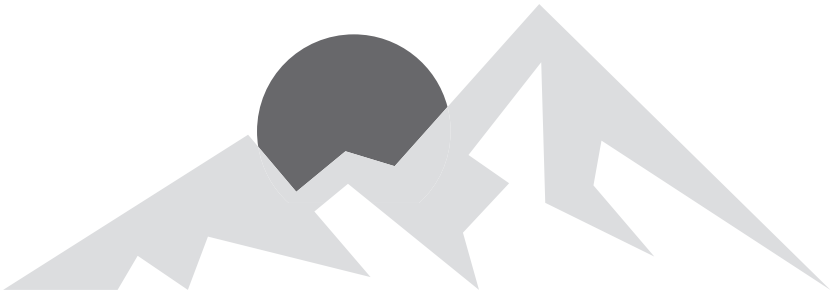

DENVER, COLORADO
JSM2019

JULY 27–AUGUST 1

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

Table of Contents

General Program

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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.

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

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, G˚ttingen 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

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

7 CC-709

Fiber Bundles in Statistical Inference and Probability—Invited

IMS, Statistical and Applied Mathematical Sciences Institute

Organizer(s): Sayan Mukherjee, Duke University

Chair(s): Sayan Mukherjee, Duke University

2:05 p.m. A Statistical Pipeline for Feature Selection and Association Mapping with 3D Shapes—✦Lorin Crawford, Brown University

2:30 p.m. Irreducible Representations and Multi-Frequency Phase Synchronization—✦Tingran Gao, University of Chicago; Zhizhen Zhao, University of Illinois at Urbana-Champaign

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

3:20 p.m. Recovering Topology from the Bottom of the Well—✦Yuliy Baryshnikov, UIUC

3:45 p.m. Floor Discussion

8 CC-207

■ ● Machine Learning Methods and Applications: Making an Impact in Biomedical Research—Invited

Section on Statistical Learning and Data Science, Biometrics Section, Section on Statistical Computing

Organizer(s): Juanjuan Fan, San Diego State University

Chair(s): Xiangrong Yin, University of Kentucky

2:05 p.m. Finite Mixture Clustering of Risk Behaviors for an Infectious Disease—✦Joseph Kang, Centers for Disease Control and Prevention (CDC)

2:30 p.m. RELIEF-Based Feature Selection for Heterogeneous Treatment Effects with Massive Data—✦Xiaogang Su, University of Texas, El Paso

2:55 p.m. Matching Methods for Observational Data with Small Group Sizes and Mising Covariates—✦Juanjuan Fan, San Diego State University; Afrooz Jahedi, San Diego State University; Tristan Hillis, San Diego State University; Ralph-Axel Mueller, San Diego State University

3:20 p.m. Post-Market Surveillance of Arthroplasty Device Components Using Machine Learning—✦Guy Cafri, Johnson & Johnson

3:45 p.m. Floor Discussion

9 CC-111

■ ● Impact of Using Surrogate Endpoints on Drug Development—Invited

WNAR, International Chinese Statistical Association, Biopharmaceutical Section

Organizer(s): Ying Lu, Stanford University

Chair(s): Ying Zhang, University of Nebraska Medical Center

2:05 p.m. Havrda and Charvat Entropy-Based Measures to Assess Longitudinal Surrogate Endpoints in Clinical Trials—✦Marìa del Carmen Pardo , Complutense University; Ying Lu, Stanford University; Hua Jin, South China Normal University; Qian Zhao, Guangzhou Medical University

2:25 p.m. Statistical Considerations for Biomarker-Based Surrogate Endpoints—✦Marc Buyse, IDDI Inc.

2:45 p.m. An Information-Theoretic Approach for the Evaluation of Surrogate Endpoints Based on Causal Inference—✦Ariel Alonso Abad, KUleuven

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

3:25 p.m. Disc: Ying Lu, Stanford University

3:45 p.m. Floor Discussion

10 CC-505

■ ● Challenges and Breakthroughs in Analyzing Big Survey Data—Invited

Government Statistics Section, Survey Research Methods Section, Section on Statistics in Marketing

Organizer(s): Snigdhansu Chatterjee, University of Minnesota

Chair(s): Eric Slud, University of Maryland

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

2:30 p.m. A Model-Based Approach to Predict Employee Compensation Components—✦Andreea Erciulescu, Westat; Jean Opsomer, Westat

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

3:20 p.m. Regression Composite Estimation for Current Population Survey—✦Yang Cheng, US Census Bureau; Daniel Bonnery, University of Maryland and Maryland Longitudinal Data System Center ; Partha Lahiri, University of Maryland, College Park

3:45 p.m. Floor Discussion

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

11 CC-110

■ ● 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

12 CC-201

■ ● 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

13 CC-504

■ ● 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

14 CC-705

■ ● 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 CatÛlica 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

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.

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 Colorodo 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

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

19 CC-301

■ ● 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

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 Univeristy

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

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 CC-109

■ ● 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

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

22 CC-707

■ ● 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

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.

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 Womenís 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 Latterner, 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 Caseñcontrol 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

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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

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

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

2:50 p.m. Permutation Weighting—✦Drew Dimmery, Facebook; David Arbour, Adobe Research

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

3:05 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

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

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

3:20 p.m. 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

3:25 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

3:30 p.m. Causal Mediation Analysis Using Gradient Boosting Machines: Developing Methods and Software—✦Brian G. Vegetabile, RAND Corporation; Donna L. Coffman, Temple University; Daniel F. McCaffrey, Educational Testing Service

3:35 p.m. Hypothesis Testing in Nonlinear Function on Scalar Regression with Application to Child Growth Study—✦Mityl Biswas, NC State Univ

3:40 p.m. Identify Consensus Among Match Makers: a Clustering Aggregation Perspective—✦Yumin Zhang, Purdue University; Arman Sabbaghi, Purdue University

3:45 p.m. Floor Discussion

SUNDAY

28 CC-501

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

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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

2:55 p.m. 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

3:00 p.m. 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

3:05 p.m. 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

3:10 p.m. New York City: Is the City Under an Affordability Crisis? a Multi Layer Analysis—✦Jhonatan Medri, Utah State University; Braden Probst,

3:15 p.m. 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

3:20 p.m. 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

3:25 p.m. Floor Discussion

29 CC-502

SPEED: Survey Methods, Transportation Studies, SocioEconomics, and General Statistical Methods Part 1—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

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

2:10 p.m. A Modeling Approach to Compensate for Nonresponse and Selection Bias in Surveys—✦Tien-Huan Lin, Westat; Ismael Flores Cervantes, Westat

2:15 p.m. A Comparison of Clustering Criteria for Evaluating Multivariate Stratifications of Primary Sampling Units—✦Padraic Murphy, U.S. Census Bureau

2:20 p.m. Statistical Data Integration and Inference via Multilevel Regression and Poststratification—✦Yajuan Si, University of Michigan

2:25 p.m. Achieving Sample Efficiency by Using Both a List Frame and an ABS Frame—✦Karol Krotki, RTI International

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

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

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

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

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 Hedt-Gauthier, Harvard Medical School; Claudia Rivera-Rodriguez, University of Auckland; Sebastien Haneuse, Harvard T.H. Chan School of Public Health

3:00 p.m. Bayesian Uncertainty Estimation Under Complex Sampling—✦Matthew Williams, National Science Foundation; Terrance Savitsky, Bureau of Labor Statistics

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

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

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

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

3:20 p.m. Use of Matching Algorithms to Determine Unit Eligibility—✦Brandon Hopkins, RTI International; Kimberly Ault, RTI International

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

3:30 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

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

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

3:45 p.m. Shortest Median Length Confidence Interval for the Power of the T-Test—✦Harrison Watts, ; Subhabrata Chakraborti, University of Alabama

30 CC-107

Missing Data and Measurement Error—Contributed

Biometrics Section

Chair(s): John Rice, Colorado School of Public Health

2:05 p.m. Exploring RNA-Protein Interactions at Amino-Acid Level via a Multinoimal 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

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

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

3:05 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. Alzheimer's Disease Risk Prediction with Multidimensional Biomarkers—✦Zheyu Wang, Johns Hopkins University

3:35 p.m. Analysis of Big and Complex Data in National Cotton Variety Test—✦Qian Zhou,

31 CC-108

Personalized/Precision Medicine II—Contributed

Biometrics Section

Chair(s): Tai Xie, Brightech International

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

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

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

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

Callahan, University of North Carolina; Stephen Messier, Wake Forest University; Richard Loeser, University of North Carolina; Michael Kosorok, University of North Carolina at Chapel Hill

3:05 p.m. A Fully Robust Procedure for Subgroup Inference—✦Ao Yuan, ; Anqi Yin, Georgetown University; Ming T Tan, Georgetown University

3:20 p.m. Inference on the Best Selected Subgroup—✦Xinzhou Guo, University of Michigan; Xuming He, University of Michigan

3:35 p.m. A Utility Approach to Individualized Optimal Dose Selection Using Biomarkers—✦Pin Li, University of Michigan; Jeremy Taylor, University of Michigan; Matthew J. Schipper, University of Michigan

32 CC-106

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 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

33 CC-701

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 Sakhanenko, Michigan State University

34 CC-706

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

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Singapore; Lizhen Lin, University of Notre Dame; David Dunson, Duke University

2:20 p.m. **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

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

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

3:05 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

3:35 p.m. **Bayesian Inference of Non-Probability Samples**—✦ZHIQING XU, Worcester Polytechnic Institute; Balgobin Nandram, Worcester Polytechnic Institute

35 CC-712

Applications of Nonparametric Methods—Contributed

Section on Nonparametric Statistics

Chair(s): Anna Plantinga, Williams College

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

2:20 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

2:35 p.m. **Sufficient Dimension Reduction for Feasible and Robust Estimation of Average Causal Effect**—✦Trinetri Ghosh, Pennsylvania State University; Yanyuan Ma, The Pennsylvania State University; Xavier de Luna, UmeÂ School of Business,Economics and Statistics at UmeÂ University

2:50 p.m. **Meta-Anlysis of Quantile Intervals from Different Studies**—✦Omer Ozturk, Ohio State University; Narayanaswamy Balakrishnan, McMaster University

3:05 p.m. **Some Depth-Based Approaches to Statistical Regions**—✦Derek Young, University of Kentucky

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

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

36 CC-507

Statistcal Theory and Uncertainty Quantification in Physical Sciences—Contributed

Section on Physical and Engineering Sciences

Chair(s): Wenjia Wang, SAMSI

2:05 p.m. **Weibull-Normal Distribution and Its Applications**—✦Felix Famoye, Central Michigan University

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

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

2:50 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

3:05 p.m. **Spectral Model Selection for Electronic Measurement of the Boltzmann Constant**—✦Kevin J Coakley, National Institute of Standards and Technology

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

3:35 p.m. **Floor Discussion**

37 CC-702

■ ● Object-Oriented Analysis of Imaging Data—Contributed

Section on Statistics in Imaging

Chair(s): Daniel Rowe, Marquette University

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

2:05 p.m. Nonparametric Model for a Tensor Field Based on HARDI—✦Lyudmila Sakhanenko, 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 Univeristy

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

38 CC-210/212

Advances in Variable Selection—Contributed

Section on Statistical Learning and Data Science

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

39 CC-302

Recent Advancements in the Analysis of Extremes—Contributed

Section on Statistics and the Environment

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); RaphaÎl 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

40 CC-101

■ Statistical Methods for Microbiome and Tumor Data—Contributed

Section on Statistics in Genomics and Genetics

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—

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✦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 Insititute

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; Nilanjan Chatterjee, Johns Hopkins University

41 CC-506

Non-Probability Sample and Probability Sample Matters Under What Context?—Contributed

Survey Research Methods Section

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**

42 CC-113

■ Novel Statistical Methods with a Biostatistics Leaning—Contributed

ENAR

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**

43 CC-105

SPEED: Statistics in Sports; Physical Activity/Sleep Studies, and Nonparametrics Part 1—Contributed

Section on Statistics in Sports, Biometrics Section, Survey Research Methods Section, Section on Bayesian Statistical Science, Section on Nonparametric Statistics

Chair(s): Andrew Swift, University of Nebraska at Omaha

SUNDAY

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

2:05 p.m. Preference Probability Based on Ranks—a New Approach Using Logistic Regression with Zero Intercept—✦Oluwagbenga Agboola, University of Northern Colorado

2:10 p.m. Quantifying the Deception of an MLB Pitch—✦Jason Wilson, Biola University

2:15 p.m. Application of Data Analytics and Visualization in NCAA Division III Menís Basketball—✦Thomas Rhomberg,

2:20 p.m. Devaluing the Yurchenko Full: The Effect of NCAA Womenís Gymnastics Code Modifications on Event and Total Scores—✦Elizabeth Jewell, University of Michigan

2:25 p.m. Faint Galaxies Detection: An Example of Guided Follow-Up with Imbalanced Data Sets—✦Niccolo Dalmasso, Carnegie Mellon University; Ann B. Lee, Carnegie Mellon University; Rafael Izbicki, Federal University of Sao 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

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

3:30 p.m. Bayesian Semiparametric ROC Surface Estimation Under Verification Bias—✦Rui Zhu, North Carolina State University; Subhashis Ghosal, North Carolina State University

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

3:40 p.m. Floor Discussion

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, Universitá della Svizzera italiana and Universitá dell'Insubria

4:05 p.m. The ABC of Approximate Bayesian Computation—✦Christian Robert, Ceremade - UniversitéParis-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 Petrovic, 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

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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

46 CC-103

■ ● 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

47 CC-708

● 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

48 CC-104

■ ● 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

49 CC-207

● 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

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Participation in STEM—✦Jessica Chapman, St. Lawrence University

5:25 p.m. Bridging the Gap: Increasing Underrepresented Minority Representation in the Statistical Sciences—✦Felicia R Simpson, Winston-Salem State University

5:45 p.m. Floor Discussion

50 CC-201

■ Statistical Methods Applied to Discrimination: Recent Contributions from the Journal—Invited

Statistics and Public Policy, Social Statistics Section

Organizer(s): Mike L. Cohen, Committee on National Statistics

Chair(s): Jerry Reiter, Duke University

4:05 p.m. Salary Differentials by Gender and Discipline—✦Lynne Billard, University of Georgia

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

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

5:20 p.m. Disc: David Banks, SAMSI/Duke University

5:45 p.m. Floor Discussion

51 CC-210/212

■ ● Making Sense of Discrete Data: Challenges, Inferences and Applications—Invited

Social Statistics Section, Business and Economic Statistics Section, Section on Statistics in Marketing

Organizer(s): Dungang Liu, University of Cincinnati

Chair(s): Chris Wild, University of Auckland

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

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

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

5:20 p.m. Bayesian Modeling of Univariate and Multivariate Time-Series of Counts—✦Refik Soyer, George Washington University

5:45 p.m. Floor Discussion

52 CC-501

■ ● The 2018 Statistical Computing and Graphics Award—Invited

Section on Statistical Computing, Section on Statistical Graphics

Organizer(s): Jun Yan, University of Connecticut

Chair(s): Michael Kane, Yale

4:05 p.m. Some Thoughts on Languages for Statistical Computing and Graphics—✦Luke Tierney, University of Iowa

4:30 p.m. Visible and Invisible: Statistical Graphics and Computing Infrastructure—✦Thomas Lumley, University of Auckland

4:55 p.m. Lessons Learned in Interactive and Dynamic Graphics—✦Heike Hofmann, Iowa State University

5:20 p.m. The Estimable Luke Tierney —and Estimability in R—✦Russell V. Lenth, University of Iowa

5:45 p.m. Floor Discussion

53 CC-607

■ ● Medallion Lecture I—Invited

IMS

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

Chair(s): Sonia Petrone, Universitá commerciale Luigi Bocconi

4:05 p.m. On Statistical Thinking in Deep Learning—✦Yee Whye Teh, University of Oxford

5:45 p.m. Floor Discussion

54 CC-704

● Memorial Session for Susanne R‰ssler: Missing and Missed—Invited

Memorial

Organizer(s): Florian Meinfelder, Universit‰t Bamberg

Chair(s): Hans Kiesl, OTH Regensburg

4:05 p.m. Missingness by Design -Split Questionnaire Designs and Synthetic Data—✦Joerg Drechsler, Institute for Employment Research; Florian Meinfelder, Universit‰t Bamberg

4:30 p.m. Multiple Imputation of Non-Ignorable Missing Survey Data—✦Angelina Hammon, University of Bamberg

4:55 p.m. Data Fusion, Multiple Imputation for Clustered Data, and Split Questionnaire Designs: Research Inspired by Our

Collaborations with Susie—✦Trivellore Raghunathan, University of Michigan; Nathaniel Schenker, Retired

5:20 p.m. Disc: Donald B. Rubin, Tsinghua University; Temple University; Harvard University

5:45 p.m. Floor Discussion

55 CC-110

■ ● Recent Evaluations of Methods for Handling Noncompliance/Dropouts in Clinical Trials for Better Guidance Driven Application—Invited

Biopharmaceutical Section

Organizer(s): Xiang Zhang, Eli Lilly and Company

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

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

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

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

5:25 p.m. Disc: Ilya Lipkovich, Eli Lilly and Company

5:45 p.m. Floor Discussion

56 CC-505

■ ● Modern Methods for Structured and Dynamically Dependent Data—Invited

Business and Economic Statistics Section, JBES-Journal of Business & Economic Statistics, Business Analytics/Statistics Education Interest Group

Organizer(s): Daniel R Kowal, Rice University

Chair(s): Daniel R Kowal, Rice University

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

4:25 p.m. Introducing the Mean Locally Stationary Wavelet Process and Its Application to Business Data—✦Rebecca Killick, Lancaster University, UK; Euan McGonigle, Lancaster University; Matthew Nunes, University of Bath

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-Universit‰ot Bochum

5:05 p.m. Autoregressive Models for Large Matrix Series—✦Han Xiao, Rutgers University

5:25 p.m. Disc: Katherine Ensor, Rice University

5:45 p.m. Floor Discussion

Invited Panels 4:00 p.m.—5:50 p.m.

57 CC-205

■ ● Women Transitioning into Leadership—Invited

Caucus for Women in Statistics

Organizer(s): Kathy Panageas, Memorial Sloan Kettering Cancer Center

Chair(s): Kathy Panageas, Memorial Sloan Kettering Cancer Center

Panelists: ✦Melissa Begg, Columbia University

✦Marcey Abate Hoover, Sandia National Laboratories

✦Stacy Lindborg, Biogen

✦Nancy Geller, National Institutes of Health, NHLBI

✦Janet Wittes, Statistics Collaborative, Inc

5:45 p.m. Floor Discussion

58 CC-102

■ ● Artificial Intelligence (AI) in Healthcare and Medical Research in the Big Data Era—Invited

Section on Statistics in Genomics and Genetics, WNAR, International Chinese Statistical Association

Organizer(s): Haiyan Huang, University of California, Berkeley

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

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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 Luttman, 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

SUNDAY

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 Rivadeneyra, 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—✦Gradon 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; HÂvard 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

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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 Commissionís 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

3:25 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

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70 CC-703

■ 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 Instittute of Technology

Chair(s): Laura Freeman,

Panelists: ✦Raymond Hill, Air Force Instittute 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

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

71 CC-106

■ ● 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 children Healthcare Systems; Ayako Shimada, Thomas Jefferson University

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

72 CC-108

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

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

Bradbrook, Virginia Commonwealth University; Roy T Sabo, Virginia Commonwealth University

4:20 p.m. Incorporating Auxiliary Data to Improve Conditional Power Estimation—✦Jian Zhu, Takeda Pharmaceuticals; Xin Li, George Washington University; Godwin Yung, Takeda Pharmaceuticals; Jianchang Lin, Takeda Pharmaceuticals

4:35 p.m. Group-Sequential Randomized Trial Design Utilizing the MEM Framework for Incorporating Historical Data—✦Ales Kotalik, University of Minnesota; David Michael Vock, University of Minnesota; Joseph Koopmeiners, University of Minnesota

4:50 p.m. Improvement on the Design for the Qualification Phase in Human Abuse Potential Studies—✦Ling Chen, FDA

5:05 p.m. Two Novel Non-Parametric Methods for the Analysis of Stepped-Wedge Cluster Randomized Trials—✦Lee Kennedy-Shaffer, Harvard University; Victor De Gruttola, Harvard T.H. Chan School of Public Health; Marc Lipsitch, Harvard T.H. Chan School of Public Health

5:20 p.m. Big Stick Design Within Arbitrary Boundaries Minimizes the Selection Bias in an Open-Label Trial—✦Olga Kuznetsova, Merck & Co., Inc.

