

PROGRAM BOOK

JSM2016

CHICAGO



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NEED TO KNOW

CONVENTION HOUSING

Hilton Chicago (HQ)	(312) 922-4400
Palmer House Hotel	(312) 726-7500
Hyatt McCormick Place	(312) 567-1234
Sheraton Grand Chicago	(312) 464-1000
Conference Chicago at University Center	(877) 482-2463
Hostelling International Chicago	(312) 425-4312

SHUTTLE INFORMATION

Sponsored by **ABBVIE**

Shuttle service will be provided between McCormick Place and the Hilton Chicago and Palmer House hotels.

No shuttle service will be provided for the Hyatt Regency McCormick Place (connected to the convention center) or Sheraton Grand Chicago.

If you have questions about the shuttle or need to make an advanced reservation for a wheelchair-accessible shuttle, call Kushner & Associates at (310) 274-8819, Ext. 213.

SHUTTLE SCHEDULE

Saturday, July 30	7:15 a.m. – 6:15 p.m.
Sunday, July 31	7:00 a.m. – 8:30 p.m.
Monday, August 1	6:30 a.m. – 6:00 p.m.
Tuesday, August 2	6:30 a.m. – 6:00 p.m.
Wednesday, August 3	6:30 a.m. – 5:30 p.m.
Thursday, August 4	7:00 a.m. – 1:00 p.m.

EMERGENCY TELEPHONE MESSAGES

In case of emergency, messages may be left during registration hours by calling (312) 949-8800.

We will attempt to contact the registrant using the contact information provided in their registration.

ASSISTANCE FOR THOSE WITH DISABILITIES

Please contact a staff member at the Help Desk in the registration area of McCormick Place if you have a disability that may impede your participation.

CHILD CARE

Kiddie Corp is the official child care provider for JSM 2016. Arrangements should have been made in advance. Please contact Kiddie Corp at (858) 455-1718 or info@kiddiecorp.com for any questions or possible availability.



JSM APP ▲

Sponsored by **IBM**

Download the official JSM 2016 app! Get last-minute updates, create your own schedule, play the JSM Challenge for prizes, and more. Available on Google Play and the App Store; free.

WIFI

Sponsored by **ABBVIE**

COMPLIMENTARY WIFI AT MCCORMICK PLACE

Network: JSM2016

No password needed

JSM PROCEEDINGS

Eligibility guidelines and author instructions for JSM 2016 presenters are available at www.amstat.org/meetings/jsm/2016/proceedings.cfm. The submission site will open August 29, 2016, and close October 1, 2016.

JSM 2017

The 2017 Joint Statistical Meetings will be held in Baltimore, Maryland, July 29–August 3 at the Baltimore Convention Center. Check out the details at Booth #507 in the exhibit hall.

MEMBERSHIP

Information about the ASA, WNNAR, IMS, SSC, ICOSA, IISA, and KISS is available at the society booths on Level 1 and in the exhibit hall. Each society provides a variety of publications and activities to anyone interested in applied and/or theoretical statistics, and student membership is offered at substantially reduced rates.

POLICIES

Electronic Devices

All cell phones, pagers, and other electronic devices should be silenced before attending any session or meeting.



Smoking

Smoking is not permitted at any JSM function, unless the event is held outside.



Photographs and Videotaping

Taking photographs or using video equipment during any JSM session or event is prohibited.



Recycling

Please use the paper, plastic, and aluminum trash containers located throughout the convention center.

Also, participating in the towel and linen programs at area hotels makes a significant difference in the amount of energy and water used.

Finally, place JSM badges and badge holders in one of the designated bins when leaving.



NEED TO KNOW

SPOTLIGHT CHICAGO



Enjoy a taste of Chicago in the JSM 2016 EXPO! Spotlight Chicago will feature events throughout the week to give you a little taste of the city in case you are too busy to get away from the convention center. Check out the schedule and stop by Spotlight Chicago to see more!

Sunday, July 31

1:00 P.M. – SPOTLIGHT CHICAGO KICK-OFF

Enjoy a taste of Chicago's most famous foods and find out what makes Chicago such a magnetic city!

3:30 P.M. – CHICAGO: HOME OF THE BROWNIE

A delicacy since the 1893 World's Fair! The Palmer House hotel kitchen created a portable goodie to be enjoyed in boxed lunches at the fair. Enjoy samples from the convention center catering kitchen (while supplies last) and mingle with other attendees.

Monday, August 1

9:00 A.M. – CHICAGO INSIDER TIPS

Whether you are here for the first or the hundredth time, here is your chance to find out the extent of what Chicago has to offer.

10:00 A.M. – JSM COFFEE HOUSE

Refresh with a cup of coffee or tea and take this chance to tag the wall!

11:00 A.M. – 3:00 P.M. – JSM PHOTO BOOTH

Create memories with your friends using fun props.

11:30 A.M. – 1:00 P.M. – IMPACT CHICAGO

Blanket making for the Chicagoland chapter of Project Linus.

1:30 P.M. – POPCORN BREAK

Sponsored by **XLSTAT**

Enjoy samples of Chicago's famous Garrett's Popcorn.

3:30 P.M. – MIDWEST MICROBREW TASTING

Sponsored by **Capital One**

Stop by to taste Goose Island microbrews (while supplies last).

Tuesday, August 2

10:00 A.M. – JSM COFFEE HOUSE

Sponsored by **Citadel**

Grab a cup of coffee and take a break!

11:30 A.M. – 1:00 P.M. – IMPACT CHICAGO

Blanket making for the Chicagoland chapter of Project Linus.

1:30 P.M. – POPCORN

BREAK

Sponsored by **XLSTAT**

3:30 P.M. – SWEET CHICAGO!

Experience the sweetness of Chicago with root beer float and cheesecake bite samples (while supplies last).

Wednesday, August 3

10:00 A.M. – JSM COFFEE HOUSE

Refresh with a cup of coffee or tea.

11:30 A.M. – 1:00 P.M. – IMPACT CHICAGO

Blanket making for Chicagoland chapter of Project Linus

1:30 P.M. – POPCORN BREAK

Sponsored by **XLSTAT**

This is your last chance to enjoy specialty samples of Chicago's famous Garrett's Popcorn.





HOURS OF OPERATION

REGISTRATION AND ASA MEMBERSHIP/ HELP DESK/PRESS DESK CC-HALL F1 WEST CENTRAL CONCOURSE

JSM registration includes the Program Book; access to the exhibit hall; and admission to the Opening Mixer, Student Mixer (students only), and JSM Dance Party.

Saturday	7:30 a.m. – 6:00 p.m.
Sunday	7:30 a.m. – 7:00 p.m.
Monday – Tuesday	7:30 a.m. – 5:30 p.m.
Wednesday	7:30 a.m. – 4:30 p.m.
Thursday	7:30 a.m. – 10:30 a.m.

SPEAKER MANAGEMENT ROOM CC-W181C

Speakers are required to check in four hours prior to their presentations to upload their materials to the speaker management system or confirm their materials were uploaded correctly. Session chairs also should check in to confirm all speakers have uploaded their materials.

Sunday	9:00 a.m. – 7:00 p.m.
Monday – Tuesday	7:00 a.m. – 5:30 p.m.
Wednesday	7:00 a.m. – 4:30 p.m.
Thursday	7:00 a.m. – 10:30 a.m.

CAREER SERVICE CC-HALL F1WEST

Saturday	9:00 a.m. – 5:00 p.m. (job posting and résumé submission only)
Sunday	1:00 p.m. – 6:00 p.m.
Monday – Tuesday	8:00 a.m. – 5:30 p.m.
Wednesday	8:00 a.m. – 2:30 p.m. (onsite registration closes at noon)

EXPO 2016 CC-HALL F1 WEST

Visit publishers, software companies, and recruiters. See state-of-the-art products designed for the statistical community.

Sunday	1:00 p.m. – 4:30 p.m., 6:00 p.m. – 8:00 p.m. (Opening Mixer)
Monday – Tuesday	9:00 a.m. – 5:30 p.m.
Wednesday	9:00 a.m. – 2:30 p.m.

CYBER CENTER Sponsored by RTI CC-HALL F1 WEST CENTRAL CONCOURSE

There are **12** terminals with internet access available for your emailing needs, as well as three printers.

Saturday	7:30 a.m. – 6:00 p.m.
Sunday	7:30 a.m. – 7:00 p.m.
Monday – Wednesday	7:30 a.m. – 5:30 p.m.
Thursday	7:30 a.m. – 10:30 a.m.

ASA STORE (INSIDE EXPO 2016) CC-HALL F1 WEST

The ASA Store is the place for your official JSM 2016 T-shirt and other ASA souvenirs.

Sunday	1:00 p.m. – 4:30 p.m., 6:00 p.m. – 8:00 p.m.
Monday – Tuesday	9:00 a.m. – 5:30 p.m.
Wednesday	9:00 a.m. – 2:30 p.m.

RESTAURANT RESERVATIONS/CHICAGO CONCIERGE SERVICE CC-HALL F1 WEST CENTRAL CONCOURSE

Operated by Choose Chicago, this center provides extensive information and referrals for restaurants and sightseeing. Stop by and pick up current maps and travel information.

Saturday	9:00 a.m. – 2:00 p.m.
Sunday – Wednesday	9:00 a.m. – 5:00 p.m.

Meetings Conduct Policy

As a professional society, the American Statistical Association (ASA) is committed to providing an atmosphere that encourages the free expression and exchange of ideas. Consistent with this commitment, it is the policy of the ASA that all participants in ASA activities will enjoy a welcoming environment free from unlawful discrimination, harassment, and retaliation. All participants in ASA activities also agree to comply with all rules and conditions of the activities, which are subject to change without notice.

Please read the complete Conduct Policy before attending: www.amstat.org/meetings/jsm/2016/conductpolicy.cfm.

Questions?

New to JSM? Find a JSM docent to help you learn the ropes. JSM docents are experienced JSM attendees wearing an orange button (pictured) who can help you make the most of your experience.



NEED TO KNOW



Special Events

First-Time Attendee Orientation and Reception

Sunday, July 31, 12:30 p.m. – 2:00 p.m.
CC-W375a

Join fellow first-timers at this orientation reception and learn how to get involved at JSM. Hear about the benefits of membership and get tips about the conference.

Opening Mixer, Sponsored by Eli Lilly and Company and Microsoft

Sunday, July 31, 6:00 p.m. – 8:00 p.m.
CC-Hall F1

All conference attendees are encouraged to come together for the kick-off social event of JSM.

JSM Student Mixer, Sponsored by Monsanto and Microsoft

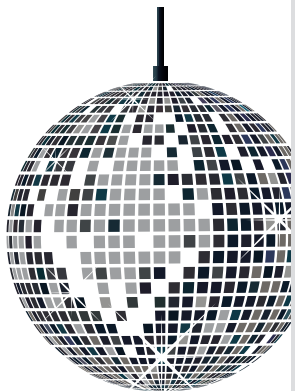
Monday, August 1, 6:00 p.m. – 7:30 p.m.
H-Grand Ballroom

The Student Mixer provides an opportunity for students to join their contemporaries for a fun-filled time.

JSM Dance Party

Tuesday, August 2, 9:30 p.m. – 12:00 a.m.
H-Grand Ballroom

A fun highlight of JSM, the dance party is held after the ASA Presidential Address and Founders & Fellows Recognition. There are snacks, a cash bar, and a DJ.



