	73	Haynatzki, Gleb	128, 196, 408	Hendrickson, Barbara	131
Gupta, Somit	485	Han, Kyunghee	179	Hazen, Robert	297, 362	Hendrycks, Dan	256
Gupta, Vipul	125, 195	Han, Peisong	30, 438	Haziza, David	158	Heng, Jeremy	119, 419
Gur, Raquel E	297, 362	Han, Qiyang	547, 584	Hazlett, Chad	309	Heng, Siyu	337, 417
Gur, Ruben C	297, 362	Han, Seungbong	244	Hazra, Arnab	39	Hengartner, Nick	474
Gurmukh, Yared	358	Han, Summer	112, 156, 203, 266	He, Chad	618, 652	Henneberger, Angela	153
Gurrentz, Benjamin	275	Han, Xiao	588	He, Chang	621	Hennessy, Sean	99
Gustafson, Paul	339, 426, 629	Han, Yongli	82	He, Jianghua (Wendy)	522	Henricksen, Karla	84
Gutman, Alex	349	Hancock, Stacey	90, 125, 152, 195	he, jiarui	523	Henry, Christine	581
Gutman, Roee	98, 167, 259, 334, 407, 447	Handcock, Mark	238, 311, 416	He, Jingyu	20	Henry, Christopher	63
Gutreuter, Steven	464, 520	Handrick, Lisa	623	He, Jun	170, 251	Henry, Katharine E	558
Guyot, Layla	125, 195	Haneuse, Sebastien	29, 89, 179, 296, 361	He, Kejun	322	Heo, Moonseong	472
Gwise, Thomas	612	Hanks, Ephraim	226, 308, 577, 661	He, Kevin	11	Hepler, Staci	83, 464, 520
Gwon, Yeongjin	173, 296, 361, 506	Hanley, James	449	He, Li	240	Herath, G. M. Nilupika Kumari	613
Ha, Il Do	377	Hanlon, Alexandra	324	He, Li	256	Herbei, Radu	455
Haaland, Ben	348, 462, 600	Hanna, Benjamin	188	He, Linchen	518	Hering, Amanda S	64, 390
Haas, Allen	420	Hannig, Jan	545	He, Meiqi	355	Herman, Peter	28, 86, 161
Haber, Gregory	179	Hansen, Christian B	274	He, Qianchuan	137	Hernan, Miguel	4, 100
Habib, Salman	573	Hansen, Kasper Daniel	593	He, Qiao-chu	305	Hernandez, Inmaculada	355
Habiger, Joshua	185	Hanson, Tim	470	He, Weili	24, 111, 646	Hero, Alfred O.	178, 630
Habimana, Jean Remy	611	Hao, Han	129	He, Wenqing	543	Herring, Amy H	276, 444, 461
Hackney, Jason	527	Hao, Wei	51	He, Xuanyao	646	Hess, Ken	420
Hackstadt, Amber	27, 88	Hao, Yongping	664	He, Xuming	31, 210, 657	Hessabi, Manouchehr	518
Haddad, Jonathan	128, 196, 355	Haran, Murali	249, 455, 475	He, Yingqiu	345	Hesterberg, Tim	401
Haddad, Tarek	470	Haran, Murali	249	He, Yulei	127, 181, 464, 520, 655	Hewitt, Joshua	76, 302
Hadley, Emily	178	Harding, Richard (Lee)	295, 354, 660	He, Zhulin	358	Hey, Stefan	79
Hagerty, Holly	579	Hare, Eric	217	He, Zhuoqiong	62	Heyman, Megan	465, 531
Hahn, Amy	358	Harel, Ofer	79, 292, 507	He, Zonglin	129	Heyse, Joe	240, 339, 426
Hahn, Georg	255	Harezlak, Jaroslaw	212	Healey, Kristie	295, 354	Hickey, Graeme	470
Hahn, P. Richard	20	Harmon, Paul	127, 181	Healy, Brian	338, 418	Hickmann, Kyle	188
Hajizadeh, Negin	256	Harper, William	188	Heard, Nicholas A.	307	Hicks, Jacqueline Milton	569
Hakhu, Navneet	355	Harrar, Solomon W.	403, 510, 665	Heathers, James	283	Hicks, Stephanie	219, 351, 400
Halder, Sagnik	350	Harrell, Frank	637	Heathman, Michael	607	Higdon, David	20, 90, 573
Halder, Shaymal	403	Harrell, Lauren	660	Heaton, Matthew	90, 487, 586	Higgins, Ixavier A.	627
Haley, Charlotte	348	Harris, J. Kirk	529	Heavlin, William	618	Higgins, James J.	617
Hall, Charles	338, 418, 472	Harris, Jordan-Taylor	420	Hebert, Emily	18		

Name	Session	Name	Session	Name	Session	Name	Session
Higgins, Joey	464, 520	Hong, David	420	Hu, Tianyang	141, 186, 254	Hummel, Ruth	611
Higgins, Michael	80, 579, 617	Hong, Guanglei	580	Hu, Ting	642	Humphrey, Neil	90
Higgs, Megan	306, 340, 427	Hong, Huixiao	155	Hu, Tingting	621	Hund, Lauren	120
Hild, Cheryl	604	Hong, Hwanhee	501	Hu, Xiaofei	61	Hung, Adriana M.	27, 88
Hill, Alison	219	Hong, Hyokoung Grace	340, 427	Hu, Xiaowei	527	Hung, Mei-Chuan	464, 520
Hill, Andrew	250	Hong, Yili	79, 135	Hu, Xiaoyu	127, 181	Hung, PhD, Hsien-Ming James	342
Hill, Craig A.	474	Hooks, Tisha	514	Hu, Xixi	471	Hung, Ying	317, 600
Hill, Holly A.	242, 656	Hooten, Mevin	90	Hu, Yijuan	126, 182, 234	Hunt, Gregory	575
Hill, Jennifer L	209, 486	Hoover, Karen W.	420	Hu, Yiran (Bonnie)	170, 251	Hunter, Larry	15
Hill, Raymond	70	Hoover, Randy A	525	Hu, Zhirui	480	Hunley, Ryan	529
Hille, Darcy	28, 86, 343	Hope, Matthew	652	Hua, Lei	170, 251	Huo, Xiaoming	313
Hillis, Stephen	227	Hopkins, Brandon	29, 89	Hua, Min	573	Huo, Yanan	403
Hillis, Tristan	8	H'cher, Daniel	618	Hua, Yi	383	Huppenkothen, Daniela	125, 195
Hillygus, D. Sunshine	66	Horiguchi, Akira	188	Hua, Zhaowei	32	Hur, Earl	422
Hilttenbrand, Cassandra	258	Horiguchi, Miki	130, 456	Huang, Bin	355	Hurvich, Clifford	508
Hilton, John	664	Hornick, David	295, 354	Huang, Chaorui C	655	Hurwitz, Shelley	399
Himle, Joseph	338, 418	Horton, Bethany	342	Huang, Ching-Yu	522	Huser, Raphael	39, 108, 190, 512
Hindmarsh, Diane	41	Horton, Nicholas J.	445	Huang, Chunfeng	308	Hussain, Zawar	623
Hinsdale-Shouse, Marjorie	138	Hosking, Jonathan	574	Huang, Dongming	187, 278	Hutchinson, Rebecca	460, 565
Hiro, Shintaro	403	Hosmer, David W	296, 361	Huang, Erich	227	Huttenhower, Curtis	234
Hirsch, Jamie	256	Hossain, Alomgir	516	Huang, Haiyan	58, 593	Huyck, Susan	299
Hirwantwari, Didiere	255	Hossain, Md Akhtar	570	Huang, Helen	38	Huynh, Kim	63
Hitchcock, David	465, 531	Hossain, Md Jobayer	71, 82, 350, 466, 618	Huang, Hsin-Cheng	497	Huzurbazar, Snehalata	90
Hitzenko, Marcin M.	63	Hou, Jingyao	171	Huang, Huang	331	Hwang, JeeHyun	574
Hix, Sherry	125, 195	Hou, Liping	527	Huang, Hui	190	Hwang, Peggy	263
Ho, Kaylee	358	Hou, Xichen	42	Huang, Jiangeng	600	Hwang, Wei-Ting	355, 498
Ho, Martin	111	House, Leanna	307	Huang, Jing	58	Hydorn, Debra	232, 306
Ho, Michael	522	Hovey, Peter	188	Huang, Jing	273	Hyndman, Rob J	19
Ho, Nhat	641	Howard, Annie Green	167, 179, 259	Huang, Kevin	527	Hystad, Grethe	297, 362
Hoaglin, David C.	277	Howard, Brian	47	Huang, Kunling	527	Iachan, Ronaldo	183, 295, 354
Hobbs, Brian	31	Howard, Marylesa	62	Huang, Lan	612	Iaconangelo, Charlie	296, 361
Hobbs, Jonathan	168, 260, 348, 450, 577	Hrabe, Nik	504	Huang, Ming-Yueh	609	Ibrahim, Joseph G34, 180, 254, 277, 415, 506, 542, 663	
Robert, James	455	Hrafinkelsson, Birgir	162	Huang, Mo	128, 196, 593	Ibrahimou, Boubakari	347
Hodge, Bri-Mathias	620	Hsiao, Chin-Fu	131, 342, 507	Huang, Rui	377	Icaza, Maria Gloria	358
Hodge, George	640	Hsiao, Chuhsing Kate	237, 297, 310, 362	Huang, Suiou	360	Illenberger, Nicholas	407
HODGES, JIM	167, 259, 334, 358, 464, 520	Hsiao, Tzu-Hung	237, 310	Huang, Wei-Min	177	Im, Kyungah	358
Hoegh, Andrew	320	Hsieh, Cho-Jui	294, 353	Huang, Whitney	190, 249, 382	Im, Yunju	176
Hoeller, Margaret	62	Hsieh, Meng-Chen	508	Huang, Xin	646	Imai, Kosuke	99, 154
Hoerl, Anne G.	657	Hsieh, Y. Patrick Patrick	66	Huang, Xuelin	303	Imaizumi, Masaaki	312
Hoepner, Gemma	28, 86	Hsing, Tailen	547	Huang, Ya-lin	420	Imbens, Guido	154
Hoeting, Jennifer A	302	Hsu, Chyi-Hung	607	Huang, Yi	447	Immerwahr, Stephen	29, 89
Hoff, Peter	163, 254	Hsu, Li	140, 652	Huang, Ying	30, 159, 609	Inan, Gul	341
Hoffman, Heather Janel	194	Hsu, Wei-Wen	116	Huang, Yu-Chun	297, 362	Ing, Ching-Kang	127, 181
Hoffman, Katherine	358	Hsu, Ya-Hui Kate	611	Huang, Zhipeng	227	Ingersoll, Celeste	487
Hoffman, Kristi L.	254	Hu, Bo	408	Hubbard, Alan	187	Inlow, M	352
Hofmann, Heike	52, 127, 181, 295, 354, 528, 550, 582	Hu, Feifang	186, 296, 361	Hubbard, Rebecca	15, 30, 284, 393	Ionita-Laza, Iuliana	237, 310
Hogan, Howard	589	Hu, Feng Sheng	168, 260	Hudgens, Michael	126, 170, 182, 251, 321, 592	Irimata, Katherine E	171, 296, 361
Hogan, Joseph	80	Hu, Gang	593	Hudgens, Stacie	355, 608	Iriondo-Perez, Jeniffer	295, 354
Hoke, Kim	663	Hu, Guanyu	122, 246, 254, 339, 426	Hudson, Matthew	240	Irizarry, Rafael	351
Holan, Scott H.	66, 511, 631	Hu, Jingchen	292	Huerta, Gabriel	120	Irony, Telba	111, 164
Holbrook, Andrew	396	Hu, Jiyuan	234, 518	Huffer, Fred	168, 260	Irvine, Kathryn	577
Holland, Chris	605	Hu, Joan Fraser	543	Huggins, Jonathan	146	Ishihara, Miyabi	168, 260
Holland, Stephen	511	Hu, Junxiao	170, 251	Huggins, Jonathan	67	Islam, Mohammad	187
Holloman, Chris	6	Hu, Kuolung	166	Hughes, Bryce	445	Islam, Mouyid	403
Holloway, John	180, 254	Hu, Liangyuan	375	Hughes-Oliver, Jacqueline	490	Islam, Shahidul	522
Holst, Klaus	472	Hu, Mao	447	Huh, Dann	527	Islam, Tahmidul	254
Holt, James B.	403	Hu, Ming	351	Hui, Hongjun	511	Iverson, Todd	514
Holt, Jeffrey J.	49	Hu, Mufeng	646	Hui, Jianan	172	Izbicki, Rafael	43, 87
Hon, Gary	351	Hu, Tao	225	Huling, Jared Davis	72	Jackson, Chad	465, 531
		Hu, Tianle	355	Hullman, Jessica R	25, 590		

Name	Session	Name	Session	Name	Session	Name	Session
Jackson, Geoffrey	423	Jia, Nan	130	Jones, Jay	168, 260	Kania, Ryan	110
Jackson, Heide	124, 275	JIA, YANAN	256	Jones, Lindsay	421	Kannan, Nandini	210, 490
Jackson, Steve	165	Jia, Yue	423	Jones, Michael	606	Kantor, Rami	80
Jacobs, Justin	323	Jiang, Bei	101, 632	Jones, Michael P.	507	Kao, Tzu-Cheg	358, 498
J-come, M. Amalia	270	Jiang, Binyan	642	Jones, Robert	358	Kaplan, Andee	444
Jafari Jozani, Mohammad	307	Jiang, Hongmei	40	Jones, Stephen	68	Kaplan, Andrea	217
Jager, Leah	219	Jiang, Huan	237, 310	Joo, LiJin	173	Kaplan, Daniel	369, 514
Jagger, Thomas	39	Jiang, Lihua	618	Joo, Mingyu	604	Kaplan, Jennifer J.	125, 195
Jahan, Nusrat	279, 663	Jiang, Lingjing	518	Joppa, Lucas	165	Kapphahn, Kris	309
Jahan-Parvar, Mohammad	500	Jiang, Qi	277	Jordan, Hayley	360	Kapur, Payal	351
Jahedi, Afroz	8	Jiang, Qi	130, 342	Jordan, John M.	242	Karagas, Margaret R.	657
Jakubczak, Michal	170, 251	Jiang, Shuang	237, 310	Jordan, Michael	210	Karagiannis, Georgios	168, 249, 260
Jaljuli, Iman	465, 531	Jiang, Tiefeng	345	Jornaz, Abdelmonaem	463, 519	Karas, Marta	212
James, Gareth	484	Jiang, Wei	237, 310	Joseph, George	221	Kardia, Sharon	237, 310
James, Nicholas	439	Jiang, Xiaotong	31	Joseph, Jeffrey	355	Karemera, Mucyo	465, 531
Jandarov, Roman	487	Jiang, Xiaoyu	407	Josephs, Nathan	246	Karim, Ehsan	339, 426
Jandhyala, Venkata K	350	Jiang, Yuan	509	Josey, Kevin Patrick	522	Karim, Rejaul	660
Jane, Meza	296, 361	Jiang, Zhichao	99	Jost, Mark	242	Karl, Andrew T	297, 362
Jang, Jiyeong	464, 520, 646	Jianxi, Su	357, 360	Joyce, Patrick	344	Karlson, Elizabeth	167, 259
Jang, Phillip	463, 519	Jiao, Rong	522	Juarascio, Adrienne	635	Karmakar, Bikram	335
Janicki, Ryan	66	Jicha, Gregory A	522	Juarez, Ruben	63	Karmakar, Moumita	40
Janko, Mark	522	Jimenez, Felix	254, 448, 504	Juarez-Colunga, Elizabeth	167, 259, 420, 522	Karmakar, Sayar	247, 614
Jans, Matt	29, 89	Jin, Bo	339, 426	Jubery, Talukder	79	Karmaus, Wilfried JJ	180, 254
Jans, Matt	295, 354	Jin, Hua	9	Judkins, David	580	Karr, Alan	238, 311, 511
Janson, Lucas	247, 278, 601	Jin, Jin	470, 522	Julious, Steven	32	Karwa, Vishesh	45
Jardim, Felipe	615	Jin, Mandy	315, 646	Jung, Sin-Ho	239	Kashikar, Akanksha S	75
Jarosch, Alexander H.	162	Jin, Rui	513	Jupiter, Daniel	358	Kasiviswanathan, Shiva	505
Jasso, Guillermina	475	Jin, Shiqiang	572	Jurek, Marcin	497	Kass, Robert E.	60
Jauch, Michael	254	Jin, Ze	634	Kaar, Jill L	43, 87	Kassae, Ameneh	125, 195
Jayabalasingham, Barni	256	Jin, Zhongnan	79	Kacker, Raghu	214	Katenka, Natallia	14
Jayaraj, Augustus	305, 580	Jo, Booil	380	kadziola, zbigniew	355	Katki, Hormuzd	158, 358, 449
Jayasinghe, Pramoda Sachinthana	307	Joe, Harry	582	Kafadar, Karen	33, 143, 429	Kato, Kengo	584
Jayawardhana, Ananda	76	Johansson, Fredrik	391	Kahkoska, Anna	112	Katzfuss, Matthias	19, 168, 190, 249, 260, 386, 450, 497
Jeffries, Alison	528	Johnson, Adali	232	Kaimal, Rajani	27, 88	Kaufeld, Kimberly	62, 85, 564, 649
Jeffries, Neal	71	Johnson, Barry W	395	Kaiser, Mark Steven	422	Kaufman, Joan	498
Jen, Min-Hua	170, 251	Johnson, Brad	305	Kaizar, Eloise	22	Kaul, Abhishek	350
Jensen, Eric	242	Johnson, David	248	Kaizer, Alexander	31, 338, 355, 418	Kaur, Amarjot	315, 403
Jensen, Shane T.	176	Johnson, David S.	106	Kajita, Alexandre	358	Kaur, Sukhwinder	173
Jeon, JuHyun	417	Johnson, Eric	188	Kalachev, Leonid	168, 260	Kawaguchi, Eric	128, 196, 237, 244, 310, 411
Jeong, Jaehong	64	Johnson, Eric	551	Kalantar-Zadeh, Kamyar	341, 506	Kay, Lisa	189
Jeong, Jong-Hyeon	377	Johnson, Harry Dean	6	Kallus, Nathan	213	Kay, Matthew	590
Jeong, Seonghyun	34	Johnson, Hollie	127, 181	Kalton, Graham	606	Kazimierska, Kamila	403
Jeon-Slaughter, Haekyung	403	Johnson, Laura Lee	326	Kalyanee, Appanna	42	Ke, Chenlu	313
Jeske, Daniel	160	Johnson, Leigh	464, 520	Kaminker, Josh	527	Ke, Chunlei	128, 196, 277, 506, 571
Jessup, Sebastien	566	Johnson, Margaret	249	Kane, Jacque	137	Ke, Jun	576
Jeste, Shafali	212	Johnson, Matthew	403	Kane, Michael	52, 351	Ke, Zheng Tracy	150, 237, 310
Jewell, Elizabeth	43, 87	Johnson, Michael	472	Kaneko, Yuichiro	468	Keating, Jerome	258, 473
Jewell, Nicholas	78	Johnson, Nels	190	Kang, Emily Lei	74, 241, 308, 348, 515	Kechris, Katerina	527
Ji, Hongkai	180, 351, 374	Johnson, Rachel	522	Kang, Huining	570, 663	Keefe, Matthew	255
Ji, Jiayi	113	Johnson, Randi K	527	Kang, Hyunseung	472	Keele, Luke	337, 417
Ji, Jiayi	598	Johnson, Tessa	153	Kang, Jian	11, 135, 528, 603	Keeling, Kellie	356
Ji, Ju	358	Johnson, Timothy Duane	271	Kang, Joseph	8	Keeton, Stephine L.	91, 198, 263, 364, 430, 533
Ji, Qing	508	Johnson, Valen	403	Kang, Kelly	238, 311	Keiding, Niels	127, 181
Ji, Tieming	415	Johnson, W. Evan	575	Kang, Le	177	Keighley, John D	325, 522
Ji, Xiang	287	Johnstone, Iain	481, 547	Kang, Li	162	Keil, Warren	294, 353
Ji, Xinyao	99	Jol, Arne	640	Kang, Shuaimin	14	Kejriwal, Mohitosh	406
Ji, Yixuan	464, 520	Jonas, Kim	474	Kang, Tong	522	Keles, Sunduz	480
Ji, Yuan	34, 115, 396, 479	Jones, Aaron Douglas	338, 418	Kang, Yicheng	294, 353	Keller, Andrew	469
Ji, Zhicheng	351, 374	Jones, David	302, 545	Kangeyan, Divy	137	Keller, Bryan	486
Jia, Bochao	405, 467	Jones, Galin	455	Kani, Amirali	464, 520		