5:35 p.m. The Performance of Largest Caliper Matching: An Application to SUPPORT Data—✦Sharif Mahmood,

74 CC-507

Statistical Methods and Applications: Domestic and International—Contributed

Business and Economic Statistics Section

Chair(s): Emily Lei Kang, University of Cincinnati

4:05 p.m. Impacting Policy by Estimating Causal Links—✦Hrishikesh Vinod, Fordham University, NY

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

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.

4:50 p.m. Statistical Identification of Productivity Changes: Railroads, 1946-1979—✦Robert Reynolds, Brattle Group; Sarah Wolfolds, Cornell University

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

5:20 p.m. On the Use of Incomplete Moments for Measuring Income Inequalities—✦Sayed A Mostafa, North Carolina A&T State University; Ibrahim A Ahmad, Oklahoma State University

5:35 p.m. Floor Discussion

75 CC-710

Probability and Statistics—Contributed

IMS

Chair(s): Mohamad Kazem Shirani Faradonbeh, University of Florida

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

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

4:35 p.m. A New Approach to the Expected Euler Characteristic—✦Khalil Shafie, University of Northern Colorado

4:50 p.m. Frequentist Inference Without Repeated Sampling—✦Paul Vos, East Carolina University

5:05 p.m. Estimation in the Popularity Adjusted Block Model—✦Ramchandra Rimal, Univ. of Central Florida; Marianna Pensky, University of Central Florida

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

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

76 CC-504

To Open Source, or Not—Contributed

Section for Statistical Programmers and Analysts

Chair(s): Joshua Hewitt, Colorado State University

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

4:20 p.m. A Bayesian Approach to the Measurement ñError Problem in Regression—✦Ananda Jayawardhana, Pittsburg State University

4:35 p.m. Histogram Principal Component Analysis in R Shiny—✦Sun Makosso-kallyth, SM Analytics; Brahim Brahim, InfoVisuCA

4:50 p.m. TensorFlow Versus H20, Predicting the SandP500—✦Kenneth Davis,

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

of Wellington; Richard Arnold, Victoria University of Wellington

5:20 p.m. Report Building: SAS and Microsoft Word VBA Made Easy—✦Scott Kreider,

5:35 p.m. Floor Discussion

77 CC-111

Complex Designs and Composite Endpoints of Medical Device Clinical Studies and Benefit-Risk Analysis of Diagnostic Tests—Contributed

Section on Medical Devices and Diagnostics

Chair(s): Jianjin Xu, FDA/CDRH

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

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 Comparatorís 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

78 CC-712

Nonparametric Modeling—Contributed

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

4:20 p.m. Statistical Estimation of Context Set Models—✦Zsolt Talata, University of Kansas

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

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

5:05 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

5:20 p.m. The Stationary Jackknife—✦Weilian Zhou, North Carolina State University; Soumendra N Lahiri, North Carolina State University

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

SUNDAY

79 CC-502

Functional Data Analysis: Methods and Applications—Contributed

Section on Statistical Learning and Data Science

Chair(s): Shrijita Bhattacharya, Michigan State 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. Multivariate Functional Data Clustering with Variable Selection and an Application to Sensory Data—✦Zhongnan Jin, Virginia Tech; Yili Hong, Virginia Tech

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

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

5:35 p.m. A Novel Nonparametric Clustering Method for Longitudinal Data—✦Junyi Zhou, Indiana University; Ying Zhang, University of Nebraska Medical Center

80 CC-503

Graphical Models and Causal Inference—Contributed

Section on Statistical Learning and Data Science

Chair(s): Sai Kumar Popuri, Demand Forecasting Group at Walmart Labs

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

4:20 p.m. Causal Inference Under Network Interference with Noise—✦Wenrui Li, Boston University; Eric Kolaczyk, Boston University; Daniel L Sussman, Boston University

4:35 p.m. Gaussian DAGs on Network Data—✦Hangjian Li, UCLA; Qing Zhou, UCLA

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

5:05 p.m. Using Cyclic Structure to Improve Inference on Networks—✦Behnaz Moradijamei, Kansas State University; Michael Higgins, Kansas State University

5:20 p.m. Estimation in Additive Exposure Models—✦Kelly Kung, Boston University; Daniel L Sussman, Boston University

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

81 CC-701

Regression, Distribution and Inference—Contributed

International Indian Statistical Association

Chair(s): Saonli Basu, University of Minnesota, Biostatistics SPH

4:05 p.m. Cholesky Normal Distribution in the Space of Symmetric Positive- Definite Matrices—✦Benoit Ahanda, Texas Tech University/Bradley University

4:20 p.m. On Two Normal Mixture Models of the Classical Method of Moments—✦Ray-Shine Lee, Shine-In Quantitative Research

4:35 p.m. Tolerance Limits for Normal Mixtures—✦Shin-Fu Tsai, National Taiwan University

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

5:05 p.m. Robust Fitting and Smoothing Parameter Selection for GAMLSS—✦William Aeberhard, Stevens Institute of Technology; Eva Cantoni, University of Geneva; Giampiero Marra, University College London; Rosalba Radice, City, University of London

5:20 p.m. Uniformly Consistently Estimating the Proportion of False Null Hypotheses via Lebesgue-Stieltjes Integral Equations—✦Xiongzhi Chen, Washington State University

5:35 p.m. 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

82 CC-109

Statistical Methods for Disease Prevention and Prediction—Contributed

Section on Statistics in Epidemiology

Chair(s): Yujia Pan, University of Michigan

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

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

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 children Healthcare Systems

4:50 p.m. BMI, Alcohol, and Prostate Cancer—✦Negasi Beyene, CDC/NCHS

5:05 p.m. Predicting Ovarian Cancer Risk Using Longitudinal Prognostic Methods—✦Yongli Han, National Cancer Institute; Danping Liu, National Cancer Institute

5:20 p.m. Bayesian Semiparametric Approach to Constrained ROC Curves Using Placement Values—✦Soutik Ghosal, Eunice Kennedy Shriver National Institue of Child Health and Human Development; Zhen Chen, Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)

5:35 p.m. Floor Discussion

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

83 CC-302

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-Faculity 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

84 CC-707

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 ìElectricity 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

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

85 CC-101

Machine Learning in Biomedical Data—Contributed

ENAR, WNAR

Chair(s): Yuchen Yang, Johns Hopkins University

4:05 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

5:05 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

5:20 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

5:35 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 CC-Hall C

SPEED: Data Challenge Part 2—Contributed

Government Statistics Section, Section for Statistical Programmers and Analysts, Section on Statistical Computing

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

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 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

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, ; Siata Coulibaly, UCA

6 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

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 Menís Basketball—✦Thomas Rhomberg,

19 Devaluing the Yurchenko Full: The Effect of NCAA Womenís 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

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

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 Oduro-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—✦Niccolo Dalmasso, Carnegie Mellon University; Ann B. Lee, Carnegie Mellon University; Rafael Izbicki, Federal University of Sao 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 Analyzes 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 Caseñcontrol 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. Vegetabile, 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—✦Padraic 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 Hedt-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

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 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

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

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

Section on Statistical Learning and Data Science

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

ASA

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

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

31 Inference in the FrÈchet Regression Model for Random Objects—✦Alexander Petersen, University of California, Santa Barbara

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

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

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

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 Univeristy

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 Uinversity ; 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 States 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

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

105 CC-207

■ ● 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

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 Johnsonís 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; Patrck 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, Universitá della Svizzera italiana and Universitá dell'Insubria

Chair(s): Christian Robert, Ceremade - UniversitéParis-Dauphine

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

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-Infinitely Divisible Spatial Processes—✦Raphaîl 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

8:35 a.m. Essential Technical Skills for Collaborative Statisticians and Data Scientists—✦Brian Zaharatos, ; Zachary Mullen, University of Colorado Boulder

9:00 a.m. Essential Professional Skills for Collaborative Statisticians and Data Scientists—✦Heather S Smith, Cal Poly, San Luis Obispo

9:25 a.m. How Stat Labs Can Transform Evidence to Action for Maximum Impact—✦Eric Vance, LISA-University of Colorado Boulder

9:50 a.m. Disc: David Morganstein, Westat

10:10 a.m. Floor Discussion

110 CC-605

■ ● Data in the 21st Century: Corporate and Non-Profit Decision Making in the Digital Age—Invited

Business Analytics/Statistics Education Interest Group, Section on Statistics and Data Science Education, Business and Economic Statistics Section

Organizer(s): Michael William Kotarinos, University of South Florida & Solarbeam Capital LLC

Chair(s): Jennifer Lewis Priestley, Kennesaw State University

8:35 a.m. From Statistics to Artificial Intelligence: The Evolution of Data Science—✦Robert J McGrath, University of New Hampshire

8:50 a.m. New Statistical Approaches to Financial Time Dependent Information—✦Doo Young Kim, Sam Houston State University

9:05 a.m. New Approaches to Old Problems: Interdisciplinary Approaches to Fighting Cancer in the 21st Century—✦Ke Meng, UNC Chapel Hill

9:20 a.m. 21st Century Equity Markets: Evaluating, Assimilating, and Inte- Grating Information in Real-Time—✦Michael William Kotarinos, University of South Florida & Solarbeam Capital LLC

9:35 a.m. Crafting Manifolds: Application Lifecycle Analysis in a Mobile World—✦Julius D'souza, Google

9:50 a.m. Data in the 21st Century: Corporate and Non-Prot Decision Making in the Digital Age—✦Ryan Kania, Advocates for World Health

10:05 a.m. Floor Discussion

111 CC-102

■ ● Evidence Beyond Traditional Clinical Trials—Invited

Section on Medical Devices and Diagnostics, Biopharmaceutical Section, Health Policy Statistics Section

Organizer(s): Martin Ho, FDA

Chair(s): Chava Zibman, FDA Center for Devices and Radiological Health

8:35 a.m. Recent Statistical Developments in Considering Real World Evidence for Regulatory Decisioin Making—✦Martin Ho, FDA; Weili He, AbbVie

8:55 a.m. Propensity Score-Integrated Approaches for Incorporating Real-World Evidence in Clinical Studies—✦Chenguang Wang, John Hopkins University

9:15 a.m. External Evidence: Latest Developments from the Eponymous Medical Device Innovation Consortium Working Group—✦Theodore Lystig, Medtronic

9:35 a.m. Use of Past Control Observations Within a Perpetual Platform Trial—✦Kert Viele, Berry Consultants; Scott Berry, Berry Consultants

9:55 a.m. Disc: Telba Irony, FDA CBER

10:15 a.m. Floor Discussion

112 CC-109

Statistical Challenges in the Processing and Analysis of Mobile Health Data—Invited

Section on Statistics in Epidemiology, Section on Statistical Learning and Data Science, Biometrics Section

Organizer(s): Joseph Rigdon, Stanford University

Chair(s): Summer Han, Stanford University

8:35 a.m. SMART for Health App Recommenders—✦Ying Kuen Ken Cheung, Columbia University

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

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

9:35 a.m. Parameterizing Exploration—✦Jesse Clifton, NC State University; Lili Wu, North Carolina State University; Eric B Laber, NC State University

9:55 a.m. Statistical Challenges in the Processing and Analysis of Accelerometer Data—✦Manisha Desai, Stanford University Quantitative Sciences Unit

10:15 a.m. Floor Discussion

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

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

113 CC-702

■ ● **New Developments on Data Integration and Data Fusion—Topic Contributed**

Section on Statistical Learning and Data Science, Biometrics Section, ENAR

Organizer(s): Gen Li, Columbia University

Chair(s): Gen Li, Columbia University

8:35 a.m. Bayesian Nonparametric Clustering Analysis with an Incorporation of Biological Network for High-Dimensional Multi-Scale Molecular Data—✦Yize Zhao, Yale University

8:55 a.m. Integrative†linear Discriminant Analysis with Guaranteed Error Rate Improvement—✦Quefeng Li, University of North Carolina Chapel Hill; Lexin Li, University of California at Berkeley

9:15 a.m. Insights into Impact of DNA Copy Number Alteration and Methylation on the Proteogenomic Landscape of Human Ovarian Cancer via a Multi-Omics Integrative Analysis—✦Jiayi Ji, ; Xiaoyu Song, Icahn School of Medicine at Mount Sinai

9:35 a.m. Sparse Semiparametric Canonical Correlation Analysis for Data of Mixed Types—✦Irina Gaynanova, Texas A&M University; Grace Yoon, Texas A&M University; Raymond J. Carroll, Texas A & M University

9:55 a.m. A Double Core Tensor Factorization and Its Applications to Heterogeneous Data—✦George Michailidis, University of Florida

10:15 a.m. Floor Discussion

114 CC-108

■ ● **Applying the ICH E9(R1) Addendum: Practical Considerations in Choosing Estimands, Estimators, and Sensitivity Analyzes—Topic Contributed**

Biopharmaceutical Section, ENAR, WNAR

Organizer(s): Pilar Lim, PhD, Janssen Research & Development, LLC

Chair(s): Pilar Lim, PhD, Janssen Research & Development, LLC

8:35 a.m. Descending from the Theoretical to the Practical: Our Journey from Clear Definition to Messy Inference and Back—✦Michael O'Kelly, IQVIA

8:55 a.m. How Should We Select and Define Trial Estimands? -Examples Based on a Disease State—✦Elena Polverejan, Johnson & Johnson-Janssen R&D

9:15 a.m. Implementation of Estimand Framework in Oncology Clinical Trials—✦Kalyanee Appanna, Novartis Pharmaceutical Corporation; Bharani Dharan, Novartis 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

115 CC-201

■ ● **Novel Statistical Methods for Emerging Problems in Modern Clinical Trials and Drug Development—Topic Contributed**

Biopharmaceutical Section, International Chinese Statistical Association, Biometrics Section

Organizer(s): Yuan Ji, The University of Chicago

Chair(s): Inna Perevozskaya, GSK

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¸ller, 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

116 CC-104

■ ● **Recent Advances in Cure Rate Models for Long-Term Survivors—Topic Contributed**

Biometrics Section, ENAR, Lifetime Data Science Section

Organizer(s): Wei-Wen Hsu, Kansas State University

Chair(s): KyungMann Kim, University of Wisconsin-Madison

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

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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 CC-505

● 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 CC-107

■ ● Emerging Challenges in Precision Medicine—Topic Contributed

Biometrics Section, Biopharmaceutical Section, ENAR

Organizer(s): Li Ma, Duke University

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

8:35 a.m. Knockoff Assisted Outcome Adaptive Lasso for Doubly Robust Treatment Effect Estimation—✦Guanhua Chen, University of Wisconsin-Madison

8:55 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

9:15 a.m. Sparse Learning and Structure Identification for Ultra-High-Dimensional Image-On-Scalar Regression—✦Xinyi Li, SAMSI; Li Wang, Iowa State University; Huixia Judy Wang, The George Washington University

9:35 a.m. Characterizing Outcome Distributions of Dynamic Treatment Regimes—✦Daniel Lizotte, The University of Western Ontario

9:55 a.m. Single-Cell Analyzes for Developing HIV Vaccine—✦Lynn Lin, Penn State University

10:15 a.m. Floor Discussion

119 CC-506

■ ● 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 Zakzeski, 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 CC-712

■ ● 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 Shirota, 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; Wenxuan 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;

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Ahmad Alothman, Kuwait University; Andreas Artemiou, Cardiff University

9:55 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

10:15 a.m. Floor Discussion

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 Cummiskey, 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

8:50 a.m. Creating Labs to Solve an Investigative Question Using Both Individual and Team Components—✦Megan Mocko, University of Florida

8:55 a.m. Transition from Education to Profession: Experiences of Statisticians—✦Layla Guyot, Texas State University

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

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 Experienceóa 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 Gorvett, 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

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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 Mohlke, 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 Spirko-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; Yinfei 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 Pouokam, 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

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127 CC-501

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 Tsin 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

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 Classfiers 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

Agarwala, University of Maryland - Baltimore County; Anindya Roy, University of Maryland - Baltimore County

8:50 a.m. **Multiplicity Adjustment in Clinical Trials**—✦Michael Proschan, National Institute of Allergy and Infectious Diseases; Erica Brittain, National Institute of Allergy and Infectious Diseases

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

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

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

9:15 a.m. **Predicting the Cross-Validated Penalty Parameter in Nodewise Lasso Regression**—✦Mo Huang, University of Pennsylvania; Nancy Zhang, University of Pennsylvania

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

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.

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

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

9:45 a.m. **A Natural Lead-In Approach to Response-Adaptive Allocation**—✦Erin Donahue, Virginia Commonwealth University; Roy T Sabo, Virginia Commonwealth University

9:50 a.m. **Survival Analyzes in the Presence of Unadjudicated Events**—✦Rakhi Kilaru, Pharmaceutical Product Development; Andrew Montgomery Hartley, Pharmaceutical Product Development

9:55 a.m. **A Comparison of Stacked and Pooled Multiple Imputation**—✦Paul Bernhardt, Villanova University

9:55 a.m. **Design of a Phase 3 Trial for an Acute Treatment of a Rare Disease with Episodic Attacks**—✦Sharon Murray,

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

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

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.