Late-Breaking Sessions

SESSION 217

Late-Breaking Session I: Invest in What Works—First Steps Toward Establishing Evidence-Based Policymaking Clearinghouse

Monday, August 1
2:00 p.m. – 3:50 p.m.
CC-W375b

SESSION 325

Late-Breaking Session II: Data Journalism and Statistical Expertise: An Urgent Need for Writers, Bloggers, and Journalists to Be Statistically Savvy

Tuesday, August 2
10:30 a.m. – 12:20 p.m.
CC-W375b

Introductory Overview Lectures

SESSION 45

Spatio-Temporal Data Analysis
Sunday, July 31
4:00 p.m. – 5:50 p.m.
CC-W190a

SESSION 96

Causal Inference
Monday, August 1
8:30 a.m. – 10:20 a.m.
CC-W375b

SESSION 280

Data Science
Tuesday, August 2
8:30 a.m. – 10:20 a.m.
CC-W375b

SESSION 464

Adaptive Clinical Trial Design
Wednesday, August 3
8:30 a.m. – 10:20 a.m.
CC-W375b

#JSM2016

Join the Joint Statistical Meetings conversation by using #JSM2016 on social media. Also follow the official ASA social media accounts for news, pictures, or last-minute updates.



www.facebook.com/AmstatNews



www.twitter.com/AmstatNews



www.instagram.com/AmstatNews

JSM Challenge

Take the JSM Challenge via the JSM 2016 app! Earn points for each question and task you complete to win prizes at the end of the week!



The JSM Challenge runs from Saturday through Thursday, with new questions posted each day. Prizes will be awarded to the top five participants on the leaderboard within the JSM app as of noon on Thursday.

Don't miss out on the opportunity to have fun and win great prizes!

Download the JSM 2016 app from Google Play or the App Store. For all other devices, a web version is also available.



JSM SPEAKERS!

Need to upload your presentation?

At least four hours prior to your session,
find a speaker management kiosk or visit
the Speaker Management Room (CC-W181c).

FEATURED SPEAKERS



IMS Medallion Lecture I

Monday, August 1, 10:30 a.m.
CC-W375b

*Tracing Pathways of
Dependence:*

How Far Did We Get?

Nanny Wermuth

Johannes Gutenberg-
University/Chalmers
University of Technology



ASA President's Invited Address

Monday, August 1, 4:45 p.m.
H-International Ballroom

*Science and News:
A Marriage of Convenience*

Joe Palca

NPR



ASA Deming Lecture

Tuesday, August 2, 4:45 p.m.
H-International Ballroom

*Profound Knowledge from a
Knowledge Use Perspective*

Vincent P. Barabba

Market Insight Corporation



ASA President's Address and Founders & Fellows Recognition

Tuesday, August 2, 8:00 p.m.
H-International Ballroom

Appreciating Statistics

Jessica Utts

University of California
at Irvine



IMS Medallion Lecture II

Wednesday, August 3, 2:00 p.m.
CC-W375b

*Model Averaging
and Post-Model Selection*

Gerda Claeskens

KU Leuven



COPSS Awards and Fisher Lecture

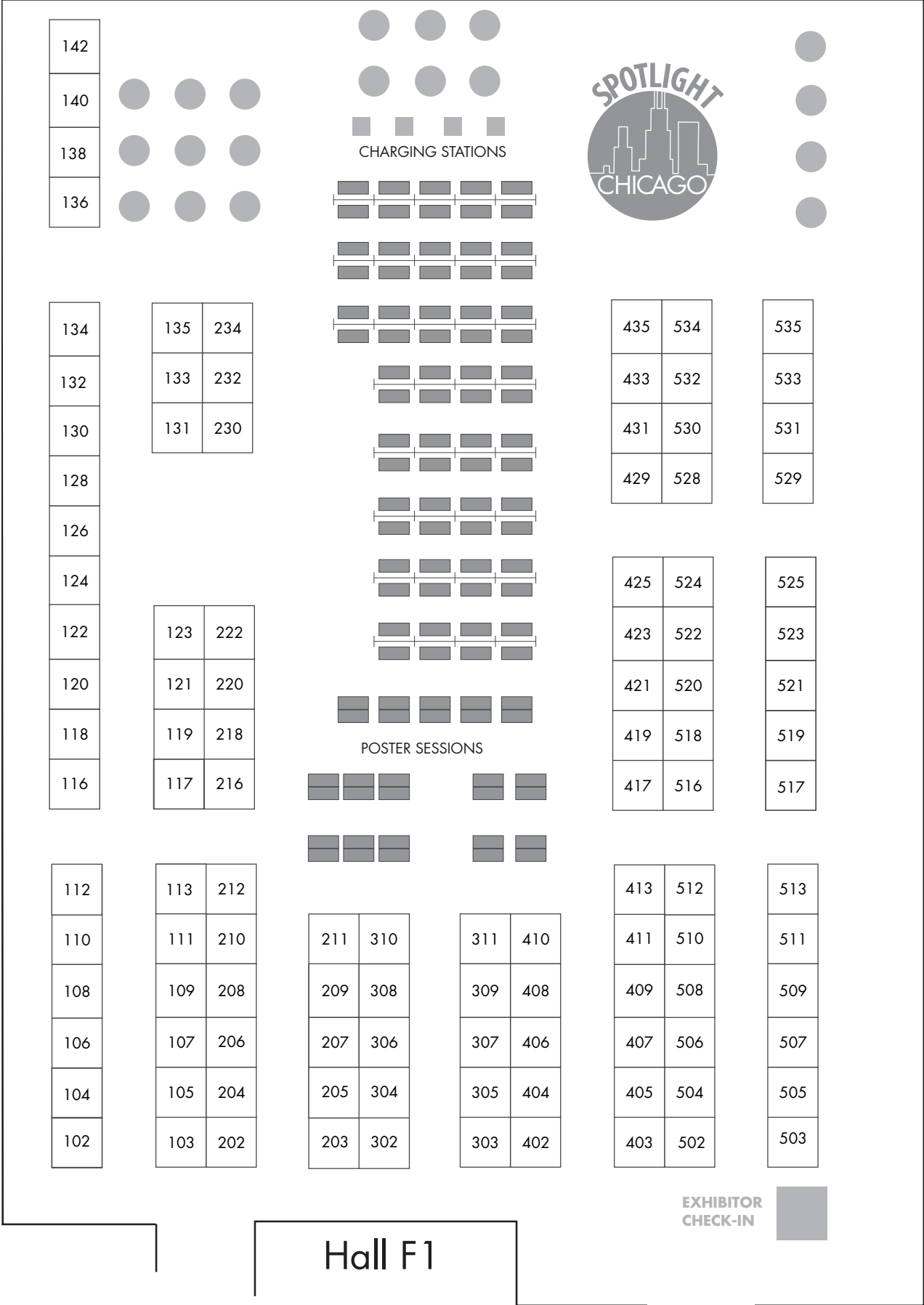
Wednesday, August 3, 4:45 p.m.
H-International Ballroom

*Personalizing Disease
Prevention: Statistical
Challenges*

Alice S. Whittemore

Stanford University School
of Medicine

JSM EXPO Hall F1



WHO'S WHO AT EXPO 2016



61st ISI World Statistics Congress, Morocco	508	The Moroccan High Commission for Planning is hosting the 61st ISI World Statistics Congress in Marrakech from July 16-21, 2017. ISI2017 will feature a rich scientific program covering all fields of statistics and provide an attractive social program and ambiance for networking in the magical city of Marrakech.
AAAS Science & Technology Policy Fellowship	520	AAAS Science & Technology Policy Fellowships provide scientists and engineers with a unique opportunity to apply their knowledge and skills to national and international issues, while learning first-hand about establishing and implementing policy. Fellows serve year-long assignments in all three branches of the federal government in Washington, DC.
Advanced Clinical	123	Advanced Clinical is an award-winning clinical development organization that provides global end-to-end services, including CRO, functional support, quality and validation, patient recruitment and retention, and strategic talent acquisition solutions for pharmaceutical, biopharmaceutical, biotechnology, and medical device organizations. Our mission is to deliver a truly better clinical experience for our clients.
Amazon	140	Amazon's mission is to be Earth's most customer-centric company, helping people find anything they want to buy online. Amazon's evolution from website to e-commerce and publishing partner to development platform is driven by the pioneering spirit that is part of the company's DNA.
American Mathematical Society	513	Founded in 1888 to further mathematical research and scholarship, the American Mathematical Society fulfills its mission today through programs and services that promote mathematical research and its uses, strengthen mathematical education, and foster awareness of and appreciation for mathematics and its connections to other disciplines and everyday life.
American Statistical Association	503 505	Join the world's largest community of statisticians! Visit the ASA booth to learn more about how the American Statistical Association can help you shape the future of statistics. (And don't forget to join the JSM Challenge! Rack up a high score and compete for great prizes.)
Aptech Systems, Inc.	212	GAUSS is a powerful, highly adaptive suite of analytical software that maximizes the probability of success, giving analysts the ability to dig deeper into data to unlock actionable results. From physics to finance, Aptech is committed to delivering products and services that continually redefine the leading edge of statistical analysis.
ASA JobWeb	511	The ASA's JobWeb is a year-round online resource that gives employers access to an extensive database of more than 300 resumes from quality individuals and ASA members access to postings from top statistical employers! Check out the ASA JobWeb at http://jobs.amstat.org . Available to ASA members only.
ASA Store	502 504 506	Looking for stats swag? Visit the ASA Store, located in the exhibit hall. From adult and children's T-shirts to onesies for the newest variable in your family, we've got you covered! Stop by to see what other statistical souvenirs we have for sale. We've stocked some new surprises this year!
ASA-SIAM	509	The ASA-SIAM Statistics and Applied Probability Series publishes works of interest to statisticians, biostatisticians, applied mathematicians, engineers, and scientists in a broad array of topical areas. Visit booth #509 to see our newest ASA-SIAM title, Adaptive Treatment Strategies in Practice: Planning Trials and Analyzing Data for Personalized Medicine.
Berry Consultants	529	Berry Consultants is a statistical consulting company specializing in innovative clinical trial design, analyses, and software solutions for the pharmaceutical and medical device industry. www.berryconsultants.com
Bureau of Economic Analysis (BEA)	306	The Bureau of Economic Analysis (BEA) is an agency of the U.S. Department of Commerce. BEA produces economic accounts statistics that enable government and business decision makers, researchers, and the American public to follow and understand the performance of the nation's economy.
Bureau of Justice Statistics	522	The mission of BJS is to collect, analyze, publish, and disseminate information about crime, criminal offenders, victims of crime, and the operation of justice systems at all levels of government. These data are critical to federal, state, and local policymakers in combating crime and ensuring that justice is both efficient and evenhanded.