Name	Session	Name	Session	Name	Session	Name	Session
Keller, Joshua	226	Kim, Jiae	22, 582	620		Koti, Kallappa M.	507
Keller, Sallie	469	Kim, Jungyoun	184	Klein, Natalie	462	Kott, Phil	66, 158, 169, 208, 252
Keller, Timothy	419	Kim, Jun	253	Klein, Natalie	60	Kou, Samuel	250
Kelling, Claire	475	Kim, Jung In	239	Klick, Joshua	83	Kovacs, Melissa	337
Kelly, Rachel S.	394	Kim, Kipoong	663	Kline, David	83, 464, 520, 570	Kovalchik, Stephanie	502, 578
Kelman, Jeffrey	447	Kim, Kwang-Youn	394, 443	Klivans, Adam	269	Kowal, Daniel R	56, 444
Kemmer, Phebe	355	Kim, Kyongwon	241	Kluger, Aaron	77	Kowalski, Kenneth G.	637
Kenah, Eben	321	Kim, KyungMann	116, 277	Knight, Keith	192	Kozel, Beth	126, 182
Kendzor, Darla	18	Kim, Kyungsook	77	Knight, Marina	495	Krafty, Rob	43, 71, 87, 352, 439, 528
Kennedy, Edward	78, 139, 562	Kim, Mihyun	512	Knight, Rob	518	Kranzler, Henry R.	498
Kennedy, Erin	344	Kim, Mimi	324	Knott, J.	190	Kravitz, Eli	581
Kennedy, Kristin	125, 195	Kim, Mi-Ok	594	Knudson, Christina	254	Krebs, Nancy F	575
Kennedy-Shaffer, Lee	73	Kim, Myungjin	303	Ko, Kyungduk	513	Kreider, Rose	275
Kenney, Ana	133	Kim, Rakheon	127, 181	Koch, Brandon	118	Kreider, Scott	76
Kennickell, Arthur B	395	Kim, Sangjin	471	Koch, Gary	405	Krenzke, Tom	292, 295, 354, 379, 606
Kenward, Michael	341	Kim, Sehee	358	Koch, Hillary	173	Kreuter, Frauke	13
Kephart, Kathleen	469	Kim, Seolah	411	Kodali, Lata	307	Krishnamurthy, Ashok	250
Ker, Bruna	615	Kim, Seongho	175	Koepke, Amanda	109, 254, 448, 504	Krishnan, Ganesh	582
Kerby, April	514	Kim, Seonjin	515, 594	Koepke, Lucas	504	Krock, Mitchell	414, 586
Kerns, Lucy	304	Kim, Soeun	305	Koepll, Heinz	464, 520	Kroehl, Miranda	403
Kerr, David	201	Kim, Soyeon	507	Koh, Yew-Meng	127, 181, 475	Kroenlein, Kenneth	448
Kerr, Joshua	422	Kim, Soyoung	239	Kohler, Michael	127, 181, 187, 312, 582	Kroll, Jared	134
Kersting, Sebastian	582	Kim, Sungduk	245, 254, 443, 542	Kohn, Robert	146, 439	Krotki, Karol	29, 89, 169, 252
Kessler, Daniel	413	Kim, Sungjin	355	Kohns, David	274	Krull, Jennifer	465, 531
Kessler, Ron	144, 498	Kim, Sunkyung	358	Kokoszka, Piotr	84, 512	Krupskiy, Pavel	582
Ketchum, Jessica	295, 354	Kim, Taeho	617	Kolaczyk, Eric	45, 80, 246, 307, 440, 585	Kryscio, Richard	341, 522
Keyes, David	19	Kim, Taewan	384	Kolassa, John E	72, 185, 524	Kryshchenko, Alona	187, 468
Khadka, Kapil	304	Kim, Theresa	466	Kolecki, Alexis	609	Krzywinski, Martin	104
Khan, Diba	464, 520	Kim, Woosuk	81	Kolenikov, Stas	344	Krzyzak, Adam	127, 181
Khan, Kamrul	409	Kim, Youngchul	523	Kollipara, Hema	657	KU, HUNG-CHIH	527
Khan, Kori	120	Kimmel, Marek	522	Kolm, G.	358	Kubatko, Laura	403, 446
Khan, Manzoor	662	King, Caleb	214	Komukai, Sho	358, 404	Kubokawa, Tatsuya	658
Khan, Md Kamrul Hasan	409	King, Clay	340, 427	Koner, Salil	71	Kuchibhotla, Arun	288
Khare, Kshitij	340, 409, 427	King, Joseph	619	Kong, Dehan	101, 212, 271	Kucukmiroglu, Saryet	621
Khatiwoda, Dhanapati	654	King, Katherine	522	Kong, Linglong	101, 371, 603, 632	Kuenzel, Soeren	391
KhudaBukhsh, Wasiur R.	464, 520	King-Kallimanis, Bellinda	628	Kong, Xiangrong	296, 361, 629	Kuffner, Todd	587
Khurana, Shreya	168, 260	Kinney, Mitchell	256	Kong, Xinbing	81	Kuhn, Rick	214
Kidd, Brian	190	Kinney, Saki	238, 311	Kong, Yunchuan	59	Kuiper, Shonda	232
Kidwell, Kelley	355	Kinser, Jason M	37	KONIETSCHKE, FRANK	403	Kulasekera, K.B.	466
Kiesl, Hans	54, 589	Kiourmourtzoglou, Marianthi-Anna	30, 497	Konjevod, Goran	62	Kulkarni, Pandurang	148, 325
Kilaru, Rakhi	128, 196	Kirby, Mike	590	Konomi, Alex	249, 348, 409	Kulkarni, Siddhesh	528
Killick, Rebecca	56, 175, 495	Kirchner, Antje	207, 295, 354	Konomi, Bledar	168, 260	Kulnig Cinelli, Carlos Leonardo	309
Kim, Jane	12	Kirk, Jennifer	493	Konya, Sarah	469	Kumar Freund, Malika	237, 310
Kim, Anastasiia	527	Kirk, Wolter	242	Kooperberg, Charles	156	Kundu, Debamita	572
Kim, Arlene Kyoung Hee	614	Kirkpatrick, Robert M.	405	Koopmeiners, Joseph	31, 73, 403, 470	Kundu, Prosenjit	551
Kim, BeomYong	337, 417	Kirkpatrick, Sharon I.	629	Kopp, Brandon	416	Kundu, Suprateek	347, 576, 627
Kim, Brian	416	Kirpichevsky, Yevgeniy	619	Kordi, Behzad	307	Kung, Kelly	80
Kim, Chul	604	Kirsner, Daniel	121	Korkmaz, Gizem	475	Kunkel, Deborah	346
Kim, Dongah	14	Kiser, Jennifer	529	Korley, Frederick K	32	Kuo, Lynn	254
Kim, Dongsoo	604	Kiss, Tamas	635	Kormaksson, Matthias	582	Kuo, Yong-Fang	358, 420, 653
Kim, Doo Young	110	Kissam, Edward	556	Kornak, John	90, 591	Kuo, Yutzu	254
Kim, Gi-Soo	12	Kissel, Nicholas	278	Kornblith, Lucy Zumwinkle	187	Kuppusamy, Santhosh	355
Kim, Grace	255	Kissling, Grace E	190	Kortbi, Othmane	340, 427	Kupresanin, Ana	462
Kim, Hang Joon	153	Kitahara, Cari M	304	Kosakovsky Pond, Sergei	287	Kurtek, Sebastian	254, 452, 455
Kim, Hyeonju	412	Kittelson, John	170, 251	Kosinski, Andrzej Stanislaw	338, 418	Kurtek, Sebastian	37, 90
Kim, Hyung-Woo	298	Kiwon, Francis	127, 181	Koslovsky, Matthew	254	Kurum, Esra	506
Kim, Inyoung	72, 176, 411	Klanderman, Molly	390	Kosorok, Michael	31, 85, 112, 288, 355, 488	Kurz, Christoph	334
Kim, Jae-kwang	158, 215, 423	Klasnja, Predrag	256	Kotalik, Ales	73	Kusi Appiah, Adams	408
Kim, Jessica	447	Kleiber, William	90, 190, 308, 386, 414, 450, 586,	Kotarinos, Michael William	110, 241	Kuusela, Mikael	90, 249

Name	Session	Name	Session	Name	Session	Name	Session
Kuznetsova, Olga	73	LaVange, Lisa	336	Lee, Min	166	Levine, Richard	90, 97, 209, 294, 353
Kvamli, Alan H.	555	Lavery, Jessica	174, 367, 656	Lee, Minjae	518, 594	Levis, Alexander	179
Kwak, Seungwoo	184	Lavine, Isaac	340, 427	Lee, Minji	254	Levy, Jonathan	65
Kwan, Brian	187	Lavine, Michael	97, 223	Lee, Mintaek	39	Lewis, Jerry	616
Kwasny, Mary J	16, 324	Lavista Ferres, Juan	505	Lee, Misun Yu	339, 426	Lewis, John	619
La Frenierre, Jeff	84	Lavrakas, Paul John	295, 354	Lee, Philip	169, 252, 344	Lewis, Tamorah R	296, 361
LaBarr, Aric	108, 512	Law, Judith	167, 259	Lee, Ray-Shine	81	Lewis-Beck, Colin	121
Laber, Eric B	31, 112, 139, 213	Law, Michael	617	Lee, Seiyon	249	Li, Xiaoxiao	406
Lachin, John	449	Lawless, Jerry	30	Lee, Seunggeun	140, 622	Li, Bing	133, 150, 247, 480, 588
Lachowicz, Mark	153	Lawrence, Chrishelle	238, 311	Lee, Shiowjen	456	Li, Bing	237, 310
Lacy, Kali	256	Lawrence, Earl Christopher	462, 561	Lee, Suhwon	624	Li, Bo	39, 168, 260, 317, 403, 561
Ladd, Brent	256	Lawson, Andrew B	254, 464, 520	Lee, Sunghee	379	Li, Bo	415
Ladhania, Rahul	65	Lawson, Greg	84, 655	Lee, Tae-Hwy	241	Li, Botao	602
Laeyendecker, Oliver	464, 520	Lawton, Robert Michael	421	Lee, Thomas C. M.	294, 353, 545	Li, Caesar (Zexuan)	237, 310
Lafferty, John	272	Lazar, Nicole	90, 271	Lee, Yen-Han	337, 417	Li, Chang	522
Laga, Ian	504	Le Blanc, Julia	395	Lee, Yoonkyung	178	Li, Cheng	34
Laha, Nilanjana	72	Le, Laura J	483	Lee, Youngjo	377	Li, Chenxiang	100, 358
Lahiri, Partha	10	Le, ThienNgo	28, 86	Leecaster, Molly	600	Li, Daniel	479
Lahiri, Soumendra N	78, 460, 599	Leach, Justin	516	Leek, Jeffrey	211, 597	Li, Danning	123, 150
Lahouel, Kamel	596	Leblanc, Alexandre	578	Leek, Jim	36	Li, Diane G	174
Lai, HuiChuan	11	LeBlanc, Michael	46	Leemis, Lawrence	19	Li, Didong	499
Lai, Pei-chun	40	Lechuga, Maria Jose	496	LÉger, Christian	169, 252	Li, Donghui	622
Lai, Randy	545	Leclerc, Philip	458	Legler, Julie	190	Li, Fan	375, 552
Lake, Hunter R.	517	Ledbetter, Caroline	128, 297, 362	Lei, Jing	351, 412	Li, Fan	27, 88, 393, 403
Lakshminarayanan, Mani	468	Lee, Anne W.M.	297, 362	Lei, Lihua	288, 345	Li, Fan	393
LaLonde, Donna E	224	Lee, Anita	653	Lei, Rayleigh	254	Li, Gang	128, 196, 237, 244, 310
Lalonde, Trent L	18, 238, 311, 420	Lee, Ann B.	43, 87, 188	Lei, Yu	214	Li, GANG	355
Lam, Wendy	297, 362	Lee, Annie J	126, 182	Leibovich, Gil	28, 86	Li, Gen	113, 598
Lam, Raymond	299	Lee, April	84	Leiby, Benjamin E.	71, 350, 466	Li, Hal	355
Lamarche, Carlos	255	Lee, Catherine	338, 418	Leifer, Eric	609	Li, Hangjian	80
LaMaster, Kevin	255	Lee, Choong-Soo	235	Leinwand, Benjamin	332	Li, Hao	254, 542
Lambert, Richard	126, 182	Lee, Da Young	574	Lekivetz, Ryan	214	Li, Hong	470
Lamberti, William	37	Lee, Danhyang	158	Lemeshow, Stanley	393	Li, Hongzhe	243, 279, 345, 374, 652, 657
Lamere, Alicia	125, 195	Lee, Danny	664	Lemey, Philippe	237, 245, 287, 310	Li, Hsin-Fang	403
LaMeres, Brock	445	Lee, Dokyun	384	Lenderman, Jason	62	Li, Huaijiang	240
LaMotte, Lynn	421	Lee, Duyeol	288	Leng, Ethan	470	Li, Hulin	234, 237, 310, 518
Lampros, Austin	337, 417	Lee, Gee	566	Lenneman, John	476	Li, Huiqiong	339, 426
Lan, Bo	29, 89	Lee, Hana	24, 493	Lenth, Russell V.	52	Li, Jane	292, 295, 354, 503
Lan, Zhou	101, 346	Lee, Herbert	645	Lentz, Scott E.	338, 418	Li, Jia	358
Lancaster, Laura	349	Lee, Hollylynne S	435, 569	Lenzi, Amanda	64, 308	Li, Jia	255, 256
Landon, Bruce E.	174	Lee, Hyunshik James	502	Leon Novelo, Luis	474	Li, Jianghao	239
Lane, Jonathan	412	Lee, Jaechoul	39, 168, 260	Leonard, Charles	99	Li, Jiaqi	560
Lanera, Corrado	128, 196	Lee, Jaewoo	184	Leonov, Sergei	650	Li, Jie	35
Laney, Anthony Scott	358	Lee, Jenny	168, 260	Leroux, Andrew	43, 87	Li, Jie	295, 354
Lange, Christoph	137	Lee, Jihey	255	LeRoy, Benjamin	222, 294, 353	Li, Jingyi Jessica	229, 453
Lange, Theis	32	Lee, Jihui	567	Leslie, Kerrie	124, 492	Li, Juan	506
Langer, Sophie	127, 181, 312	Lee, Ji-Hyun	324	Lesser, Lawrence M	90, 189	Li, juanjuan	77
Langetieg, Patrck	106	Lee, Joochul	255	Lessler, Judith T.	489	Li, Kan	405
Langford, Jayla Gabrielle	419	Lee, Joo-Yeon	24	Letham, Benjamin	645	Li, Keren	652
Langworthy, Benjamin	576	Lee, Jooyoung	171	Leurgans, Sue E	346	Li, Lang	522
Lareau, Caleb	14	Lee, Juhee	22, 46, 237, 254, 310	Levanon Seligson, Amber	29, 89	Li, Lei	345
Larrimore, Jeff	106	Lee, Jung Ae	443	Levek, Claire	522	Li, Lexin	48, 113, 248, 374, 627
Larsen, Luke	469	Lee, Jungwha "Julia"	324, 394, 443	Levenson, Mark	493	Li, Li	447
LaRue, E.	190	Lee, Junho	414	Levin, Frances	521	Li, Lie	131
Lasky-Su, Jessica	167, 259	Lee, Kang-Pyo	406	Levin, Gregory	612	Li, Lin	292, 295, 354
Laterner, Michael	25	Lee, Kevin	123	Levin, Keith	3, 413	Li, Lingge	173
Laud, Prakash	20	Lee, Kwonsang	65	Levina, Elizaveta	3, 413, 440	Li, Lingyu	51, 76
Laughlin, Lynda	124, 475	Lee, Kyu Ha	652	Levine, Burton	548	Li, Longhai	192
Lautzenheiser, Daniel	347	Lee, Mei-Ling Ting	293	Levine, Michael	641	Li, Lu	596