10:15 a.m. **Quantitative Decision Making (QDM) in Phase I/II Studies**—✦Kevin Gan, GlaxoSmithKline; Jonathan Haddad , GlaxoSmithKline

129 CC-106

● High-Dimensional Data and Inference—Contributed

Biometrics Section

Chair(s): Sharon Lutz, Harvard Medical School

8:35 a.m. **Simultaneous Confidence Bands for Functional Regression Models**—✦Chung Chang, ; Xuejing Lin, Columbia University; Todd Ogden, Columbia University

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

9:05 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

9:20 a.m. **Projection Inference Using Penalized Regression Estimators**—✦Biyue Dai, University of Iowa; Patrick Breheny, University of Iowa

9:35 a.m. **A Novel Approach on Multiple-Traits Genetic Association Tests for Flexible Pleiotropy Structures**—✦Han Hao, University of North Texas

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 Pharmeceuticals; Kevin Galinsky , Takeda Pharmeceuticals

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

130 CC-112

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 Nikooienejad, 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,

131 CC-101

Topics in Clinical Trials—Contributed

Biopharmaceutical Section

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

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

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

132 CC-210/212

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—✦Husneara 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 Abott 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—✦Abigael Nachtsheim, Arizona State University

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

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

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

136 CC-701

Recent Advances in Dimension Reduction—Contributed

Section on Statistical Learning and Data Science

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 CC-113

■ Statistical Methods for Analyzing Genetic Variants and QTLs—Contributed

Section on Statistics in Genomics and Genetics

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 TH Chan School of Public Health; Hufeng Zhou, Harvard University; Sheila Gaynor, Harvard T.H. Chan School of Public Health; Yaowu Liu, Harvard TH 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

138 CC-504

Modeling Applications for Backcasting, Nowcasting and Forecasting—Contributed

Survey Research Methods Section

Chair(s): Andrew A White, National Center for Education Statistics

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

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

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

9:05 a.m. Model-Assisted Estimation of Mixed-Effect Model Parameters in Complex Surveys—✦Eric Slud, U.S. Census Bureau

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; Yazmìn A. Garcìa Trejo, U.S. Census Bureau; Nancy Bates, U.S. Census Bureau

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

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

139 CC-707

● Precision Medicine in High-Dimensional Settings—Invited

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

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

11:50 a.m. Disc: Eric B Laber, NC State University

12:10 p.m. Floor Discussion

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, Universtiy 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 Systemís 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 CC-506

■ ● 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 CC-704

● 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 Rothenh‰usler, UC Berkeley; Nicolai Meinshausen, ETH Z¸rich; Peter B¸hlmann, 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

MONDAY

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

146 CC-605

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

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 CC-Four Seasons 1

■ ● Wald Lecture I—Invited

IMS

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

Chair(s): Robert Tibshirani, Stanford University

10:35 a.m. Wald I: Statistical Learning with Sparsity—✦Trevor J Hastie, Stanford University

12:15 p.m. Floor Discussion

148 CC-201

■ ● 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

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

150 CC-603

■ ● 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

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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 Evaulation—✦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

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

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; Luìsa 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

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

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 MontrÈal; 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 Wilcoxonís 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 EconÙmica Aplicada; Daniel Cerqueira, Instituto de Pesquisa EconÙmica Aplicada; Marcelo Fernandes, Sao 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 CC-705

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

10:35 a.m. A Hierarchical Spatio-Temporal Statistical Model Motivated by Glaciology—✦Giri Gopalan, University of Iceland; Birgir Hrafnkelsson, University of Iceland; Christopher K. Wikle, University of Missouri; Håvard Rue, King Abdullah University of Science and Technology; Guðfinna Th Aðalgeirsdóttir, 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 CC-708

■ ● 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. Nongaussian 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

164 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

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

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 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

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—✦Zhiyiuan 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—

✦Zhenxun Wang, University of Minnesota, Lifeng Lin, Florida State University; JIM HODGES, UNIVERSITY OF MINNESOTA; Haitao Chu, University of Minnesota

11:50 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

11:55 a.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

12:00 p.m. True Trend or Just Pretend? Alternative Loss Functions to Reduce Overfitting in Synthetic Controls—✦Alyssa Bilinski, Laura A Hatfield, Harvard Medical School

12:05 p.m. Hospital Report Cards: Matched Design Versus Machine Learning—✦Frank Yoon,

12:10 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)

12:15 p.m. Floor Discussion

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

11:00 a.m. Statistical Postprocessing for Seasonal Weather Forecasts—✦Claudio Heinrich,

11:05 a.m. Reconstruction of Alnus Viridis 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

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

11:15 a.m. Impact of ENSO and NAO on Extreme Monthly Precipitation of the USA—✦BHIKHARI THARU, Spelman College

11:20 a.m. Predictive Model Checking of a Wildlife Occupancy Model with a Partially-Known Stopping Rule—✦Aaron Springford, Weyerhaeuser; Jay Jones, Weyerhaeuser

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 Womenís 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

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

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 XCO2 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 FBIís 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 Han, Westat; Richard Valliant, University of Maryland and University of Michigan

11:20 a.m. Proper Variance Estimation When Adjusting for Both Unknown Eligibility and Unit Nonresponse—✦Dhuly Chowdhury, RTI International; Phil Kott, RTI

11:30 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

11:35 a.m. A Smooth Pseudo-Population Bootstrap Approach in Survey Sampling with Applications to Quantile Estimators—✦Christian Léger, Universitéde Montréal; Vanessa McNealis, Université de Montréal

11:40 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

11:45 a.m. Measures for Identifying Highly Associated Categorical Variables in Survey Data—✦Natalia Weil, Westat; Ismael Flores Cervantes, Westat

11:50 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

11:55 a.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

12:00 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

12:05 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

12:10 p.m. An Evaluation of Traditional and Machine Learning Imputation Methods for Sampling Frame Construction for the American Voices Project—✦Cong Ye,

12:15 p.m. 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 Brase, 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; Pawel 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 Cohenís 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

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

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

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

172 CC-109

Quantitative Decision Making in Clinical Trials—Contributed

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

173 CC-113

Bayesian Methods Applied to Biometric Problems—Contributed

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.

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174 CC-504

■ ● 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

175 CC-706

■ Clustering and Changepoint Analysis—Contributed

Korean International Statistical Society

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

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,

176 CC-701

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

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University; Alan E Gelfand, Duke University

11:50 a.m. Bayesian Subgroup Analysis in Regression Using Mixture Models—✦Yunju Im, University of Iowa; Aixin Tan, University of Iowa

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

177 CC-710

Big Data and Computationally Intensive Methods—Contributed

Section on Statistical Computing

Chair(s): Yafeng Zhang, Google

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 Bandyopadyay, Virginia Commonwealth University; Le Kang, Virginia Commonwealth University

10:50 a.m. Hybrid Ridge-Lasso Regression—✦Saeed Aldahmani, UAE University; Taoufik Zoubeidi, UAE University

11:05 a.m. A Data-Driven Multiple Testing Procedure—✦Nasrine Bendjilali, Rowan University; Boualem Bendjilali, RVCC; Wei-Min Huang, Lehigh University

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

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

11:50 a.m. Sampling Distribution of Pattern Statistics in Sparse Markov Models—✦Donald Martin, NC State University

12:05 p.m. A Sequential Boothstrap/Resampling Method—✦Silvia Sharna, Ball State University; Mian Adnan, Indiana University

178 CC-712

Novel Applications and Extensions of Dimension Reduction Methods—Contributed

Section on Statistical Learning and Data Science

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

10:50 a.m. Graph-Based Dependency Criterion with Applications in Biology—✦Salimeh Yasaei Sekeh, University of Michigan; Alfred O. Hero, University of Michigan

11:05 a.m. Bi-Orthogonal Tensor Decomposition for Image Style Matching—✦Yutong Li, University of Illinois at Urbana-Champaign; Ruoqing Zhu, University of Illinois Urbana-Champaign; Annie Qu, University of Illinois at Urbana-Champaign

11:20 a.m. Learning Attribute Patterns in High-Dimensional Structured Latent Attribute Models—✦Yuqi Gu, University of Michigan; Gongjun Xu, University of Michigan

11:35 a.m. Sparse Generalized Principal Component Analysis: Algorithms and Their Applications—✦Jianhao Zhang, Ohio State University; Yoonkyung Lee, Ohio State University

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

12:05 p.m. Application of Personalized Growth Curve in Customer Life Time Value Estimation via Embedding—✦Liang Xie, Didi Chuxing

179 CC-111

Statistical Methods for Measurement Error and Missing Data in Covariates/Exposures—Contributed

Section on Statistics in Epidemiology

Chair(s): Hengshi Yu, University of Michigan, Ann Arbor

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

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

11:05 a.m. A Semiparametric Approach to Analyzing Error-Prone Failure Time Outcomes and Exposures—✦Lillian Boe, University of Pennsylvania; Pamela Shaw, University of Pennsylvania

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

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

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. SpectralTAD: 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 Tsin Hua University

10 Cross-Validation for Correlated Data—✦Assaf Rabinowicz, Tel-Aviv University; Saharon Rosset, Tel Aviv University

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11 Inference for Measurement Error Model Under High-Dimensional Settings—✦Mengyan Li, Penn State University; Yanyuan Ma, The Pennsylvania State University

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

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

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

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

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

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

18 Mallows Model Averaging of Support Vector Machine Classfiers and Regressors—✦Francis Kiwon, McMaster University

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

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

MONDAY

182 CC-Hall C

SPEED: New Methods in Statistical Genomics and Genetics Part 2—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

21 Comparing Performance of Gene Set Test Methods Using Biologically Relevant Simulated Data—✦Richard Lambert, Utah State University; John Stevens, Utah State University

22 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

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

24 The Robust Kernel Association Test—✦Kara Martinez, North Carolina State University

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

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

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

28 OncoCast: An Improved Interface for Survival Analysis Using Genomic Data—✦Axel Martin, Memorial Sloan Kettering Cancer Center

29 Identifying Appropriate Probabilistic Models for Sparse Discrete Omics Data—✦Hani Aldirawi, UIC

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

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

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; Yinfei 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

33 Likelihood Based Mixture Modeling of Genetic Regulatory Networks—✦David S. Burton, University of Rochester Biostatistics; Matthew N McCall, University of Rochester

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

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 Rabl 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.

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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 Dependenct 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

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

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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. Anneís 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 Sakhanenko, 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 Universitaet 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 IEEG 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

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

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 Cornes, 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

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,

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

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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

Section on Statistics and the Environment

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

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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

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

63 Bayesian Covariance Estimation for Large Spatial Data—✦Brian Kidd, Texas A&M University; Matthias Katzfuss, Texas A & M University

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

65 Some Results on Use-Availability Models for Presence-Only Data from Multiple Species—✦Nels Johnson, US Forest Service, Pacific Southwest Research Station

66 D-STEM Software for Analyzing Environmental Space-Time Variables—✦Yaqiong Wang, ; Francesco Finazzi, Bergamo University; Alessandro FassÚ, Bergamo University

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

68 Measuring Increases in Fire Weather Severity and Its Risk to Human Populations—✦Geoffrey Peterson, U.S. Environmental Protection Agency

69 A Penalized H-Likelihood Method for Gaussian Spatial Additive Model on Regular Lattice—✦Hao Sun, Iowa State University; Somak Dutta, Iowa State University

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

71 Modeling Air Pollution in Beijing with Meteorological Data—✦Ying Zhang, Pennsylvania State University; Song Xi Chen, Peking University; Le Bao, Pennsylvania State University

72 Tail Dependence of Normal Mean-Variance Mixtures—✦Zhongwei Zhang, Raphaël Huser, King Abdullah University of Science and Technology

73 Modeling Spatial Extremes with Max-Infinitely Divisible Models—✦Peng Zhong, KAUST; Raphaël Huser, King Abdullah University of Science and Technology

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

75 Modeling How Beach Characteristics, Predation, and Birdís Tolerance of Humans Affect Piping Plovers (Charadrius Melodus)—✦Samantha Smock, Purdue University; Alex Cohen, Purdue University; Patrick Zollner, Purdue University

76 Models and Inference for Spatial Extremes Based on Tree-Based Multivariate Pareto Distributions—✦Daniela Cisneros, ; RaphaÎl Huser, King Abdullah University of Science and Technology

77 Split and Combine SIMEX Algorithm to Correct Geocoding Coarsening of Built Environment Exposures—✦Jung Yeon Won, Brisa S·nchez, Drexel University

78 Exploratory Analysis of Hurricane Storm Surge—✦Qiuyi Wu, Whitney Huang, Statistical and Applied Mathematical Sciences Institute

79 Extending Nearest-Neighbor GPs for Non-Gridded Data Imputation—✦Christopher Grubb, Virginia Tech; Shyam Ranganathan, Virginia Tech

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

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

82 Wrestling with Sufficient Similarity—✦David Umbach, National Inst. of Environmental Health Sciences; Matthew F Bridge, Social & Scientific Systems; Caroll A Co, Social & Scientific Systems; Gregg E Dinse, Social & 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 & Scientific Systems

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

84 Statistical Modeling on Trichloroethylene Biodegradation in a Packed-Bed Biofilm Reactor Using Response Surface Methodology—✦Feng Yu, RTI International; Breda Munoz, RTI International

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

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

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

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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

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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

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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 Gorvett, 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

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SPEED: Biometrics and Biostatistics Part 2—Contributed

Biometrics Section, Section on Statistics in Epidemiology, Biopharmaceutical 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 Haynatzki, 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

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

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

MONDAY

213 CC-104

■ ● Sequential Decision Making and Causal Inference—Invited

IMS, ENAR, Institute for Operations Research and the Management Sciences

Organizer(s): Susan Murphy, Harvard University

Chair(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

214 CC-203

■ ● 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—✦Raghu 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 ?-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

215 CC-603

● 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 Unversity, 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

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

216 CC-704

■ ● Promises and Pitfalls of Making Decisions with Real World Data—Invited

Biometrics Section, ENAR, Health Policy Statistics Section

Organizer(s): Yuanjia Wang, Columbia University

Chair(s): Ying Liu, Medical College of Wisconsin

2:05 p.m. A Decision Theoretic Approach to Pre-Emptive Genotyping—✦Jonathan Schildcrout, Vanderbilt University Medical Center

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 Milwakee; Yuxiang Xie, University of Washington

2:45 p.m. Integrative Analysis of Multivariate Temporal Biomarkers in Electronic Health Records—✦Donglin Zeng, UNC Chapel Hill

3:05 p.m. Learning Treatment Strategies from Randomized Trials Supplemented by Information in Electronic Health Records—✦Yuanjia Wang, Columbia University

3:25 p.m. Risk Assessment with Imprecise EHR Data—✦Tianxi Cai, Harvard University

3:45 p.m. Floor Discussion

217 CC-301

● Computing Making Impact: The Best of JCGS—Invited

JCGS-Journal of Computational and Graphical Statistics, Section on Statistical Computing, Section on Statistical Graphics

Organizer(s): Dianne Cook, Monash University

Chair(s): Tyler McCormick, University of Washington

2:05 p.m. Data Science: a Three Ring Circus or a Big Tent?—✦Jennifer Bryan, RStudio, University of British Columbia; Hadley Wickham, RStudio

2:25 p.m. Identifying Mixtures of Mixtures Using Bayesian Estimation—✦Bettina Gr¸n, Johannes Kepler Universit‰t; Gertraud Malsiner-Walli, Wirtschaftsuniversit‰t Wien; Sylvia Fr¸hwirth-Schnatter, Wirtschaftsuniversit‰t Wien

2:45 p.m. Bayesian Fused Lasso Regression for Dynamic Binary Networks—✦Brenda Betancourt, University of Florida

3:05 p.m. Designing Modular Software: a Case Study in Introductory Statistics—✦Andrea Kaplan, Duke University; Eric Hare, Omni Analytics

3:25 p.m. Disc: Dianne Cook, Monash University

3:45 p.m. Floor Discussion

218 CC-201

■ ● Medallion Lecture III—Invited

IMS

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

Chair(s): Steve Marron , University of North Carolina at Chapel Hill

2:05 p.m. Breaking Curse of Dimensionality in Nonparametrics—✦Helen Zhang, University of Arizona

3:45 p.m. Floor Discussion

219 CC-702

■ ● Making an Impact in Statistics Education Through Innovation and Outreach—Invited

ENAR, Section on Statistics and Data Science Education, International Association for Statistical Education

Organizer(s): Margaret Taub, Johns Hopkins Bloomberg School of Public Health

Chair(s): Leah Jager, Johns Hopkins Bloomberg School of Public Health

2:05 p.m. Teaching Students to Talk About Data Science—✦Alison Hill, RStudio

2:30 p.m. Rmarkdown Workflows Make New Statistical Methods Accessible to Biomedical Researchers—✦Michael Love, UNC-Chapel Hill

2:55 p.m. Overcoming the Barriers of Entry into Data Science for Non-Traditional Learners with Cloud Computing—✦Shannon E. Ellis, UCSD

3:20 p.m. Teaching Data Science Through Case Studies in Public Health—✦Stephanie Hicks, Johns Hopkins Bloomberg School of Public Health

3:45 p.m. Floor Discussion

220 CC-102

Uncertainty Quantification for Stochastic Optimization Methods in Machine Learning—Invited

IMS, IEEE Computer Society

Organizer(s): Weijie Su, University of Pennsylvania

Chair(s): Weijie Su, University of Pennsylvania

2:05 p.m. Uncertainty Quantification for Online Learning—✦Yuancheng Zhu, Renaissance Technologies; Weijie Su, University of Pennsylvania

2:30 p.m. Convergence Diagnostics for Stochastic Gradient Methods—✦Panagiotis Toulis, University of Chicago Booth School of Business; Jerry Chee, University of Chicago

● 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

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): Suddhasatta 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; Suddhasatta 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: Suddhasatta 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

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.

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): Wenxuan 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 Nonparametric 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

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

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

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 CC-109

■ ● Innovative STEAMS Methdology 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

231 CC-105

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

232 CC-507

■ ● 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

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

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 Statisitcs

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 Peragaswaththe Liyanage, University of Florida; A. James O'Malley, Dartmouth College; Susmita Datta, ASA Committee on Women in Statisitcs

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 Unversity 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 Meta'omic Surveys—✦Himel 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; Ayshwarya 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 Unversity 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

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

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.