WHO'S WHO AT EXPO 2016

Bureau of Labor Statistics	122	The Bureau of Labor Statistics (BLS) is the federal government's principal data source in the field of labor economics and statistics. Our data, reports, and other products cover a broad range of topics, including the U.S. labor market, economy, and society. Visit our booth for demonstrations for accessing BLS data.
Cambridge University Press	423 425	Cambridge University Press is a not-for-profit organization that advances learning, knowledge, and research worldwide. It is an integral part of the University of Cambridge and has extended its research and teaching activities for centuries through an extensive range of academic books, journals, and digital products.
Capital One	118	At Capital One, we disrupted the credit card industry by individually personalizing every credit card offer using statistical modeling and relational databases, cutting-edge technology in 1988! Fast-forward, this little innovation and our passion for data has skyrocketed us to a Fortune 200 company and a leader in data-driven decision-making.
Cengage Learning	211	Cengage Learning is a leading educational content, technology, and services company for the higher education and K-12, professional, and library markets worldwide. The company provides superior content, personalized services, and course-driven digital solutions that accelerate student engagement and transform the learning experience. www.cengage.com
Chiltern	135	Chiltern is the leading, global mid-sized contract research organization with a team of more than 4,200 working collaboratively across 47 countries. Chiltern is seeking qualified candidates for key contract and permanent positions around the world with opportunities designed for career and personal growth. A job Designed for Career Success— www.ChilternCareers.com .
Citadel LLC	120	Citadel LLC is a worldwide leader in finance that uses next-generation technology and alpha-driven strategies to transform the global economy. We tackle some of the toughest problems in the industry by pushing ourselves to be the best again and again. Here, great ideas can come from everyone.
CRC Press/Taylor & Francis Group	103 105 202 204 206	Chapman & Hall/CRC-Taylor & Francis Group is a premier books and journals publisher, as well as a publishing partner with the ASA for its journals. Stop by our booth to browse our newest books at a discount of up to 50% or pick up a journal sample copy.
Cytel Inc.	429 528	Cytel offers a range of innovative solutions for all phases of drug, biologic, and device development. Our unrivaled knowledge in biostatistics and trial implementation capabilities supports our software, consulting, and clinical research services. We help customers uphold high standards of scientific rigor, statistical validity, and data quality in their engagements.
Deloitte Consulting LLP	433	Deloitte Analytics creates value for clients by helping them transform data and power informed decisions. Spanning Deloitte's portfolio of businesses, our analytics professionals work with organizations to help identify and address their requirements in business intelligence, data management, statistics, change management, technology, automation, risk, and governance.
Duke Clinical Research Institute	142	As part of the Duke University School of Medicine, the Duke Clinical Research Institute is known for conducting groundbreaking multinational clinical trials, managing major national patient registries, and performing landmark outcomes research. Our mission is to develop and share knowledge that improves the care of patients through innovative clinical research.
Experis BI & Analytics Practice	210	Since 1982, Experis Business Analytics has been providing tactical and strategic services that help our clients get the most value from their data. Our services enable our clients to integrate, analyze, and distribute their data across the organization and to key stakeholders outside the organization.
FDA/CBER	107	CBER protects and enhances the public health through the regulation of biological and related products, including blood, vaccines, allergenics, tissues, and cellular and gene therapies. CBER's review of new biological products requires evaluating scientific and clinical data submitted by manufacturers to determine whether the product meets CBER's standards for approval.

WHO'S WHO AT EXPO 2016



FDA/CDER	106	The mission of CDER is to ensure that safe and effective drugs are available to the American people. CDER approves drugs for marketing that are effective, evaluates marketing applications in a timely fashion, and facilitates early access to promising drugs being developed for serious illnesses with no adequate therapy.
FDA/CDRH	108	CDRH ensures that patients and providers have timely and continued access to safe, effective, and high-quality medical devices and safe radiation-emitting products. CDRH facilitates medical device innovation by advancing regulatory science; providing industry with predictable, consistent, and efficient regulatory pathways; and ensuring consumer confidence in devices marketed in the United States.
FDA/CFSAN	109	CFSAN provides services to consumers, domestic and foreign industry, and other outside groups regarding field programs; agency administrative tasks; scientific analysis and support; and policy, planning, and handling of critical issues related to food and cosmetics. Most of CFSAN's staff members work in the center's headquarters in College Park, Maryland.
FDA/CTP	110	CTP is responsible for carrying out the Family Smoking Prevention and Tobacco Control Act. CTP uses a comprehensive approach as the best way to end the negative health effects of tobacco use. This includes defining policy, conducting research, educating Americans about regulated tobacco products, and making decisions about marketing claims.
FDA/CVM	208	CVM approves animal drugs for companion (pet) animals and food-producing animals such as cattle, pigs, and chickens. CVM also monitors the safety and effectiveness of animal drugs on the market and conducts research that helps ensure the safety of animal drugs, food for animals, and food products made from animals.

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KANSAS



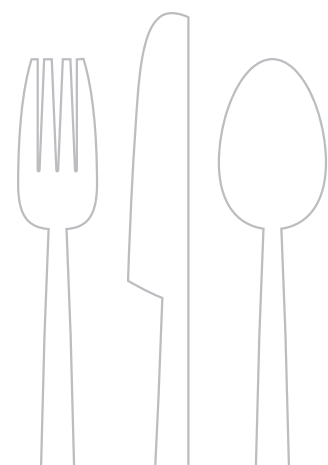
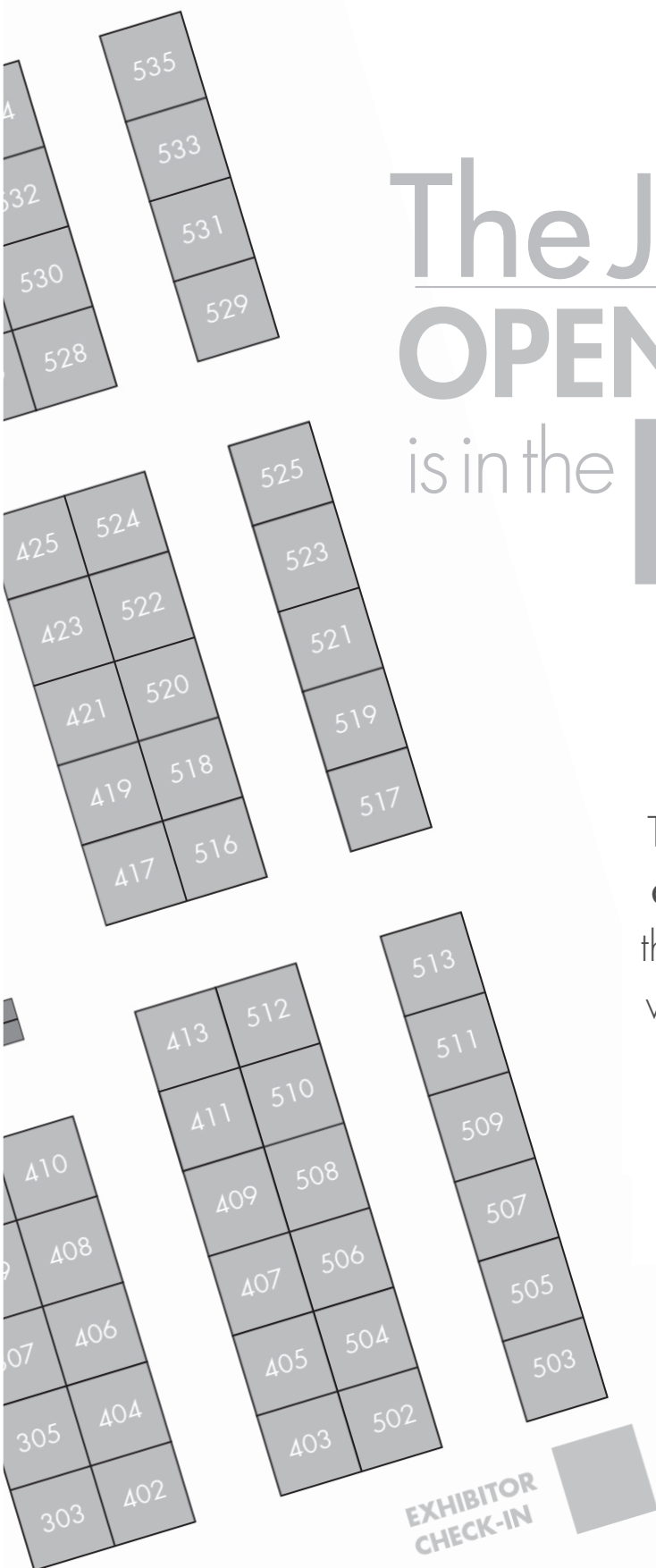
WHO'S WHO AT EXPO 2016

FDA/NCTR	208	NCTR is a global resource for collaboration providing consultation, training, and innovative scientific solutions. NCTR provides interdisciplinary toxicology research solutions and consultations that support and anticipate future needs to guard and improve personal and public health. NCTR also engages in collaborations with scientists across the FDA and other government agencies, industry, and academia.
FDA/OHR	431	OHR's mission is to provide outstanding service as a valued business partner to our FDA center counterparts. OHR also serves the public by providing information about employment opportunities at the FDA and guidance on the federal government hiring process (inclusive of how to apply and create federal resumes).
FDA/ORA	111	The ORA mission is to protect consumers and enhance public health by maximizing compliance of FDA-regulated products and minimizing risk associated with those products. ORA inspects regulated products and manufacturers, conducts sample analyses of regulated products, and reviews imported products offered for entry into the United States.
Fred Hutch	411	At Fred Hutchinson Cancer Research Center, home to three Nobel laureates, interdisciplinary teams of world-renowned scientists seek new and innovative ways to prevent, diagnose, and treat cancer, HIV/AIDS, and other life-threatening diseases.
Frontline Systems, Inc.	407	Frontline Systems is demonstrating <i>XLMiner.com</i> , its cloud-based predictive analytics platform; <i>Rason.com</i> , cloud-based optimization, simulation, and REST API; Solver, Risk Solver and XLMiner Analysis ToolPak for Excel Online and Google Sheets; Solver SDK and XLMiner SDK, powerful analytics tools for software developers; and Analytic Solver Platform, comprehensive analytics in Microsoft Excel.
GCE Solutions	124	Celebrating 10 years of excellence! GCE is a CRO serving in biometrics function. GCE services include SAS programming and validation, biostatistics, data management, CDISC implementation, medical writing, and clinical IT. We have locations in the USA, India, Europe, and Mexico. www.gcesolutions.com/cro
Green Key Resources	530	Green Key Resources is one of the fastest-growing professional recruitment firms, offering a complete portfolio of staffing solutions—including permanent placement, temporary and contract staffing, executive search, and payroll services—to leading pharmaceutical, biotechnology, medical device, and CRO companies nationwide.
Hawkes Learning	117	Discover the advantages of interactive software created by a company that has been specializing in mathematics for 30 years. Hawkes Learning promotes grade improvement and motivates students by engaging them in the learning process. Students learn more effectively through tutorials, unlimited practice, mastery-based homework, and error-specific feedback. Hawkes Learning is the solution for your students' success!
IBM	417 419	IBM SPSS predictive analytics software is a recognized leader in helping organizations predict what will happen next to drive better business outcomes. IBM SPSS predictive analytics solutions enable organizations to align structured and unstructured data, anticipate future outcomes, and act, embedding analytics into operational processes to achieve maximum ROI and results.
Institute of Mathematical Statistics (IMS)	512	The Institute of Mathematical Statistics (IMS) is a nonprofit scholarly society with 3,800 members worldwide. The purpose of the IMS is to foster the development and dissemination of the theory and applications of statistics and probability. The IMS publishes five core journals and partners with other organizations on an additional 17 publications.
JMP software from SAS	307 309 311	Visit the JMP booth and ask one of our experts for a demo. See JMP, JMP Pro, JMP Clinical, or JMP Genomics in action.
JSM 2017	507	From the beautiful waterfront and fabulous downtown attractions to world-class museums and historic sites to delightful neighborhoods and authentic Chesapeake Bay cuisine, Baltimore is a city you won't soon forget. Stop by the JSM 2017 booth to chat with a representative from the city and learn about everything Baltimore has to offer.