Name	Session	Name	Session	Name	Session	Name	Session
Li, Meijuan	77	Li, Yuanzhi	657	Lin, Lynn	118, 256, 661	Liu, Haitao	643
Li, Meng	187, 231	Li, Yun	351	Lin, Paul	167, 259	Liu, Haixin	137
Li, Mengxuan	301	Li, Yunfan	641	Lin, Shili	279, 652	Liu, Ivy	51, 76
Li, Mengyan	127, 181	Li, Yunxiao	126, 182	Lin, Tien-Huan	29, 89	Liu, Jeremiah	497
Li, Miaoqi	241, 308	Li, Yutong	32, 178	Lin, Tun Tun	522	Liu, Jiajun	55
Li, Mingfei	500	Li, Zeda	352, 439	Lin, Wei	247	Liu, Jiapeng	471
Li, Mo	32	Li, Zehang Richard	573, 647	Lin, Xian-cheng	83	Liu, Jin	405
Li, Ning	476	Li, Zeyu	175	Lin, Xiaolei	628	Liu, Jingyi	172
Li, Peizhi	270	Li, Zhaohai	623, 665	Lin, Xiaoyan	570, 574	Liu, Jingzhou	28, 86
Li, Pin	31	Li, Zhen	188	Lin, Xihong	137, 223, 237, 310, 378	Liu, Jinpeng of	126, 182
Li, Qian	368	Li, Zhigang	11, 40, 233	Lin, Xuejing	129	Liu, Joy	238, 311
Li, Qing	315, 403	Li, Zhouxuan	328	Lin, Yingqian	72	Liu, Jun	463, 519
Li, Qing	412	Li, Ziliang	430	Lin, Yuanyuan	642	Liu, Jun S.	397, 436, 480
Li, Qing	33	Li, Zilin	137, 237, 310	Lin, Zhenhua	599, 614	Liu, Jundi	29, 89
Li, Qing	403	Lian, Qinshu	407	Lin, Ziggy	221	Liu, Kejian	355
Li, Qizhai	33, 159, 510, 594	Liang, Decai	190	Lindborg, Stacy	57	Liu, Keli	545, 587
Li, Quefeng	113	Liang, Faming	329, 467	Linder, Ernst	168, 260	Liu, Kenneth	131
Li, Qunhua	173, 453, 527, 575	Liang, Feng	454	Linderman, Scott W.	60	Liu, Lei	11
Li, Runze	48, 247, 305, 346, 499, 614	Liang, Tengyuan	625	Lindgren, Finn	284	Liu, Lingyun	342
Li, Runzhe	180	Liang, Weijian	61	Lindon, Michael	340, 427	Liu, Linxi	30
Li, Ruosha	303, 304, 404	Liang, Yuefeng	294, 353	Lindquist, Martin	37, 90, 212, 284, 576	Liu, Liu	384
Li, Sai	345	Liao, Dan	169, 252	Lindsay, Bruce	72	Liu, Luke	230
Li, Shanpeng	128, 196	Liao, Jason	130	Lineback, Joanna Fane	416	Liu, Luke	421
Li, Shaobo	51, 475	Liao, Jiemin	447	Linet, Martha S	304	Liu, Meiling	233
Li, Shen	352, 516	Liao, Peng	256	Ling, Albee	309	Liu, Meizi	355, 479
Li, Shuang	493	Liao, Shanmei	32	Linn, Kristin	297, 362, 516, 528	Liu, Mengling	21, 464, 520
Li, Shudi	328, 522	Liao, Shirley	334	Linxie, Andrew	35	Liu, Peng	415
Li, Shuo	653	Liao, Xiaomei	27, 88	Lipitz-Snyderman, Allison	174	Liu, Piaomu	512
Li, Siying	405	Liao, Xiyue	190	Lipkovich, Ilya	55, 355	Liu, Qi	128, 196
Li, Ta-Hsin	457, 500	Liaw, Andy	355	Lipsitch, Marc	73	Liu, Qiang	657
Li, Tan	518	Liebner, Jeffrey	254	Lipsitz, Stuart	42	Liu, Qianying	522
Li, Tracey	640	Lien, Donald	463, 519	Liska, Bruce	43, 87	Liu, Qing	155
Li, Wei	665	Lievense, Rob	349	Litt, Andrea	577	Liu, Qingyang	254, 339, 426
Li, Wei Vivian	229	Likosky, Donald	621	Little, Mark P	304	Liu, Rachael	32, 170, 251, 343
Li, Wen	170, 251, 315	Lim, David	663	Little, Roderick J	167, 169, 252, 259, 442, 552	Liu, Regina	154
Li, Wen	304	Lim, Jaehui	254	Little, Tara	338, 418	Liu, Rong	644
Li, Wenjun	365	Lim, Johan	184	Liu, Ray	129	Liu, Rong	29, 89
Li, Wenrui	80	Lim, PhD, Pilar	114	Liu, Aiyi	33, 159, 510	Liu, Rong	164
Li, Xianfen	654	Lim, Sahnah	29, 89	Liu, Angela	355	Liu, Rujiia	570
Li, Xiaochen	355	Lim, Sooyeong	355	Liu, Benmei	295, 354	Liu, Shan	328
Li, Xiaohong	403	Lim, Sungwoo	655	Liu, Bian	358	Liu, Shifang	571
Li, Xiaoyun (Nicole)	170, 251, 343	Lim, Woobeen	339, 426	Liu, Bin	523	Liu, Si	256
Li, Xichen	570	Lin, Anna	255	Liu, Bingchen	337, 417	Liu, Sophia	485
Li, Xihao	137	Lin, C. Devon	600	Liu, Bingyuan	603	Liu, Suyu	257, 403
Li, Xin	73	Lin, Chien-Tong	127, 181	Liu, Chang	468, 613	Liu, Tao	80
Li, Xinran	145	Lin, Ching-Heng	237, 310	Liu, Ching-Ti	337, 417	Liu, Weidong	127, 181, 220
Li, Xinyi	34, 118	Lin, Dennis	214, 515	Liu, Chris	522	Liu, Wenshuo	174
Li, Xukun	522	Lin, Heather	403	Liu, Chuanhai	641	Liu, Xi	243
Li, Yan	158	Lin, Ja-An	77	Liu, Danping	82, 159, 179	Liu, Xialu	241, 546
Li, Yang	298	Lin, Ji	479	Liu, Dawei	309	Liu, Xiangyu	303
Li, Yanming	564	Lin, Jianchang	32, 73, 170, 251, 343, 403	Liu, Delong	33, 126, 182	Liu, Xiaokang	298
Li, Yi	27, 88	Lin, Jianxin	254, 542	Liu, Diane	257	LIU, XIEXIN	530
Li, Yicheng	380	Lin, Jinguang	617	Liu, Dungang	51	Liu, Xin Shane	543
Li, Yihao	341	Lin, Junjing	273, 507, 571	Liu, Fang	448, 463, 519	Liu, Xuan	355
Li, Yimei	355, 609	Lin, Kevin	351	Liu, Fang	128, 170, 196, 251, 343, 468	Liu, Yan	340, 427
Li, Yinan	463, 519	Lin, Lifeng	167, 259, 358, 420, 542	Liu, Feng	32	Liu, Yang	137, 652
Li, Ying Grace	172, 326	Lin, Lin	255	Liu, Frank G	130, 299, 315	Liu, Yang	186
Li, Yingbo	643	Lin, Lizhen	34, 246, 452	Liu, Grace	467	Liu, Yaning	255
Li, Youjun	570	Lin, Luyao	462	Liu, Haipeng	574	Liu, Yaowu	137, 237, 310

Name	Session	Name	Session	Name	Session	Name	Session
Liu, Yi	610	Loyal, Joshua	659	Luo, Zhao Tang	340, 427	MacKay, Niall	495
Liu, Yi	355	Lu, Bo	315, 358, 375, 393	Lusinchi, Dominic	330	MacKenzie, Don	476
Liu, Yiming	168, 260	Lu, Danni	476	Luttmann, Aaron	62	Madan, Juliette C.	657
Liu, Ying	216, 517	Lu, Henry	33	Lutz, Sharon	129, 394	Maddox, Thomas M	522
Liu, Yingying	577	Lu, Hua	403	Luyts, Martial	658	Madigan, David	210
Liu, Yiwen	480	Lu, Jianfeng	513	Lv, Jinchi	141, 436	Madson, Gabriel	66
Liu, Yiwen	40	Lu, Jiannan	485	Lv, Xiang	296, 361	Maeng, Hyeyoung	132
Liu, Yongmei	237, 310	Lu, Jiarui	652	Lyashenko, Eugenia	527	Magnotti, John	187
Liu, Yu	301	Lu, Junwei	237, 310	Lyberg, Lars	13	Mah, Jeng	77
Liu, Yuanyuan	328	Lu, Kun	296, 361	Lydon, Reamonn	395	Mahajan, Prashant	359
Liu, Yufeng	482	Lu, Lei	508	Lyle, Jamie	465, 531	Mahdi, Esam	190
Liu, Yusha	231	Lu, Lu	74	Lymp, James	238	Mahmood, Sharif	28, 73, 86
Liu, Yutao	391	Lu, Lu	94	Lynch, Charles	358	Mahmoud, Hamdy F. F.	72
Liu, Zhaoce	41	Lu, Pengjun	419, 464, 520	Lynch, Gavin	381	Mahmoudi, Elham	174
Liu, Zhiruo	463, 519	Lu, Qiongshi	205, 267	Lynch, James	254	Mahmoudzadeh, Ali	485
Liu, Zhouwen	443	Lu, Ruijin	37	Lystig, Theodore	111, 355, 470	Mahnken, Jonathan D.	359
Liu, Zhuangzhuang	594	Lu, Ruixiao	58	Lytal, Nick	453	Mai, Qing	247, 303, 588
Liu, Zhuqing Tina	172	Lu, Shou-En	616	Lytras, Demetra	153, 463, 519	Mai, Yujiao	255
Livsey, James	332, 460, 565	Lu, Tong (Joy)	384	Lyu, Jinyan	126, 182	Maier, Lisa	90, 297, 362
Lix, Lisa M93, 167, 259, 265, 334, 365, 431, 532, 534		Lu, Tzu-Pin	237, 310	Lyu, Weicong	309	Maiti, Taps	274, 297, 362, 660
Lizotte, Daniel	118	Lu, Wenbin	75, 139, 374	Lyu, Xiaodan	295, 354	Maitland, Aaron	655
Llanos, Fernando	563	Lu, Xiang	171	Lyubchich, Vyacheslav	68, 335, 382, 414	Maitra, Ranjan	135, 136, 178, 294, 352, 353, 513
Llosa, Carlos	178	Lu, Xiaoqi	339, 426	Lyzinski, Vince	413, 585	Maity, Arnab	71, 79, 570
Loaiza-Maya, Ruben	107	Lu, Xinyi	90, 661	Ma, Chang-Xing	662	Maity, Arnab	299
Lock, Eric	328, 334, 598	Lu, Yan	579	Ma, Chong	129	Maity, Arnab Kumar	397, 437
Lock, Robin	152	Lu, Yi	455	Ma, Haijun	277	Majumdar, Antara	605
Lockhart, Richard	490	Lu, Ying	9, 58, 549	Ma, Hua	339, 426	Majumdar, Arunabha	237, 310
Lodhia, Asad	3	Lu, Yue	622	Ma, Huijuan	11	Majumder, Mahbubul	550, 655
Lodi, Andrea	127, 181	Lu, Yung Hsiang	253	Ma, Jing	136	Majumder, Suman	403
Loeser, Richard	31	Lubanski, Stanley	472	Ma, Li	118	Mak, Simon	600
Lofgren, Eric	68	Lubich, Antoinette	29, 89	Ma, Liang	29, 89	Makhmudov, Amir	358
Loftus, Joshua	601	Lucero, David E	655	Ma, Liangsuo	576	Makosso-kallyth, Sun	76
Logan, Brent R.	20, 610	Luckett, Daniel	112	Ma, Ping	19, 122, 480	Maleki, Mohsen	176
Loh, Andrew	19	Luckhaupt, Sara E.	358	Ma, Pulong	246, 573	Malerica, Ivana	522
Loh, Po-Ling	269, 626	Ludkovsku, Mike	600	Ma, Pulong	348	Malikov, Emir	403
Loh, Wen Wei	250	Luedtke, Alex R.	159	Ma, Qi	162	Malkomes, Gustavo	645
Lok, Judith	4, 647	Luers, Brook	403	Ma, Qiao	169, 252, 412	Malla, Ganesh	614
Lonergan, Charmayne	134	Lugtig, Peter	344	Ma, Rong	345, 509	Mallick, Bani	340, 347, 427, 437
Long, Qi	80, 516	Lui, Arthur	237, 310	Ma, Shiqian	150	Mallick, Himel	129, 234
Longini, Ira M.	321	Lukemire, Joshua D.	576, 627	Ma, Shuangge	129	Mallinckrodt, Craig	55
Lopes, Miles	392, 559, 599	Lum, Kristian	630	Ma, Siyuan	234	Mallinckrodt, PhD, Craig	114
Lopez, Michael	43, 87, 323	Lumley, Thomas	52, 171, 179	Ma, Tengyu	141	Malone, Christopher	514
Lopez, Michael	323	Lumsden, Brandon	527	Ma, Tianwen	621	Malsiner-Walli, Gertraud	217
Lopez, Michael	323	Lun, Aaron	527	Ma, Tianzhou	293	Mamouris, Pavlos	341
López-Cheda, Ana	270	Luna, Xavier de	35	Ma, Virginia	522	Mandal, Abhijit	658
López-de-Ullíbarri, Ignacio	270	Lunceford, Jared	644	Ma, Wei	322, 342	Mandal, Soutrik	322, 634
Lorenzi, Elizabeth	167, 259	Lund, Robert	168, 260, 382, 643	Ma, Xin	300, 337, 417	Mandel, Ilya	462
Loresto, Figaro	358	Lundell, Jill	660	Ma, Yan	662	Mandrekar, Jay	187
Lorio, Jennifer	464, 520	Lung, Pei-Yau	527	Ma, Yanyuan	35, 127, 181	Mandrekar, Sumithra	148
Lotspeich, Sarah	72, 375	Luo, Binjie	134	Ma, Yong	339, 426, 662	Mankad, Shawn	238, 311
Lou, Jitong	522	Luo, Junxiang	55, 343	Ma, Yuanjing	40	Mannella, Kristin	338, 418
Lou, Wendy	638	Luo, Li	518, 570, 663	Ma, Zhihau	542	Manner, David	164
Lou, Yiyue	507	Luo, Ruiyan	79, 132	Ma, Zichen	415	Manning, Bridget	465, 531
Louallen, Jeff	512	Luo, Sheng	393, 405	Ma, Ziwei	255	Mannhardt, Elizabeth	120, 249, 264
Louis, Thomas	333, 438	Luo, Wei	123	Ma, Zongming	3, 45	Manola, Areti	383, 533
Loux, Travis	539	Luo, Xi	576	Maahs, David	112	Manson, Stephanie	608
Love, Michael	126, 182, 219, 415	Luo, Xi	509	Mabasa, Melissa	358	Mao, Cheng	3
Love, Tanzy M.T.	237, 310	Luo, Xiaodong	277	Macdonald, Brian	235	Mao, Lu	277
Loveland, Katherine A.	518	Luo, Yuan	40	MacEachern, Steve	22, 315	Mao, Xiaojun	659
Loy, Adam	550	Luo, Yuetian	588	Machiorlatti, Michael	169, 252	Mao, Xuejing	512

Name	Session	Name	Session	Name	Session	Name	Session
Mao, Yi Millie	241	Mauro, Jacqueline	35	McNally, Richard	339, 426	Merrill, Peter	40
Maples, Jerry	295, 354	MaWhinney, Samantha	358, 522, 529	McNamara, Amelia	369, 433	Mesenbrink, Peter	164
Marasteanu, Ioana (Julia)	469	May, K. Patrick	423	McNealis, Vanessa	169, 252	Mesner, Octavio	303
Marceau West, Rachel	456	May, Mark	464, 520	McNeely, Irwin	188	Messer, Karen	248
Marchenko, Olga	493	May, Mo	506	McNeer, Elizabeth	256	Messier, Kyle	249
Marchette, David	149	May, Susanne	529	McNicholas, Paul D	168, 260, 465, 531	Messier, Stephen	31
Marcotte, Thomas	170, 251	Mayba, Oleg	527	McNulty, Erin	242	Messner, Michael	403
Marcy, Peter	348	Mayer-Davis, Elizabeth	112	McPhail, Gary Lewis	355	Metzger Mulrow, Jeri	16
Marder, Karen	126, 182	Mayo, Matthew	403	McRoy, Martha	330	Metzger, Gregory	470
Margolin, Zachary R	403	Mazumdar, Maitreyi M	472	McShane, Blakeley	160	Metzger, Thomas	340, 427
Mariani, John	521	Mazumder, Rahul	378, 454	McShane, Lisa	21	Meyer, Mary C	190
Marin, Jean-Michel	107	Mazza, Gina Lynn	628	McShane, Ryan P.A.	41	Meyer, Bruce D	106
Marino, Miguel	281	McBride, Sandra	522	McTague, Jaclyn Ashley	240	Meyer, Mark	340, 427
Marjoram, Paul	297, 362	McCabe, Sean	415	McVeigh, Brendan	285	Meyer, Mikaela	125, 195
Markatou, Marianthi	210	MCCAFFERY, HARLAN	358	McWilliams, J. Michael	174	Meyerhoff, Miriam	51
Marker, David A.	23	McCaffery, Harlan	294, 353	Mead, Henry	355	Meysami, Mohammad	464, 520
Markland, Alayne	662	McCaffrey, Daniel F.	27, 88, 502	Mealli, Fabrizia	226, 497	Mi, Xiaojuan	355
Markovic, Jelena	587	McCall, Matthew N	126, 182, 237, 310	Medendorp, Shari	399	Mi, Xinlei	72
Marra, Elizabeth	242	McCann, Melinda	187	Medina, Lauren	242	Michael, Semhar	185, 305
Marra, Giampiero	81	McCarthy, Janice	663	Meditz, Amie	522	Michailidis, George	113, 127, 181, 340, 350, 409, 427, 660
Marron, Steve	90, 218, 527	McCaw, Zachary R	137, 665	Medrano-Gracia, Pau	359	Michalak, Sarah	36, 474
Marrs, Frank	413	McClish, Donna	170, 251, 410	Medri, Jhonatan	28, 86	Micheas, Athanasios	409
Marshall, Juliet	465, 531	McClure, Leslie	224	Medvedovic, Mario	126, 182	Miecznikowski, Jeff	374
Martens, Michael J.	610	McConnell, Katie	573	Mee, Robert	134	Mielke, Tobias	479
Martin, David	24	McConville, Kelly	50, 631	Meeker, John D.	358	Miglioretti, Diana	171
Martin, Axel	126, 182	McCormick, Tyler	125, 195, 276	Meeker, William Q.	511, 564	Mihaylov, Gueorgui	175
Martin, Donald	177	McCormick, Tyler	217	Mehrabani, Ali	357	Mikhaylova, Anya	140
Martin, Gael	107	McCulloch, Robert	20	Mehrotra, Ateev	65	Mikulich, Susan	366
Martin, Kelly	29, 89	McDaniel, Darius	280	Mehrotra, Devan	148, 456, 653	Milad, Mohamed	180
Martin, Melissa	528	McDonald, Daniel	136	Mehta, Cyrus	342, 456	Miles, Caleb	494
Martin, Renee' H	32	McDonald, Trent	522	Mei, Meng	509	Miljkovic, Tatjana	465, 531
Martin, Ruvie	130, 299	McDonnell, Erin	127, 181	Meinfelder, Florian	54	Millen, Brian	342
Martin, Ryan	541, 613	McDougall, Shannon	242	Meinshausen, Nicolai	145	Miller, Darcy	119, 300, 416
Martin, Scott	180	McDowell, Jennifer	184	Meinzer, Caitlyn	32	Miller, Erika	29, 89
Martinet, Gretchen Falk	49	McElroy, Tucker	332, 460, 508, 565	Meiring, Wendy	87, 90, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 194, 196, 253, 254, 255, 256, 257, 258, 260, 297, 311, 355, 356, 357, 358, 359, 360, 362, 417, 419, 420, 421, 422, 423, 424, 425, 427, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530	Miller, Jeffrey	67, 294, 353
Martinez, Ignacio	560	McGee, Daniel L.	358	Meister, Marianne	166, 280		
Martinez, Kara	126, 182	McGee, Monnie	402, 572	Miller, Nikolay	500		
Martinez, Rochelle (Shelly) Wilkie	389	McGoff, Kevin	7	Millholland, John	170, 251		
Martinez, Wendy L28, 86, 314, 330, 400, 465, 531, 589		McGonigle, Euan	56, 495	Milton, Jacqui	402		
Martino, Steven C.	296, 361	McGovern, Pamela	143, 623	Min, Jea Young	27, 88		
Mascha, Edward	523	McGrath, David	169, 252	Min, Eun Jeong	328, 516		
Masoero, Lorenzo	286	McGrath, Robert J	110	Min, Jack	294, 353		
Matangi, Evidence	511	McGue, Matt	156	Min, Meeyoung	570		
Mathew, Thomas	355	McIllece, Justin	289, 474	Minhajuddin, Abu	358		
Mathews, Heather	302	McIntyre, Matthew	662	Mendez, Ignacio	231		
Mathur, Maya B	99, 309, 522	McIver, Lauren	234	Mendoza, Tito	420		
Mathur, Siddhartha	644	McKeever, Kathleen	168, 260	Meng, Cheng	499		
Matloff, Norman	516	McKenzie, Katelyn A.	359	Meng, Ke	110		
Matsouaka, Roland A.	277	McKinney, Eric	412	Meng, Xiao-Li	262, 302, 380, 545, 597		
Matsui, Shigeyuki	355	McLain, Alexander C	244, 564, 570	Meng, Xing	170, 251		
Matteson, David	135, 163, 424, 463, 495, 519, 634	McLaughlin, Katherine	295, 354, 416	Mengersen, Kerrie	107		
Matthews, Gregory	79, 292	McLaughlin, Wayne	518	Mentch, Lucas	90, 278		
Matthijs, Koen	658	McLean, Matt	47	Menzies, Nicolas	250		
Mattingly, Tracy	29, 89	McLean, Samuel A	144	Mercadier, Cecile	108		
Matuk, James	254	McLeod, David	135	Mercer, Andrew	442, 548		
Matzner, Shari	619	McLeod, Lisa	420	Merikangas, Kathleen	635		
Mauguen, Audrey	296, 361	McMahan, Christopher	358, 403, 516, 527	Merikull, Jaanika	395		
Maurer, Karsten	28, 86, 515	McMorris, John	127, 181	Merkes, Sierra	511		
Mauro, Christine	338, 418	McMurry, Tim	29, 89	Mermelstein, Robin	18, 628		
		McNair, Bryan Keith	404	Mitchell, Caroline	234		
				Mitchell, Colter M	498		
				Mitchell, Emily	416		
				Mitchell, Shira	595		