MONDAY

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

2:25 p.m. 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—✦Valeriia 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

Bhattacharyya, University of Louisville; Subhadip Pal, University of Louisville; Riten Mitra, University of Louisville; Shesh N Rai, University of Louisville

3:20 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

3:25 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

3:30 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

3:35 p.m. A Bayesian Zero-Inflated Negative Binomial Regression Model for the Integrative Analysis of Microbiome Data—✦Shuang Jiang, Southern Methodist University

3:45 p.m. 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

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,

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

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

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

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

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)

2:35 p.m. Report on Industry Births and Deaths in PPI Frames—✦Andy Sadler, Bureau of Labor Statistics

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

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

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

3:00 p.m. Using Efficient Sampling Methods for Fixed-Margin Matrices to Assess Judicial Innovation—✦Alex Fout,

3:05 p.m. Examining Public Comments for Financial and Net Neutrality Regulations—✦Shawn Mankad, Cornell University; Abhinav Gaiha, Cornell University

3:10 p.m. Using Supervised Machine Learning to Classify Customer Input—✦Adrianna Steers-Smith, USDA/FSIS

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

3:20 p.m. Annualizing Energy Consumption in Residential Households in the 2015 RECS—✦Jay Olsen, U.S. Department of Energy

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 Univerisity; 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

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

239 CC-706

■ ● 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 ArfË, ; 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

240 CC-705

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

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; Shahrul 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—✦Huajiang 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

241 CC-113

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

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

Failure: a Monte Carlo Study—✦Seungbong Han, Gachon University

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

3:20 p.m. Semiparametric Transformation Models for Left-Truncated and Interval-Censored Data Without or with a Cure Fraction—✦Chyong-Mei Chen,

3:35 p.m. Floor Discussion

245 CC-101

Bayesian Inference in the Life Sciences and Medicine—Contributed

Section on Bayesian Statistical Science

Chair(s): Furong Sun, Virginia Tech

2:05 p.m. Generalized Polya Urn Process Models for Bayesian Phylogenetic Inference—✦Mandev Gill, Rega Institute, KU Leuven; Philippe Lemey, Rega Institute, KU Leuven; Marc Suchard, UCLA; Guy Baele, Rega Institute / KU Leuven

2:20 p.m. Assessing Go/No-Go Decisions in Drug Development Under a Bayesian Paradigm Using Stan—✦Xiangyi Zhao, AbbVie Inc.; Alan Hartford, Takeda Pharmaceutical Company

2:35 p.m. A Latent Functional Approach to Characterize the Complex Exposure Relationships of Pesticides on Cancer Incidence—✦Sungduk Kim, NIH; Paul Albert , National Cancer Insititute

2:50 p.m. Bayesian Hierarchical Logistic Regression Model for Dose Escalation in Combination Trials -a Case Study with Immunotherapy—✦Kun Xu, Novartis Pharmaceuticals Corporation; Niladri Roy Chowdhury, Novartis Pharmaceuticals Corporation; Shiling Ruan, Novartis

3:05 p.m. Probabilistic Canonical Correlation Analysis for Multiple Groups—✦Lin Qiu, The Pennsylvania State University; Vernon Chinchilli, Pennsylvania State University

3:20 p.m. Overlapping Activity Patterns and Community Detection in Ecological Networks—✦Wenna Xi, The Ohio State University; Catherine A. Calder, The Ohio State University; Christopher R. Browning, The Ohio State University

3:35 p.m. Bayesian Variable Selection and Bayesian Model Averaging for Predicting Environmental Phenomena—✦Joyee Ghosh, The University of Iowa

246 CC-107

Bayesian Nonparametrics—Contributed

Section on Bayesian Statistical Science

Chair(s): Pulong Ma, SAMSI/Duke University

2:05 p.m. Bayesian Uncertainty Quantification in Monotone Densities—✦Moumita Chakraborty, North Carolina State University; Subhashis Ghosal, North Carolina State University

2:20 p.m. A Bayesian Nonparametric Model for Upper Record Data—✦Joon Jin Song, Baylor University; Jung-In Seo, Daejeon University

2:35 p.m. Gaussian Process Classification with Network Inputs—✦Nathan Josephs, Boston University; Eric Kolaczyk, Boston University; Lizhen Lin, University of Notre Dame; Steve Rosenberg, Boston University

2:50 p.m. Scalable Bayesian Nonlinear SVMs for Big Data Problems—✦Sounak Chakraborty, University of Missouri, Columbia

3:05 p.m. Efficient Bayesian Shape-Constrained Function Estimation—✦Pallavi Ray, Texas A&M University - College Station; Debdeep Pati, Texas A&M University; Anirban Bhattacharya, TAMU

3:20 p.m. Bayesian Dependent Functional Mixture Estimation for Area and Time-Indexed Data—✦Terrance Savitsky, Bureau of Labor Statistics

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

247 CC-108

Sufficient Dimension Reduction and High-Dimensional Data—Contributed

Section on Nonparametric Statistics

Chair(s): Sayar Karmakar, University of Florida

2:05 p.m. Moment Kernels for Estimating Central Mean Subspace and Central Subspace—✦Weihang Ren, ; Xiangrong Yin, University of Kentucky

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

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

2:50 p.m. Robust Dimension Reduction Methods—✦Prabha Shrestha, ; Wei Lin, Ohio University

3:05 p.m. Non Standard Asymptotics in High Dimension: Manski's Maximum Score Estimator Revisited—✦Debarghya of 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 Candes, 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 Alzheimerís 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 Mannshardt, 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

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

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 Brase, 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 ìOne-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 Alicke, Genentech; Magdalena Osinska, Genentech; Shannon Ruppert, Genentech; Michal Jakubczak, Roche; Pawel 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 Cohenís 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

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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)

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, Universitéde Montréal; Vanessa McNealis, Universitéde 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

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

Contributed Sessions 2:00 p.m.—3:50 p.m.

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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

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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

26 Bayesian Projected Calibration of Computer Models—✦Fangzheng Xie, Yanxun Xu, Johns Hopkins University

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

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

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

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

32 Modeling Data on the Simplex—✦Rayleigh Lei, University of Michigan

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

34 Multi-Rubric Models for Ordinal Spatial Data with Application to Online Ratings Data—✦Apurva Sunder Desai,

35 Bayesian Community Detection for Weighted Sparse Networks Using Mixture of SBM Model—✦Yutzu Kuo, University of Notre Dame

36 Conjugate Bayesian Multivariate Spatial Models with Accelerated Posterior Sampling Using Conjugate Gradient Method—✦Lu Zhang, UCLA Biostatistics; Sudipto Banerjee, UCLA

37 The Impact of Prior Choice on Latent Variable Network Models—✦Ian Taylor, Colorado State University; Bailey Fosdick, Colorado State University

38 Bayesian Survival Analysis with Missing Covariate Values; an Application to Breast Cancer Data—✦Refah Alotaibi, Princess Nourah bint Abdulrahman University; Juliana Iworikumo Consul, Niger Delta University, Bayelsa State, Nigeria

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

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

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

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Contributed Poster Presentations: Section on Statistical Computing—Contributed

Section on Statistical Computing

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

Section on Statistical Consulting

42 Accounting for the Uncertainty of Nuisance Parameter in Power and Sample Size Calculation—✦Chuchu Cheng, Boston College; Hao Wu, Vanderbilt University

Section on Statistical Computing

43 Computational Effort of Multiple Hypothesis Testing—✦Georg Hahn,

44 Stochastic Gradient MCMC for State Space Models—✦Christopher Aicher, University of Washington

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

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

47 CPS Analysis: Self-Contained Validation of Biological Clustering Results—✦Lixiang Zhang, PSU; Jia Li, Penn State University; Lin Lin, PSU

48 Does Overfitting of Multilinear Regression Models Impact Effect Size and Significance Measures Out of Sample?—✦William Finnoff, Finnoff Aviation Products, LLC

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

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

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 Univeristy

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

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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 Institue for Medical Research; Molly Stewart, Feinstein Institue for Medical Research; Jamie Hirsch, Feinstein Institue for Medical Research; Negin Hajizadeh, Feinstein Institue 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 Spectromery 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

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

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 Crabill, 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

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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,

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Contributed Poster Presentations:Section on Statistics in Sports—Contributed

Section on Statistics in Sports

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

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

Section on Statistics in Sports

99 A Bayesian Approach to Ranking College Football Teams—✦Cassandra Hiltenbrand, 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.

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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—✦Zhiyiuan 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 Degtiar, 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

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

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SPEED: Environmental Statistics Methods and Applications, Part 2—Contributed

Section on Statistics and the Environment, Section on Bayesian Statistical Science

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

Section on Statistics and the Environment

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

21 Marked Determinantal Point Processes—✦Yiming Feng, Florida State University; Fred Huffer, Florida State University

22 Meta-Analysis Accounting for Spatial and Temporal Studies: Bald and Golden Eagle Productivity—✦Mark Otto, Fish and Wildlife Service

23 Multi-Scale Vecchia Approximations of Gaussian Processes—✦Jingjie Zhang, Texas A&M University; Matthias Katzfuss, Texas A & M University

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

25 Statistical Postprocessing for Seasonal Weather Forecasts—✦Claudio Heinrich,

26 Reconstruction of Alnus Viridis 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, Universitédu Québec á Rimouski UQAR; Feng Sheng Hu, University of Illinois at Urbana Champaign

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

28 Impact of ENSO and NAO on Extreme Monthly Precipitation of the USA—✦BHIKHARI THARU, Spelman College

29 Predictive Model Checking of a Wildlife Occupancy Model with a Partially-Known Stopping Rule—✦Aaron Springford, Weyerhaeuser; Jay Jones, Weyerhaeuser

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 Womenís 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

31 Benefits of Monte Carlo Imputation of Non-Detects in Environmental Data—✦Kirk Cameron, Macstat Consulting, Ltd.

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

33 Classifying Geographic Regions with Imperfect Labels—✦Forrest Paton, McMaster University; Paul D McNicholas, McMaster University

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

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

36 Uncertainty Quantification for Joint Retrieval of Temperature, Humidity, and Cloud States from Satellite Data—✦Jonathan Hobbs, Jet Propulsion Laboratory

37 Spatially Informed Aggregation of Orbiting Carbon Observatory Measured XCO2 for Global Flux Inversion—✦Joaquim Teixeira, NASA Jet Propulsion Laboratory

Section on Bayesian Statistical Science

38 Bayesian Analysis of Multifidelity Computer Models with Local Features and Non-Nested Experimental Designs—✦Bledar Konomi, University of Cincinnati; Georgios Karagiannis, Durham University

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

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 011111100100—✦Xiao-Li Meng, Harvard University

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

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-Ullibarri, Universidade da Coruña

9:00 a.m. Nonparametric Latency Estimation for Mixture Cure Models—✦Ricardo Cao, Universidade da CoruÒa; Ana LÛpez-Cheda, Universidade da CoruÒa; M. Amalia J·come, Universidade da CoruÒa

9:25 a.m. Cure Regression Functions: Inference, Variable Selection and Model Checks—✦Valentin Patilea, CREST Ensai

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

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

272 CC-607

Statistical Learning for Complex and High-Dimensional Data—Invited

IMS

Organizer(s): Tony Cai, University of Pennsylvania

Chair(s): Richard Samworth, University of Cambridge

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 CC-109

■ ● 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

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 CC-201

● 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

8:35 a.m. Some High-Diemnesional 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 CC-106

■ ● 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

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

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

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; Jiuzhou Wang, ImmunoGen Inc.; ✦David C. Hoaglin, University of Massachusetts Medical School; Marc Vandemeulebroecke, Novartis Phama 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

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

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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

● Statistical Outreach and Awareness: How to Make an Impact—Invited

Section for Statistical Programmers and Analysts

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

■ ● When Statistical Methods Impact Policy—Invited

Health Policy Statistics Section, Biometrics Section

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

● Data Science Education at the School Level—Invited

International Association for Statistical Education, National Council of Teachers of Mathematics, Section on Statistics and Data Science Education

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

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

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 Avoundjian, 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 Dumitrascu, 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 Phylodynamic 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 Phylodynamics—✦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 Wisdomóhonoring Lawrence D. Brownís 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

NUMBER of COVARIATES—✦Lihua Lei, UC Berkeley; Peng Ding, University of California, Berkeley

9:15 a.m. Nonparametric Empirical Bayes Methods for Sparse, Noisy Signals—✦Junhui Cai, ; Linda Zhao, University of Pennsylvania

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

9:55 a.m. Disc: Kai Zhang, University of North Carolina, Chapel Hill

10:15 a.m. Floor Discussion

289 CC-708

■ ● Assessing the Quality of Integrated Data—Topic Contributed

Government Statistics Section, Survey Research Methods Section, Section on Statistical Learning and Data Science

Organizer(s): Lisa Mirel, CDC/NCHS

Chair(s): Jeffrey Gonzalez, Bureau of Labor Statistics

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

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

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

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

9:55 a.m. Disc: Jennifer Parker, CDC/NCHS/OAE/SPB

10:15 a.m. Floor Discussion

290 CC-703

■ ● Big Data in Time Series and Spatial Data Analysis: Theory and Applications—Topic Contributed

Royal Statistical Society, IMS, Section on Statistical Computing

Organizer(s): Sucharita Ghosh, Swiss Federal Research Institute WSL

Chair(s): Sucharita Ghosh, Swiss Federal Research Institute WSL

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

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

9:15 a.m. Nonparametric Regression Under Semi-Long Range Dependence—✦Farzad Sabzikar, Iowa State University

9:35 a.m. Further Development of the Double Conditional Smoothing for Nonparametric Surfaces Under a Lattice Spatial Model—✦Yuanhua Feng, ; Bastian Sch‰fer, Paderborn University

9:55 a.m. Disc: Jan Beran, University of Konstanz

10:15 a.m. Floor Discussion

291 CC-702

■ Astrostatistics Interest Group: Student Paper Award—Topic Contributed

Astrostatistics Special Interest Group

Organizer(s): David Craig Stenning, Imperial College London

Chair(s): Chad M Schafer, Carnegie Mellon University

8:35 a.m. Impact of Using the Ultra-High-Energy Cosmic Ray Arrival Energies to Constrain Source Associations—✦Francesca Capel, KTH Royal Institute if Technology

8:55 a.m. Deep Learning for Real-Time Classification of Transient Time Series from Massive Astronomical Data Streams—✦Daniel Muthukrishna, University of Cambridge

9:15 a.m. Measuring the Local Matter Density Using Gaia DR2—✦Axel Widmark,

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 & 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

9:55 a.m. Disc: David Craig Stenning, Imperial College London

10:15 a.m. Floor Discussion

292 CC-709

■ ● Providing Access to Useful Data While Preserving Confidentiality—Topic Contributed

Survey Research Methods Section, Government Statistics Section, Stats. Partnerships Among Academe Indust. & Govt. Committee

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

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

9:50 a.m. Semi-Supervised, Dynamic Class-Informative Feature Learning—✦Vincent Pisztora

9:55 a.m. Floor Discussion

295 CC-103

SPEED: Big Data, Small Area Estimation, and Methodological Innovations Under Development, Part 1—Contributed

Survey Research Methods Section, Quality and Productivity Section

Chair(s): Katherine McLaughlin, Oregon State University

8:35 a.m. Using Paradata to Explore Users Pathways Through Web Surveys—✦Renee Ellis, U.S. Census Bureau

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

8:45 a.m. A Computationally Efficient Method for Selecting a Split Questionnaire Design—✦Matthew Stuart, ; Cindy Yu, Iowa State University

8:50 a.m. Assessing the Relationship Between Balanced Sample and Sample Representativity—✦Yonil Park, US Census Bureau; Thomas John Chesnut, US Census Bureau

8:55 a.m. Trend Analysis for Complex Survey Data with Bayesian Approach—✦Yi Mu, Centers for Disease Control and Prevention

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

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

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

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

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

9:30 a.m. Multilevel Models for Assessing the Impact of the Presidential Youth Fitness Program—✦Ronaldo Iachan, ICF Macro, Inc.

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

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

9:45 a.m. Recommendations for Assessing and Evaluating Variable Crosswalks—✦Mitch Sevigny, Craig Hospital; Jessica Ketchum, Craig Hospital; David Mellick, Craig Hospital

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

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

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

10:05 a.m. Identity Disclosure Control in Microdata Release by Post-Randomization—✦Xiaoyu Zhai, ; Tapan Nayak, George Washington University

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

10:15 a.m. Floor Discussion

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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, Childrenís 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 ërandomí or ëhaphazardí? 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 Thaweethai, 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)

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

297 CC-501

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 Earthís "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

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 Adebimpe, 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 Puthenveedu, University of Michigan

TUESDAY

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

10:15 a.m. Lessons Learned Applying Deep Learning Approaches to Forecasting Complex Seasonal Behavior—✦Andrew T Karl, Adsurgo LLC; James Wisnowski, Adsurgo 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

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301 CC-210/212

■ ● 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 Sriutaisuk, 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 Minoritiesí 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 Chauldhry , New York State Office of Mnetal Health ; Marleen Radigan , Office of Mental Health

302 CC-701

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

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,

303 CC-706

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; Niccolo 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

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304 CC-302

Risk Applications for Disease, Toxicology, and Biomarker Modeling—Contributed

Section on Risk Analysis

Chair(s): JINGJING CHEN, 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

8:50 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

9:20 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

9:35 a.m. **Semiparametric Model for Exchangeable Clustered Binary Outcomes**—✦Xinran Qi, Medical College of Wisconsin; Aniko Szabo, Medical College of Wisconsin

9:50 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, CRIEPI; Martha S Linet, National Cancer Institute

10:05 a.m. **Benchmark Analysis for Joint-Exposure Quantal Data in Quantitative Risk Assessment**—✦Lucy Kerns, Youngstown State University

305 CC-301

● Bayesian Modeling and Variable Selection Methods—Contributed

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

Chair(s): Augustus Jayaraj, Cornell University

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

8:50 a.m. **Estimating Random Walk Centrality**—✦Nirodha Mihirani Epasinghege Dona, University of Manitoba; Brad Johnson, University of Manitoba

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

9:20 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

9:35 a.m. **High-Dimensional Controlled Variable Selection for Ordinal Outcomes**—✦Han Fu, The Ohio State University; Kellie Archer, Ohio State University

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. **Incomplete High-Dimensional Inverse Covariance Estimation**—✦Yunxi Zhang, University of Mississippi Medical Center; Soeun Kim, University of Texas Health Science Center at Houston

306 CC-104

■ ● Innovative Approaches to Teaching Statistics from Content to Modality—Contributed

Section on Statistics and Data Science Education

Chair(s): Elizabeth Fry, 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

8:50 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

9:05 a.m. **Developing "Data Mentors" for Beginning Teachers**—✦Debra Hydorn, University of Mary Washington

● 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

307 CC-505

Novel Approaches for Analyzing Dynamic Networks—Contributed

Section on Statistical Learning and Data Science

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, VIrginia 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 Sachinthana 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

308 CC-203

Recent Advancements in Spatial and Spatio-Temporal Modeling—Contributed

Section on Statistics and the Environment

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

309 CC-110

Advances in Causal Inference—Contributed

Section on Statistics in Epidemiology

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

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

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

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 Universitéde Paris (CRESS-UMR1153)

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

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

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 Common Controls—✦Megan Sorenson, University of Colorado Denver; Audrey E Hendricks, University of Colorado Denver

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

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

6 Fine Mapping Causal Variants with Functional Annotations—✦Sheila Gaynor, Harvard T.H. Chan School of Public Health; Xihong Lin, Harvard

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

8 Trait Evolution on Two Gene Trees—✦James Degnan, ; Huan Jiang, Dialysis INC

9 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

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—✦Valeriia 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 Univerisity; 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; Chuanping 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

TUESDAY

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

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

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

11:35 a.m. Bayesian Framework for Pediatric Drug Development—✦Amarjot Kaur, Merck & Co.; Mandy Jin, Merck & Co., Inc.; Qing Li, Merck Research Labs

11:55 a.m. Disc: Gregory Campbell, GCStat Consulting

12:15 a.m. Floor Discussion

316 CC-702

■ ● Emerging Advances of Innovative Computational Skills with Unconventional Likelihoods—Invited

Section on Statistical Computing

Organizer(s): Jiwei Zhao, State University of New York At Buffalo

Chair(s): Jiwei Zhao, State University of New York At Buffalo

10:35 a.m. A Broad Framework for Likelihood Alternatives in View of Small, Very Large, and Variable-Size Data—✦Geert Molenberghs, Universiteit Hasselt & Katholieke Universiteit Leuven

11:00 a.m. Maximum Empirical Likelihood Estimation and Related Topics—✦Anton Schick, Binghamton University

11:25 a.m. A Likelihood Ratio Test for Shape-Constraint Density—✦Kwun Chuen Gary Chan, University of Washington

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

12:15 p.m. Floor Discussion

317 CC-607

■ ● Uncertainty Quantification in Various Applications—Invited

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

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

11:00 a.m. Uncertainty Quantification in Assessing the Hazard from Pyroclastic Flows and Storm Surge—✦James Berger, Duke University

11:25 a.m. Uncertainty Estimates for Environmental Time Series—✦Michael Stein, University of Chicago

11:50 a.m. Disc: Brian Reich, North Carolina State University

12:15 p.m. Floor Discussion

318 CC-207

■ ● Rietz Lecture—Invited

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

319 CC-113

Highlights of the Canadian Journal of Statistics—Invited

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

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

320 CC-703

■ ● 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

321 CC-107

● 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

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 CC-106

● 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

323 CC-708

■ ● 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

● 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.