WHO'S WHO AT EXPO 2016



Liberty Mutual Insurance	112	At Liberty Mutual Insurance, doing the right thing is essential to all we do. A talented and diverse workforce has helped us become a global property and casualty insurance leader.
Microsoft	232	Microsoft (Nasdaq "MSFT" @microsoft) is the leading platform and productivity company for the mobile-first, cloud-first world. Its mission is to empower every person and every organization on the planet to achieve more. Microsoft is working to support data scientists in industry and academia. Please subscribe to our newsletter at http://msdsug.microsoft.com .
Minitab	302 304	Minitab is the leading software for statistics education, used at more than 4,000 colleges and universities worldwide. Its user-friendly design helps students learn statistical concepts. Learning with Minitab also helps prepare students for jobs with thousands of distinguished companies that use Minitab. Get the free trial version at www.minitab.com/academic .
National Center for Education Statistics	209	The National Center for Education Statistics (NCES) is the primary federal agency for collecting and analyzing data related to education. NCES collects data on all levels of education, from pre-primary through graduate and professional.
National Center for Health Statistics (NCHS)	134	The National Center for Health Statistics (NCHS) provides statistical information that guides actions and policies to improve the health of the American people. As the nation's principal health statistics agency, NCHS leads the way with accurate, relevant, and timely data.
National Science Foundation	421	The National Science Foundation (NSF) supports excellence in science and engineering research. The Division of Mathematical Sciences (DMS) at NSF supports innovative research in mathematics and statistics, including foundational and applied research. DMS also invests in foundation-wide activities, programs for workforce development and broadening participation, conferences, and research institutes.
National Security Agency	532 534	The National Security Agency/Central Security Service (NSA/CSS) leads the U.S. government in cryptology that encompasses both signals intelligence (SIGINT) and information assurance (IA) products and services and enables computer network operations (CNO) to gain a decision advantage for the nation and our allies under all circumstances.
NCSS	403 405	NCSS is showing PASS 14, the latest edition of our world-leading sample size software that includes tools for analyzing 680 tests and confidence intervals. We are also showing a new edition of our data analysis and graphics software with more than 20 new procedures. Stop by for a great gift.
NORC	130	NORC at the University of Chicago is an independent research institution that delivers reliable data and rigorous analysis to guide critical programmatic, business, and policy decisions around the world. Since 1941, NORC has conducted groundbreaking studies and created and applied innovative methods and tools to transform complex information into useful knowledge.
North Carolina State University	133	The North Carolina State University Department of Statistics is committed to providing outstanding training both on campus and worldwide. We offer traditional statistics doctoral, master's, and undergraduate degrees. Our online graduate program features a master's of statistics degree and two graduate certificates, applied statistics and data management or statistics education.
O'Reilly Media	138	O'Reilly spreads the knowledge of innovators through its technology books, online services, magazines, research, and tech conferences. An active participant in the technology community, O'Reilly has a long history of advocacy, meme-making, and evangelism.
Oxford University Press	310	Please visit Oxford University Press to discover the latest publications, including a wide array of scholarly and general interest books, journals, and online products.
Pearson	119 121	Every learning moment builds character, shapes dreams, guides futures, and strengthens communities. At Pearson, your learning gives us purpose. We are devoted to creating effective, accessible solutions that provide boundless opportunities for learners at every stage of the learning journey. Visit us at Pearson.com .



The JSM OPENING MIXER is in the **EXPO**

Calling all attendees!

The kick-off event of JSM is **Sunday at 6:00 p.m.** in the EXPO! Preview the EXPO and SPOTLIGHT Chicago while mingling with other attendees and exhibitors.



Special thanks to Eli Lilly and Company and Microsoft for their support of this event

WHO'S WHO AT EXPO 2016



Penfield Search Partners	531	We are a seasoned team of specialists with knowledge of the influencers, thought leaders, and decision makers in the industry. Our strength is our niche expertise in biostatistics, statistical programming, health economics, market access, and outcomes research. Our relationships include most of the leading pharmaceutical and biotech companies nationwide.
Penn State World Campus	230	Penn State World Campus, backed by more than a century of distance education and 15+ years of outstanding online instruction, offers more than 100 programs, awarding degrees and transcripts identical to those earned by on-campus students. Our mission is to ensure your access to a quality academic experience, anywhere, anytime.
Personify	533	Personify is an award-winning, global (20 countries/5 continents) recruitment solutions provider. We continue to make a splash in the statistics industry with our subject-matter experts and the analytics behind the recruiting process. Offerings include RPO (recruitment process outsourcing), retained and contingent search, and contract staffing.
RStudio Inc.	126 128	RStudio develops free and open tools for the R community and enterprise-ready professional products for teams to scale and share work. These tools will further the use of R in the field of data science and enable the human desire to understand and improve the world through data analysis.
Sage Publishing	409	Sara Miller McCune founded SAGE Publishing in 1965 to support the dissemination of usable knowledge and educate a global community. SAGE publishes journals, books, and library products spanning a range of subject areas. SAGE remains majority owned by our founder, who has ensured the company will remain permanently independent. www.sagepublishing.com
Salford Systems	413	Salford Systems is a pioneering, award-winning analytics software developer. Salford introduced the world to gradient boosting (TreeNet), RandomForests, CART decision tree, and MARS spline regression, working in partnership with the Berkeley/Stanford inventors. Salford tools power critical applications in the world's largest corporations: fraud detection, credit risk, advertising, retail sales forecasting, etc.
SAS Books	303 305	SAS Books: Information, Resources, and Opportunities. Choose from 300 titles on a multitude of topics, in all formats. Save 20% on your order, plus FREE shipping in the United States. Share your SAS talent—285 SAS authors and counting! Check out booths 303 and 305. SAS knowledge at your fingertips.
SAS Education Practice	408 410	SAS is the leader in business analytics software and services. The SAS Education Practice works with professors, students, and researchers to support industry partnerships with academia; deliver technology and resources for teaching and learning; and educate students about analytics for business advantage. Since 1976, SAS has given academia The Power to Know.
SAS R&D	402 404 406	SAS will exhibit its analytical software for statistics, data mining, text analytics, econometrics, and statistical quality control. Please visit the SAS booth to learn more about recent and upcoming software, including SAS/STAT and SAS/ETS releases, and meet some of the SAS R&D statisticians.
SIAM	509	SIAM's book program strives to make relevant research accessible and to promote the interaction between applied mathematics and disciplines such as statistics, engineering, and computing. Visit our booth for 20-30% book discounts, including the newest ASA-SIAM title, Adaptive Treatment Strategies in Practice: Planning Trials and Analyzing Data for Personalized Medicine.
Springer	102 104	Looking to publish your research? Discover Springer's print and electronic publication services, including open access! Get high-quality review, maximum readership, and rapid distribution. Visit our booth or springer.com/authors . You can also browse key titles in your field and buy (e)books at discount prices. With Springer, you are in good company.
Stat-Ease, Inc.	207	Stat-Ease, Inc. provides statistical software, training, and consulting services on design of experiments (DOE). Stat-Ease's top-rated package, Design-Expert software (now in v10!) sets up and analyzes powerful general and two-level factorials that identify critical factors for improvement and handles response surface optimization for process, mixture, and combined mixture/process variables.



WHO'S WHO AT EXPO 2016

Stata Press	222	Stata Press publishes books, manuals, and journals about Stata and general statistics topics for professional researchers of all disciplines.
StataCorp LP	216 218 220	Stata statistical software provides everything research professionals need for statistical analysis, data management, graphics, and statistical programming. Whether you prefer a GUI interface, a command line, or scripts, Stata puts the statistics you want at your fingertips. One complete package— no separate modules to buy. Perpetual licenses.
Statistical Society of Canada (SSC)	510	The SSC's mission is to promote the development of statistical methodology and encourage the highest possible standards for statistical education and practice in Canada. It has six sections: Actuarial Science, Biostatistics, Business and Industrial Statistics, Probability, Statistical Education, and Survey Methods. It also offers two levels of accreditation: P.Stat. and A. Stat.
Statistics & Data Corporation (SDC)	131	SDC is committed to providing experienced teams that will take ownership of your needs and are positively engaged in your projects. SDC delivers leading-edge statistical analysis and data management services to pharmaceutical, biotechnology, and medical device companies, as well as CRO partners. For more information, please visit www.sdclinical.com or email data@sdclinical.com .
Statistics.com	518	<i>Statistics.com</i> is the online statistics education pioneer with 100+ courses and certificate programs, many with college credit recommendation in analytics, data science, R, Python, Hadoop, text mining, and more. Students from around the world study with renowned authorities via private forum. We are a "Recognized Analytics Education Provider" for INFORMS.
Statpoint Technologies Inc.	516	STATGRAPHICS is powerful, advanced analytics software for the masses. Advanced analytics without complexity. Liberate facts and power trapped in your data. Reveal insights. Eliminate conjecture. Reach confident decisions using dynamic visualization, vivid interactive graphics. Convenient guidance tools make your work a breeze. Reveal actionable opportunities. Solve problems. Transform your business. Achieve success.
Takeda Pharmaceuticals	535	Located in Osaka, Japan, Takeda is a research-based global pharmaceutical company. As the largest pharmaceutical company in Japan and one of the global leaders of the industry, Takeda is committed to striving toward better health for patients worldwide through leading innovation in medicine. Additional information is available at www.takeda.com .
Texas A&M University-Kingsville	116	At the JSM 2016 Exhibit Booth 116 by STAT-HAWKERS, join us to get a complimentary elephant and ask for the new monograph, A New Concept for Tuning Design Weights in Survey Sampling: Jackknifing in Theory and Practice, where Sarjinder, Stephen, Maria, Antonio, and Raghunath are jackknifing a jumbo pumpkin!
The Lotus Group LLC	205	The Lotus Group is a recruiting firm specializing in pharmaceutical industry positions, including statisticians, programmers, and data managers. We are well-connected with candidates and clients, reaching various locations such as Boston, NJ, CA, PA, Chicago, and the DC area. We look forward to helping in your career development.
U.S. Census Bureau	435	The U.S. Census Bureau measures America's people, places, and economy. We produce economic and demographic statistics on business, industry, income, poverty, population, housing, transportation, and more. To identify socio-economic changes, track trends, or see what's new, visit Booth # 435. Follow us on Facebook, Twitter, and YouTube at uscensusbureau , www.census.gov .
University of Kansas Department of Biostatistics	234	The University of Kansas, as the state's flagship institution, upholds that research and teaching are mutually reinforcing. As such, the department of biostatistics provides an infrastructure of biostatistical and informatics expertise that supports and enhances the research, service, and educational needs of KU's medical center and affiliates.
USDA-NASS	308	USDA-NASS conducts surveys covering every aspect of U.S. agriculture, including production and supplies of food and fiber, prices paid and received by farmers, farm labor and wages, finances, chemical use, and demographics of U.S. producers.