Name	Session	Name	Session	Name	Session	Name	Session
Mitra, Nandita	30, 407, 560, 651	Morris, Darcy Steeg	255	Murphy, Padraic	29, 89	Nazarian, Aaron	508
Mitra, Pranab K	223	Morris, Emily	135	Murphy, Susan	46, 154, 213, 256	Nazroo, James	169, 252
Mitra, Riten	40, 237, 310, 572	Morris, Jeffrey S.	231, 340, 427	Murphy, Tara	416	Neath, Andrew	125, 195
Mitra, Robin	632	Morris, Max	525	Murray, Cynthia	189	Nebel, Mary Beth	135
Mitrani-Gold, Fanny	507	Morris, Sarah	197	Murray, Jared S	20, 285	NeCamp, Timothy	338, 418
Mitzenmacher, Michael	286	Morris, Tracy	189	Murray, Nancy L	414, 464, 520	Needham, Belinda	237, 310
Miyahara, Sachiko	507	Morrison, Alanna C.	137	Murray, Sharon	128, 196	Neeley Tass, E.	338, 418
Miyaoka, Etsuo	256	Morrison, Douglas	464, 520	Murray, Thomas	46	Neely, Michael	468
Miyazaki, Tomomi	604	Morrison, Samantha	297, 362, 551	Murtaza, Maryam	623	Neerchal, Nagaraj	128, 196, 508
Mizik, Natalie	384	Morrison, Shaunna	297, 362	Murua, Alejandro	513	Neidhart, Suzanne Marie	448
Mizuno, Yuko	420	Morrow, Mary	529	Muse, Spencer	287	Nelson, Ahern	28, 86
Mladenoff, David	190	Morton, David	64	Musgrave, Donald	470	Nelson, Amanda	31
Mneimneh, Zeina	13	Morton, Sally C.	224	Musser, Bret	607	Nelson, Kerrie	85
Mo, Ya	337, 417	Moser, Richard	295, 354	Musulin, Rade	165	Nelson, Peter T	522
Mocko, Megan	125, 195	Mostafa, Sayed A	74	Muthukrishna, Daniel	291	Nenciu, Adriana V	188
Modarres, Reza	515	Mostofsky, Stewart	509	Muthukumarana, Saman	578, 661	Ness, Scott A	570
Moeller, Frederick	576	Moura, Fernando	503	Muyskens, Amanda	255	Nettleton, Dan	79, 233, 613
Moen, Ronald	69	Moyse, Davia	295, 354	Muzny, Chris	448	Neuenschwander, Beat	170, 251
Mohadjer, Leyla	379, 606	Mozina, Mark	28, 86	Mwangi, Ann	80	Neums, Lisa	527
Mohankumar, Narmadha	403, 577	Mt-Isa, Shahrul	240	Mwanza, Jean-Claude	649	Neuzil, Kathleen	464, 520
Mohd-Zaid, Fairul	43, 87, 413	Mu, Jinjian	254	Myers, Kary	462, 537	Neverer, Mary	337, 417
Mohler, George	50	Mu, Yi	295, 354	Mykyta, Laryssa	275	Neves, Andre Felipe	503
Mohlke, Karen	126, 182	Muchmore, Patrick	297, 362	Nachtsheim, Abigail	134	Nevo, Daniel	647
Molenberghs, Geert	316, 341, 658	Mueller, Christian Lorenz	102, 234	Nadler, Boaz	392	Newcomer, Justin	149
Molgaard, Craig A.	638	Mueller, Claudius	159	Naesens, Maarten	612	Newhart, Kathryn Blair	390
Mollan, Katie Rose	170, 251, 257	Mueller, Hans	133, 271, 599, 614	Nagaraja, Chaitra	288, 337, 417	Newman, Alexandra	64
Mollan, Scott	359	Mueller, Ralph-Axel	8	Nagorski, John	329	Newton, David	513
Moller, Ann Beth	595	Mueller, Samuel	513	Naing, Aung	420	Newton, Michael Abott	133
Molling, Daniel	174	Muetze, Tobias	459	Nair, Rajesh	77	Ng, Hon Keung Tony	28, 86
Molshatski, Noa	297, 362	Mukherjee, Anwesha	358	Nair, Vijayan	228	Nghiem, Linh Hoang	572
Molstad, Aaron	412	Mukherjee, Bhramar	128, 167, 196, 211, 237, 259, 310, 358, 387, 524, 541, 597	Najim, Jamal	481	Ngo, Duy	240
Molyneux, James	577	Mukherjee, Debarghya	of	Nakamoto, Kazuki	616	Nguelifack, Brice Merlin	303
Mondal, Anirban	249, 348, 450, 463, 519, 616	Mukherjee, Gourab	247, 441	Nakamura, Kazuyuki	425	Nguyen, Danh V	341, 506
Mondal, Debashis	377, 403	Mukherjee, Sayan	657	Nakarmi, Janet	665	Nguyen, Dao	302
Mondellini, Giulio	358	Mukherjee, Soumendu	Sundar	Nakatani, Eiji	358	Nguyen, Kimberly	242
Monsell, Brian	460	Mukherjee, Ujjal	Kumar	Nakazuru, Yoshiomi	403	Nguyen, Long	234
Montemayor, Daniel	187	Mukhopadhyay, Minerva	10, 320	Nakonezny, Paul	358	Nguyen, Minh Chau	71, 464, 520
Montepiedra, Grace	507	Mukhopadhyay, Nitai	499	Nallamothu, Brahmajee	174	Nguyen, My Khe	337, 417
Montez-Rath, Maria	309	Mukhopadhyay, Saurabh	516	Nam, Kijoeng	355	Nguyen, Son	125, 195
Montgomery, Douglas	70	Mukhopadhyay, Subhadeep	327	Nam, Wonil	176	Nguyen, Trang Q	501
Montgomery, Robert	526	Mukhyala, Kiran	413	Nandi, Subhrangshu	133	Nguyen, Tuan	28, 86
Montgomery, Robert	28, 86	Mulcahy, Garrett	527	Nandram, Balgobin	34, 347, 503	Ni, Ai	21, 156
Montoya, Lina	358	Mulgrave, Jami	256	Nandy, Shaurabh	75	Ni, Yang	34
Moodie, Erica	543	Mullen, Zachary	563	Nantz, Eric	166	Niaura, Raymond	523
Moon, Chul	471	M. Jler, Peter	34, 115, 396	Napier, Joseph	168, 260	Nicholls, Gradon	63
Moore, Andrew	28, 86	Mulrow, Edward	28, 86, 169, 252, 337, 399, 417, 423, 548	Naqvi, Syeda Mahrulk Hussnain	523	Nicholson, Andrew	358
Moore, Jason H	15, 657	Munasinghe, Wijith Prasantha	138	Naranjo, Dr. Joshua	240	Nicholson, Mitchell	63
Moore, Marguerite	463, 519	Munaweera, Inesh	542	Narayan, Manjari	413	Nickl, Richard	547
Moore, Renee	280	Munk, Axel	661	Narayanan, Prem	238, 311	Nie, Lei	612
Moradi, Hossein	437	Munoz, Breda	5	Narisetty, Naveen Naidu	403, 613	Nielsen, Jennifer	238, 311
Moradijamei, Behnaz	80	Munsaka, Melvin	190	Nascimento Silva, Denise Britz	503	Nielson, Alexander	522
Morales, Knashawn	200, 366, 535	Murden, Raphiel	468	Nason, Guy	457	Niemi, Jarad	297, 362
Moran, Gemma	572	Murdoch, Maureen	576	Natanegara, Fanni	164, 355, 398	Nifong, Brady	34
Moran, Kelly R.	461	Murphy, James	616	Natarajan, Loki	187	Nikolova, Atanaska	565
Morgan, Charity J.	42	Murphy, Jennifer	27, 88	Natarajan, Ramesh	574	Nikooienejad, Amir	130
Morgan, Joseph	214	Murphy, Joe	358	Nathoo, Farouk	101	Ning, Bo	47
Morganstein, David	16, 109, 325	Nattino, Giovanni	66	Nautel, Zacharie	375, 393	Ning, Jing	27, 88, 303, 304, 609
Moriarity, Chris	474, 655	Naulet, Jennifer	286	Naumova, Elena N	68	Ning, Shaoyang	250
Morita, Satoshi	468	Nayak, Tapan	295, 354	Ning, Yang	72	Nissim, Kobbi	633
Morozova, Olga	321, 592						

Name	Session	Name	Session	Name	Session	Name	Session
Niu, Jiajing	528	O'Halloran, Alissa	423	Oyet, Alwell	612	Parker, Jennifer	127, 181, 238, 289, 311
Niu, Jingbo	27, 88	Ohlssen, David	273	Ozanne, Marie	464, 520	Parker, Megan	423
Niu, Xiaoyue	647	Okabe, Masaaki	255	Ozechowski, Timothy	529	Parker, Paul	66
Niu, Yabo	612	O'Kelly, Michael	114	Ozonoff, Al	68, 250	Parliyan, Alexa	403
Nkwopara, Evangelyn	529	Okwukenye, Macaulay	339, 426	Ozturk, Omer	35	Parmigiani, Giovanni	256, 575
Nobel, Andrew B	7, 415	Olbright, Gayla	180	Pacej, Silvia	503	Parsaeian, Shahnaz	463, 519
Noel, Gary	398	Oleson, Jacob J	358, 522	Paciorek, Christopher	168, 260, 331	Parsons, Jacob	647
Noh, Maengseok	377	Oleynick, John	172	Paddock, Susan	407	Parsons, Van	82, 423, 474, 655
Nolan, John P	108	Olhede, Sofia C	45, 290, 544, 633	Padhye, Nikhil S	43, 87	Partovi Nia, Vahid	127, 181
Nomura, Takanobu	358	Olivier, Jake	662	Padilla, Lace R	590	Pasaniciu, Bogdan	237, 310
Noonan, Margaret	66	Olsen, Jay	238, 311	Paganin, Sally	444	Pasolli, Edoardo	225
Noorbaloochi, Siamak	616	Olshan, Andrew	444	Pagan-Rivera, Keyla	340, 427	Pasupathy, Raghu	513
Noorbaloochi, Siamak	658	Olson, Matt A.	27, 88	Pagnoni, Giuseppe	576	Patel, Hemant	170, 251
Norden-Krichmar, Trina M.	237, 310	Olson, Richard A	403	Paige, Rob L.	90	Patel, Parul	170, 251
Nordio, Francesco	358	O'Malley, A. James	233, 656	Paik, Myunghee Cho	12	Patel, Vishal	75
Nordman, Daniel J.	78	Ombao, Hernando	90, 167, 173, 259, 290, 358, 403, 457, 522, 528, 576, 591	Painsky, Amichai	471	Pathiravasan, Chathurangi Heshani	509
Norman, Claude	36	Ommen, Danica	613	Pal Choudhury, Parichoy	551	Pati, Deepend	34, 45, 162, 246, 254, 302, 340, 397, 427, 517
Norman, Luke	338, 418	O'Muircheartaigh, Colm	606	Pal, Subhadip	237, 310, 528	Patilea, Valentin	270
Normington, James	334	Onatski, Alexei	481, 547	P-Isson, Finnur	162	Paton, Forrest	168, 260
Norris, Jill M	527	Onder, Ortac	314	Pan, Chun	574	Patra, Rohit Kumar	5
North, Rebecca	38	Ong, Ai Rene	379	Pan, Deng	128, 196	Patra, Sayan	231
Nouri, Jessie	573	Onnela, Jukka-Pekka	567	Pan, Jane	302	Patrangenaru, Victor	90
Novak, Julie	463, 519, 643	Opheim, Timothy	581	Pan, Qing	449, 662	Patrick, Joshua	473
Nowacki, Amy Sue	104	Opitz, Thomas	39, 108	Pan, Stephanie	170, 251	Pattee, Jack	403
Nowak, Theodore	619	Oprime, Pedro	615	Pan, Wei	59, 403, 627	Patten, Luke William	355
Nowakowska, Ewa	611	Opsomer, Jean	10, 215	Pan, Xueimei	256	Paul, Albert S	179
Nugent, Rebecca	125, 152, 195, 294, 353	Oral, Evrim	298	Pan, Yujia	82, 575	Paul, Erina	507
Nunes, Matthew	56, 495	Orellana, Josue	60, 125, 195	Panageas, Kathy	57, 174	Paul, Sofia	343
Nunnally, Beau	85	Oremo, Jared	358	Pang, Herbert	297, 362	Paulon, Giorgio	563
NuñO, Michelle M.	609	Organ, Christopher	445	Pang, Osbert	460, 565	Paulson, Joseph	234
Nussbaum, Amy	352	Orlow, Irene	82	Pang, Xiaodong	527	Pavelescu, Andrei	337, 417
Nussbaum, Barry	143	Ormon, A. Elizabeth	333	Pani, Abhishek	384	Pavlicova, Martina	521
Nuzzo, Regina	283, 445	Orndahl, Christine M.	170, 251	Paninski, Liam	271	Pavur, Robert	356
Nychka, Doug	465, 531	Oron, Assaf P	549	Panta, Humnath	611	Pawley, Matthew D. M.	615
Nychka, Douglas William	331, 488	Orozco-Guerra, Luz	527	Panter, Lee	464, 520	Paynabar, Kamran	390
Nystrom, Emily	465, 517, 531	Orsini, Joyce N	69	Pantoja Galicia, Norberto	359	Payne, Mark	106
Oakes, David	277	Orso, Samuel	465, 531	Pantula, Sastry G.	490	Payne, Richard	78, 347
Oard, Alex	409	Ortega-Villa, Ana Maria	179, 322	Papadogeorgou, Georgia	226	Pazdernik, Karl	95, 619
Obersneider, Monika	337, 417	Ortman, Jennifer	157	Parast, Layla	9	Peace, Karl E	339, 426
O'Brien, Katie	523	Osborne, Jason	43, 87	Parcon, Jason	623	Pearl, Dennis	90, 189
O'Brien, Sean M	420	Osinska, Magdalena	170, 251	Pardo, Marla del Carmen	9	Pearson, Esther	624
O'Brien, Travis	331	Ostendorf, Danielle	43, 87	Pargaonkar, Vedant	27, 88	Pechacek, Julie	619
Ocampo, Alex	299	Osthus, Dave	250	Parikh, Nidhi	62	Peck, Roxy	553, 638
Ocampo, Laura	295, 354	Ostrovnaya, Irina	296, 361	Paris, R. Vincent	525	Peddada, Shyamal	21
Ochoa, Anayeli	28, 86	O'Toole, Timothy E	403	Park, Seho	215, 656	Pedley, Alison	571
O'Connell, Michael	461	Ott, Miles	14	Park, Byung S	594	Pekar, James	576
O'Connor, Annette	358	Ottenbacher, Kenneth John	358	Park, Cheolwoo	175, 184	Pellegrini, Fabio	355
Odumade, Oluseun	580	Otto, Mark	168, 260	Park, Eun Sug	476	Peluso, Stefano	478
Oduro-Safo, Michael	28, 43, 86, 87	Ou, Fang-Shu	570	Park, Hyung	133, 346	Pena, Edsel A	78, 512, 617
Oehler, Matthew	43, 87	Ouata, Younouss	28, 86	Park, Jaewoo	455	Pena, Victor	254
Offen, Walt	240	Ouyang, Min	144	Park, Jeong-Gun	358	Penberthy, Lynne	474
Offermans, May	640	Ouyang, Yongdong	339, 426	Park, Jun	187	Penc, Richard S.	190
Ofori-Boateng, Dorcas	90, 307	Overholser, Rosanna	306	Park, Jun Young	328, 603	Peng, Jing	403, 446
Oganisian, Arman	560	Overholt, Benjamin	654	Park, Seyoung	173	Peng, Limin	11, 404
Ogawa, Mitsunori	616	Owen, Art	99	Park, Timothy	602	Peng, Luyao	341
Ogburn, Elizabeth	284, 494, 610	Owens, Dedrick	654	Park, Yeonhee	516	Peng, Xiang	186
Ogden, Todd	37, 129, 346, 522, 627	Owens, Victoria L	306	Park, Yeonjoo	132	Peng, Xiyu	652
Oh, Eric	171	Owuor, Mercy	358	PARK, YONGSOEK	456	Peng, Xuan	662
Oh, Mingyu	663	Oyeniran, Oluyemi	355	Park, Yonil	295, 354	Peng, Yingwei	270
O'Hagan, Justin	321			Parker, Anne	581		