324 CC-205

■ 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: ✦Emily Griffith, North Carolina State University

✦Alexandra Hanlon, University of Pennsylvania

✦Mimi Kim, Albert Einstein College of Medicine

✦Ji-Hyun Lee, University of Florida

✦Jungwha "Julia" Lee, Northwestern University

✦Julia L Sharp, Colorado State University

12:15 p.m. Floor Discussion

325 CC-102

■ 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: ✦Gina-Maria Pomann, Duke University

✦Jonathan Gelfond, University of Texas Health San Antonio

✦Pandurang Kulkarni, Eli Lilly & Company

✦Jo Wick, University of Kansas Medical Center

12:10 p.m. Floor Discussion

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

326 CC-108

■ ● 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 Childrenís 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

327 CC-110

■ ● 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

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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&M Univeristy

Chair(s): Irina Gaynanova, Texas A&M Univeristy

10:35 a.m. Dynamic Systems Approach to Deep Learning with Different Types of Data Sets and Its Application to Prediction of Alzheimerís 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 Univeristy

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 Univeristy

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 Gossetís 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

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Wehner, Lawrence Berkeley National Laboratory; Travis O'Brien, Lawrence Berkeley National Laboratory; William Collins, Lawrence Berkeley National Laboratory

11:35 a.m. Nonstationary Spatial Data: Think Globally Act Locally—✦Douglas William Nychka, NCAR

11:55 a.m. GPU Accelerated Deep Learning for Climate and Weather—✦David Hall, NVIDIA

12:15 p.m. Floor Discussion

332 CC-712

■ ● Multivariate Time Series: Modeling and Estimation—Topic Contributed

Business and Economic Statistics Section, Government Statistics Section, Biometrics Section

Organizer(s): James Livsey, U.S. Census Bureau

Chair(s): Anand Vidyashankar, George Mason University

10:35 a.m. Applying the EM Algorithm to Multivariate Signal Extraction—✦James Livsey, U.S. Census Bureau

10:55 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

11:15 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

11:35 a.m. Constrained Estimation in Co-Integrated VAR Models—✦Anindya Roy, University of Maryland - Baltimore County; Tucker McElroy, US Census Bureau

11:55 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

12:15 p.m. Floor Discussion

333 CC-505

■ Adaptive Survey Design: Recent Advances and New Potential—Topic Contributed

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

Organizer(s): Stephanie M Coffey, U.S. Census Bureau

Chair(s): Thomas Louis, Johns Hopkins Bloomberg SPH

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

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

11:15 a.m. Dynamic Interventions for Outcome Improvement: Minimizing Cost for a Fixed RMSE—✦Stephanie M Coffey, U.S. Census Bureau

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

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

12:15 p.m. Floor Discussion

334 CC-710

■ Health Policy Statistics Student Paper Awards—Topic Contributed

Health Policy Statistics Section, International Society for Bayesian Analysis (ISBA), Section on Bayesian Statistical Science

Organizer(s): Roee Gutman, Brown University

Chair(s): Lisa M Lix, University of Manitoba

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

10:55 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

11:15 a.m. Posterior Predictive Treatment Assignment Methods for Causal Inference in the Context of Time-Varying Treatments—✦Shirley Liao,

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

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

12:15 p.m. Floor Discussion

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335 CC-504

SRMS/SSS/GSS Student Paper Competition—Topic Contributed

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

Organizer(s): Jeffrey Gonzalez, Bureau of Labor Statistics

Chair(s): Amanda Rae Ellis, Eastern Kentucky University

10:35 a.m. Polling Bias from Undecided Voters in Recent US Presidential Elections—✦Joshua Bon, Queensland University of Technology; Timothy Ballard, University of Queesland; Bernard Baffour, Australian National University

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

11:15 a.m. Predicting Interviewer Effects Using Paradata—✦Sharan Sharma, University of Michigan; Michael Elliott, University of Michigan

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

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

12:15 p.m. Floor Discussion

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

336 CC-503

■ ● Catalyzing Change: Creating the Reality That Statistical Reasoning Skills Are Vital for All Students—Topic Contributed

Section on Statistics and Data Science Education

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

Chair(s): Gail Burrill, Michigan State University

Panelists: ✦Christine A Franklin, American Statistical Association and University of Georgia

✦Jessica Utts, University of California - Irvine

✦Lisa LaVange, University of North Carolina

✦David Barnes, National Council of Teachers of Mathematics

12:10 p.m. Floor Discussion

337 CC-502

SPEED: Methodological Developments in Social Statistics, Part 1—Contributed

Social Statistics Section, Text Analysis Interest Group

Chair(s): Melissa Kovacs, FirstEval, LLC

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

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

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

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, Uniuversity of Texas Rio Grande Valley; Sergio Cuevas, Uniuversity of Texas Rio Grande Valley

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

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

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

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

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

11:20 a.m. Predicting Poverty Using Remote Sensing Vegetation Indices—✦Grace Deng, Cornell University

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

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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 Management via Net Reclassification Indices—✦Piper Williams, University of Colorado Anschutz Medical Campus; Alexander Kaizer, University of Colorado Anschutz Medical Campus; Anna BarÛn, University of Colorado Anschutz Medical Campus

10:45 a.m. New Results on the Weighted Generalized Score for Comparing Two Correlated Means—✦Aaron Douglas Jones, Duke University; Andrzej Stanislaw Kosinski, Duke University

10:50 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

10:55 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

11:00 a.m. Psychotherapy Outcomes for Adults with Autism Spectrum Disorder in a University Counseling Setting—✦E. Neeley Tass, Brigham Young University

11:05 a.m. Sample Size Calculations in Single-Case Designs—✦Jiabei Yang, Brown School of Public Health; Christopher Schmid, Brown University; Jon Steingrimsson, Brown University

11:10 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

11:15 a.m. Coffee and Cardiovascular Disease Prevention—✦Anna Wu, ; Patrick Giuliano, Abbott

11:20 a.m. Tolerance Intervals for Autoregressive Models, with an Application to Hospital Waiting Lists—✦Kedai Cheng, ; Derek Young, University of Kentucky

11:30 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

11:35 a.m. Age-Period-Cohort Analysis of Lead Body Burden in the United States, 1976-2016—✦Yutaka Aoki, National Center for Health Statistics

11:40 a.m. Optimality in Group Testing Estimation with Misclassification—✦Md. S. Sarker, Radford University

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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

11:50 a.m. A Bayesian Zero Inflated Binomial Model for Repeated Measures Count Data—✦Benjamin W. Rogers, UCLA

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

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

12:05 p.m. Rank-Based Approach for Estimating Correlations in Mixed Ordinal Data—✦Xiaoyun Quan, ; James Booth, Cornell University; Martin Wells, Cornell University

12:10 p.m. Pre-Conceptions of Statistical Inference in Biostatistics—✦Aimee Schwab-McCoy, Creighton University

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 Parkinsonís 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

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

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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

12:15 p.m. Floor Discussion

340 CC-501

SPEED: Bayesian Methods, Part 1—Contributed

Section on Bayesian Statistical Science, Section on Statistics in Defense and National Security

Chair(s): Chris Gotwalt, SAS Institute Inc.

10:35 a.m. Bayesian Spatially Clustered Coefficient Regression—✦Zhao Tang Luo, Texas A&M University; Huiyan Sang, Texas A&M University; Bani Mallick, Texas A&M University

10:40 a.m. Spatial Cox Model with Applications on Multiple Sclerosis Patients—✦HSIUCHING CHANG, IQVIA; Hyokoung Grace Hong, Michigan State Universtiy; Yu Yue, The City University of New York

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

10:50 a.m. A New Flexible Prior Being Local and Nonlocal for Bayesian Variable Selection—✦Liangliang Zhang, M.D. Anderson Cancer Center

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

11:00 a.m. Nonparametric Density Estimation and Regression Using Coarse Count Data—✦Jacob Coleman,

11:05 a.m. Revisiting the Proton-Radius Problem Using Constrained Gaussian Processes—✦Shuang Zhou, Texas A&M University; Pablo Giulani, Florida State University; Jorge Piekarewicz, Florida State University; Anirban Bhattacharya, TAMU; Debdeep Pati, Texas A&M University

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

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

11:20 a.m. Bayesian Model Selection Using Mass-Nonlocal Prior—✦Guiling Shi, Amgen

11:30 a.m. The Use of Experimental Design and Bayesian Logistic Models in Defense Analysis: a Case Study—✦Keyla Pagan-Rivera,

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

11:40 a.m. Predictive Density Estimation of Multivariate Skew-Normal Distribution—✦Othmane Kortbi, UAE University Al-Ain

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

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

11:55 a.m. Bayesian Quantile Regression Applied to Time Between Healthcare-Associated Infection Events—✦Jonathan Edwards, Center for Disease Control & Prevention

12:00 p.m. A Distributed MCMC Sampler for Latent Dirichlet Allocation—✦Kelson Zawack, Yale University; Hongyu Zhao, Yale

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

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

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

341 CC-104

Random Effects and Mixed Models—Contributed

Biometrics Section

Chair(s): Richard Kryscio, Univ of Kentucky

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

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

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

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; Kamyar Kalantar-Zadeh, UC Irvine; Damla Senturk, UCLA

12:05 p.m. Fast Two-Stage Estimator for Clustered Count Data with Overdispersion—✦Alvaro FlÛrez, 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

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344 CC-506

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 Planty, 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

TUESDAY

345 CC-210/212

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

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 Eftekhari, 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

346 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; Zhifei 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

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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, 84.51∫

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,

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350 CC-706

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

TUESDAY

351 CC-101

■ ● 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 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, Yaleís 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 CC-507

■ ● 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

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; Faliu 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

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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 Analyzes—✦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.

355 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 Elnaiem, 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 Politcal 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,

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

14 Dose-Finding Designs Using Time-To-Event Toxicity Data and Multiple Constraints—✦Meizi Liu, University of Chicago

15 Surrogate Endpoint Analysis Using Subgroup Information in Immuno-Oncology—✦Dan Zhao, ; Yujun Wu, Takeda

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

17 Combining Tabular Data with Visual Display to Enhance Interpretation of Clinical Trial Data—✦Teresa Curto, Cytel; Ashish Aggarwal , Cytel; Angelo Tinazzi , Cytel

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

19 Less Is More -Adaptive Seamless Phase II/III Design—✦Helen Chen, GSK; Jonathan Haddad , GlaxoSmithKline; Xiaowei Wang, GlaxoSmithKline

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

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

22 Statistical Considerations for Analytical Method Transfer Equivalence Margin—✦Oluyemi Oyeniran, JNJ; Jyh-Ming Shoung, Janssen R&D

23 Quantifying Impact of Enrichment in Randomized Clinical Trials—✦Navneet Hakhu, University of California, Irvine; Daniel L. Gillen, University of California, Irvine

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 compnay; zbigniew kadziola, Eli Lilly and company; Xiaojuan Mi, TechData Service Company, LLC; Ilya Lipkovich, Eli Lilly and Company

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, Covance Inc; Angela Liu, Covance; Santhosh Kuppusamy, Covance; Jeffrey Joseph, Covance

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

27 Non-Collapsibility of Hazard Ratio—✦Busola Sanusi, The University of North Carolina; Godwin Yung, Takeda Pharmaceuticals; Yi Liu, Takeda Pharmaceuticals International Co.

28 Using BLRM to Find MTDs for Loading Dose and Maintenance Dose in Oncology Trials—✦Kejian Liu, Sanofi; Yinge Sun, University of Virginia

29 Machine Learning for Protein Design—✦Yuting Xu, Merck Sharp & Dohme Corp.; Andy Liaw, Merck Sharp & Dohme Corp.

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

31 The Role of HLA-Class-II (HLAcII) Molecules in Determining the Immunogenicity Potential of Therapeutic Factor VIII Proteins (TFVIIIs) in Hemophilia a (HA): Assessing the Gate Keepe—✦Henry Mead, Walden University

32 Continuous Glucose Monitoring Technology and a Workflow for Its Data Analysis—✦Dandan Wang, Faculty of Health Sciences, Univerity of Macau; Xiaohua Douglas Zhang, University of Macau; Zhaozhi Zek Zhang, Washington University

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 Researc; Libo Sun, JNJ; GANG LI, JNJ; Uma Siangphoe, JNJ; YING WAN, JNJ; SUDHAKAR RAO, JNJ

34 Integrative Variable Selection Method for Subgroup Analyzes in Longitudinal Data—✦Xiaochen Li, Indiana University; Sujuan Gao, Indiana University

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

Biometrics Section

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

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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

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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

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 Snih, The University of Texas Medical Branch

60 A Unified Framework of Longitudinal Models to Examine Reciprocal Relations—✦Satoshi Usami, University of Tokyo

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

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

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)

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

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

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

67 Matching Design-Based Subpopulation Effect Estimation in Observational Studies—✦YUYANG ZHANG, The Ohio State University; Bo Lu, The Ohio State University

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, University of California, Berkeley; James Roose, University of California, Berkeley; Mark van der Laan, UC Berkeley

70 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

71 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

72 Evaluation of the Impact of Antimicrobial Hand Towels on Hand Contamination with Escherichia Coli Among Mothers in Kisumu County, Kenya, 2011-2012—✦Sunkyung 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

73 Statistical Issues for Latent Class Analysis—✦Tzu-Cheg Kao, Uniformed Services University of the Health Sciences

74 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

75 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

76 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

77 Social Network Analysis to Examine Physician Use of Minimally Invasive Breast Biopsy—✦Figaro Loresto, Children's Hospital Colorado; Daniel Jupiter, University of Texas Medical Branch

78 Statistical and Epidemiological Challenges in Using the NHANES Assessment of Oral Human Papillomavirus Infection to Study Risk of Infection and of Oropharyngeal Cancer in

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

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 Whatís 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

TUESDAY

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. Mahnken, 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 Banker, 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

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

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, Childrenís 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 ërandomí or ëhaphazardí? 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 Iaconangelo, 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

Section on Bayesian Statistical Science

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)

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 Earthís "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

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 Adebimpe, 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 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

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, Adsurgo LLC; James Wisnowski, Adsurgo 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

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

378 CC-Four Seasons 1

■ ● Wald Lecture II—Invited

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

TUESDAY

379 CC-501

■ ● Achieving Adequate Representation When Surveying Rare Populations—Invited

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

380 CC-301

■ ● Curious Roles of Latent Variables in Prediction and Inference—Invited

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

381 CC-706

■ ● Recent Advances in Multiple Testing and False Discovery Rate Analysis—Invited

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—✦Wenge 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

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

382 CC-707

■ ● Climate Networks and Extremes—Invited

Section on Risk Analysis, Section on Physical and Engineering Sciences, Section on Statistics and the Environment

Organizer(s): Snigdhansu Chatterjee, University of Minnesota

Chair(s): Snigdhansu Chatterjee, University of Minnesota

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

2:35 p.m. An Overview of Network Methods Focusing on Extremal Dependence—✦Imme Ebert-Uphoff, Colorado State University

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

3:35 p.m. Floor Discussion

383 CC-505

■ ● Experimental Design Applications in the Pharmaceutical Industry—Invited

Section on Physical and Engineering Sciences, Biopharmaceutical Section, Quality and Productivity Section

Organizer(s): Stan Altan, Janssen R&D

Chair(s): Areti Manola, Janssen R&D

2:05 p.m. Experimental Design in the Pharmaceutical Industry—✦Brad Evans, Pfizer, Inc

2:25 p.m. Central Composite Designs for Process Characterization, Why?—✦Jose Ramirez, Amgen, Inc.

2:45 p.m. Overview of DoEs and Applications in the Pharmaceutical Industry—✦Jyh-Ming Shoung, Janssen R&D; Dwaine Banton, Janssen R&D; Areti Manola, Janssen R&D

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&D

3:25 p.m. Disc: Stan Altan, Janssen R&D

3:45 p.m. Floor Discussion

384 CC-504

■ ● Artificial Intelligence Meets Behavioral Science: Innovations in Discovering and Leveraging Nudges—Invited

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

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

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

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

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

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

3:20 p.m. Disc: Nathan Yang, McGill University

3:35 p.m. Floor Discussion

385 CC-607

● Leo Breiman Award—Invited

Section on Statistical Learning and Data Science

Organizer(s): Ali Shojaie, University of Washington

Chair(s): Xiaotong Shen, University of Minnesota

2:05 p.m. Restricted Boltzmann Machines and Truncated Gaussian Distributions—✦Yichao Wu, The University of Illinois at Chicago

2:50 p.m. Integrating "two Cultures" in Data Science: Predictability, Computability, and Stability (PCS)—✦Bin Yu, UC Berkeley

3:35 p.m. Floor Discussion

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

386 CC-201

■ ● 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

387 CC-207

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

Invited Panels 2:00 p.m.—3:50 p.m.

388 CC-603

■ ● 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

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

389 CC-703

● 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

Topic Contributed Sessions 2:00 p.m.—3:50 p.m.