WHO'S WHO AT EXPO 2016



Valesta Clinical Research Solutions	132	Valesta Clinical Research Solutions helps organizations find skilled clinical research professionals at all career levels for project-based, contract-to-hire, and direct-hire opportunities. Our dedicated account executives thoroughly understand the industry and work to provide resourcing solutions in areas such as clinical data, clinical monitoring, medical writing, biometrics, and regulatory affairs.
W.H. Freeman/Macmillan	203	Macmillan Learning publishes high-quality textbooks, including titles in introductory statistics, business statistics, and statistics for life sciences. See a live demonstration of homework platform LaunchPad, which contains a collection of videos and algorithmic homework.
WebAssign	113	With WebAssign, students can improve their statistical skills through automatically graded assignments, saving you time. What's more, WebAssign's robust customization features and additional resources give you the power to add your own questions and content to enrich your course. WebAssign is proud to support market-leading textbooks, including low-cost, high-quality options.
Wiki Education Foundation	136	The Wiki Education Foundation is a non-profit organization providing tools and services to support university instructors as they assign their students to write for Wikipedia. At the booth, staff will provide instructional materials, advise on assignment best practices, and promote the Wikipedia Year of Science.
Wiley	521 523 525	Wiley is the world's leading statistics journal publisher. We partner with leading societies to publish 20+ statistics journals, as well as an array of books and digital content across disciplines at all levels. Browse titles and discuss publishing at booths #521, #523, and #525. Visit www.StatisticsViews.com for the latest statistics news and content.
Wolfram Research	524	Wolfram has been defining the computational future for more than 25 years. As the creators of Mathematica, Wolfram Alpha, and the Wolfram Language, we are the leader in developing technology and tools that inject sophisticated computation and knowledge into everything. Learn more at www.wolfram.com .
XLSTAT	517 519	XLSTAT is a statistical software that uses Microsoft Excel as its interface. User-friendly, intuitive, and with outstanding performances and excellent customer service, XLSTAT software makes teachers' and students' lives easier by providing them with a solution that does not require learning a new interface. Special offers are available for students, academics, and researchers.



Don't let JSM overwhelm you.

Come to the First-Time Attendee Orientation and Reception! JSM docents will be on hand to help and refreshments will be served.

Sunday at 12:30 p.m. in CC-W375a.

Treats! Microbrews! Coffee! Information! Activities!



Check out SPOTLIGHT Chicago for a taste of the city and a chance to give back! See **Page 6** for the full schedule of events.



JSM 2016 Career Service Employers

Would you like to explore career opportunities with top statistical employers? The 2016 Career Service, located in Hall F1, will give you the opportunity to research job postings and contact employers. Access is for registered applicants and employers only, and interviews are by appointment.

AbbVie*	FDA Center for Devices and Radiological Health (CDRH)*	JP Morgan Chase*
Amgen Inc*	FDA Center for Drug Evaluation and Research (CDER)*	Jazz Pharmaceuticals
Axio Research LLC	FDA Center for Food Safety and Applied Nutrition (CFSAN)*	Johnson & Johnson—Janssen R&D*
Bank of America*	FDA Center for Tobacco Products (CTP)*	Lawrence Livermore National Laboratory
Bank of the West*	FDA Center for Veterinary Medicine (CVM)	National Security Agency
BioRankings	FDA National Center for Toxicological Research (NCTR)*	Otsuka Pharmaceuticals
Bucknell University	FDA Office of Human Resources/Corporate Recruitment Team (OHR/CRT)*	Pacific Northwest National Laboratory
CNA Corporation	FDA Office of Operations (OO)*	SAS Institute
Center for Biostatistics in AIDS Research (CBAR)	FDA Office of Regulatory Affairs (ORA)*	Sandia National Laboratories
Christiana Care Health System	GlaxoSmithKline*	Southwestern University of Finance and Economics
Citadel LLC*	IBM T. J. Watson Research Center	StataCorp LP*
Citizens Bank	Incyte Corporation*	State Farm*
City University of Hong Kong		Takeda*
Duke Clinical Research Institute*		The Emmes Corporation*
Eli Lilly and Company*		Travelers
FDA Center for Biologics Evaluation and Research (CBER)*		U.S. Census Bureau
		University of Utah
		W.L. Gore & Associates, Inc.
		Westat

* denotes an Executive Suite

CAREER SERVICE APPLICANT FEES

ASA Student Member	\$90
Student Nonmember	\$125
ASA Member	\$150
Nonmember	\$200

TO REGISTER

Visit the main JSM onsite registration area and ask to add the Career Service to your registration.

We thank the following JSM 2016 sponsors for their support:

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Visit www.amstat.org/jmsponsors to learn more.



McCormick Place Convention Center

WEST BUILDING OVERVIEW

Level 5

Rooftop Garden

Level 4

Professional Development
(W470 - W476)

Level 3

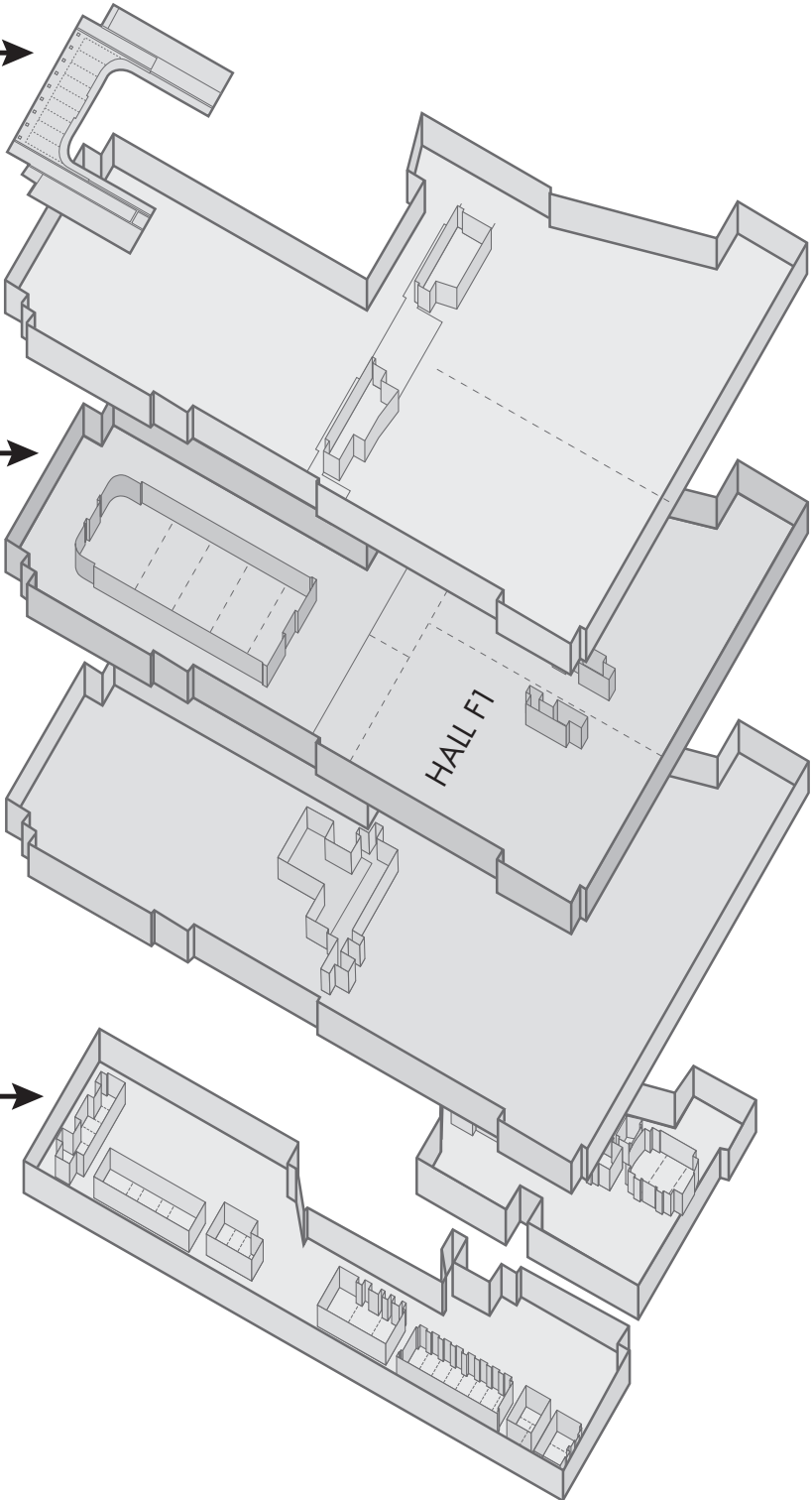
JSM Registration Area
JSM EXPO and Career Service
Meeting Rooms (W375a and b)
Central Concourse
Sky Bridge to North &
South Buildings
Access to Parking Lot A

Level 2

Business Center
Food Court
La Brea Bakery Café
Shops & Services

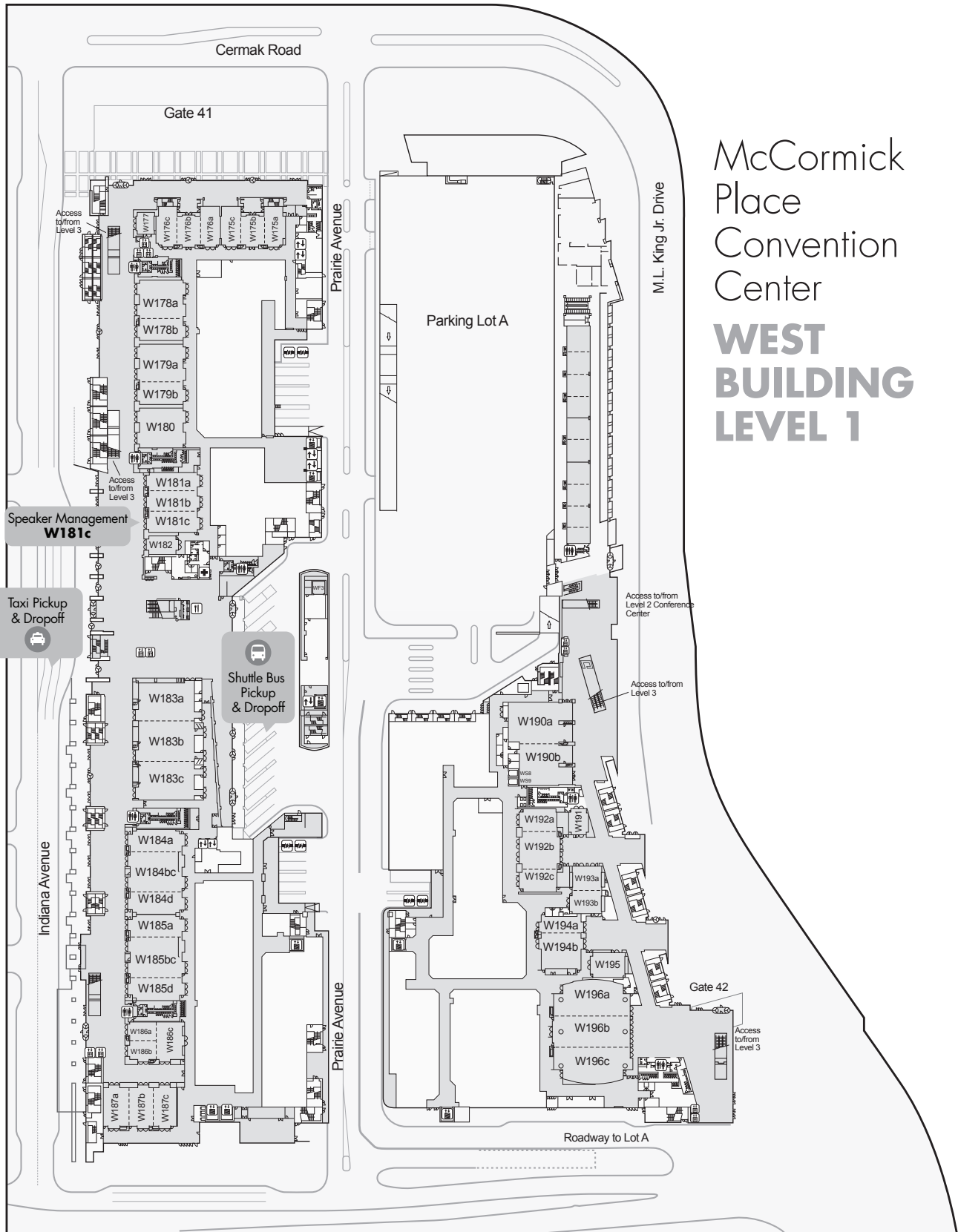
Level 1

Meeting Rooms (W175 - W196)
First Aid
Access to Parking Lot A
Shuttle Bus Pickup & Dropoff