Name	Session	Name	Session	Name	Session	Name	Session
Pennell, Beth-Ellen	13	Pipiras, Vladas	332	Price, Brad	412	Qumsiyeh, Maher	255
Pennell, Michael	339, 426, 461	Piraino, Paolo	355	Price, Chris	255, 522	Rabinowicz, Assaf	127, 181
Penny, Richard	460	Pirraglia, Elizabeth	28, 86	Price, Dionne	281	Raby, John W.	190
Pensky, Marianna	75	Piskol, Robert	527	Price, Megan	451	Race, Jonathan	461
Peragashwaththe Liyanage, Janaka	233	Pisztora, Vincent	294, 353	Price, William J	465, 531	Racine-Poon, Amy	170, 251
Perera, Muditha	131	Pittard, Melissa	569	Priebe, Carey E	136, 413, 547	Radice, Rosalba	81
Perera, Robert A.	32, 170, 251, 405	Plant, Kevin	352	Priestley, Jennifer Lewis	110	Radigan, Marleen	301
Perevozskaya, Inna	115, 479	Plantinga, Anna	35, 234	Prince, David	491	Rafei, Ali	41
Perez Abreu, Rafael	421	Planty, Michael	344	Prince, Lillian	280	Raftery, Adrian	380, 620, 632
Perez Gallardo, Raul	421	Plas, David	126, 182	Pritts, Mary	256	Raghunathan, Trivellore	54, 98, 215
Permutt, Thomas	459	Platt, Robert	319, 543	Probst, Braden	28, 86	Ragin, Camille	126, 182
Perrett, Jamis	117	Pledger, Shirley	51	Proietti, Tommaso	460	Rahbar, Mohammad	518
Perry, Jessica	517	Pleis, John R.	527	Proschan, Michael	34, 128, 196	Rahman, AKM Fazlur	78
Person, Bobbie	358	Pleuss, James	125, 195	Prucka, Bill	342	Rahman, Husneara	132
Peruggia, Mario	346	Plourde, Kendra	570	Psioda, Matthew A.	34	Rahnavard, Gholamali	234
Peters, Jonas	145	Plumley, Alan H	106	Pu, Minya	248	Rai, Chinki	189
Peters, Ulrike	652	Pluta, Dustin	173, 290	Pudenz, Kristen	650	Rai, Shesh N	237, 310
Petersen, Alexander	90, 243, 271	Poczos, Barnabas	187	Pulido, Manuel	386	Raic, Mateja	45
Petersen, Anne Helby	127, 181	Pogrow, Stanley	433	Pulkstenis, Erik	327	Railkar, Radha	653
Petersen, Ashley	444	Pohl, Edward	70	Purdom, Elizabeth	481	Raim, Andrew	128, 196
Peterson, Adam	403	Poisson, Laila	104, 358	Putcha, Chandra	463, 519	Raine-Bennett, Tina	338, 418
Peterson, Emily	595	Pokal, Sayli	168, 260	Putthenveedu, Manojkumar	297, 362	Rajicic, Natasa	491
Peterson, Geoffrey	190	Poliak, Cathy	194	Qadir, Ghulam	308	Ram, Karthik	400
Peterson, Kevin	334	Polimanti, Renato	498	Qaqish, Bahjat	662	Ramakrishnan, Vijay	403
Peterson, Ross	403	Pollard, Katherine S.	102	Qi, Guanghao	549	Rambaut, Andrew	287
Peterson, Sandra	295, 354	Polonik, Wolfgang	303	Qi, Qi	28, 86, 510	Ramchandani, Ritesh	507
Petkova, Eva	296, 346, 361	Polson, Nicholas	641	Qi, Xin	79, 132	Ramezani, Niloofar	522
Petraglia, Elizabeth	476	Polvrejan, Elena	114	Qi, Xinran	304	Ramirez, Jose	383
Petrin, Robert	169, 252, 295, 354	Polychronopoulou, Efstathia	653	Qi, Xinyue	128, 196	Ramler, Ivan	235
Petris, Giovanni	409	Polzehl, Joerg	603	Qi, Youran	273	Rammon, Jennifer	127, 181
Petrone, Sonia	53	Pomann, Gina-Maria	325	Qi, Zhengling	329	Ran, Di	453
Petropoulos, Lambros	297, 362	Pond, Sergei	287	Qian, Hang	47	Rand, Bill	470, 530
Petrovic, Sonja	45	Pondo, Tracy	298	Qian, Jing	171, 358	Randolph, Timothy	136, 212
Peytchev, Andrey	333	Pong, Annpey	170, 251	Qian, Wei	48	Ranganath, Rajesh	396
Pfaffenberger, Roger C.	555, 664	Pool, Lindsay	438	Qiao, Wanli	243	Ranganathan, Shyam	190
Pfeffermann, Danny	215	Poor, H. Vincent	619	Qiao, Zihuan	574	Rao, Aniruddha Rajendra	187
Pfeiffer, Ruth	296, 322, 361	Popko, David	29, 89	Qin, Li-Xuan	21	Rao, Arvind	37
Pflaumer, Peter	189	Popuri, Sai Kumar	80	Qin, Rui	467	Rao, J. N. K.	631
Phadnis, Milind	239	Porcher, Raphael	309	Qin, Xu	580	Rao, Marepalli	509
PHAM, Emmanuel	172	Porter, Erica	255	Qin, Yichen	38, 357	Rao, Shubha	338, 418
Pharris-Ciurej, Nikolas	157, 469	Posner, Michael	388, 553	Qiu, Junshan	277, 571	RAO, SUDHAKAR	355
Phelps, Amy L	402	Potter, Gail	464, 520	Qiu, Lin	245	Rao, Vinayak	237, 310
Piao, Jin	609	Potter, K.	190	Qiu, Michael	256	Rao, Youlan	355
Piaskowski, Julia	465, 531	Pounds, Stanley	126, 182, 237, 310	Qiu, Peihua	615	Rappold, Ana	403
Piatkowski, Pawel	170, 251	Pouokam, Maxime	126, 182	Qiu, Yixuan	141, 412, 471	Rashid, Naim U.	180, 663
Pickett, Kaci	522	Pourahmadi, Mohsen	127, 181	Qiu, Yumou	132	Rashid, Sana	632
Piegorsch, Walter W.	268	Pourmohamad, Tony	645	Qu, Annie	178, 316, 329, 454, 482, 509, 603	Raskutti, Garvesh	256, 588
Piekarewicz, Jorge	340, 427	Pourmojib, Samaneh	295, 354, 615	Qu, Yongming	130, 148, 459	Rasmussen, David	287
Piepel, Greg	134	Powers, Randall	300, 465, 531	Qu, Zhuo	414	Ratcliffe, Sarah	204
Pierson, Steve	23	Pothress, Joseph	175, 339, 426	Quackenbush, John	597	Ratnaparkhi, Makarand Vishnu	75
Pigeon, Mathieu	566	Pradhan, Vivek	299	Quan, Hui	17, 277, 343	Ratnayake, Isuru	508
Pike, Adam	476	Prado, Raquel	60, 233	Quan, Peter	419	Rausch, Joseph	301
Pikounis, Bill	172	Prajapati, Purvi	170, 251	Quan, Xiaoyun	338, 418	Ravikumar, Pradeep	269
Pilanci, Mert	559	Pramanik, Sandipan	403	Quartagno, Matteo	438	Ravishanker, Nalini	187, 643
Pilosov, Michael	256	Pratola, Matthew	20	Quayson, Eric	294, 353	Ray, Meredith	180
Pineau, Vicki	423, 548	Pratt, Daniel	333	Quick, Harrison	501, 649	Ray, Pallavi	246
Pinheiro, JosÈ	637	Preisser, John	662	Quinlan, Kevin	214	Raychaudhuri, Aparna	507
Pinsino, Alberto	358	Prentice, Ross L.	11, 609	Quinlan, Kevin	36	Raynal, Louis	107
Pinto Junior, Jony	160	Prescott, Hallie	174	Quinn, Tim	504	Razaee, Zahra	254, 355
Piper, Megan	346, 614	Prezant, David	338, 418	Quintana, Melanie	164	Raznahan, Armin	528

Name	Session	Name	Session	Name	Session	Name	Session
Reale, Marco	255	Rit, Gabrielle	602	Rosenbaum, Paul	335, 337, 407, 417, 583	Russell, Anne	248
Rebecq, Antoine	602	Ritov, Ya'acov	247, 345, 441, 617	Rosenberg, Noah	527	Russell, Robin	577
Rebhan, Travis	28, 86	Rivadeneyra, Ivan	63	Rosenberg, Steve	246	Rusyn, Ivan	461
Redmond, Shane P	189	Rivera, David	462	Rosenberger, James L	222	Rutter, Michael	473
Reed, Carrie	423	Rivera, Donna	474	Rosenblatt, Jonathan	160	Ryan, Andrew	174
Reedman, Laurie	654	Rivera-Rodriguez, Claudia	29, 89, 339, 426	Rosenblum, Michael	459, 558, 610	Ryan, Mary	170, 251
Reehl, Sarah	62	Rivers, Douglas	548	Rosenfeld, Margaret	522	Ryan, Sarah	90, 170, 251, 297, 362
Rehnberg, Zoe	339, 426	Rivest, Louis-Paul	319	Rosenman, Evan	99	Ryslik, Gregory	144
Reich, Brian	101, 226, 249, 317, 346, 403, 497, 620	Rizopoulos, Dimitris	466, 570	Rosenthal, Jeffrey S	319	Sabbagh, Arman	27, 88, 297, 362
Reich, Brian	39	Roalf, David	528	Rosner, Bernard	629	Sabo, Roy T	32, 73, 128, 170, 196, 251
Reifeis, Sarah	126, 170, 182, 251	Rob, Quick	358	Rosner, Gary	607	Sabzikar, Farzad	290
Reimherr, Matthew	133, 488, 641	Roback, Paul	232, 337, 417	Ross Watson, Chrysm	320	Sachs, Aaron	412
Reinhart, Alex	125, 195	Robbins, Joyce	401	Ross, Ryan	167, 259	Sachs, Matthias	513
Reininger, Belinda	594	Robbins, Michael	502	Rosset, Saharon	127, 181, 381, 471	Sachs, Matthias	355
Reisch, Glenn	242	Robbins, Naomi	25	Rossman, Allan	152, 435, 553	Sackton, Timothy B	480
Reising, Albert	170, 251	Robert, Christian	44, 107, 160	Rostamiforooshani, Mehdi	192	Sadhanala, Veeranjaneyulu	441
Reist, Benjamin Martin	333, 654	Roberts, Cullen	619	Rothbaum, Jonathan L.	157, 275	Sadinle, Mauricio	285
Reiter, Jerry	50, 66, 98, 632	Roberts, Donald	555	Rothenberg, Lori H.	161, 463, 519	Sadler, Andy	238, 311
Rempa?a, Grzegorz A.	464, 520	Roberts, Emily	522	Rothenh%ousler, Dominik	145, 636	Saegusa, Takumi	285, 293
Ren, Boyu	256	Roberts, Eric T.	174	Rother, Katy	389	Safari, Wende	270
Ren, Boyu	234	Roberts, Jonathan C	526	Rotich, Duncan	467	Safikhani, Abolfazl	424
Ren, Jie	622	Robertson, Blair	522	Rotz, Wendy	555	Safo, Sandra	328
Ren, Mingchen	506	Robertson, Nathan	302	Rouchka, Eric C.	403	Saha Chaudhuri, Paramita	449
Ren, Tunan	248	Robieson, Weinig	571	Roumie, Christianne L.	27, 88	Saha, Enakshi	20
Ren, Weihang	247	Robinson, Gregor	190, 386	Roverato, Alberto	145, 636	Saha, Krishna	506
Ren, Weijia	606	Robinson, Mark	648	Rowan, Grace	301	Saha, Shampa	138
Ren, Yan	126, 182	Robinson, Samantha	41, 189, 265, 656	Rowe, Daniel	37, 135, 352	Saha, Sujayam	243
Ren, Zhao	293	Robinson, Tim	506	Rowell, Ginger Holmes	125, 195	Sahiner, Berkman	85
Renfro, Lindsay	298, 326	Robles, Barbara	416	Roy Choudhury, Kingshuk	221	Sahoo, Indranil	620
Rennert, Lior	472, 506	Rocke, Tonie	577	Roy Chowdhury, Niladri	221, 245	Sahr, Natasha	77, 126, 182
Renwick, Trudi Jane	275	Rockhill, Karilynn	423	Roy, Akash	403	Sailer, Oliver	496
Research Team, 23andMe	662	Rockova, Veronika	20, 625	Roy, Anindya	128, 196, 332	Sainani, Kristin	283
Resisi, Mostafa	390	Rockswold, Gayland L	32	Roy, Anuradha	581	SAINT-PIERRE, Philippe	172
Resnic, Frederic	77	Roddy, James	189	Roy, Arkaprava	563	Sajobi, Tolulope T	167, 259
Resnick, Dean	469	Rodhouse, Thomas	577	Roy, Jason	560	Sakhnenko, Lyudmila	33, 37, 187
Resnick, Sidney Ira	108	Rodrigo, Hansapani	337, 417	Roy, Samrat	660	Saki, Zahra	463, 519
Retzer, Joseph	611	Rodriguez, Rolondo	458	Roy, Sandipan	413	Sakshaug, Joseph	169, 252
Reynolds, Penny	296, 361, 372	Rodriguez, Viviana Alejandra	516	Roy, Vivekananda	455	Saladin, Shawn	337, 417
Reynolds, Robert	74	Rodu, Jordan	28, 86	RoyChoudhury, Arindam	446	Sales, Adam	391
Rezvani, Katy	237, 310	Roeder, Kathryn	351, 412, 575	Roychoudhury, Satrajit	326, 496, 558	Salganik, Matthew J.	647
Rhee, Connie M	341, 506	Rogak, Lauren J.	628	Roycroft, Jessica L	419	Salinas, Veronica	169, 252
Rhein, Bradley	300	Rogatko, Andre	254, 355	Roydhouse, Jessica	608	Salmaso, Luigi	617
Rhomberg, Thomas	43, 87	Rogers, Benjamin W.	338, 418	Royzman, Eugene	358	Salmon, Laurie	124
Rhyme, Zachary	664	Roland, Kristen E.	125, 195	Ruan, Qiang	463, 519	Salvana, Mary Lai	308
Rice, Elise	295, 354	Rolka, Deborah	621	Ruan, Shiling	148, 164, 245	Samadi, Seyed Yaser	132
Rice, John	30, 167, 259, 522	Rom, Dror	240	Rubin, Andee	282	Samaranayake, V A	463, 508, 519
Rice, Kiegan	528	Romano, Joseph P.	381	Rubin, Donald B.	54, 98	Samdin, Siti Balqis	576
Richardson, Robert	409	Romano, Yaniv	103	Rudin, Cynthia	630	Samms-Vaughan, Maureen	518
Richter, Scott	187	Romero, Tahmineh	526	Rudser, Kyle	662	Sampson, Joshua	179
Ries, Daniel	619	Romitti, Paul	358	Rue, Håvard	64, 162	Samuelson, Doug	451
Riester, Katherine	407	Ronco, Alexandria	126, 182	Rufibach, Kaspar	496	Samuelson, Frank	227
Rigdon, Joseph	112, 256	Room, Tairi	395	Rui, Ning	502	Samworth, Richard	85, 243, 272, 614, 634
Righter, Leland	300	Roose, James	358	Rulkens, Ryan	527	Sanchez, Brisa	403
Rimal, Ramchandra	75	Rosales, Arthur	248	Rundel, Colin	514	Snchez, Brisa	190
Rinaldo, Alessandro	303	Rose, Charles E.	419	Ruparel, Koshia	297, 362	Sanchez, Susan	70
Ripp, Sabrina	569	Rose, Bess	153	Ruppert, David	581	Sancier-Barbosa, Flavia	463, 519
Risk, Benjamin	135, 328, 576	Rose, Sherri	167, 211, 259, 281, 538	Ruppert, Shannon	170, 251	Sanders, Barry	650
Risser, Mark	168, 260, 331	Rosebrook, Rachel	28, 86	Rusinko, Joseph	137	Sanderson, Eleanor	27, 88
Risso, Davide	453	Rosen, Ori	352, 439	Russek-Cohen, Estelle	557	Sandovl, Eric	511

Name	Session	Name	Session	Name	Session	Name	Session
Sanei, Sanam	464, 520	Schiel, Anja	496	Sedransk, NELL	337, 344, 417	Shand, Lyndsay	149, 561
Sang, Hailin	665	Schield, Milo A	117	Seelye, Sarah	174	Shang, Justin	506
Sang, Huiyan	340, 427	Schifano, Elizabeth	122, 255	Seeskin, Zachary H	289	Shang, Nong	572
Sang, Peijun	192	Schifeling, Tracy	256	Seewald, Nicholas	301	Shang, Zuofeng	641
Sangurdekar, Dipen	527	Schildcrot, Jonathan	216	Segal, Brian	339, 426	Shantz, Kathryn	337, 417
Sanna Passino, Francesco	307	Schilling, Peter	654	Segbehoë, Lawrence	523	Shao, Qin	29, 89
Sanso, Bruno	47, 121	Schipper, Matthew J.	31, 355	Sei, Tomonari	616	Shao, Xiaofeng	303, 313
Santa Cruz Coelho, Danilo	160	Schissler, Alfred	126, 182	Seido, Omar	640	Shapiro, Gary	23
Santibanez, Tammy A	419	Schliep, Erin	577, 649	Seifu, Yodit	467, 571	Shappell, Heather	307, 576
Santorico, Stephanie A.	237, 310	Schmicker, Robert	529	Sekhon, Jasjeet	391, 554	Sharma, Sharan	335
Santos, Kathleen	242	Schmid, Christopher	338, 375, 418	Selbo, Jason	357	Sharma, Silvia	177
Santos, Robert	224	Schmidt, Alexandra	308, 487	Self, Stella	358	Sharp, Julia L	324
Santra, Sourav	430, 658	Schmidt, James	624	Sellers, Kimberly F	255	Sharpnack, James	441
Sanusi, Busola	355	Schmidt, Kathleen	462	Seltzer, Jonathan	557	Shaw, Crystal	296, 361
Saparbayeva, Bayan	452	Schmidt-Hieber, Johannes	312, 625	Selvaratnam, Selvakadunko	612	Shaw, Pamela	72, 171, 179, 375
Sapru, Anil	522	Schmitt, Frederick A	522	Sen, Ananda	376, 408, 483	Shaw, Terry	153
Saria, Suchi	558	Schmitt, Karl	232	Sen, Bodhisattva	5, 243, 411, 441	She, Xianrui	28, 86
Sarkar, Abhra	563	Schnable, Patrick	79	Sen, Deborshee	513	Shea, Monika	190
Sarkar, Bayazid	419	Schneider, Matthew	475	Sen, Saunak	412	Shedden, Kerby	564
Sarkar, Jyotirmoy	349	Schnell, Patrick	240, 296, 361	Sen, Srijan	338, 418	Sheidu, Onimissi M	300
Sarkar, Purnamrita	585	Schnelli, Kevin	481	Senchaudhuri, Pralay	187	Shelbaya, Ahmed	403
Sarkar, Sanat K	381	Schnitzer, Mireille	543	Senev, Aleksandar	612	Shelley, Mack	337, 417
Sarkar, Somnath	339, 426	Schofield, Lynne Steuerle	152	Sengupta, Debasis	239	Shen, Biyi	408
Sarker, Md. S.	338, 418	Schrack, Jennifer	635	Sengupta, Sanhita	296, 361	Shen, Cencheng	411
Sartore, Luca	138, 248, 344	Schroader, Haydn	256	Sengupta, Srijan	307	Shen, Chan	128, 196
Sass, Danielle	39	Schroeder, Aaron S	469	Sengupta, Subhajit	40	Shen, Frank	527
Satagopan, Jaya M	82, 156, 483	Schroeder, Paige	655	Senturk, Damla	212, 341, 506	Shen, Frank	644
Sattar, Abdus	570	Schroyer, Rosemary	479	Seo, Beomseok	256	Shen, Jenny I.	244
Satten, Glen Alan	126, 182, 234	Schuberg, Edward	349	Seo, Jung-In	246	Shen, JUDONG	148
Satterthwaite, Theodore	297, 362, 528	Schubert Kabban, Christine	43, 85, 87, 581	Serneels, Sven	163	Shen, Kui	644
Sauer, Sara	29, 89	Schuckers, Michael	235	Serrano, Daniel	355	Shen, Ronglai	279
Saville, Benjamin	326	Schuette, Paul	166	Seshan, Venkatraman E.	296, 361	Shen, Shihao	527
Savitsky, Terrance	29, 89, 246, 292, 465, 474, 503, 531	Schuh, Andrew Eugene	450	Sesia, Matteo	103	Shen, Weining	55
Savitz, Ryan	125, 195, 473	Schuler, John	463, 519	Sethuraman, Shanthi	459	Shen, Xiang	28, 86
S%ovje, Fredrik	592	Schulman, Mark	373	Setodji, Claude	296, 361	Shen, Xiaotong	59, 385, 454
SAVY, Nicolas	172	Schulte, Phillip	407, 570	Sevick, Carter	420	Shen, Yu	609
SAVY, Stephanie	172	Schumitzky, Alan	468	Sevigny, Mitch	295, 354	Shen, Zhou	641
Sawatzky, Richard	167, 259	Schutt, Rachel	597	Sexton, William	458	Sheng, Ben	464, 520
Sawyer, Robert	157	Schwab-McCoy, Aimee	338, 418, 464, 520	Seymour, Lynne	190	Sheng, Tao	355
Say, Lale	595	Schwager, Emma	234	Shababo, Ben	271	Sheng, Tianhong	127, 181, 614
Scallan Walter, Elaine	297, 362	Schwager, Steven	605	Shabbir, Javid	579	Sheng, Wenhui	136
Schaarschmidt, Frank	523	Schwager, Steven	605	Shaby, Benjamin	39, 661	Sheng, Yue	272, 392
Schachar, Russell	192	Schwartz, Seth J	27, 88	Shadel, William G.	296, 361	Shentu, Yue	128, 196, 339, 426, 644
Sch%offer, Bastian	290	Schwartz, Todd	31	Shafie, Khalil	75, 581	Shepherd, Bryan E	72, 171, 179, 375
Schafer, Chad M	222, 291	Schweitzer, Benjamin	28, 86	Shah, Arvind	254, 542	Sherfield, Joshua	36
Schafer, Toryn	661	Sciannameo, Veronica	309	Shah, Kushal	355	Sherina, Valeria	237, 310
Schaffer, Jay	615	Scotina, Anthony D.	407, 447	Shah, Nilesh	43, 87	Sherwood, Ben	412
Schaffer, Mark E	274	Scott, I'Yanna	423	Shah, Rajen D	53, 105, 218, 318, 440	Sheshadri, Ajay	420
Scharf, Henry	396	Scott, John	637	Shah, Sahil D.	394	Shete, Sanjay	27, 88, 464, 520, 612
Scharfstein, Daniel	4, 459	Scott, Kevin	344	Shahbaba, Babak	173, 290	Shi, Chengchun	139, 248
Schaubel, Douglas	238, 244, 311	Seal, Souvik	237, 310	Shakeri, Heman	248	Shi, Guiling	340, 427
Schauer, Jacob	486	Sealey, Meghan	403	Shakespeare-Pellington, Sydannie	518	Shi, Jianjun	390
Scheffler, Aaron	212	Seals, Samantha	306	Shalizi, Cosma	303	Shi, Junxin	393
Schenker, Nathaniel	54, 655	Seaman, John	170, 251	Shamp, Wright	413	Shi, Linyu	420
Schepman, Patricia	403	Sears-Edwards, Katharine	27, 88	Shams Solari, Omid	659	Shi, Min	523
Scherenberg, Ryan	125, 126, 182, 195	Seastrom, Marilyn	238, 311	Shamshoian, John	573	Shi, Peng	566
Scherpf, Erik	289	Secchi, Piercesare	133	Shamsi, Silvey	241	Shi, Pixu	284, 652
Schick, Anton	316	Sedory, Stephen	475, 579, 580	Shan, Mingyang	98	Shi, Wei	246
		Sedrick, Joseph	254	Shan, Qianqian	511	Shi, Xuan	255