390 CC-506

■ ● 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

Treatment Facility—✦Kathryn Blair Newhart, Colorado School of Mines; Tzahi Cath, Colorado School of Mines; Amanda S Hering, Baylor University

3:25 p.m. Fault Attribution in a Complex, Nonstationary, and Temporally Dependent Wastewater Treatment System—✦Molly Klanderman, Baylor University

3:45 p.m. Floor Discussion

391 CC-106

■ ● Leveraging Disparate Sources of Data and Machine Learning to Improve Causal Inference—Topic Contributed

ENAR, Section on Statistical Learning and Data Science, Social Statistics Section

Organizer(s): Jann Spiess, Postdoctoral Research, Microsoft Research; Johann A Gagnon-Bartsch, University of Michigan

Chair(s): Johann A Gagnon-Bartsch, University of Michigan

2:05 p.m. Transfer Learning for Estimating Causal Effects Using Neural Networks—✦Soeren Kuenzel, ; Jasjeet Sekhon, UC Berkeley; Bradly Reinhold Stadie, UC Berkeley; Nikita Vemuri, UC Berkeley

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

2:45 p.m. Machine Learning for Estimating Causal Effects from High-Dimensional Observational Data—✦Fredrik Johansson, MIT

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

3:25 p.m. Manipulation Proof Machine Learning—✦Daniel Bjorkegren, Brown University; Joshua Blumenstock, University of California Berkeley

3:45 p.m. Floor Discussion

392 CC-705

● Large-Scale Data Analysis via Spectral Methods—Topic Contributed

IMS, Section on Statistical Learning and Data Science

Organizer(s): Edgar Dobriban, University of Pennsylvania

Chair(s): Edgar Dobriban, University of Pennsylvania

2:05 p.m. Bootstrapping Spectral Statistics in High Dimensions—✦Miles Lopes, UC Davis; Alexander Aue, University of California, Davis; Andrew Blandino, UC Davis

2:25 p.m. Unsupervised Ensemble Learning: a Spectral Approach—✦Boaz Nadler, Weizmann Institute of Science

2:45 p.m. Distributed Ridge Regression in High Dimensions—✦Yue Sheng, University of Pennsylvania; Edgar Dobriban, University of Pennsylvania

3:05 p.m. "Spectral Algorithms for High-Dimensional Data Analysis: What Have We Learned"—✦Matan Gavish, Hebrew Univ of Jerusalem

3:25 p.m. Joint Behavior of Large Autocovariance Matrices—✦Arup Bose, Indian Statistical Institute

3:45 p.m. Floor Discussion

393 CC-111

ASA Biometrics Section JSM Travel Awards (I)—Topic Contributed

Biometrics Section

Organizer(s): Rebecca Hubbard, University of Pennsylvania

Chair(s): Sheng Luo, Duke University Medical Center

2:05 p.m. Propensity Score Weighting for Causal Inference with Multiple Treatments—✦Fan Li, Duke University; Fan Li, Duke University

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

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

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

3:25 p.m. Disc: Rebecca Hubbard, University of Pennsylvania

3:45 p.m. Floor Discussion

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

394 CC-502

■ 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 & Womenís 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

TUESDAY

395 CC-702

■ ● 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

396 CC-105

■ ● 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 M¸ller, 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

397 CC-109

■ ● 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

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

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
- ✦Debashis 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

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

TUESDAY

● 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

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 BOIN 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 f¸r Biometrie und Klinische Epidemiologie , Charité-Universit‰tsmedizin 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

● 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; Debashis 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

TUESDAY

405 CC-101

Statistical Issues Specific to Therapeutic Areas—Contributed

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

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-Analyzes 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 CEOís 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; Roee 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, Unversity 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—✦Leiwen 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

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

410 CC-104

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

411 CC-302

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, 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

412 CC-708

Data Science and Machine Learning Topics—Contributed

Section on Statistical Computing

Chair(s): Qiao Ma, NORC at University of Chicago

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—✦Hyeonju Kim, University of Tennessee Health Sci Ctr; Saunak Sen, University of Tennessee Health Sci Ctr

413 CC-712

Network Analysis and Network-Based Modeling—Contributed

Section on Statistical Learning and Data Science

Chair(s): Ali Shojaie, University of Washington

2:05 p.m. Mixed Network Modeling for Network Simulation—✦Fairul Mohd-Zaid, Air Force Research Labs; Wright Shamp, 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,

414 CC-203

Models for Environmental Processes—Contributed

Section on Statistics and the Environment

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—✦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, Universitéde Bordeaux, Inria/Inserm, VRI; Rodolphe ThiÈbaut, Universitéde 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

2:20 p.m. **Using Survey Contact History to Study the Effect of Interviewer Strategies on Respondent Behavior**—✦John Dixon, Bureau of Labor Statistics

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

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

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

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

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

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 Ait Bihi Ouali, Imperial College London - Access Management; Daniel Graham, Imperial College London

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

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

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

7 Data-Driven Community Based Programming: a Statistical Analysis of Heart Disease Prevention Initiatives in Oklahoma City-County—✦Mary Nevener,

8 Confidence Intervals for Marginal Effects and Predictive Margins in Logit Models—✦Chaitra Nagaraja, Fordham University; Benjamin Cole, Fordham University

9 Making Data-Driven Decisions About Serving Homeless Populations Using Machine Learning Tools—✦Austin Lampros,

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, Uniuversity of Texas Rio Grande Valley; Sergio Cuevas, Uniuversity 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

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 BarÛn, 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

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.

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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

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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

State University

56 Water Fluoridation—✦Katherine Brinkers,

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

58 Using Interactive Web-Based Monitoring to Increase Breastfeeding—✦Jordan-Taylor Harris, Purdue Univ; Azza Ahmed, Purdue 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; Bettzy Stephen, The University of Texas MD Anderson Cancer Center,; Charles Cleeland, 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

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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

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

66 Designing Bridging Studies to Adjust for Assay Changes in National Surveys—✦Maya Sternberg, Centers for Disease Control & Prevention

67 A Process Control Model with Decisions Based on Runs—✦William S Griffith, University of Kentucky; Michelle Smith, Eastern Kentucky University

68 Advanced Visualization Techniques for Big Data—✦Scott Wise, JMP (A Division of SAS, Inc)

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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 Bookhultz, 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; Nadarajasundaram 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 Administation 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 Cener 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; Jae-kwang 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 Taua, 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 Sciences Center; Yan Daniel Zhao, University of Oklahoma Health Sciences Center

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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

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

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 Rehnberg, 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 Poythress, 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 Parkinsonís 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

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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 Universtiy; 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,

● 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 Giulani, 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 Lavine, 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

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, Univeristy of North Carolina

8:05 p.m. Reinforcing the Impact of Statistics on Society—✦Karen Kafadar, University of Virginia

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

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 & Tropcial Medicine; Matteo Quartagno, London School of Hygiene & Tropcial 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

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

439 CC-703

■ ● Remembering Dr. Joan Staniswalis—Invited

Memorial

Organizer(s): Ori Rosen, University of Texas at El Paso

Chair(s): Sally Cripps, University of Sydney

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 CC-607

■ ● Medallion Lecture IV—Invited

IMS

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

Chair(s): Eric Kolaczyk, Boston University

8:35 a.m. Hierarchical Communities in Networks: Theory and Practice—✦Elizaveta Levina, University of Michigan

10:15 a.m. Floor Discussion

WEDNESDAY

441 CC-504

Recent Advances in Nonparametric Statistics—Invited

IMS

Organizer(s): Cun-Hui Zhang, Rutgers University

Chair(s): Cun-Hui Zhang, Rutgers University

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 of Mukherjee, university of michigan; Moulinath of Banerjee, university of michigan

9:25 a.m. Estimating Rectangular Piecewise Constant Functions in Multiple Dimensions—✦Bodhisattva 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 CC-605

■ ● 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

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 CC-301

■ ● 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

8:35 a.m. Processing Accelerometer Data with an Automated Algorithm -an R Package ëPhysicalActivityí—✦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 Insititute; 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

444 CC-505

● Modern and Practical Solutions to Difficult High-Dimensional Regression Problems—Invited

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

445 CC-707

■ ● Communicating to the Masses: Sharing Statistics and Data Science in a World of Sound Bites, Social Media, and Popular Press—Invited

Section on Statistics and Data Science Education, Caucus for Women in Statistics

Organizer(s): Jennifer L Green, Montana State University

Chair(s): Erin E Blankenship, University of Nebraska-Lincoln

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

446 CC-101

■ ● New Statistical Methods in Evolutionary Biology—Invited

Biometrics Section, International Indian Statistical Association, WNAR

Organizer(s): Arindam RoyChoudhury, Cornell University

Chair(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

447 CC-201

■ ● Recent Advances in Propensity Score Methods for Observational Studies with Multiple Treatments—Invited

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—✦Roee 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 Analyzes 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 Womenís 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—✦Evercita 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 Technology; Chris Muzny, National Institute of Standards and Technology

10:15 a.m. 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 Zilber,

9:00 a.m. Obtaining Carbon Dioxide Flux Estimates from Atmospheric Inversions of Carbon Dioxide Data: Current

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

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 Spirerís 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 Nonparametric 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 Pittsburg, 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: Shiowjen 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—✦Raanju 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—

✦Caleb Floyd, U.S. Census Bureau; Rolondo Rodríguez, U.S. Census Bureau

8:55 a.m. Rationing Out Privacy-Loss: Proportional Budget Expenditure in the 2020 Decennial Census Disclosure Avoidance System—✦William Sexton, U.S. Census Bureau

9:15 a.m. Ensuring Output: Complex Constraints and Feasible Microdata Under Differential Privacy—✦Philip Leclerc, US Census Bureau

9:35 a.m. Estimating the Variance of Complex Differentially Private Algorithms—✦Robert Ashmead, Ohio Colleges of Medicine Government Resource Center

9:55 a.m. Floor Discussion

459 CC-111

● Rethinking Intercurrent Events and Estimators Within the ICH E9(R1) Estimand Framework—Topic Contributed

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

● Advances in Time Series Methodology—Topic Contributed

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

■ ● Bayesian Statistical Methods for High-Throughput Toxicity Testing and Risk Assessment—Topic Contributed

Section on Risk Analysis, Section on Statistics and the Environment, Section on Bayesian Statistical Science

Organizer(s): Michael Pennell, Ohio State University

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

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

462 CC-712

■ ● 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

WEDNESDAY

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

463 CC-103

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

8:40 a.m. Modeling Time Series of Count Data Using a Periodic Conditional Poisson Model—✦Yi Zhang, Missouri Univeristy 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 Rrandom 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

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

464 CC-105

SPEED: Infectious Diseases, Spatial Modeling and Environmental Exposures, Speed 1—Contributed

Section on Statistics in Epidemiology

Chair(s): Nancy L Murray, Emory 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

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

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

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

8:55 a.m. **Bayesian Compartmental Model for an Infectious Disease with Multiple Infectious States**—✦Marie Ozanne, University of Iowa

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 Gutreuter, CDC; Jeffrey Eaton, Imperial College London

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

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

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 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

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**—✦Wasiur R. KhudaBukhsh, Ohio State University; Casper Woroszylo, BHP Billiton; Grzegorz A. Rempa?a, Ohio State University; Heinz Koeppl, TU Darmstadt

9:35 a.m. **Subsemble Estimation for Multivariate Spatial Models**—✦Mark May, Creighton University; Joey Higgins, Creighton University; Aimee Schwab-McCoy, Creighton University

9:40 a.m. **A Bayesian Hierarchical Model for Generating Fully Synthetic Point Process Data**—✦Adam Walder,

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

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

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

10:00 a.m. **Transporting Cross-Sectional Incidence Estimation Algorithms Between Populations**—✦Douglas Morrison, UCLA; Oliver Laeyendecker, Johns Hopkins University; Ron Brookmeyer, UCLA

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

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

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

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

465 CC-501

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 ìgmediationî—✦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 Dibaj, 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 Karemera, 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

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 ìtruly"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 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; Ruoqing 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

467 CC-113

Modeling, Design Strategies and Assessment of Biomarkers—Contributed

Biopharmaceutical Section

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

468 CC-112

Statistical Methods in Clinical Trials—Contributed

Biopharmaceutical Section

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, Childrenís Hospital-LA; Michael Neely, Laboratory of Applied Pharmacokinetics and Bioinformatics, Childrenís Hospital-LA

469 CC-709

Using and Linking Administrative and Auxiliary Data—Contributed

Government Statistics Section

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

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

8:50 a.m. Analyzing Tradeoff Between Administrative Records Enumeration and Count Imputation—✦Andrew Keller, U.S. Census Bureau

9:05 a.m. Estimating the Probability of Race Change—✦Larry Sink, US Census Bureau

9:20 a.m. Ethical Principles for the All Data RevolutionñRepurposing 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

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 Burea

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

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 CC-108

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

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 Research, Department of Radiology, University of Minnesota

9:20 a.m. Smoothed Empirical Likelihood Inference for the Youden Index Subject to Limit of Detection—✦Dongliang Wang, SUNY Upstate Medical University

9:35 a.m. Analyzing Wearable Device Data Using Marked Point Processes—✦Yuchen Yang, Johns Hopkins University; Mei-Cheng Wang, Johns Hopkins University

9:50 a.m. 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

10:05 a.m. 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 Diseses

471 CC-507

Advances in High-Dimensional Inference and Multiple Testing—Contributed

Section on Statistical Learning and Data Science

Chair(s): Rina Friedberg, Stanford University

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 Unversity; 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, MÊrsk

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 McIllece, 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 Battacharya, 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

10:05 a.m. An Elementary Derivation of Kadane's Optimal Dynamic Sampling Plan—✦Tommy Wright, US Census Bureau/Center for Statistical Research & Methodology

475 CC-706

Understanding Threats to People, Data, and Privacy—Contributed

Social Statistics Section, Caucus for Women in Statistics

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

8:35 a.m. US Mass Shootings as a Non-Homogeneous Poisson Process—✦Yew-Meng Koh, Hope College

8:50 a.m. Classification of US Mass Shooting Incidents—✦Tyler Gast, ; Yew-Meng Koh, Hope College

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 & Decision Analytics Division, BII, UVA

9:20 a.m. Mapping Opioid Use Trajectories in Vetrans Undergoing Thoracic Surgery via Latent Classes—✦Michael Bishop, University of Iowa, College of Public Health; Emine Bayman, University of Iowa, Carver College of Medicine

9:35 a.m. Do Economists Experience the Sense of Justice?—✦Guillermina Jasso, New York University

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

10:05 a.m. A Curious Variation on the Warner Device for Use in Randomized Response—✦Stephen Sedory, Texas A & M University-Kingsville; Zakry Zapata, Texas A&M University-Kingsville; Sarjinder Singh, Texas A&M University-Kingsville

476 CC-210/212

Distracted Driving and Other Transportation Considerations—Contributed

Transportation Statistics Interest Group

Chair(s): Yuqi Gu, University of Michigan

8:35 a.m. The Evaluation of Cellphone Distraction Related Crash Risk Using Case-Crossover Design—✦Danni Lu, Virginia Tech; Feng Guo, Virginia Tech

8:50 a.m. A Bayesian Approach to Quantify Risky Driving Behavior—✦Huizhong Guo, ; Linda Ng Boyle, University of Washington; John Lenneman, Toyota CSRC

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

9:20 a.m. Safety Effects of Wet-Weather Pavement Markings—✦Eun Sug Park, Texas A&M Transportation Institute; Paul J. Carlson, Road infrastructure, Inc.; Adam Pike, Texas A&M Transportation Institute

9:35 a.m. Predictive Modeling of Errors in Child Restraint System Use—✦Elizabeth Petraglia, Westat; Doreen De Leonardis, Westat; Amy Benedick, Westat

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

10:05 a.m. Floor Discussion

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

477 CC-710

● Complex Time Series Analysis—Invited

IMS

Organizer(s): Qiwei Yao, London School of Economics

Chair(s): Rong Chen, Rutgers University

10:35 a.m. Highly Comparative Time-Series Analysis as Statistical Learning Across a Massive Interdisciplinary Feature Library—✦Ben David Fulcher, University of Sydney

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

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

11:50 a.m. High-Dimensional Change-Point Estimation with Heterogeneous Noise—✦Yining Chen, London School of Economics

12:15 p.m. Floor Discussion

478 CC-707

■ ● Scalable Bayesian Models for Time Series and Dynamic Networks: Making an Impact in Business and Socio-Economic Applications—Invited

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA), Business and Economic Statistics Section

Organizer(s): Mike West, Duke University

Chair(s): Mike West, Duke University

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

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, Universitá della Svizzera italiana and Universitá dell'Insubria; Federica Bianchi, Univesitá della Svizzera italiana; Stefano Peluso, Cattolica University and Universitá della Svizzera italiana; Francesco Bartolucci, University of Perugia

12:15 p.m. Floor Discussion

479 CC-207

■ ● Complex Innovative Designs in Practice of Early Phase Drug Development—Invited

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

■ ● Novel Statistical Methods for Bioinformatics and Computational Biology—Invited

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

IMS

Organizer(s): Iain Johnstone, Stanford University

Chair(s): Iain Johnstone, Stanford University

10:35 a.m. Large Random Matrices: Spiked Models, Stationnary 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

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

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 ìFlipped"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

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

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

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

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 CC-607

Gottfried E. Noether Lectures—Invited

Noether Award Committee

Organizer(s): Raymond J. Carroll, Texas A & M University

Chair(s): Douglas William Nychka, NCAR

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 CC-605

Monroe G. Sirken Lecture—Invited

Sirken Award

Organizer(s): John Czajka, Mathematica Policy Research

Chair(s): John Czajka, Mathematica Policy Research

10:35 a.m.	Is Survey Research a Fact-Based Endeavor?—✦Judith T. Lessler, Harlandís 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 Blackwellís 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

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

WEDNESDAY

✦Linda J Young, USDA National Agricultural Statistics Service

12:15 p.m. Floor Discussion

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

493 CC-506

■ ● Leveraging Historical Data and Real World Evidence in Drug Development Program Evaluation—Topic Contributed

Health Policy Statistics Section, Biopharmaceutical Section, International Chinese Statistical Association

Organizer(s): Freda Cooner, Amgen Inc.

Chair(s): Yang Wang, Amgen

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

10:55 a.m. Leveraging Historical Data in Diabetes Cardiovascular Outcome Trials—✦Shuang Li, Southern Methodist University; Freda Cooner, Amgen

11:15 a.m. Sources of Data and Statistical Strategies for Design and Analysis: Real World Insights—✦Olga Marchenko, Bayer

11:35 a.m. Real World Evidence Use in CBER—✦Jennifer Kirk, FDA, Center for Biologics Evaluation and Research (CBER)

11:55 a.m. Disc: Freda Cooner, Amgen Inc.