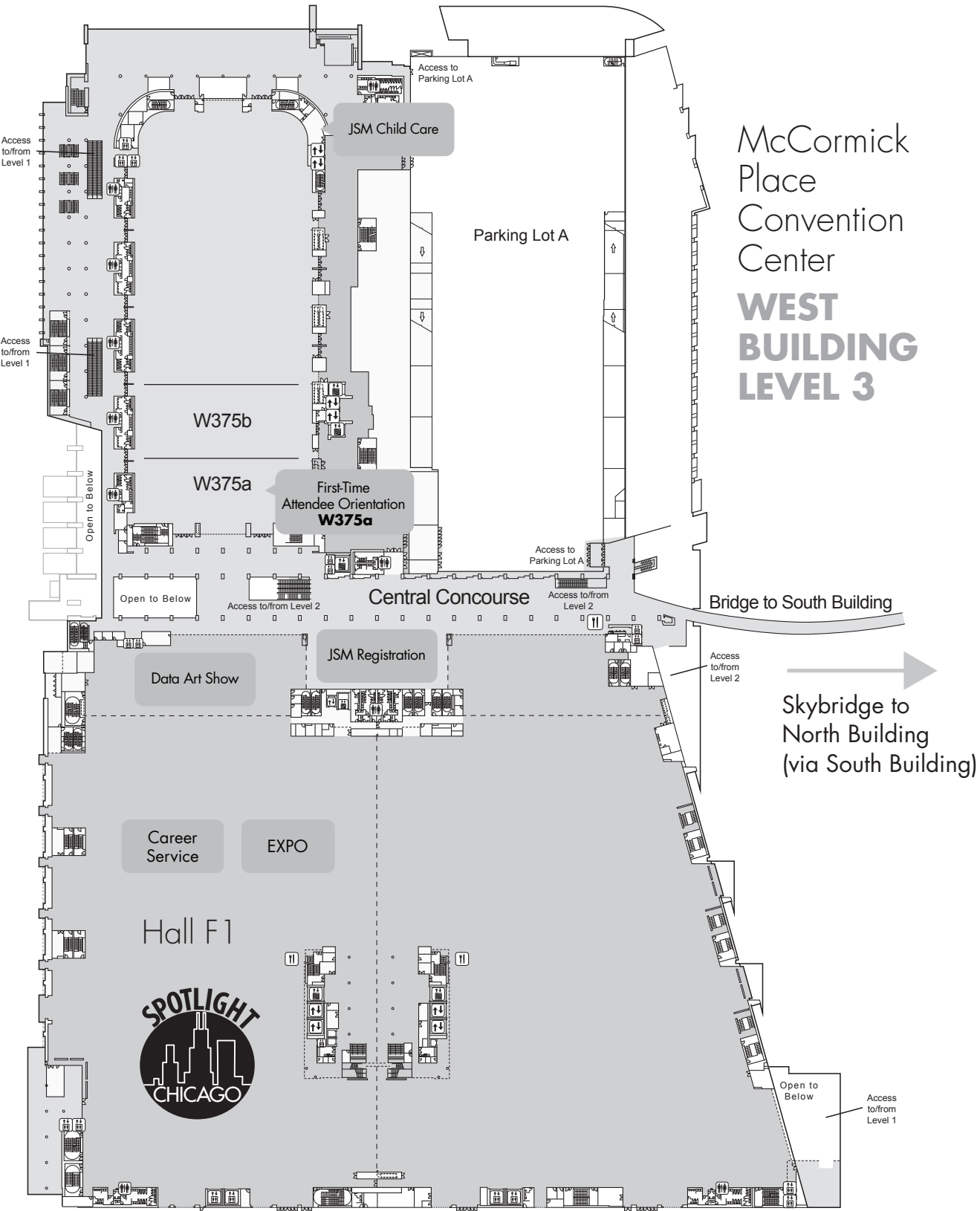
FLOOR PLANS



McCormick
Place
Convention
Center

**WEST
BUILDING
LEVEL 1**

FLOOR PLANS

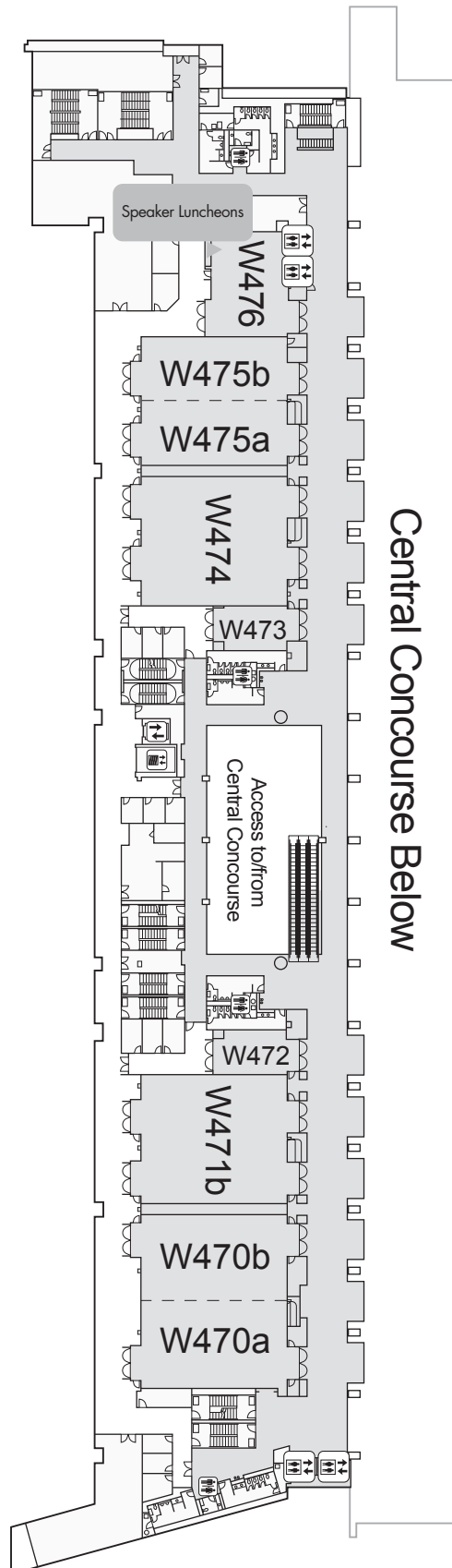




FLOOR PLANS

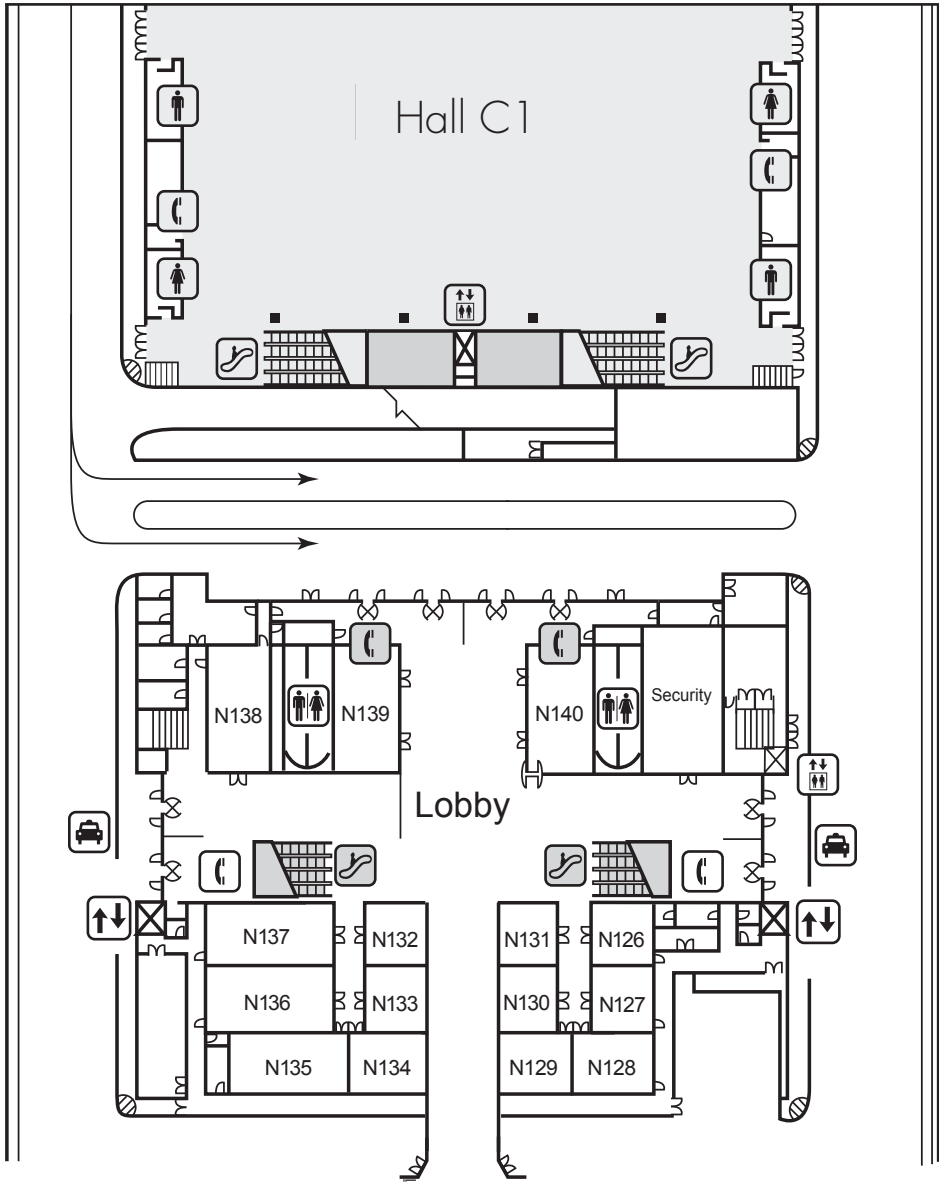
McCormick Place Convention Center **WEST BUILDING** **LEVEL 4**