Name	Session	Name	Session	Name	Session	Name	Session
Shields, Jacob	308	Simos, Dimitris	214	Smith, Paul	656	Sousa-Nieves, Christopher du	337, 417
Shiffman, Saul	18	Simpson, Douglas	132	Smith, Robert J	447	Sousounis, Peter	165
Shih, Joanna H	227	Simpson, Felicia R	49	Smock, Samantha	190	Soyer, Refik	51
Shih, Joe	131	Simpson, Matthew	631	Smoller, Jordan W	498	Spall, James C.	36, 256
Shih, Regina	502	Simpson, Pippa	526	Smucker, Byran	134	Spanbauer, Charles	176
Shillington, Andrea	611	Sims, Justin R	187	Smyth, Padhraic	465, 531	Sparacio, Giovanni	297, 362
Shim, Heejung	237, 310	Sinclair, Thomas	256	Snappin, Steven	130	Sparapani, Rodney	20, 176
Shimada, Ayako	14	Singh, Anuvrat	221	Snee, Ronald	69	Sparks, JonDavid	342
Shimada, Ayako	71	Singh, Karandeep	174	Snoek, Jasper	645	Spiegelman, Clifford	248
Shimizu, Iris	423	Singh, Roopal	575	Snoke, Joshua	292	Spiegelman, Donna	27, 88, 535, 647
Shimokawa, Asanao	256	Singh, Sarjinder	475, 579, 580	Snyder, Ellen	28, 86	Spicker, Andrew J.	407, 552
Shin, Minsuk	397	Singh, Sarjinder	579, 623	Snyder, Michael	618	Spiers, Samantha	295, 354
Shin, Yei Eun	296, 322, 361, 551	Singh, Shashank	187	Sobel, Marcus	355, 463, 519	Spiess, Jann	391
Shinde, Shashank	221	Singleton, James A.	242, 656	Sobral, Lauren	180	Spirko-Burns, Lauren	126, 182
Shinohara, Russell	297, 362, 516, 528, 627	Singleton, Sydney	473	Sofer, Tamar	168, 260, 498	Spllett, Jolene	254, 504
Shipp, Stephanie	171, 469	Sinha, Debajyoti	42, 334, 376	Solano, Louis	301	Springford, Aaron	125, 168, 195, 260
Shiraishi, Ray	464, 520	Sinha, Samiran	40, 322	Solari, Aldo	381	Srinivasan, Arun	123
Shiran Faradonbeh, Mohamad Kazem	75, 127, 181	Sinha, Sanjoy	570	Soleimani, Hossein	558	Srinivasan, Raghavan	29, 89
Shirota, Shinichiro	121	Sinharay, Sandip	403	Soliman, Marwah	335	Srinivasan, Suresh	655
Shively, Thomas	241	Sink, Larry	469	Solo, Victor	406	Sriperumbudur, Bharath	127, 133, 181
Shlomo, Natalie	169, 252, 295, 354	Siriwardena, Lochana	463, 519	Solomon, Nicole	420	Sriram, Karthik	566
Shockley, Ph.D., Keith	190, 522	Siriwardhana, Chathura	466	Soltanifar, Mohsen	192	Sriutaisuk, Suppanut	301
Shoemaker, Owen	83	Sirkis, Robyn	623	Soltanolkotabi, Mahdi	5	Srivastav, Anup	419, 464, 520
Shojaie, Ali	127, 136, 181, 205, 294, 329, 353, 385, 413, 457	Sirlanci, Melike	187	Solus, Liam	45	Srivastava, Anuj	187, 452
Shortreed, Susan	551	Sison-Mangus, Marilou	254	Sommer, Philipp	620	Srivastava, Deo Kumar	255
Shou, Haochang	443	Sivaganesan, Siva	126, 182, 340, 347, 427, 613	Sonderegger, Derek	167, 259	Srivastava, Sanvesh	641
Shoung, Jyh-Ming	172, 355, 383	Sizemore, Emilee	29, 89	Sondhi, Arjun	517	St. Ville, Maddy	358
Shipitzer, Ilya	14	Skafyan, Maryam	420	Song, Kai-Sheng	500	Stacy, Brian	289
Shrestha, Prabha	247	Skalland, Ben	242	Song, Peter X.K.	51, 76, 471, 482, 603	Stadie, Bradly Reinhold	391
Shringarpure, Aadeesh	352	Slade, Emily	569	Song, Changhong	410	Stadler, Tanja	287
Shu, Youyi	610	Slate, Elizabeth	621	Song, Fangda	351	Staicu, Ana-Maria	31, 38, 71, 530
Shu, Yu	77	Slaughter, Mary	502	Song, Guochen	343	Stalbovskaya, Viktoriya	496
Shukla, Rakesh	131	Slavkovic, Aleksandra	133, 292, 505, 632	Song, Hoseung	175	Stallrich, Jonathan	38, 134
Shuler, Kurtis	254	Slavkovic, Aleksandra	475	Song, Hyebin	256	Stamey, James D	170, 251, 254, 358
Shulman, Holly	423	Slawski, Martin	660	Song, JaeJoon	339, 426	Stander, Julian	160
Shun, Zhenming	522	Sloan, Chantel	487	Song, Joon Jin	121, 246, 249, 340, 348, 358, 427	Stanfill, Bryan	134
Shurtz, Blake	258	Sloboda, Brian	433, 463, 519	Song, Jun	150	Stankovich, Jim	296, 361
Shurzinske, Linda	459	Slud, Eric	10	Song, Qifan	294, 353	Stankowski, Jill	403
Si, Yajuan	29, 89, 215	Slud, Eric	29, 89, 138, 579	Song, Rui	75, 139, 248	Stanley Kurtz, Marshica	419
Siangphoe, Uma	355	Small, Dylan	27, 65, 88, 99, 145, 210, 323, 335, 337, 417	Song, Seongho	657	Stansfield, John	180
Siddique, Juned	501	Smerdon, Jason	403	Song, Suyong	406	Staples, Patrick	144
Sidi, Yulia	507	Smirnova, Ekaterina	168, 260	Song, Wei	338, 418	Stapleton, Ann	662
Siegel, Jonathan	496, 644	Smith, Aaron	355	Song, Xiaoyu	113	Stapleton, Laura	153
Siegel, Lianne	662	Smith, Adam N. H.	615	Song, Xinyuan	128, 196	Stark, Philip B.	223
Siegmund, David	495	Smith, Charles Eugene	522	Song, Yang	328	Starling, Jennifer	562
Sievert, Carson	401	Smith, Connor	513	Song, Yanyi	237, 310	Starr, Jacqueline R	652
Sigley, Robert	125, 195	Smith, Eric	135	Song, Yilin	190	Steel, David	41
Sigrist, Fabio	308	Smith, Heather S	109	Song, Youngseok	663	Steel, Eric	504
Silva, Camila	155	Smith, Jeffrey	190, 330, 425	Song, Yuanbo	114	Steele, Russell	632
Silva, Gabriella	167, 259	Smith, Jennifer	237, 310	Song, Yun S.	446	Steers-Smith, Adrianna	238, 311
Sima, Adam	32, 339, 426	Smith, Kelsey	28, 86	Sonksen, Michael	170, 251	Stefanski, Leonard	629
Simchoni, Giora	550	Smith, Letisha	28, 86	Soo Lee, Jong	184	Stehlik, Milan	549
Simmons, Susan J.	268	Smith, Lois Keller	448	Sood, Neeraj	65	Steiger, Nathan	403
Simon, Noah	499, 517	Smith, Luke	357	Soofi, Ehsan	573	Stein, Michael	249, 317
Simon, Steven L	304	Smith, Lynette	173	Soranno, Patricia	577	Stein, Murray B.	498
Simoneau, Gabrielle	543	Smith, Marjo V	190	Sordello, Matteo	220	Stein, Petra	337, 417
Simonetti, Arianna	410	Smith, Michael	256	Sordillo, Joanne E.	394	Steiner, Peter	309, 472, 486
Simonoff, Jeffrey S.	244, 408	Smith, Michelle	189, 421	Sorenson, Megan	125, 126, 182, 195, 237, 310	Steingrimsson, Jon	297, 338, 362, 418, 551
Simonson, Peter	465, 531	Smith, Mike	607	Sorge, Kari	255	Steinhardt, Jacob	269
				Soulakova, Julia	306	Steland, Ansgar	643

Name	Session	Name	Session	Name	Session	Name	Session
Stelmack, Andrew	119	Sun, Bruce	500	Talata, Zsolt	78	Taylor, Ian	254
Stenning, David Craig	291	Sun, Dayu	510	Talavera, Humberto	352	Taylor, Jeremy	31, 116, 128, 196, 408, 522
Stensrud, Mats Julius	4	Sun, Dennis L	514	Talluri, Rajesh	612	Taylor, Stephan	338, 418
Stephen, Bettzy	420	Sun, Furong	245, 462	Tamara Greasby, Tamara	554	Taylor-Rodriguez, Daniel	563, 586
Stephens, David A.	319	Sun, Hanxi	141, 237, 254, 310	Tamegnon, Monelle	299	TBD, TBD	193
Stephens, Mia L.	611	Sun, Hao	190	Tan, Aixin	176, 455, 513	Tchetgen Tchetgen, Eric	4, 14, 592
Stephens, Rebecca	576	Sun, Hokeun	663	Tan, Jenille	180	Tcheuko, Lucas	227
Stephens-Shields, Alisa J	204, 370, 538	Sun, Jianguo	510, 642	Tan, Jeslyn	119	Teal, Valerie	187
Sterman, Leila	445	Sun, Jiayang	570	Tan, Kai	186	Tebbs, Joshua	42, 403
Stern, Hal	2, 143	Sun, Jun	403	Tan, Ming T	31	Teh, Yee Whye	53
Sternberg, Maya	421	Sun, Libo	355	Tan, Qianwen	405	Teixeira, Joaquim	168, 260
Stettler, Marc E. J.	29, 89	Sun, Ming	304	Tan, Xiyan	255	Telesca, Donatello	212, 573, 591
Stevens, John	126, 182	Sun, Peng	343	Tan, Yaoyuan Vincent	438	Telkmann, Klaus	173, 290
Stewart, Brandon	384	Sun, Qiang	122, 626	Tanbin, Mosamat	350	Tellier, Marie-Agnes	190
Stewart, Christopher	62	Sun, Ryan	137	Tancredi, Daniel	171	Terada, Michinori	403
Stewart, Kathleen	358	Sun, Shiqing	256	Tang, Cheng Yong	71	Teramoto, Masaru	43, 87
Stewart, Molly	256	Sun, Steven	467, 496	Tang, Cheng Yong	626	Terhorst, Jonathan	404, 446
Stewart-Koster, Ben	661	Sun, Tao	403	Tang, Hua	618	Terrell, George	616
Sticca, Evan	575	Sun, Wanjie	55, 507	Tang, Larry	33, 159	Terres, Maria A	639
Sticco, Ignacio	188	Sun, Wei	40, 140	Tang, Lu	471	Terry, Mary Beth	408
Stier, Steven	28, 86	Sun, Wenguang	381, 657	Tang, Meini	528	Tershakovec, Andrew	542
Stigler, Stephen	314	Sun, Will Wei	48, 141, 248, 627	Tang, Ming	466	Tersine, Anthony G.	580
Stiller, Julia	43, 87	Sun, Xiaoxiao	453, 480	Tang, Mingwei	231	Tew, Andrew	578
Stix, Helmut	63	Sun, Xuetong	10	Tang, Minh	136, 471, 547, 585	Tewari, Ambuj	12, 127, 181
Stoev, Stilian	39, 108, 345	Sun, Yan	646	Tang, Niansheng	642	Thabane, Lehana	71
Stokes, Lynne	28, 41, 86	Sun, Ying	308, 390, 414	Tang, Qi	273, 327	Thall, Peter	46, 237, 310
Stokes, S. Lynne	41, 50	Sun, Yinge	355	Tang, Rui	496, 644	THARU, BHIKHARI	168, 260
Stolley, Melinda	341	Sun, Yu	621	Tang, Runlong	551	Thatcher, Jeffrey	352
Stoner, Julie	169, 252	Sundaram, Rajeshwari	449	Tang, Shuhan	78, 447	Thaweethai, Tanayott	296, 361
Stoop, Ineke	13	Sundararajan, Raanju	457, 528	Tang, Tiffany M	284, 380	Theobold, Allison	125, 195
Storlie, Curtis	403	Sunder, Hariharan	512	Tang, Weihua	128, 196	Thiagarajah, Ranee	512
Strachan, Alejandro	256	Sung, Ilmo	29, 89	Tang, Weijing	517	Thibaud, Emeric	108
Straight, Justin	37	Suresh, Krithika	408	Tang, Xiwei	482, 603	Thiébaut, Rodolphe	415
Streja, Elani	506	Suresh, Krithika	522	Tang, Yi	542	Thill, Satha	166
Strohmaier, Susanne	358	Suri, Subhash	297, 362	Tang, Yongqiang	355	Thiruvathukal, George	79
Stromberg, Katharine	339, 426	Sussman, Daniel L	45, 80, 413, 574, 659	Tang, Zhengzheng	102	Thoma, Marie	244
Stronach, Jeanne	90	Sutcliffe, Siobhan	662	Tang, Zhongwen	172	Thomas, Alexandra	358
Stroud, Jonathan R	386	Suthers, Daniel	63	Tang, Ziting	255	Thomas, Emma	256
Strug, Lisa	223	Sutradhar, Santosh	572, 653	Tannenbaum, Stacey	607	Thomas, Kali	98
Stuart, Elizabeth A	501	Suttner, Leah	343	Tao, Ran	72, 375	Thomas, Neal	607
Stuart, Matthew	295, 354	Suzuki, Ayako	304	Tao, Xian	242	Thomas, Steven	632
Stubblefield, Alexander	169, 252	Sverdlov, Lev	131	Tao, Yebin	46, 466	Thomas, Zachary	355
Stufken, John	549	Sweeney, Elizabeth	212	Taoufik, Bahaeddine	133	Thompson, Jeffrey A.	239, 467, 527
Su, Weijie	80, 220, 559	Sweeney, Marie H.	358	Tapas, Surya	432, 536	Thompson, Katherine	137
Su, Xiaogang	8	Swift, Andrew	43, 578	Tapera, Tinashe	635	Thompson, Katherine J	153, 264, 655
su, xiaolu	77	Swofford, David	403	Tapera, Tinashe	528	Thompson, Paul	516
Su, Ya	176	Sykulski, Adam	290	Tapsoba, Jean De Dieu	350, 404	Thompson, Wesley Kurt	90, 518
Su, Zhihua	254, 516	Symanzik, Juergen	314, 412	Tarokh, Vahid	38	Thornton, Suzanne	400
Subramanian, Aishwarya	234	Szabo, Aniko	304	Tarpey, Thaddeus	90, 346	Thornton, Timothy	140
Subramanian, Sundarraman	293	Szczesniak, Rhonda	347, 355	Tarzia, Vincenzo	128, 196	Tian, Hong	610
Suchard, Marc237, 244, 245, 287, 310, 446, 558		Szekely, Gabor	313	Tasan, Murat	256	Tian, Lili	159
Suess, Eric	189	Tabacu, Lucia	43, 87	Tasch, Dan	128, 196	Tian, Lin	621
Sugar, Catherine	212	Tackett, Jennifer	160	Tasch, Uri	128, 196	Tian, Lu	9, 355, 456
Sugimoto, Jonathan	464, 520	Tackett, Maria	514	Tashakor, Elahe	614	Tian, Xiaowen	644
Sukasih, Amang	295, 354	Tadler, Chrystine	169, 252	Taua, Nerisa	423	Tian, Xin	594, 609, 665
Sukul, Devraj	174	Tagle, Felipe	64, 121	Taub, Margaret	219	Tian, Yuxi	447
Sullivan, Teresa A.	261	Tait, Peter	465, 531	Tavare, Simon	554	Tibaldi, Fabian	405
Sullivant, Seth	636	Tak, Hyungsuk	222	Taves, Donald R	189	Tibshirani, Robert	136, 147, 319, 380, 587
Sulsky, Deborah	561	Takata, Seiji	300	Tay, Kenneth	136	Tibshirani, Ryan	441, 444
Sun, (Tony) Jianguo	322, 339, 426	Takeda, Kentaro	327	Taylor, Sean	160, 228	Tickle, Timothy	234