12:15 p.m. Floor Discussion

494 CC-113

■ ● Identifying and Addressing Sources of Bias in Causal Inference—Topic Contributed

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

Organizer(s): Linda Valeri, Columbia University Mailman School of Public Health; Caleb Miles, Columbia

Chair(s): Joseph Antonelli, University of Florida

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

10:55 a.m. Causal Mediation Analysis for Stochastic Interventions—✦Ivan Diaz, Weill Medical College, Cornell University

11:15 a.m. Observational Studies of Peer Effects:—✦Dean Eckles, MIT; Eytan Bakshy, Facebook

3:05 p.m. Disc: Elizabeth Ogburn, Johns Hopkins Bloomberg School of Public Health

3:25 p.m. Disc: Linda Valeri, Columbia University Mailman School of Public Health

12:05 p.m. Floor Discussion

495 CC-502

■ ● Changepoints: Making an Impact—Topic Contributed

Royal Statistical Society, Section on Statistical Computing, Business and Economic Statistics Section

Organizer(s): Rebecca Killick, Lancaster University, UK

Chair(s): David Matteson, Cornell University

10:35 a.m. Distinguishing Short and Long-Memory When Testing for Changepoints in Climate Time-Series: Application to Surface Temperature Records—✦Claudie Beaulieu, University of California, Santa Cruz; Rebecca Killick, Lancaster University, UK

10:55 a.m. Detection and Estimation of Local Signals—✦David Siegmund, ; Xiao Fang, Chinese University of Hong Kong

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

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

11:55 a.m. Influence Measures for Changepoint Segmentations—✦Ines Wilms, Maastricht University; Rebecca Killick, Lancaster University, UK; David Matteson, Cornell University

12:15 p.m. Floor Discussion

496 CC-603

■ ● Estimand Framework and Its Impact on Drug Development in Oncology—Topic Contributed

Lifetime Data Science Section, Biopharmaceutical Section, Biometrics Section

Organizer(s): Kaspar Rufibach, F. Hoffmann-La Roche; Evgeny Degtyarev, Novartis

Chair(s): Rui Tang, Servier

10:35 a.m. Estimand Framework in Oncology Drug Development -Impact and Opportunities—✦Evgeny Degtyarev,

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

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

11:15 a.m. 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

11:35 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

11:55 a.m. Disc: Kunthel By, Division of Biometrics V, OB/OTS/CDER FDA

12:15 p.m. Floor Discussion

497 CC-507

■ ● ENVR Student Paper Awards—Topic Contributed

Section on Statistics and the Environment

Organizer(s): Brian Reich, North Carolina State University

Chair(s): Brian Reich, North Carolina State University

10:35 a.m. Multi-Resolution Filters for Massive Spatio-Temporal Data—✦Marcin Jurek, Texas A & M University; Matthias Katzfuss, Texas A & M University

10:55 a.m. Adaptive Ensemble Learning for Spatiotemporal Processes with Calibrated Predictive Uncertainty: a Bayesian Nonparametric Approach—✦Jeremiah Liu,

11:15 a.m. Matching on Generalized Propensity Scores with Continuous Exposures—✦Xiao Wu, Harvard University; Fabrizia Mealli, University of Florence; Marianthi-Anna Kioumourtzoglou, Mailman School of Public Health, Columbia University; Francesca Dominici, Harvard T.H. Chan School of Public Health; Danielle Braun, Harvard University

11:35 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

11:55 a.m. Disc: Joseph Guinness, Cornell University

12:15 p.m. Floor Discussion

498 CC-505

■ ● Designs and Statistical Methods Used in Genetics and Mental Health for Army Study to Assess Risk and Resilience in Servicemembers (Army STARRS)—Topic Contributed

Mental Health Statistics Section, Section on Statistics in Genomics and Genetics, Section on Statistics in Epidemiology

Organizer(s): Tzu-Cheg Kao, Uniformed Services University of the Health Sciences

Chair(s): Tzu-Cheg Kao, Uniformed Services University of the Health Sciences

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

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 Womenís Hospital, Harvard Medical School

11:55 a.m. Disc: Wei-Ting Hwang, University of Pennsylvania

12:15 p.m. Floor Discussion

499 CC-709

Section on Nonparametric Statistics - Student Paper Competition Presentations—Topic Contributed

Section on Nonparametric Statistics

Organizer(s): Howard D Bondell, University of Melbourne

Chair(s): Runze Li, Penn State University

10:35 a.m. More Efficient Computation of Smoothing Splines via Space-Filling Basis Selection—✦Cheng Meng,

10:55 a.m. Efficient Manifold Approximation with Spherelets—✦Didong Li, Duke University; Minerva Mukhopadhyay, Indian Statistical Institute, Kolkata; David Dunson, Duke University

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

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 CC-103

■ ● 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 Customerís Behavior Sequence -Explore a Smart Customer Maintenance Algorithm—✦Mingfei Li, Bentley University

12:15 p.m. Floor Discussion

501 CC-109

■ 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, Univeristy 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 Covariateís Posterior Mean—✦Trang Q Nguyen, Johns Hopkins Bloomberg School of Public Health

12:15 p.m. Floor Discussion

502 CC-108

● 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. Vegetabile, 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

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Corporation; Regina Shih, RAND Corporation; Mary Slaughter, RAND Corporation

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 Analyzes 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

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

10:50 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 Lily and Company; Amy Xia, Amgen Inc; Joseph G Ibrahim, UNC

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

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

507 CC-210/212

Non-Inferiority, Biosimilarity and Related Topics—Contributed

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

10:50 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

11:05 a.m. Theory and Practice of Equivalence and Non-Inferority Analyzes—✦Kallappa M. Koti, FDA (Retired)

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

11:35 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

11:50 a.m. Statisticianís Perspective of Meta-Analysis to Establish Non-Inferiority Margin for Phase 3 Study—✦Aparna Raychaudhuri, CSL Behring; Fanny Mitrani-Gold, GlaxoSmithKline

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

508 CC-101

Forecasting and Modeling Financial Volatility—Contributed

Business and Economic Statistics Section

Chair(s): Tucker McElroy, US Census Bureau

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. Inference for Volatility Functionals of Ito Semimartingales Observed with Noise—✦Richard Chen, University of Chicago

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. 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. 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

509 CC-712

Statistical Methodology—Contributed

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 Woyczynski, 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

510 CC-501

Recent Development in Semiparametric and Nonparametric Methods—Contributed

International Chinese Statistical Association

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 Insititute

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

511 CC-104

Statistical Applications in the Physical Sciences—Contributed

Section on Physical and Engineering Sciences

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

512 CC-704

Predicting and Evaluating Risk Models Within Distributions and Across Time—Contributed

Section on Risk Analysis

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

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

10:50 a.m. One Parameter Extensions of the FGM Copula with Applications to Bimodal and Negative Dependence Data—✦Kahadawala Cooray, Central Michigan University

11:05 a.m. Asymmetric Extremal Dependence Modeling, with Application to Cryptocurrency Market Data—✦Yan Gong, KAUST; Raphaîl Huser, King Abdullah University of Science and Technology

11:20 a.m. Comparison of Some Approximations to the Distribution of Random Sum—✦Ranee Thiagarajah, Illinois State University

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

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

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

513 CC-706

Topics in Monte Carlo Simulation—Contributed

Section on Statistical Computing

Chair(s): Sam Tyner, Iowa State University

10:35 a.m. Real-Time Change Point Detection—✦Kyungduk Ko, Boise State University

10:50 a.m. Fast Spatial Inference in the Homogeneous Ising Model—✦Ranjan Maitra, Iowa State University; Alejandro Murua, University of Montreal

11:05 a.m. Fast Markov Chain Monte Carlo for High-Dimensional Bayesian Regression Models with Shrinkage Priors—✦Rui Jin, University of Iowa; Aixin Tan, University of Iowa

11:20 a.m. Efficient Sampling for Imbalanced Large Categorical Data Using Piece-Wise Deterministic Markov Chain Monte Carlo—✦Deborshee Sen, Duke University; Matthias Sachs, Duke University ; David Dunson, Duke University; Jianfeng Lu, Duke University

11:35 a.m. Stacking for Multimodal Posterior Distributions—✦Yuling Yao, Columbia University; Andrew Gelman, Columbia University

11:50 a.m. A Second-Order Adaptive Sampling Framework for Stochastic Gradient Descent—✦David Newton, Purdue University; Raghu Pasupathy, Purdue University

12:15 p.m. VIVID - Visualisation of Variable Importance Differences for Improved Understanding of Parkinson's Disease—✦Samuel Mueller, The University of Sydney; Connor Smith, University of Sydney; Boris Guennewig, University of Sydney

514 CC-302

■ ● Teaching Data Science: R, Git, and the Undergraduate Curriculum—Contributed

Section on Statistics and Data Science Education

Chair(s): Daniel Kaplan, Macalester College

10:35 a.m. DemoR: Tools for Teaching and Presenting R Code—✦Kelly Bodwin, California Polytechnic State University; Hunter Glanz, California Polytechnic State University

10:50 a.m. Ghclass: An R Package for Managing Classes with GitHub—✦Colin Rundel, Duke University

11:05 a.m. Using GitHub and RStudio to Facilitate Authentic Learning Experiences in a Regression Analysis Course—✦Maria Tackett, Duke University

11:20 a.m. Teaching Introductory Statistics with Online Tools and Open Source Data—✦Shiju Zhang, St Cloud State University

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

11:50 a.m. Developing an Undergraduate Major in Data Science: a Statistics Educator's Perspective—✦Amy Froelich, Iowa State University

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

515 CC-105

Visualization for Distributions, Networks and Statistical Inference—Contributed

Section on Statistical Graphics

Chair(s): Harold Gomes, U.S. Bureau of Labor Statistics

10:35 a.m. Automatic Visualization—✦Leland Wilkinson, H2O

10:50 a.m. Graphical Comparison of High-Dimensional Distributions—✦Reza Modarres, George Washington University

11:05 a.m. Sample Variance Plot and Identifying Characteristics of the Distribution—✦Uditha Amarananda Wijesuriya, University of Southern Indiana

11:20 a.m. Ggvoronoi: Voronoi Tessellations in R—✦Thomas J Fisher, Miami University; Robert C Garrett, Miami University; Karsten Maurer, Miami University

11:35 a.m. Visualization Methods for Interval Data—✦Muzi Zhang, Penn State University; Dennis Lin, The Pennsylvania State University

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

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 Gatliffe, 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 Milwakee

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—✦Weijing 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 (CARIGEN), The University of the West Indies; Katherine A. Loveland, McGovern Medical School-UTHealth

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

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 Unversity 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

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

11:50 a.m. **Discover Optimal Logic Rules as Complex Interaction in Longitudinal Study**—✦Tan Li, Florida International University; Wensong Wu, Florida Internation University; Ingrid Gonzalez, Florida International University

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

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 Univeristy of Science and Technology; V A Samaranayake, Missouri University of Science and Technology

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

4 A New Method for Estimating Within-Industry Corporate Default Correlation—✦Gary Witt, Temple University; Marcus Sobel, Temple University

5 Statistical Methodologies in Streaming Experimentation at Netflix—✦Julie Novak, Netflix

6 The Inequality Process' PDF Approximation Model for Heavy-Tailed Financial Distributions—✦John Angle, The Inequality Process Institute LLC

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 Rrandom 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

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—✦Wasiur R. KhudaBukhsh, Ohio State University; Casper Woroszylo, BHP Billiton; Grzegorz A. Rempa?a, Ohio State University; Heinz Koeppl, 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

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

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

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 Cunny, 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—✦Niloofar Ramezani, George Mason University

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

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

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, Baptisit 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 Childrenís 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; Ruoqing 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

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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 Dematteis, 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 Segbehoe, 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

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

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 Univesity

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; Zhijin Wu, Brown University

57 Detection of Inversely Enriched Pathways in PBMC Cells in Alzheimerís 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 Mendelís Laws of Inheritance—✦Ryan Rulkens, JMPAP Statistics and SAT Club

64 Inferring Complex Phylogenetic Networks Efficiently—✦Cora Allen-Coleman, University of Wisconsin - Madison; CÈcile AnÈ, 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

67 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

68 Proposed Methylation Processing Pipeline for Meta Analyzes Using Illuminaís 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

69 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

70 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

71 Testing Complex Survey Data for Hardy-Weinberg Equilibrium on the X Chromosome: Utilizing Male and Female Data—✦John R. Pleis, NCHS

72 Integration of Metabolomics and Transcriptomics to Improve Pediatric Drug Dosing—✦Christopher Wilson, ; Brooke Fridley, Moffitt Cancer Center

73 Integrating Gene Regulatory Pathways into Differential Network Analysis of Gene Expression Data—✦Tyler Grimes, ; Somnath Datta, University of Florida

74 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

75 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

528 CC-Hall C

Contributed Poster Presentations: Section on Statistics in Imaging—Contributed

Section on Statistics in Imaging

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

Section on Statistics in Imaging

76 Repeatability and Reproducibility of Automated Bullet Comparisons Using High-Resolution 3D Scans—✦Kiegan Rice, Iowa State University; Heike Hofmann, Iowa State University; Ulrike Genschel, Iowa State University

77 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)

78 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

79 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 Adebimpe, 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

80 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

81 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

82 A Bayesian Method for Clustering Diffusion Tensors Using Mixture of Von Mises Fisher Distribution—✦Siddhesh Kulkarni, University of Louisville; Subhadip Pal, University of Louisville

83 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

84 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

85 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

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

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 Syatem

87 Bayesian Homogeneity Pursuit with Thresholded Dirichlet Process Priors—✦Andrew Whiteman, University of Michigan; Jian Kang, University of Michigan

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 Diseas; Kristine Erlandson, University of Colorado - Denver|Anschutz, Dept. of Medicine, Division of Infectious Diseas

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 Diseas; 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

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

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

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—✦XIEXIN 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

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

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 Karemera, 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

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,

WEDNESDAY

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

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

2:30 p.m. Innovative Methods for Assessing Publication Bias in Meta-Analysis—✦Lifeng Lin, Florida State University

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

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

3:45 p.m. Floor Discussion

543 CC-505

● Making Sense of Complex Featured Data with Statistical Methods—Invited

SSC, Canadian Statistical Sciences Institute

Organizer(s): Grace Yi, University of Waterloo

Chair(s): Grace Yi, University of Waterloo

2:05 p.m. Prediction for Error-Contaminated Image Data with an Application of the Prostate Cancer Imaging Study—✦Wenqing He, University of Western Ontario; Grace Yi, University of Waterloo; Junhan Fang, University of Waterloo

2:30 p.m. Estimating Optimal Dynamic Treatment Regimes with Survival Outcomes: An Application to the Treatment of Type 2 Diabetes—✦Gabrielle Simoneau, McGill University; Erica Moodie, McGill university; Robert Platt, McGill University; Laurent Azoulay, McGill University

2:55 p.m. Dealing with Time-Varying Eligibility for Exposure Using the Target Trials Approach to Causal Inference with Electronic Health Records—✦Mireille Schnitzer, University of Montreal

3:20 p.m. Prediction for Federal Election by Joint Statistical Modeling—✦Joan Fraser Hu, Simon Fraser University; Xin Shane Liu, Shanghai University of Finance and Economics; Emma Qi Wen, Simon Fraser University

3:45 p.m. Floor Discussion

544 CC-506

■ ● Dynamic Graphical Models and Networks with Applications—Invited

International Indian Statistical Association, Section on Statistical Learning and Data Science, Section on Statistical Computing

Organizer(s): Sharmodeep Bhattacharyya, Oregon State University

Chair(s): Sharmodeep Bhattacharyya, Oregon State University

2:05 p.m. Mixed Membership Stochastic Blockmodels for Heterogeneous Networks—✦Yuguo Chen, University of Illinois at Urbana-Champaign

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

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

2:50 p.m. Network Modeling of High-Dimensional Time Series—✦Sumanta Basu, Cornell University

3:05 p.m. Disc: Peter J Bickel, University of California, Berkeley

3:20 p.m. Disc: Sofia C Olhede, University College London

3:25 p.m. Floor Discussion

545 CC-607

■ ● Towards Perfect and Scalable Distributional Computation—Invited

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

Organizer(s): Xiao-Li Meng, Harvard University

Chair(s): David Jones, Texas A&M University

2:05 p.m. Exact Estimation with Markov Chain Monte Carlo—✦Aguemon Yves Atchade, Boston University

2:30 p.m. The Never-Ending MCMC Revolution: Making Dempster-Shafer Modeling Practical—✦Ruobin Gong, Rutgers University; Xiao-Li Meng, Harvard University

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

3:20 p.m. Disc: Keli Liu, Stanford University

3:45 p.m. Floor Discussion

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

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—✦Nadarajasundaram 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 Stehlik, 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 Stehlik, Johannes Kepler University and University of Valparaiso

3:40 p.m. Floor Discussion

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

550 CC-605

■ ● 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 CC-109

■ ● 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 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 CC-201

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 CC-203

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 Shortís Contributions to Statistics Education: AP Statistics—✦Jessica Utts, University of California - Irvine

2:35 p.m. Tom Shortís Contributions to Statistics Education: Journal Editorships—✦Christine A Franklin, American Statistical Association and University of Georgia

2:50 p.m. Tom Shortís 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

■ ● **Interdisciplinary Research and Leadership: How to Make an Impact in the Data Science Age—Invited**

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

■ ● **A Historical Perspective on the Application of Sampling Theory and Methods to Statistical—Invited**

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 Bartyczak, Internal Revenue Service - Retired

✦Alan H. Kvanli, University of North Texas

3:45 p.m. Floor Discussion

556 CC-205

● **Census 2020:—Invited**

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

■ ● **Data Monitoring Committees -the Multi-Disciplinary Approach to Drug Safety Assessment—Topic Contributed**

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

■ ● **The Big Data Revolution in Health Care: Promise and Potential—Topic Contributed**

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

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

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 Fransisco; 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 Chandrsekaran, University of Pittsburg; 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

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

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,

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 CC-703

■ ● 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 CC-102

● 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

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

Contributed Sessions 2:00 p.m.—3:50 p.m.

570 CC-110

● Joint Modeling of Longitudinal and Survival Data—Contributed

Biometrics Section

Chair(s): David Kline, The Ohio State University

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

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

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

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,

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

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

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 Woyczynski, Case Western Reserve University; Rujia Liu, Case Western Reserve University; Meeyoung Min, Case Western Reserve University

571 CC-210/212

Special Topics and Case Studies in Clinical Trials—Contributed

Biopharmaceutical Section

Chair(s): Margaret Gamalo-Siebers, Eli Lilly

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

2:20 p.m. Use of Extended Kaplan-Meier and Time-Dependent Cox Model in EU Submission of Kymriah—✦Jufen Chu,

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

2:50 p.m. Making an Impact: the Filing Story of ZINPLAVA—✦Alison Pedley,

3:05 p.m. Assessing Similarity to Support Pediatric Extrapolation—✦Forrest Williamson, Eli Lilly

3:20 p.m. Dealing with Issues of Pediatric Clinical Trials—✦Aobo Wang, Merck

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

572 CC-708

Sparsity and Variable Selection in Posterior Inference—Contributed

Section on Bayesian Statistical Science

Chair(s): Santosh Sutradhar, Merck & Co., Inc.

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

2:20 p.m. Bayesian Selection of Best Subsets in High-Dimensional Regression—✦Shiqiang Jin, Kansas State University; Gyuhyeong Goh, Kansas State University

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

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

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

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

3:20 p.m. Revisiting High-Dimensional Bayesian Model Selection for Gaussian Regression—✦Zikun Yang, Indiana University Bloomington; Andrew Womack, Indiana University

3:35 p.m. A Random Neighborhood Method for Bayesian Semiparametric Conditional Density Estimation—✦Nong Shang, CDC

573 CC-710

Simulation and Stochastic Bayesian Modeling—Contributed

Section on Bayesian Statistical Science

Chair(s): Zhenyi Xue, AbbVie

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

2:20 p.m. Computer Model Emulation with High-Dimensional Zero-Inflated Spatial Data: An Application to Storm Surge—✦Pulong Ma, SAMSI/Duke University

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

2:50 p.m. Bayesian Multi-Dimensional Functional Data Analysis—✦John Shamshoian, UCLA School of Public Health; Donatello Telesca, UCLA

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

3:20 p.m. Bayesian Stochastic Frontier Models for Productivity Index—✦Ehsan Soofi, Univ of Wisconsin-Milwaukee; Jessie Nouri, University of Wisconsin-Milwaukee

3:35 p.m. Floor Discussion

574 CC-302

Recent Advances in Software—Contributed

Section on Statistical Computing, Text Analysis Interest Group

Chair(s): Julie Bessac, Argonne National Laboratory

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

2:20 p.m. The Fundamental Instruction Set Operation Codes Support Function Library—✦Timothy Hall, PQI Consulting

2:35 p.m. Analytical Likelihood Derivatives for State Space Forecasting Models—✦Jonathan Hosking, Amazon.com; Ramesh Natarajan, Amazon.com

2:50 p.m. Graph Matching Algorithms Using the IGraphMatch R Package—✦Zihuan Qiao, ; Daniel L Sussman, Boston University

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.

3:20 p.m. Language Modeling Using SAS—✦JeeHyun Hwang, SAS Institute Inc.; Xu Yang, SAS Institute Inc.; Haipeng Liu, SAS Institute Inc.

3:35 p.m. Analyzing Interval-Valued Spatial Data in the Intkrige R Package—✦Brennan Bean,

575 CC-113

■ ● Statistical Methods for Batch Effect Correction and Cell Type Deconvolution—Contributed

Section on Statistics in Genomics and Genetics

Chair(s): Di Wu, University of North Carolina at Chapel Hill

2:05 p.m. Assessing Reproducibility of High-Throughput Experiments in Case of Missing Data—✦Roopali Singh, ; Qunhua Li, Penn State University

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

2:35 p.m. Learning from Unobserved Covariates for Improved Classification Accuracy—✦Yujia Pan, University of Michigan; Johann A Gagnon-Bartsch, University of Michigan

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

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

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; Liangsuo 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 Univeristy; Xi Luo, Brown University

577 CC-104

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 Explict 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 Univsersity; 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

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

578 CC-502

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, US 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, US 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

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

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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 G^tz, 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.