Professional
Development
location





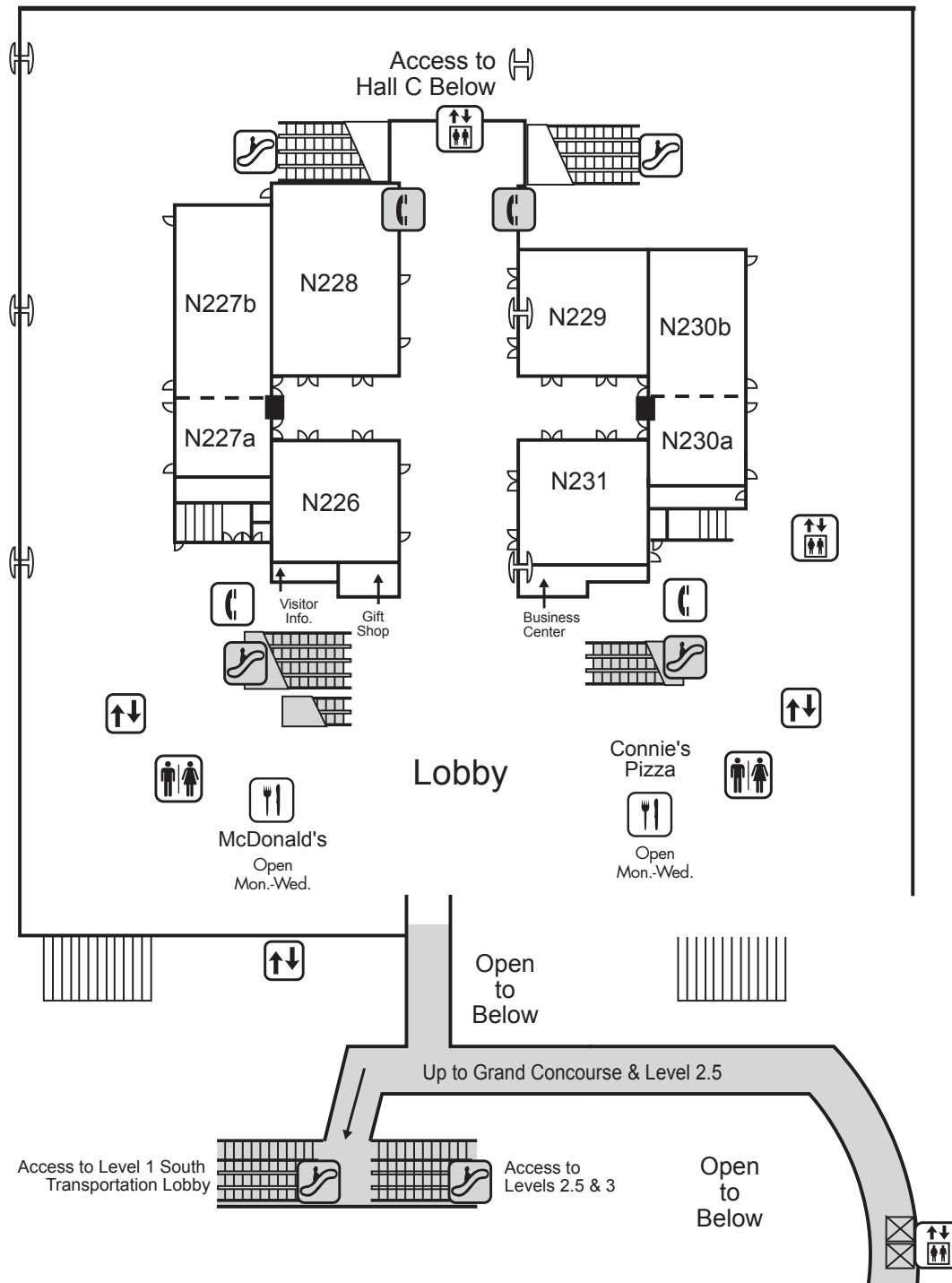
McCormick Place Convention Center
NORTH BUILDING LEVEL 1





FLOOR PLANS

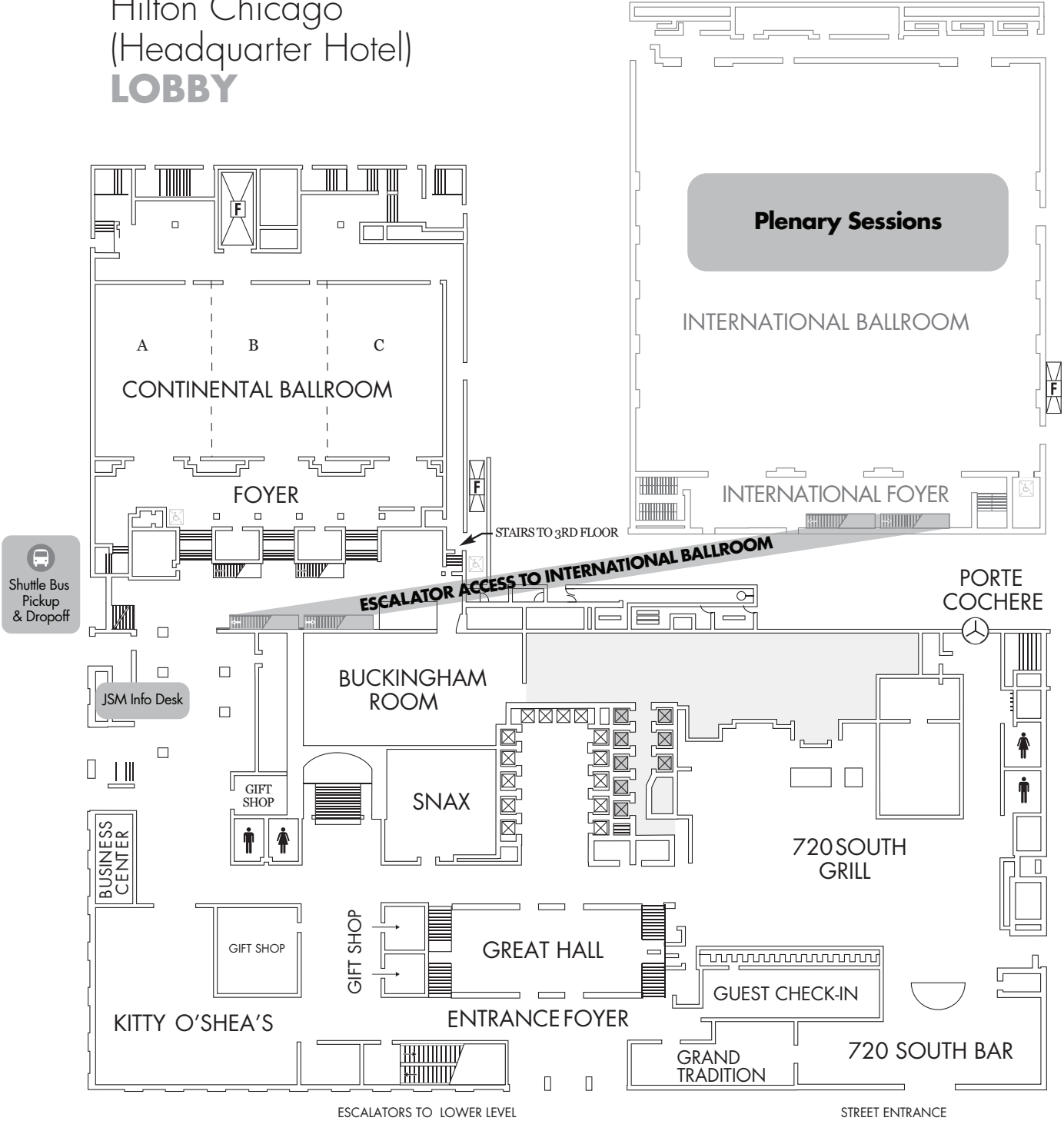
McCormick Place Convention Center NORTH BUILDING LEVEL 2