Name	Session	Name	Session	Name	Session	Name	Session
Tierney, Luke	52	Tseng, Sheng-Tsaing	36	van der Pas, Stephanie	376	Visotcky, Alexis	341
Tighiouart, Mourad	315, 355	Tsimberidou, Apostolia	115	Van der Weide, Roy	276	Vittert, Liberty	445
Tiller, Jane	144	Tsodikov, Alexander	408	van Dyk, David A	291, 437	Vlajnic, Vanja	355
Timothy, Johnson	13	Tsonaka, Roula	506, 648	van Guilder, Mike	468	Vo, MyVan	188
Timpano, Kiara	238, 311	Tsou, Hsiao-Hui	131	van Handel, Ramon	584	Vo, Tat Thang	309
Tinazzi, Angelo	355	Tsubaki, Hiroe	300	Van Horn, Linda	501	Vock, David Michael	73, 118, 403, 404
Ting, Chee-Ming	528, 576, 591	Tu, WanZhu	614	Van Keilegom, Ingrid	270	Vogelstein, Joshua	135, 411
Tingley, Martin	568	Tu, Yue	131, 342	van Leeuwen, Peter Jan	386	Volfovsky, Alexander	302, 592
Tintle, Nathan	90, 152	Tu, Yundong	72	Van Zandt, Trisha	346	Volfson, Dmitri	635
Tipping, Robert	187	Tubbs, Jack D.	170, 251	Vance, Eric	109, 504	von Fischer, Joseph	414
Tipton, John	620	Tucker, Derek	403, 561	Vance, James	126, 182	Voorheis, John	469
Tiwari, Ram	34, 91, 273, 558, 612	Tucker, Lue-Yen	338, 418	Vance, Kathryn	358	Vos, Paul	75
Todem, David	116	Tudorascu, Dana	528	Vanchu-Orosco, Michelle	23	Vsevolozhskaya, Olga	137
Tokdar, Surya	47, 162, 541	Tuft, Marie	43, 87	Vandekar, Simon	297, 362	Vu, Thao	522
Toledano, Alicia	227	Tuglus, Catherine	605	Vandekar, Simon N.	528	Wu, Lu	255
Tolksdorf, Johanna	296, 361	Tuijott, Alison	28, 86	Vandemeulebroecke, Marc	277	Wada, Kazumi	300
Tolwinski-Ward, Suz	360	Tung, Hung Ping	36	Vander Wiel, Scott	348	Wager, Stefan	562
Tomasetti, Cristian	596	Tupper, Laura L	151	Vander Wyk, Brent	167, 259	Wages, Nolan	342
Tomblin, Bruce	522	Turcotte, Melissa	149	Vanderlinden, Lauren A	527	Wagner, Brandie	522, 529
Tong, Charles	36	Turkiyyah, George	19	Vanderplas, Susan	550	Wagner, Gregory L	619
Tong, Weida	155	Turkoz, Ibrahim	355	VanderWeele, Tyler	27, 88, 380, 522	Wagner, Tyler	577
Tong, Xin	229	Turner, Dusty	125, 195	Van Krevelen, Ryne	125, 195	Wagya, Kofi	28, 86, 581
Torguson, Rebecca	358	Turner, Elizabeth L	27, 88, 403	Vannucci, Marina	105, 254, 437, 591	Waksman, Ron	358
Tota, Joseph	358	Tyner, Sam	25, 513	Vansteelandt, Stijn	309	Walder, Adam	464, 520
Toth, Damon	600	Tzeng, Jung-Ying	237, 310, 374	Varadarajan, Badri N	126, 182	Walford, Geoffrey	653
Toth, Daniell	292, 631	Tzontcheva , Anjela	403	Varadhan, Ravi	177	Waljee, Akbar	174
Totty, Evan	406	Uetake, Kosuke	384	Varberg, Nicholas	504	Walk, Harro	187
Toulis, Panagiotis	220, 559, 599	Ugarte, Gabriel	289	Vardhanabhuti, Varut	297, 362	Walker, Andrew	462
Tourangeau, Eva Marie	188	UGARTE, MARIA DOLORES	464, 520	Varner, Judith	248	Walker, Elizabeth	522
Townes, Frederick William	351	Uhler, Caroline	636	Vasilopoulos, Terrie	372, 624	Walker, Nelson	168, 260
Townsend, Jeffrey Peter	446	Ullah, Aman	241	Vats, Dootika	254	Walker, Stephen	254
Toyoizumi, Kiichiro	355	Umbach, David	190	Vaughan, Gregory	294, 353	Walker, Tanja	242
Tracey, Brian	635	Umlauf, Anya	170, 251	Vazquez, Maria	338, 418	Waller, Lance	83, 649, 651
Tran, Bac	654, 655	Unfried, Alana	49	Vegetabile, Brian G.	27, 88, 502	Walsh, Daniel	168, 260, 577
Tran, Qui	605	Uno, Hajime	130, 456	Velkoff, Victoria A	96, 157	Walsh, Stephen	190
Travis, James	605	Upadhyaya, Himanshu	355	Velu, Raja	406	Walters, Kimberly	299
Travis, Jennifer	256	Uppal, Ananya	187	Vemuri, Nikita	391	Walters, Stephen	32
Travison, Thomas G.	239	Upston, Joel	561	Venarsky, Michael	661	Wan, Emily	167, 259
Tremmel, Jennifer	27, 88	Upton, Elizabeth	45	Vengazhiyil, Roshan	600	Wan, Fei	296, 361
Trentham-Dietz, Amy	621	Ursano, Robert J	498	Ver Hoef, Jay	190	Wan, Hong	187
Trierweiler, Michael	579	Usami, Satoshi	358	Ver Ploeg, Shelly	138	Wan, Jia Y.	237, 310
Trikalinos, Thomas	542	Uschner, Diane	411	Verbeke, Geert	341, 612, 658	Wan, Kitty	170, 251
Trimbur, Thomas	332	Utts, Jessica	336, 553	Verduzco Gastelum, Juan Carlos	256	Wan, Nick	235
Trindade, David	473	Vader, Bryan	187	Verret, Francois	565	Wan, Shuyan	61
Trinh, Giang	655	Vaes, Bert	341	Vexler, Albert	187	WAN, YING	355
Trippa, Lorenzo	239, 256, 613	Vaicunas, Luke	169, 252, 295, 354	VÈzina, GeneviÈve	654	Wan, Yunhu	102
Trivedi, Amal N.	167, 259	Vaida, Florin	170, 251	Victor, John C	464, 520	Wand, Matt Paul	47
Troendle, James	71, 609	Vaidyanathan, Ramnath	401	Victoria-Feser, Maria-Pia	465, 531	Wang, Sheng	472
Troester, Melissa	126, 182	Vaish, Akhil	295, 354	Vidakovic, Branislav	651	Wang, Aobo	571
Trosset, Michael	471	Vaks, Jeffrey	410	Vidoni, Michelle	594	Wang, Biju	328
Troxel, Andrea	28, 86	Valcarcel, Alessandra	528	Vidyashankar, Anand	243, 332, 345, 460	Wang, Bingkai	509, 610
Troxel, Andrea B	100, 296, 358, 361	Valeri, Linda	472, 494	Viele, Kert	111	Wang, Boxiang	454
Trudell, Timothy	29, 89, 579	Vallejos, Catalina	648	Vienna, John	134	Wang, Chan	234, 518
Trumble, Ilana	170, 251, 403	Valliant, Richard	442, 555	Viles, Weston	657	Wang, Cheng	642
Tsai, Chang-Yu	293	Valliant, Richard	169, 252	Vilhuber, Lars	505	Wang, Chenguang	111
Tsai, Kao-Tai	467	Vamvourellis, Konstantinos	355	Vincent, Brenda	174	Wang, Chen-Pin	656
Tsai, Shin-Fu	81	Van Buren, Eric	351	Vinci, Giuseppe	60, 294, 353	Wang, Chi of	126, 182
Tsay, Ruey S	56	Van de Kerckhove, Wendy	606	Vining, G. Geoff	70	Wang, Chi-Hua	517
Tseng, Chi-Hong	357	Van Delft, Anne	56	Vinod, Hirshikesh	74	Wang, Chong	358
Tseng, George	21, 293	van der Laan, Mark	78, 139, 358, 380, 522	Vishwakarma, Srishti	414	Wang, Chunling	570

Name	Session	Name	Session	Name	Session	Name	Session
Wang, Cong	623	Wang, Michael	128, 196	Wang, Yueyao	188	Weiland, Travis	117
Wang, Dan	159	Wang, Ming	408, 499	Wang, Yueying	37	Weinberg, Clarice	523
Wang, Dandan	355, 537	Wang, Ming-Dauh	55	Wang, Yu-Xiang	441	Weinberg, Zara	297, 362
Wang, Daren	3	Wang, Molin	171	Wang, Yuyan	464, 520	Weingart, George	234
Wang, Deli	571	Wang, Naisyin	632	Wang, Zailong	170, 251	Weinhagen, Jonathan	654
Wang, Dewei	42, 129	Wang, Ning	247	Wang, Zengri	355	Weir, Scott	403
Wang, Dong	155, 304	Wang, Pei	186	Wang, Zengyan	19, 122	Weisberg, Herbert	330
Wang, Dongliang	48, 470	Wang, Pei	598	Wang, Zeyi	135	Weishampel, Anthony	530
Wang, Earo	19	Wang, Peng	38	Wang, Zhengfan	296, 361	Weiss, Elisabeth	516
Wang, Fei	471	Wang, Peng	561	Wang, Zhengjia	187	Weiss, Jordan	323
Wang, Feifei	248	Wang, Qi	654	Wang, Zhenxun	167, 259, 343	Weiss, Robert	254
Wang, Guangxing	303	Wang, Qinxia	304	Wang, Zhenzhong	424	Weiss, Scott	167, 259
Wang, Guannan	37, 603	Wang, Rui	404	Wang, Zheyu	30	Weissfeld, Lisa	299, 491
Wang, Guoqing	37, 173	Wang, Runmin	175	Wang, Zheyu	71	Weitzenkamp, David	297, 362
Wang, Guoshen	338, 418	Wang, Shidan	59	Wang, Zhi	349	Weld, Christopher	19
Wang, Haidong	595	Wang, Shirley	155	Wang, Zhiwen	522	Wellek, Stefan	296, 361
Wang, Haiyan	522, 572	Wang, Shuang	72, 237, 310	Wang, Ziqiao	622	Weller, Zachary	414
Wang, HaiYing	122, 255	Wang, Shulei	243	Ward, Caitlin	522	Wellner, Jon A.	547, 584
Wang, Han	254	Wang, Shuang	644	Ward, Cynthia	358	Wells, Martin	338, 418
Wang, Hansheng	248	Wang, Shuoyang	132	Ward, Mark	255, 256, 280	Wen, Emma Qi	543
Wang, Hansi Lo	556	Wang, Sijian	11	Ward, Mary H	179	Wen, Jiayang	345
Wang, Hengfang	423	Wang, Sue-Jane	115, 479	Ware, Erin	498	Wendelberger, Barbara	91, 470
Wang, Hong	612	Wang, Suojin	322, 352, 506	Warr, Richard	85, 564, 578	Wendelberger, James	619, 650
Wang, Hongwei	128, 196, 646	Wang, Susan	339, 426	Warren, Graham	465, 531	Wendelberger, Joanne	120, 134
Wang, Huixia Judy	103, 118, 186, 387, 414, 597	Wang, Tao	351	Warren, Harry P.	291	Wender, Ben	630
Wang, Jane-Ling	271	Wang, Tianying	237, 310	Warren, Joshua	573, 649	Weng, Chia-Liang	41
Wang, Jason	254	Wang, Tong	322	Washington, Benjamin	190	Weng, Chin-Fang	416
Wang, Jia	305	Wang, Tonghui	255	Wasserman, Larry	278, 303, 659	Weng, Jingying	297, 362
WANG, JIAJING	254	Wang, Wei	616	Wathen, J. Kyle	327	Wernecke, Michael	447
Wang, Jian	27, 88	Wang, Weinan	381	Watkinson, Douglas	661	Werys, Konrad	359
Wang, Jiangyan	35, 81	Wang, Wenjia	36, 348	Watson, Heather	656	West, Brady T.	344, 442
Wang, Jianjun	300	Wang, Wenjie	346	Watters, Christine	421	WEST, JUSTIN	654
Wang, Jiayi	133	Wang, Wenshuo	247, 601	Watts, Harrison	29, 89	West, Mike	340, 427, 478
Wang, Jiebiao	575, 598	Wang, Wenting	527	Watts, Krista	125, 195	Westgate, Bradford	578
Wang, Jin	77	Wang, William (Bill)	355, 399, 557	Weaver, Brian	564	Westling, Ted	562
Wang, Jin	582	Wang, Xiao	141, 256, 329, 471	Weaver, Nicholas	464, 520	Westling, Ted	393, 562
Wang, Jing	609	Wang, Xiaofei	297, 362	Webb-Robertson, Bobbie-Jo	62	Weylandt, Michael	329, 465, 531
Wang, Jingshen	345	Wang, Xiaoshan	170, 251	Weber, Hans-Jochen	496	Whalen-Wagner, Alex	28, 86
Wang, Jingshu	593	Wang, Xiaowei	355	Weber, John	189	Wheeler, Matthew W	461
Wang, Jinjuan	159	Wang, Xiaozhong	652	Weber, Mark A.	291	Wheeler, William	40
Wang, Ji-Ping	522, 652	Wang, Xin	274	Webster, Bruce	337, 417	Whiley, Matt	148
Wang, Jiuzhou	277	Wang, Xin	465, 531	Webster, Daniel	145	White, Alexander	125, 195
Wang, Kai	33	Wang, Xinlei	131, 351	Weegman, Mitch D.	661	White, Alice	297, 362
Wang, Karrie	343	Wang, Xuan	9	Weeks, Hannah L	256	White, Andrew A	138, 169, 252
Wang, Lan	48, 270, 499	Wang, Xuefeng	663	Weese, Maria	134	White, Philip Andrew	176
Wang, Lazhi	302	Wang, Xuejing	263	Wehner, Michael	165, 331	Whitehead, Bryce	421
Wang, Li	37, 118, 132, 303, 603	Wang, Xuelong	136	Wei, Jiawei	459	Whiteman, Andrew	528
Wang, Lianming	574	Wang, Xuemei	403	Wei, Jing	355	Whiteside, Mary	463, 519
Wang, Lin	610	Wang, Y. Samuel	163	Wei, Linqing	187	Whitmore, George A	293
Wang, Linbo	4, 562	Wang, Yan	403	Wei, Peng	27, 88, 622	Whitney, David	562
Wang, Ling	315, 432	Wang, Yang	493	Wei, Rong	82	Whitney, Nathanael	28, 86
Wang, Lingxiao	158	Wang, Yanning	175	Wei, Wei	355	Whittenburg, Jessica	337, 417
Wang, Long	36, 102	Wang, Yaqiong	190	Wei, Yijun	344	Wichman, Christopher	298
Wang, Lu	46, 466	Wang, Yifei	171	Wei, Ying	237, 310, 408	Wick, Jo	325, 403, 522
Wang, Lu	159	Wang, Ying Amanda	170, 251	Wei, Yingying	21, 351	Wickham, Hadley	217, 550, 597
Wang, Lu	452	Wang, Yixin	154, 231	Wei, Yuqin	447	Wickramasinghe, Lahiru	578
Wang, Mei-Cheng	293, 470	Wang, Yu	485	Wei, Ziwen	644	Widmark, Axel	291
Wang, Meng	618	Wang, Yuanjia	31, 126, 182, 216, 304, 393, 522	Weideman, Ann Marie	257	Wiehn, Marc	338, 418
Wang, Meng	652	Wang, Yucai	128, 196	Weil, Natalia	169, 252, 502	Wiens, Ashton	308
Wang, Mengxi	342	Wang, Yue	136, 659	Weil, Sandy	235	Wijayawardana, Sameera	612

Name	Session	Name	Session	Name	Session	Name	Session
Wijekularathna, Danush	42	Wolcott, Michiko I	266	Wu, Iris	128, 196	Xie, Yuxiang	216
Wijesuriya, Uditha Amarana	515	Wolf, Jack	337, 417	Wu, Jing	122	Xing, Aiwen	358
Wijeyakulasuriya, Dhanushi	661	Wolf, Jared	403	Wu, Lili	112	Xing, Chao	527, 622
Wikle, Christopher K.	151, 162, 386, 631, 661	Wolfe, Patrick J	45, 633	Wu, Meijing	130	Xing, Fuyong	90
Wikle, Nathan	308	Wolfolds, Sarah	74	Wu, Meng	407	Xing, Haipeng	180, 360
Wilburne, Dane	45	Wolfson, Julian	118, 422	Wu, Michael C.	234, 394	Xing, Jinbao	81
Wilcox, Amber	551	Womack, Andrew	22, 572	Wu, Peng	31	Xing, Yi	527
Wild, Chris	51, 117	Womble, Jamie	90	Wu, Qiang	642	Xing, Yue	294, 353
Wildfire, Jeremy	166	Won, Jung Yeon	190	Wu, Qiuyi	190	Xiong, Momiao	328, 522
Wilding, Gregory	410, 465, 531	Wong, Benedict	173	Wu, Rongling	499	Xiong, Yeng	579
Wilkerson, Marianne	619	Wong, Connie	170, 251	Wu, Thomas	527	Xiu, Dongbin	425
Wilkerson, Michelle	282	Wong, Hubert	339, 426	Wu, Tingxuan	192	Xu, Zhenzhen	456
Wilkinson, Leland	515	Wong, Kien Kiat	421	Wu, Tong Tong	48, 626	Xu, Bo	339, 426
Willard, Brandon	641	Wong, Raymond	133, 659	Wu, Tzu-Chun	515	Xu, Chao	81
Willems, Emileigh L.	237, 310	Wong, Vivian	486	Wu, Wei	187	Xu, Dong	243
Willett, Rebecca	3	Wong, Weihuang	333	Wu, Wei Biao	477, 614	Xu, Gongjun	178, 307, 345
Willey, Vincent	100	Wong, Weng Kee	549	Wu, Wensong	518	Xu, Jay	179, 578
Williams, David	301	Wong, Zijiang	421	Wu, Xiao	30, 497	Xu, Jianming	3
Williams, Benjamin M.	41	Wood, Beverly	330	Wu, Xiao-Cheng	474	Xu, Jianjin	77, 612
Williams, Bryan	465, 531	Wood, Jamie	495	Wu, Xiaotian	527	Xu, Kun	245
Williams, Justin R	298	Wood, Kimberly	188	Wu, Xiaoting	621	Xu, Lang	28, 86
Williams, Loren	463, 519	Woodall, William H.	307	Wu, Yanhui	229	Xu, Lei	299
Williams, Matthew	29, 89, 292	Woodbury, George	515	Wu, Yaoshi	339, 426	Xu, Li	135, 188
Williams, Nicholas	338, 418	Woodring, Jonathan	600	Wu, Yichao	187, 385	Xu, Maoran	297, 362
Williams, Paige L	472	Woody, Jonathan	168, 260, 664	Wu, Yihong	3, 103	Xu, Ronghui	27, 88
Williams, Perry J.	90	Woolley, Emily	201	Wu, Yinfei	126, 182	Xu, Shu	523
Williams, Piper	338, 418	Woolley, Michael	153	Wu, Ying Nian	436, 527	Xu, Shujing	297, 362
Williams, Robert	45	Woroszylo, Casper	464, 520	Wu, Yingru	180	Xu, Suwa	467
Williams, Tamara	655	Worthge, Scott	295, 354	Wu, yu	357	Xu, Tonghui	580
Williams, Walter W	419, 464, 520	Wouhib, Abera	301	Wu, Yuh-Jeng	131	Xu, Xiaofei	83
Williamson, Brian	499	Woyczyński, Wojbor	509, 570	Wu, Yujun	355	XU, XIAOHAN	662
Williamson, Forrest	459, 571	Wraith, Darren	176	Wu, Yunan	499	Xu, Xinyi	315
Williamson, Kayla	529	Wright, Carolyn	338, 418	Wu, Zhenke	276, 338, 418	Xu, Yan	510
Williamson, Sinead	465, 531	Wright, Fred A	225, 461	Wu, Zhipin	527, 593	Xu, Yang	168, 260
Willick, Stuart	43, 87	Wright, Kevin	191	Wulff, Shaun	506	Xu, Yanxun	115, 254
Willoughby, Shannon	445	Wright, Peter	632	Wuthrich, Kaspar	274	Xu, Yayun	239
Wills, Karen	296, 361	Wright, Robert O	472	Wycoff, Nathan	422	Xu, Yi	17
Wilmoth, Daniel	83	Wright, Tommy	474	Wymer, Mark	407	Xu, Yifan	523
Wilms, Ines	163, 495	Wright, Wilson	577	Xi, Dong	459, 602	Xu, Yizhen	80
Wilsey, Barth	170, 251	Wrobel, Julia	127, 181, 635	Xi, Wanna	245	Xu, Yuchen	463, 519
Wilson, Alyson	561	Wu, Ann	394	Xia, Amy	398, 506	Xu, Yunling	273
Wilson, Christopher	527	Wu, Anna	338, 418	Xia, Cedric K	297, 362	Xu, Yunnan	159, 352
Wilson, David	238, 311	WU, BAOLIN	355	Xia, Lucy	229	Xu, Yuting	355
Wilson, Jason	43, 87	Wu, C F Jeff	317, 348	Xia, Qi	355	Xu, Zekun	31
Wilson, Jeffrey	18, 338, 418	Wu, Cai (Iris)	343	Xia, Yin	272	Xu, Zheng	137, 297, 362
Wilson, Liz	190	Wu, Cen	622	Xiang, Henry	393	Xu, Zhiheng	612
Wilson, Melissa	529	Wu, Changbao	215, 442	Xiang, Liming	377	Xu, Zhihua	155
Wilson, Patrick	403	Wu, Chih-Chieh	464, 520	Xiao, Guanghua	59	XU, ZHIQING	34
Wilson, Ty	409	Wu, Chong	59	Xiao, Han	56	Xu, Zhixing	334, 376
Wilson, Tyler	333, 654, 660	Wu, Colin O.	126, 182, 594, 665	Xiao, Mike	635	Xue, Fei	509
Windle, Richard	29, 89	Wu, Cong	297, 362	Xie, Changchun	617	Xue, Lingzhou	123, 150, 222
Wing, Jeannette	633	Wu, Derek	106	Xie, Fangzheng	254	Xue, Lingzhou	603
Wirthmann, Albrecht	640	Wu, Di	351, 453, 575	Xie, Hui	621	Xue, Xiangjie	187
Wise, Scott	421	Wu, Dongfeng	33	Xie, Hui	170, 251	Xue, Yishu	122
Wisnowski, James	297, 362	Wu, Edward	391, 580	Xie, Jing	415	Xue, Zhenyi	128, 196, 573
Wisotsky, Sadie	287	Wu, Fan	186	Xie, Liang	178	Yadav, Rishikesh	39
Witt, Gary	463, 519	Wu, Fan	407	Xie, Minge	11, 542	Yadav, Vineet	450
Witten, Daniela	284, 444	Wu, Hao	141	Xie, Rui	19, 122	Yadohisa, Hiroshi	255
Wittes, Janet	57, 299	Wu, Hao	255	Xie, Tai	31, 131, 342	Yan, Bowei	45
Wogenstahl, Kevin W	403	Wu, Hulin MI	618	Xie, Yihui	155	Yan, Hao	390