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

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

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

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

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

589 CC-207

● Learning from the Past -a History of Censuses—Invited

Government Statistics Section, History of Statistics Interest Group, Committee on Professional Ethics

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

Chair(s): Amanda L. Golbeck, University of Arkansas for Medical Sciences

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

590 CC-205

■ ● Better Deciding Through Discretizing: The State of the Art in Uncertainty Visualization—Invited

Section on Statistical Graphics, Section on Statistics and Data Science Education, Journal of Statistics Education

Organizer(s): Jessica R Hullman, Northwestern University

Chair(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

591 CC-502

● Recent Advances in the Bayesian Modeling of Large Scale Neuroimaging Data for Brain Activation and Connectivity—Invited

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

592 CC-702

■ ● Evaluating Impact in Networks: Causal Inference with Interference—Invited

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 S‰vje, Yale University

9:35 a.m. Auto-G-Computation of Causal Effects on a Network—✦Eric Tchetgen Tchetgen, University of Pennsylvania

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

9:55 a.m. Disc: Dean Eckles, MIT

10:15 a.m. Floor Discussion

593 CC-712

■ ● Statistical Challenges and New Developments in Genomics—Invited

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

594 CC-708

■ ● Recent Advances in Statistical Modeling for Multivariate/Correlated/Time-Varying Longitudinal Data—Invited

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

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

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

595 CC-107

■ ● Global Estimates of Morbidity and Mortality—Invited

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

596 CC-605

■ ● Statistical and Mathematical Methods in Cancer Etiology and Cancer Early Detection—Invited

ENAR, Section on Statistics in Genomics and Genetics, Section on Medical Devices and Diagnostics

Organizer(s): Cristian Tomasetti, Johsn Hopkins University

Chair(s): Cristian Tomasetti, Johsn Hopkins University

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

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, Johsn Hopkins University; ✦Lu Li, Johns Hopkins University

9:35 a.m. Mutational Signatures and Cancer Etiology—✦Bahman Afsari, Johns Hopkins University

10:05 a.m. Floor Discussion

Invited Panels 8:30 a.m.—10:20 a.m.

597 CC-503

■ ● **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.

598 CC-113

■ ● **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

599 CC-507

● **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

600 CC-111

● **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

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

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; AndréBrechmann, 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, Colorade 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

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

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

Patient-Focused Clinical Trials: Challenges and Considerations for Trial Design, Endpoints, and Analysis—Topic Contributed

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

● New Approaches to Improving Accuracy, Precision, and Robustness of Survival Analysis—Contributed

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 Milwakee; 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 Institute; Xin Tian, National Heart, Lung and Blood Institute, National Institutes of Health

9:20 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

9:35 a.m. A Machine Learning Approach to Multivariate Frailty Models—✦Jing Wang, The University of Texas at Arlington

9:50 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

10:05 a.m. Misspecification of Covariate Functional Form in the Nested Case-Control Design—✦Michelle M. NuÒo, University of California, Irvine; Daniel L. Gillen, University of California, Irvine

610 CC-706

Power, Sample Size, and Applications to Time-To-Event—Contributed

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 Emmes 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

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

611 CC-103

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

612 CC-710

Statistics for Clinical Trials and Medical Research—Contributed

ENAR

Chair(s): Jesus Arroyo, Johns Hopkins University

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

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

613 CC-504

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 Studentís 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

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

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

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

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

9:20 a.m. Comprehensive Simultaneous Inference on Trend-Cycle Model—✦Sayar Karmakar, University of Florida; Wei Biao Wu, University of Chicago

9:35 a.m. Estimation of a Star-Shaped Distribution Function—✦Ganesh Malla, University of Cincinnati-Clermont

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

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

615 CC-109

■ Statistical Process Control—Contributed

Quality and Productivity Section

Chair(s): Samaneh Pourmojib, North Carolina State University

8:35 a.m. Monitoring Performances of Surgeons Using a New Risk-Adjusted Exponentially Weighted Moving Average Control Chart—✦Fah Fatt Gan, National University of Singapore

8:50 a.m. A Change Point Distance-Based Multivariate Control Chart Tool for Ecological and Environmental Monitoring—✦Nurudeen A. Adegoke, School of Natural and Computational Sciences, Massey University, New Zealand; Marti J. Anderson, New Zealand Institute for Advanced Study, Massey University, New Zealand ; Adam N. H. Smith, School of Natural and Computational Sciences, Massey University, New Zealand; Matthew D. M. Pawley, School of Natural and Computational Sciences, Massey University, New Zealand

9:05 a.m. Effects of Parameter Estimation on the Modified and Acceptance Control Charts—✦Felipe Jardim, Pontifical Catholic University of Rio De Janeiro; Bruna Ker , Federal University of S„o Carlos (UFSCar); Subhabrata Chakraborti, University of Alabama; Pedro Oprime, Federal University of S„o Carlos (UFSCar)

9:20 a.m. EWMA Chart in Nonstandard Situations—✦Yuhui Yao, The University of Alabama; Subhabrata Chakraborti, University of Alabama

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

9:50 a.m. Bayesian Based Acceptance Criteria for SPC Applications—✦Hesham Fahmy, AbbVie; Yanbing Zheng, AbbVie; Yuanyuan Duan, AbbVie

10:05 a.m. Effective Disease Screening by Online Risk Monitoring—✦Lu You, University of Florida; Peihua Qiu, University of Florida

616 CC-104

Multidisciplinary Advances in Computing—Contributed

Section on Statistical Computing

Chair(s): Anirban Mondal, Case Western Reserve University

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

8:50 a.m. Applications of Quantum Annealing in Statistics—✦Robert Foster, Los Alamos National Laboratory

9:05 a.m. Nearly Best Wald Confidence Intervals—✦George Terrell, VA Poly. Inst. & State Univ.

9:20 a.m. Noncentral Algorithm Assessments—✦Jerry Lewis, Biogen Idec

9:35 a.m. Distance-Distributed Design for Gaussian Process Surrogates—✦Boya Zhang, Virginia Tech; Robert Gramacy, Virginia Tech

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

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

617 CC-701

Testing—Contributed

Biometrics Section

Chair(s): Ian Barnett, University of Pennsylvania

8:35 a.m. Correlation of Sequential Binomial Variables and Its Application to Multiple Testing—✦Lin Fei, Cincinnati

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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 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 Hˆrcher, 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 Kirpichevsky, 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,

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University of Lausanne; Philipp Sommer, University of Lausanne

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

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

9:20 a.m. Multi-Scale Dynamic Modeling of Precipitation in the Indus Watershed—✦Michael Christensen, Brigham Young University

9:35 a.m. Bayesian Spatio-Temporal Modeling of Arctic Sea Ice Extent—✦Bohai Zhang, Nankai University

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

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

621 CC-707

Beyond Linear Regression: Nonlinear Association, Quantile Regression and Generalized Linear Models—Contributed

Section on Statistics in Epidemiology

Chair(s): Tianwen Ma, University of Michigan

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

8:50 a.m. Estimating Disparities in Breast Cancer Mortality by Race and Ethnicity—✦Ronald Gangnon, University of Wisconsin; Chrstina Hunter Chapman, University of Michigan; Jennifer Bird, University of Wisconsin; Amy Trentham-Dietz, University of Wisconsin

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

9:20 a.m. Assessing a Multi-Prediction Model with Applications in Reproductive Endocrinology—✦Katharine Correia, Amherst College

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

9:50 a.m. Look at the Whole Picture: Quantile Regression in Developmental Disabilities Research—✦Lin Tian, CDC

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, Univeristy of Michigan

622 CC-709

■ Statistical Methods for Genome- and Epigenome-Wide Association Studies and Gene Environment Interactions—Contributed

Section on Statistics in Genomics and Genetics

Chair(s): Chao Xing, UT Southwestern Medical Center

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

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

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

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

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

9:50 a.m. Floor Discussion

623 CC-302

Statistical Modeling: Benefits and Drawbacks—Contributed

Survey Research Methods Section

Chair(s): Asaph Young Chun, Statistical Research Institute of Statistics Korea; ISR Foundation

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

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

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

11:35 a.m. Theoretical Support of Machine Learning Debugging—✦Po-Ling Loh, UW-Madison

11:55 a.m. Robust Statistics Meets Nonconvex Optimization—✦Wenxin Zhou, University of California, San Diego; Qiang Sun, University of Toronto

12:15 p.m. Floor Discussion

627 CC-605

■ ● Advancing the Statistical Analysis of Neuroimaging Data—Invited

Section on Statistics in Imaging, Biometrics Section, WNAR

Organizer(s): Xin Zhang, Florida State University

Chair(s): Xin Zhang, Florida State University

10:35 a.m. Deep Learning in Neuroimaging Genetics—✦Wei Pan, University of Minnesota

10:55 a.m. Tensor Clustering for Dynamic Functional Connectivity Analysis—✦Will Wei Sun, Purdue University; Lexin Li, University of California at Berkeley

11:15 a.m. Statistical Approaches for Disentangling the Nature of Brain Lesions—✦Russell Shinohara, University of Pennsylvania

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

11:55 a.m. A Consolidated Nonparametric Analytical Approach for Neuroreceptor Mapping with PET Imaging Data—✦Todd Ogden, Columbia University

12:15 p.m. Floor Discussion

628 CC-710

■ ● Advances in Clinical Outcome Assessments—Invited

Biopharmaceutical Section, Health Policy Statistics Section, Biometrics Section

Organizer(s): Joseph C Cappelleri, Pfizer Inc

Chair(s): Bellinda King-Kallimanis, U.S. Food and Drug Administration

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

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

11:25 a.m. Identification of Distinct Disease-Activity Trajectories in Patients with Rheumatoid Arthritis—✦David Gruben, Pfizer, Inc.

11:50 a.m. Disc: Joseph C Cappelleri, Pfizer Inc

12:10 p.m. Floor Discussion

629 CC-207

■ ● The Impacts of Measurement Error in Scientific Discoveries—Invited

Section on Statistics in Epidemiology, Biometrics Section, Section on Statistical Learning and Data Science

Organizer(s): Xiangrong Kong, Johns Hopkins University

Chair(s): Kellie Archer, Ohio State University

10:35 a.m. Covariate Measurement Error Models, Past Developments and Modern Advancements—✦Jeffrey S Buzas, University of Vermont

10:50 a.m. Weighted Causal Inference Methods with Misclassified Outcomes—✦Grace Yi, University of Waterloo

11:05 a.m. Bayesian Adjustment for Measurement Error: Bridging the Gap Between Concepts and Scientific Impact—✦Paul Gustafson, University of British Columbia

11:20 a.m. Measurement Error Correction for Change in Nutrient Intake—✦Bernard Rosner, Channing Division of Network Medicine, Harvard Medical School

11:35 a.m. The Centrality of Measurement Error Modeling to Advances in Nutritional Epidemiology—✦Sharon I. Kirkpatrick, University of Waterloo

11:50 a.m. Disc: Leonard Stefanski, NCSU

12:05 p.m. Floor Discussion

630 CC-111

■ ● Machine Learning in the Criminal Justice System—Invited

Committee on Law and Justice Statistics, Statistics and Public Policy, Section on Statistical Learning and Data Science

Organizer(s): Ben Wender,

Chair(s): Alfred O. Hero, University of Michigan

10:35 a.m. An Algorithm for Removing Sensitive Information: Application to Race-Independent Recidivism Prediction—✦Kristian Lum, Human Rights Data Analysis Group

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

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

631 CC-603

Small Area Estimation: ìProducing Estimates for Small Areas from Sampled Dataî—Invited

Survey Research Methods Section, Government Statistics Section

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

632 CC-203

■ ● Advances in Statistical Disclosure Control Methodology—Invited

SSC, Canadian Statistical Sciences Institute, Journal of Survey Statistics and Methodology

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, University of Washington; Russell Steele, Mcgill University; Naisyin 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

633 CC-102

Foundations of Data Science: Privacy-Preserving Inference—Invited

Business and Economic Statistics Section, Royal Statistical Society, IMS, Section on Statistical Learning and Data Science

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

634 CC-502

● Recent Advancements in Distance and Kernel-Based Metrics and Related Learning Methods—Invited

Section on Statistical Learning and Data Science, Section on Nonparametric Statistics, National Science Foundation

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

● 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

12:15 p.m. Floor Discussion

635 CC-707

■ ● Monitoring Health Behaviors with Multi-Sensor Mobile Technology—Invited

ENAR, Biometrics Section, International Chinese Statistical Association

Organizer(s): Vadim Zipunnikov, Johns Hopkins University

Chair(s): Jiawei Bai, Johns Hopkins University

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

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

11:25 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

11:50 a.m. Wearable Sensor Data Fusion for Affect Lability Detection—✦Fengqing Zhang, Drexel University; Tinashe Tapera, Drexel University; Adrienne Juarascio, Drexel University

12:15 p.m. Floor Discussion

636 CC-105

■ ● Graphical Models: From Foundations to Applications—Invited

IMS

Organizer(s): Caroline Uhler, Massachusetts Institute of Technology

Chair(s): Dominik Rothenh‰usler, UC Berkeley

10:35 a.m. Total Positivity and Graphical Models—Piotr Zwiernik, Universitat Pompeu Fabra; ✦Caroline Uhler, Massachusetts Institute of Technology

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

11:25 a.m. Algebraic Geometry of Gaussian Graphical Models—✦Seth Sullivant, North Carolina State University

11:50 a.m. Minimax Prediction in Tree Ising Models—✦Guy Bresler, Massachusetts Institute of Technology (MIT)

12:15 p.m. Floor Discussion

637 CC-703

■ ● Statistics in Biopharmaceutical Research Invited Session—Invited

Statistics in Biopharmaceutical Research Journal

Organizer(s): Frank Bretz, Novartis Pharma AG

Chair(s): Frank Bretz, Novartis Pharma AG

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. Leveraging Parametric Longitudinal Modeling to Improve Drug Development Efficiency—✦José Pinheiro, Janssen Pharmaceuticals

11:25 a.m. Complex and Innovative Clinical Trials in Pharmaceutical Regulation—✦John Scott, FDA

11:50 a.m. Disc: Frank Harrell, Vanderbilt University

12:10 p.m. Floor Discussion

638 CC-504

Celebrating the New COPSS Florence Nightingale David Lecture—Invited

Committee of Presidents of Statistical Societies, History of Statistics Interest Group

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. Professor David in the Worldís First University Statistics Department—✦Amanda L. Golbeck, University of Arkansas for Medical Sciences

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

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

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

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

643 CC-201

■ ● 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

10:35 a.m. Testing and Estimation of Change-Points in LSHD Data Streams: Asymptotics and Application to Ozone Monitoring—✦Ansgar Steland, Insitute of Statistics

10:55 a.m. Change Detection for Multi-Stage Multivariate Data—✦Emmanuel Yashchin, IBM Research

11:15 a.m. Pattern Detection via Biclustering 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 CC-607

■ ● 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.

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

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 CC-107

■ ● 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 Univeristy 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 CC-708

■ ● 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.

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

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 Spaceñtime 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

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

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 Railkar, 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—✦Efstathia 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

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

654 CC-505

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; GeneviËve 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

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

11:20 a.m. Estimating Household Heating Consumption of Natural Gas Using Billing and Weather Data—✦Shaofen G. Deng, U.S. Energy Informatio Admintration; 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

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

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of Arkansas

12:05 p.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

657 CC-101

Bayesian and Empirical Bayes—Contributed

IMS

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

658 CC-112

Regression, Selection and Complex Data—Contributed

International Indian Statistical Association

Chair(s): Sourav Santra, Cytel

10:35 a.m. Penalized Variable Selection in the Presence of Outliers—✦Abhijit Mandal, Wayne State University; Samiran Ghosh, Wayne State University

10:50 a.m. On the Loss Robustness of Least Square Estimators—✦Tamal Ghosh, University of Florida; Malay Ghosh, University of Florida; Tatsuya Kubokawa, The university of Tokyo

11:05 a.m. A Graph-Based Multisample Test for High-Dimensional Compositional Data—✦Thy Dao, University of Arkansas; Qingyang Zhang, University of Arkansas

11:20 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

11:35 a.m. A Flexible Finite Mixture Model Family for Analyzing Over- and Underdispersed Discrete Data, with Possibly Negative Weights—✦Martial Luyts, ; Geert Molenberghs, Universiteit Hasselt & Katholieke Universiteit Leuven; Geert Verbeke, Catholic University of Leuven; Koen Matthijs, Catholic University of Leuven

11:50 a.m. A Single-Index Informative Summary—✦Siamak Noorbaloochi, ; Barbara Clothier, CCDOR-Mpls VAHCS

12:05 p.m. Floor Discussion

659 CC-301

Recent Advances in Dimension Reduction and Clustering—Contributed

Section on Statistical Learning and Data Science

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; Ruoqing 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, 84.51∫

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 Stronium 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 Insititute

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

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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 & Southern Methodist University

663 CC-709

■ Regression, Clustering and Gene Set Methods in Genomics—Contributed

Section on Statistics in Genomics and Genetics

Chair(s): Xuefeng Wang, MOFFITT Cancer Center

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

10:50 a.m. Moment-Based Estimation of Mixtures of Regression Models and Their Application in Genetic Studies—✦Claus Ekstrom, Biostatistics, University of Copenhagen

11:05 a.m. Advances in the Hard Clustering of Categorical Data—✦Karin Dorman, Iowa State University

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

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

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

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

664 CC-113

Making an Impact with Statistical Auditing—Contributed

Statistical Auditing Interest Group

Chair(s): Brian Bucks, Consumer Financial Protection Bureau

10:35 a.m. Making an Impact: Combating Fraud with Forensic Statistical Analysis—✦Jonathan Woody, Mississippi State University

10:50 a.m. Where Does Statistical Auditing Fit in a New Era of Artificial Intelligence and Machine Learning Solutions?—✦John Hilton, Office of the Auditor General of Canada; Nicholas Brouwer, Office of the Auditor General of Canada; Johnathon Cziffra, UniversitÉde MontrÈal

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

11:20 a.m. Confidence Intervals for Proportion Estimates in Complex Samples for Performance Audits—✦James Ashley, Government Accountability Office; Carl Barden, Unites States Government Accountability Office; Danny Lee, Unites States Government Accountability Office

11:35 a.m. Construction of Strata Boundaries in Tax Auditing—✦Zachary Rhyne, Ryan, LLC.; Roger C. Pfaffenberger, Ryan, LLC

11:50 a.m. Subsampling Inference for Audit Sampling—✦Yongping Hao, HUD-OIG

12:05 p.m. Floor Discussion

665 CC-110

Regression Methods for Longitudinal Data—Contributed

Section on Nonparametric Statistics

Chair(s): Zachary R McCaw, Harvard T.H. Chan School of Public Health

10:35 a.m. Efficient Estimation of Statistical Models for Longitudinal Data Under Local Box-Cox Transformation—✦Mohammed Chowdhury, Kennesaw State University

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

11:05 a.m. Posterior Contraction and Credible Sets for Filaments of Regression Functions—✦Wei Li, Syracuse University; Subhashis Ghosal, North Carolina State University

11:20 a.m. Prediction Intervals for Out-Of-Sample Forecasts Based on Spline Extrapolation—✦Jan Gertheiss, Helmut Schmidt University

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 Univeristy

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

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