Name	Session	Name	Session	Name	Session	Name	Session
Yan, Jun	19, 28, 52, 86, 122, 346	Yao, Ruji	403	Yu, Chuanping	313	Zakzeski, Audra	119, 333
Yan, Kang	297, 362	Yao, Sijie	360	Yu, Cindy	295, 354	Zaliapin, Ilya	84
Yan, Ke	526	Yao, W.	244	Yu, Duo	618	Zalkikar, Jyoti	612
Yan, Xiaodong	642	Yao, Yaqiong	255	Yu, Feng	190	Zalsha, Shalima	41
Yan, Ying	506	Yao, Yonggang	355	Yu, Guan	598	Zamba, Gideon	651
Yan, Yuan	497	Yao, Yuhui	615	Yu, Guanglei	131, 605	Zammit-Mangion, Andrew	39, 450, 586
Yan, Zhifei	346	Yao, Yujing	522	Yu, Guo	163, 444	Zamora, Ryan	338, 418
Yang, Yiming	500	Yao, Yuling	513	Yu, Han	126, 182	Zang, Wenlan	351
Yang, Chenyu	602	Yao, Zhewei	559	Yu, Han	43, 87, 465, 531	Zangeneh, Sahar	169, 252
Yang, Dan	546	Yao, Zhihao	612	Yu, Hengshi	179, 403	Zapata, Zakry	475
Yang, Daniel	66, 242	Yasaei Sekeh, Salimeh	178	Yu, I-Tang	186	Zarate, Oscar	522
Yang, Duck-He	502	Yashchin, Emmanuel	643	Yu, Jihai	84	Zaritsky, Eve	338, 418
Yang, Dunfu	572	Yau, Chun-Yip	510	Yu, Jin-Zhu	657	Zarmehri, Sahar	661
Yang, Fan	527, 580	Ye, Binqi	339, 426	Yu, Jonathan	177	Zaslavsky, Alan M.	167, 174, 259, 410
Yang, Hanfang	296, 361	Ye, Chenglong	471	Yu, Kaixian	248	Zawack, Kelson	340, 427
Yang, Hong-Ding	190	Ye, Chengzhong	593	Yu, Menggang	72, 284	Zaykin, Dmitri	137
Yang, Hou-Cheng	254	Ye, Cong	169, 252	Yu, Mengjia	411	Zeger, Scott L	276
Yang, HU	59	Ye, Jieping	127, 181, 248	Yu, Michelle	168, 260	Zeig-Owens, Rachel	338, 418
Yang, Ivana V	527	Ye, Keying	258, 463, 519	Yu, Ping	560	Zeldow, Bret	560
Yang, Jean Yee Hwa	58	Ye, Mao	141, 254	Yu, Qi You	237, 310	Zelterman, Daniel	346, 355
Yang, Jiabei	338, 418	Ye, Ting	55, 277	Yu, Ruoqi	407	Zemanick, Edith	522
Yang, Jing	404	Ye, Wenyu	355	Yu, Shan	603	Zemplenyi, Michele	294, 353
Yang, Joy	401	Yen, Katherine	35	Yu, Tianwei	59	Zeng, Donglin	126, 144, 179, 182, 216, 277, 393, 522
Yang, Lijian	29, 89, 603	Yen, Tian Yu	256	Yu, Tinghui	467	Zeng, Jing	247
Yang, Lijian	35	Yeung, Fanny	189	Yu, Xiaoying	653	Zeng, Ting	510
Yang, Lili	571	Yi, David T.	657	Yu, Xiufan	123	Zhai, Jing	256
Yang, Liuqing	527, 646	Yi, Faliu	352	Yu, Xixi	291	Zhai, Tingting of	126, 182
Yang, Lu	566	Yi, Grace	543, 629	Yu, Yan	51, 357, 475, 510	Zhai, Xiaoyu	295, 354
Yang, Meng	374	Yi, Yanqing	612	Yu, Yi	3	Zhai, Yuqi	215
Yang, Michael	92, 199, 264, 423, 548	Yi, Yanyao	55	Yu, Youfei	524	Zhan, Tianyu	240
Yang, Min	383	Yin, Anqi	31	Yu, Zhuqing	170, 251	Zhan, Xiang	123
Yang, Nathan	384	Yin, Fan	340, 427	Yuan, Ao	31	Zhan, Yilei	11
Yang, Qiang	248	Yin, Jun	148	Yuan, Clara	639	Zhang, Adah	120, 619
Yang, Qing	588	Yin, Kai	463, 519	Yuan, Dongbang	255	Zhang, Aixin	135
Yang, Sheng	359	Yin, Xiangrong	8, 136, 186, 247, 313	Yuan, Mengdie	408, 612	Zhang, Amy	167, 259
Yang, Shihao	250	Ying, Andrew	27, 88	Yuan, Ming	272, 484, 588	Zhang, Anru	256, 284, 588
Yang, Shu	4, 158, 226, 447, 552, 562	Ying, Chao	81	Yuan, Qingcong	136	Zhang, Bo	27, 88
Yang, Song	651	Yogan, Lissa	232	Yuan, Sammy	468	Zhang, Bohai	620
Yang, Tao	30	Yoganarasimhan, Hema	384	Yuan, Xiaochen	518	Zhang, Boya	616
Yang, Tiantian	419	Yoo, Hyesun	413	Yuan, Ying	148	Zhang, Chaolin	30
Yang, Tianzhong	27, 88, 126	Yoon, Frank	167, 259	Yuan, Ying	32	Zhang, Cheng	358
Yang, Xiaoyang	602	Yoon, Grace	113	Yuan, Yuan	465, 531	Zhang, Cheng	359
Yang, Xiaoying	665	Yoon, Youngjoo	175	Yuan, Yubai	316, 329	Zhang, Cheng	254
Yang, Xinming	613	Yorgov, Daniel	126, 182	Yucel, Recai	407	Zhang, Chunzhe	545
Yang, Xu	574	Yoshioka, Kai	604	Yue, Lilly	143	Zhang, Cindy	289
Yang, Yi	237, 310	You, Amy S	506	Yue, Mu	464, 520	Zhang, Cun-Hui	441, 546, 584
Yang, Yiqun	170, 251	You, Jiashen	654	Yue, Xiaowei	348	Zhang, Emma Jingfei	48, 80
Yang, Yuan	527	You, Lu	615	Yue, Xin	358	Zhang, Fan	374
Yang, Yuchen	85, 470	You, Xiaolan	33	Yue, Yu	284, 340, 427	Zhang, Fengqing	635
Yang, Yue	405	You, Yue	78	Yung, Godwin	73, 355, 610	Zhang, Guangyu	171, 655
Yang, Yuhong	35, 38, 471	You, Zhiying	33	Yurko, Ronald J.	125, 195	Zhang, Guoyi	500, 579
Yang, Yun	305, 397	Young, Derek	35, 123, 202, 255, 338, 355, 418	Yuvraj, Monisha	382	Zhang, Haixiang	11
Yang, Zikun	572	Young, James	339, 426	Yuzefpolskaya, Melana	358	Zhang, Haoyu	40
Yankey, David	242	Young, Jessica Gerald	4	Zablotsky, Benjamin	655	Zhang, Haozhe	79, 190, 620
Yankovsky, Ana	463, 519	Young, Linda J	84, 419, 492	Zabriskie, Brinley	187	Zhang, Helen	218, 454, 465, 531
Yankovsky, Eugene	463, 519	Young, Neal	126, 182	Zadrozny, Peter	332	Zhang, Heping	482
Yao, Alan	230	Younge, Noelle	40	Zaharatos, Brian	109	Zhang, Hong	148
Yao, Fang	127, 181	Yu, Alice	242, 300	Zahedjahromi, Mostafa	420	Zhang, Hongmei	180, 254
Yao, Lynne	398	Yu, Bin	125, 195, 210, 385, 554	Zaidi, Abbas	241	Zhang, Hongtao	343
Yao, Qiwei	477	Yu, Chang	346	Zaidi, Jaffer	27, 88		

Name	Session	Name	Session	Name	Session	Name	Session
Zhang, Huaiyu	522	Zhang, Weidong	172	Zhao, Qian	9	Zhou, Laura	40
Zhang, Hui	255	Zhang, Wenfei	355	Zhao, Richard	229	Zhou, Ling	471
Zhang, Jay	653	Zhang, Wenqi	620	Zhao, Shanshan	11, 239, 564	Zhou, Nina	466
Zhang, Jiajia	244	Zhang, Xiang	55, 355	Zhao, Sihai	394	Zhou, Qian	30
Zhang, Jianhao	178	Zhang, Xiang	175	Zhao, Wei	237, 310	Zhou, Qin	82
Zhang, Jiazhao	600	Zhang, Xianyang	313, 634	Zhao, Xiangyi	245	Zhou, Qing	80
Zhang, Jin	130	Zhang, Xiaofei	169, 252	Zhao, Xingqiu	642	Zhou, Ruiwen	339, 426
Zhang, Jinchun	296, 361	Zhang, Xiaohua Douglas	355, 537, 618	Zhao, Yan Daniel	423	Zhou, Shouhao	128, 196
Zhang, Jinfeng	527	Zhang, Xiaoke	133	Zhao, Yi	509	Zhou, Shuang	340, 427
Zhang, Jing	407, 542	Zhang, Xin	247, 588, 627, 659	Zhao, Yichuan	48	Zhou, Tianjian	115, 396
Zhang, Jing	177	Zhang, Xin	414	Zhao, Yihong	655	Zhou, Ting	358
Zhang, Jing	518	Zhang, Xin	295, 354	Zhao, Yingqi	46	Zhou, Tingting	167, 259, 552
Zhang, Jing	187	Zhang, Xingyou	138, 403	Zhao, Yize	113	Zhou, Wei	176
Zhang, Jingjie	168, 260	Zhang, Xingyu	359	Zhao, Yize	21, 603	Zhou, Weilian	78
Zhang, Juan	524	Zhang, Xu	656	Zhao, Yunpeng	159	Zhou, Weiqiang	180, 351, 374
Zhang, Jun	420	Zhang, Xuefei	307	Zhao, Yuxuan	135	Zhou, Wen	626, 663
Zhang, Kai	288	Zhang, Xuema	297, 362	Zhao, Zeng	602	Zhou, Wenxin	626, 663
Zhang, Kaitlyn	230	Zhang, Yafeng	177	Zhao, Zhangchen	622	Zhou, Wenzhuo	466
Zhang, Lanju	170, 251	Zhang, Yang	173	Zhao, Zhen	656	Zhou, Xiang	237, 310
Zhang, Lei	365	Zhang, Yaowu	247	Zhao, Zhizhen	7	Zhou, Xiaofei	652
Zhang, Liangcai	610	Zhang, Yi	463, 519	Zhao, Zifeng	566	Zhou, Xin	27, 88
Zhang, Liangliang	340, 427	Zhang, Yichen	127, 181, 220	Zhen, Boguang	349	Zhou, Yi-Hui	225
Zhang, Likun	39	Zhang, Yilong	299	Zheng, Brianna	29, 89	Zhou, Yijie	17
Zhang, Lin	237, 310, 470	Zhang, Yimin	582	Zheng, Chaowen	187	Zhou, Yuchen	256, 284
Zhang, Lingjiao	403	Zhang, Ying	9, 79, 614	Zheng, Cheng	216, 517, 609	Zhou, Yun	421
Zhang, Lixia	167, 259	Zhang, Ying	190	Zheng, Hui	571	Zhou, Yuzhen	168, 260, 358
Zhang, Lixiang	255	Zhang, Ying	187	Zheng, Lili	256	Zhou, Zhaoque	406
Zhang, Lu	254	Zhang, Yingying	103	Zheng, Long	170, 251	Zhou, Zhengyang	527
Zhang, Lyouu	71, 267	Zhang, Yiwei	343	Zheng, Qi	11	Zhou, Zhengyang	542
Zhang, Mei-Jie	239	Zhang, Yiwen	609	Zheng, Tian	444, 597	Zhou, Zhiyang	192
Zhang, Meng	256	Zhang, Yuanyuan	29, 89	Zheng, Wei	522	Zhou, Zilu	593
Zhang, Mengqi	663	Zhang, Yumin	27, 88	Zheng, Xiaojing	575	Zhu, Anqi	415
Zhang, Miao	527	Zhang, Yun	339, 426	Zheng, Yanbing	615	ZHU, BIN	40, 456
Zhang, Michael Minyi	452, 465, 531	Zhang, Yunfeng	329	Zheng, Yating	153	Zhu, Changbo	303
Zhang, Michael Q.	180	Zhang, Yunxi	305	Zhilova, Mayya	599	Zhu, Chao	296, 361
Zhang, Min	167, 237, 259, 310, 524	Zhang, Yuqing	575	Zhong, Bob	172	Zhu, Danting	238, 311
Zhang, Mingze	28, 86	Zhang, Yuting	355	Zhong, Dewei	185	Zhu, David	37
Zhang, Muzi	515	ZHANG, YUYANG	358	Zhong, Hua	61	Zhu, Hongjian	342
Zhang, Nan	618	Zhang, Ze	351	Zhong, John	309, 343	Zhu, Hongtu	127, 181, 248, 371, 436, 516, 527
Zhang, Nancy	128, 196, 593	Zhang, Zhaozhi Zek	355	Zhong, Kathy	568	Zhu, Hongxiao	37
Zhang, Nien-Fan	511	Zhang, Zhengjun	500	Zhong, Peng	190	Zhu, Huichen	598
Zhang, Ningshan	408	Zhang, Zhengwu	162	Zhong, Wenxuan	19, 122, 225, 480	Zhu, Ji	174, 307, 413, 482, 517
Zhang, Peng	131, 342	Zhang, Zhongwei	190	Zhong, Yingchao	466	Zhu, Jian	73
Zhang, Pengyue	522	Zhang, Zhumin	11	Zhou, Chen	108	Zhu, Jingyi	36
Zhang, Pingye	128, 196	Zhao, Dan	32	Zhou, Ding	60	Zhu, Jun	190
Zhang, Qi	603	Zhao, Dan	355	Zhou, Fan	127, 181	Zhu, Lan	403, 527
Zhang, Qi	343	Zhao, Guolin	653	Zhou, Fei	622	Zhu, Li	128, 196
Zhang, Qingyang	658	Zhao, Hongyu	32, 154, 173, 237, 310, 340, 427, 498, 554	Zhou, Hao	337, 417	Zhu, Liping	247
Zhang, Qiong	576	Zhao, Hui	338, 418	Zhou, Harrison H.	103	Zhu, Mu	454
Zhang, Ray	128, 196	Zhao, Hui	510	Zhou, Heng	128, 196, 343	Zhu, Rui	43, 87
Zhang, Rongmei	447	Zhao, Jifang	576	Zhou, Hong	240, 403	Zhu, Ruoqing	178, 466, 522, 659
Zhang, Ruoyang	613	Zhao, Jing	17, 342	Zhou, Hufeng	137	Zhu, Weicheng	249
Zhang, Shanshan	453	Zhao, Jiwei	316, 598	Zhou, Jie	248	Zhu, Xiaochen	522
Zhang, Shiju	514	Zhao, Jun	355	Zhou, Jin	299	Zhu, Xiaojing	307
Zhang, Shuang	508	Zhao, Lili	653	Zhou, Jincheng	334, 358	Zhu, Xiaorui	38
Zhang, Shuyi	132	Zhao, Linda	142, 288	Zhou, Joey	18	Zhu, Yaqian	355
Zhang, Ting	546	Zhao, Ni	40	Zhou, Junyi	79, 170, 251	Zhu, Yifan	294, 353
Zhang, Tingting	212, 271	Zhao, Peng	305	Zhou, Kefei	468	Zhu, Ying	274, 384
Zhang, Wei	33, 159, 510, 594					Zhu, Yuancheng	220

Name	Session	Name	Session	Name	Session	Name	Session
Zhu, Yunzhang	78, 561						
Zhu, Zheng	487						
Zhu, Zhengyi	234						
Zhu, Zhengyuan	249, 403, 423, 424, 465, 531						
Zhu, Zhongyi	103						
Zhuang, Wei	155						
Zhuang, Wei Vivian	155						
Ziady, Assem G	347						
Zibman, Chava	111						
Zick, Stephanie	190						
Zigler, Corwin	226						
Zikes, Filip	500						
Zilber, Daniel	19, 450						
Zimmer, Stephanie	606						
Zimmer, Zachary	581						
Zimmer, Zachary	299						
Zimmermann, Sarah	169, 252						
Zipunnikov, Vadim	127, 181, 443, 635						
Zolan, Alexander	64						
Zollner, Patrick	190, 423						
Zosso, Dominique	470						
Zou, Changliang	390						
Zou, Fei	40, 575						
Zou, Hui	150, 360, 484						
Zou, Jiahui	122, 255						
Zou, Jian	643						
Zou, Kelly H	403						
Zou, Li	187						
Zou, Wen	304						
Zou, Yixuan	355						
Zouubeidi, Taoufik	177						
Zrust, Ayako	28, 86						
ZU, TIANHAI	357						
Zucker, David	27, 88						
Zucker, Deborah	99						
Zullo, Andrew R	447						
Zuvekas, Samuel H	416						
ZuWallack, Randy	29, 89						
Zwiernik, Piotr	636						