FLOOR PLANS



Hilton Chicago (Headquarter Hotel) LOBBY



ADA Elevator



Elevator



Men's Restroom

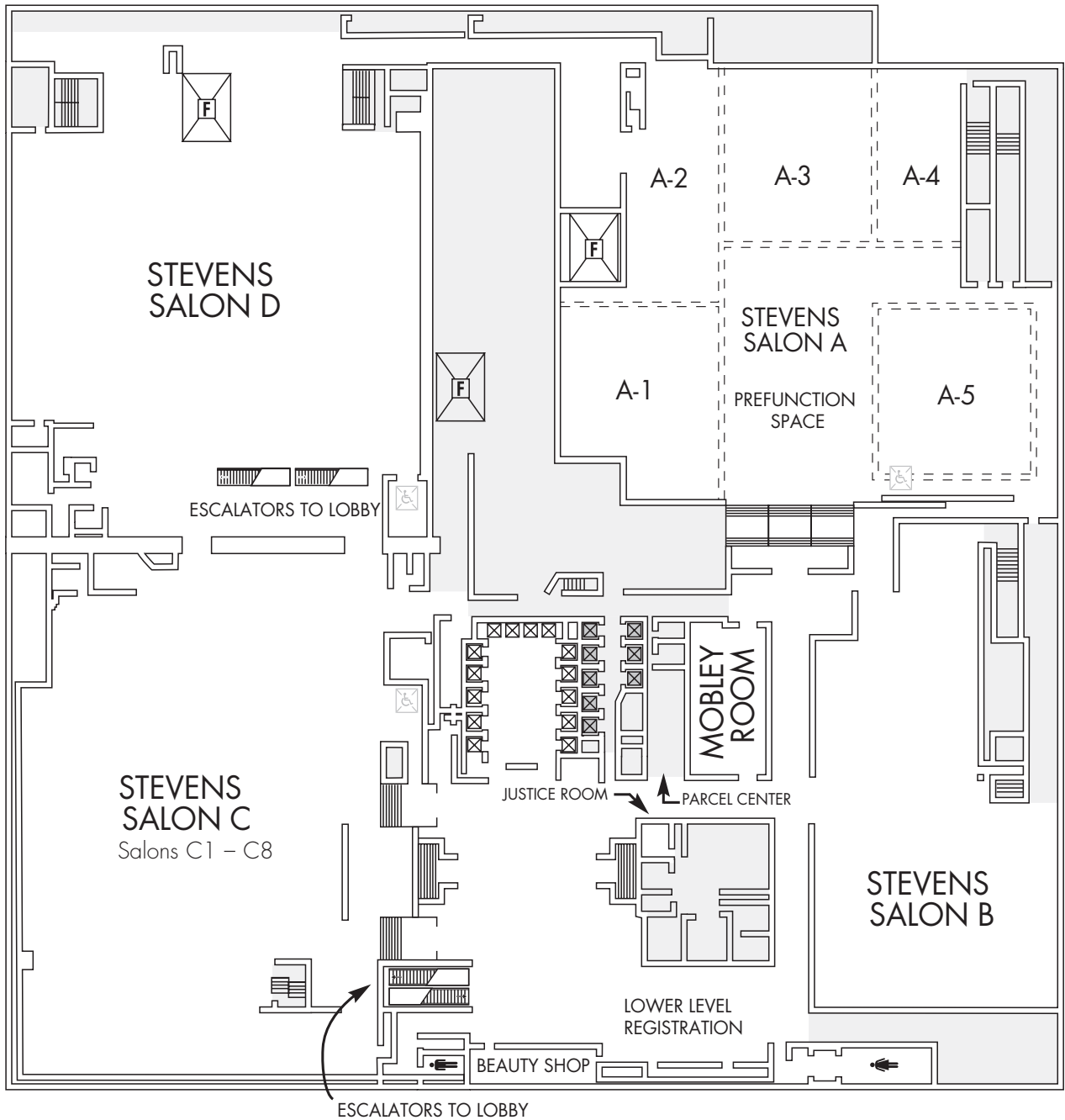


Women's Restroom



FLOOR PLANS

Hilton Chicago (Headquarter Hotel) LOWER LEVEL



ADA Elevator



Elevator



Men's Restroom

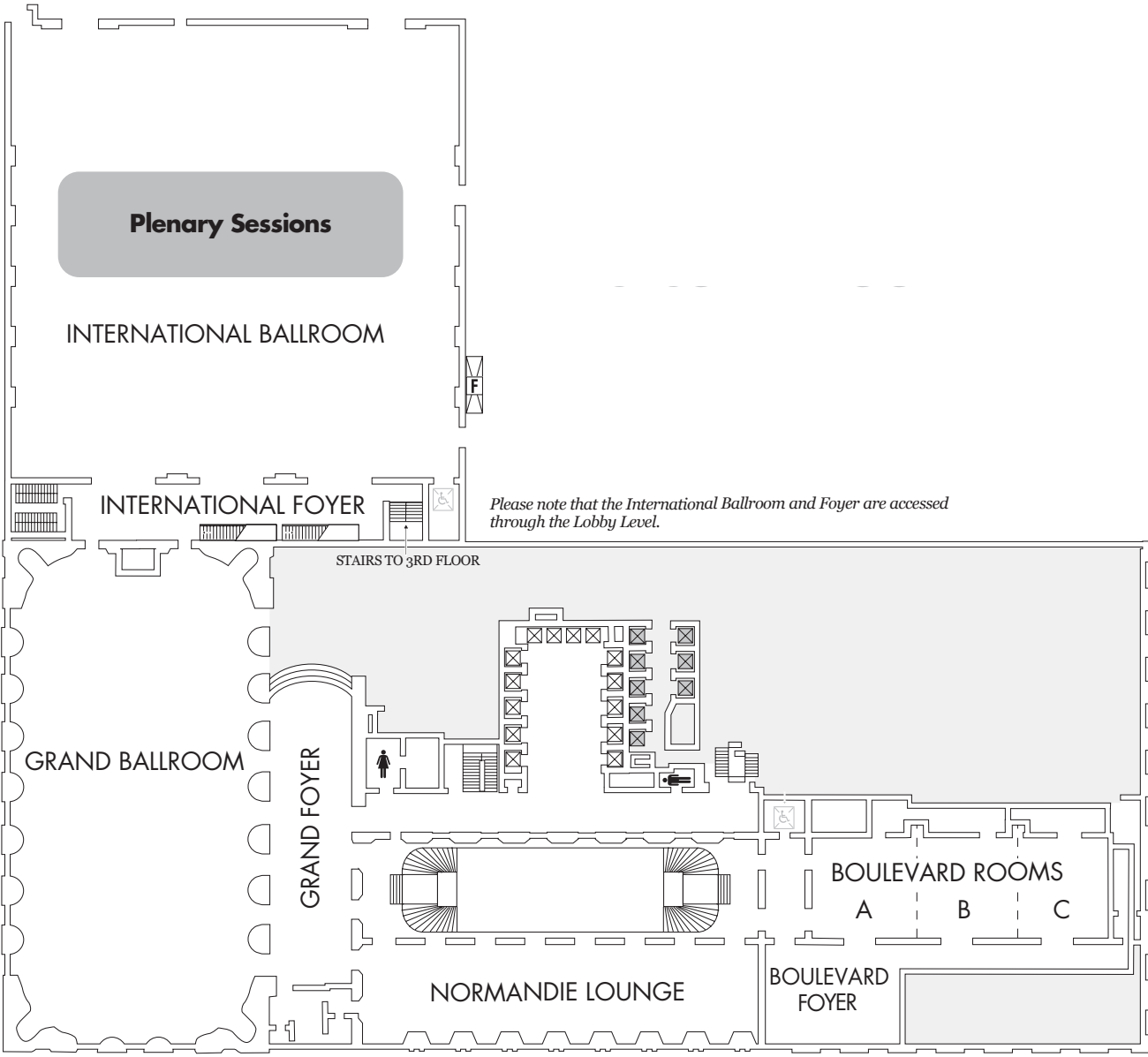


Women's Restroom

FLOOR PLANS



Hilton Chicago (Headquarter Hotel) SECOND FLOOR



 ADA Elevator

 Elevator

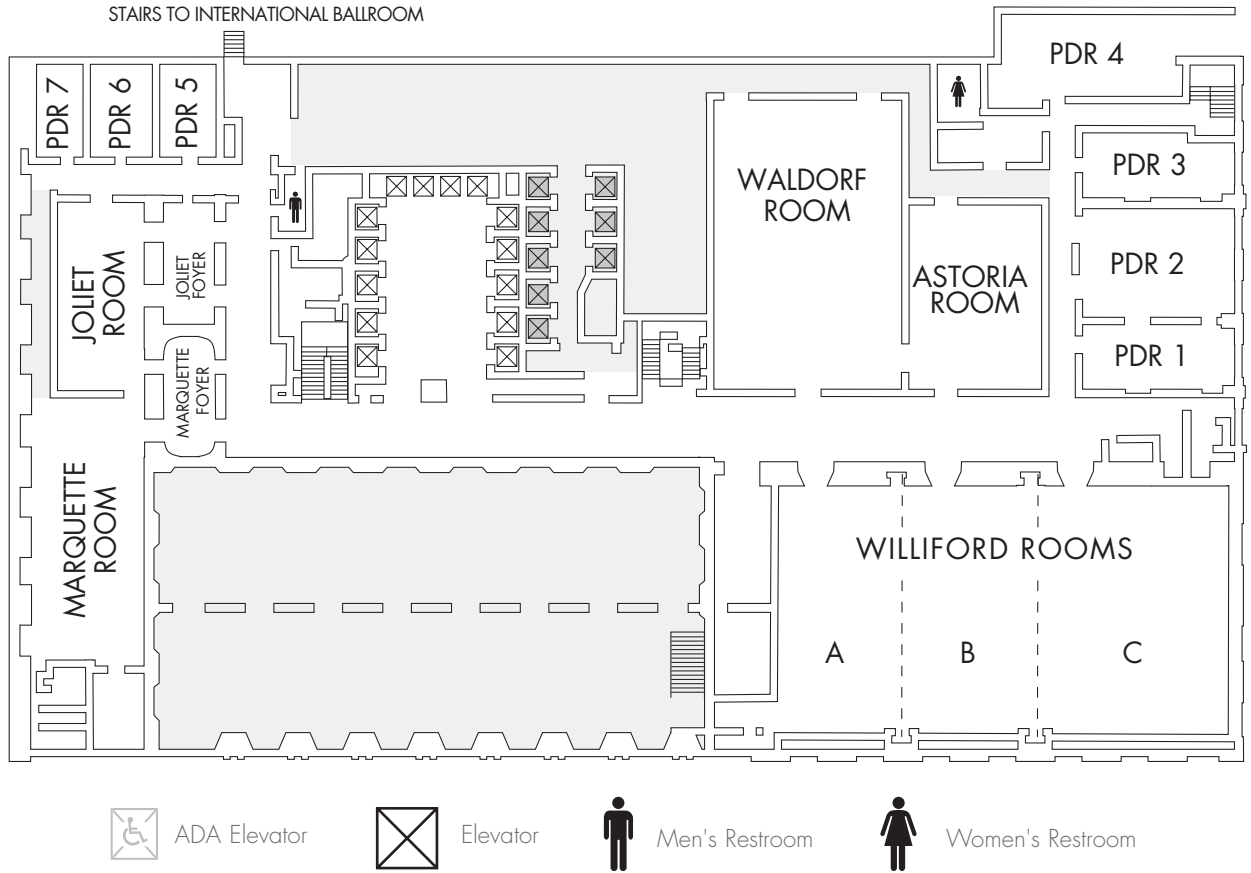
 Men's Restroom

 Women's Restroom



FLOOR PLANS

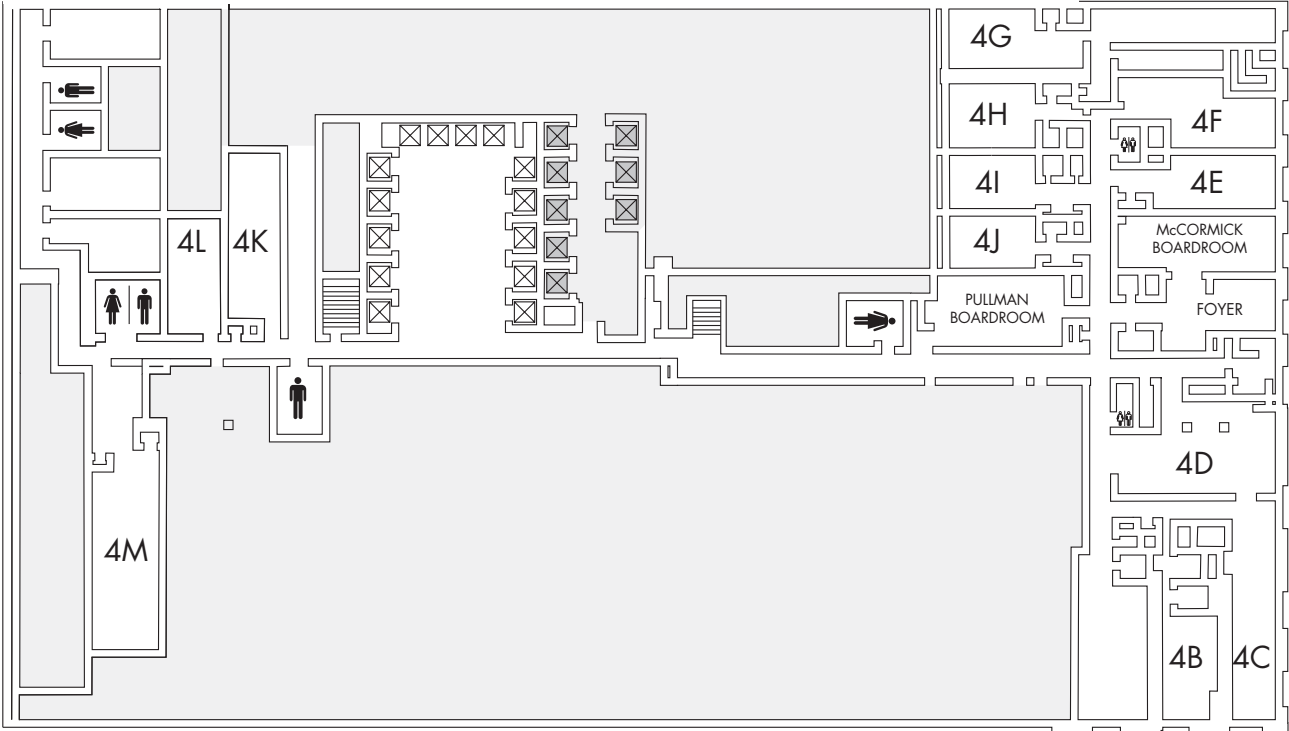
Hilton Chicago (Headquarter Hotel) THIRD FLOOR



FLOOR PLANS



Hilton Chicago (Headquarter Hotel) FOURTH FLOOR



ADA Elevator



Elevator



Men's Restroom



Women's Restroom



ANNUAL REVIEWS

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statistics.annualreviews.org • Volume 3 • June 2016

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The *Annual Review of Statistics and Its Application*, in publication since 2014, informs statisticians, quantitative methodologists, and users of statistics about major methodological advances and the computational tools that allow for their implementation. It includes developments in the field of statistics, including theoretical statistical underpinnings of new methodology, as well as developments in specific application domains such as biostatistics and bioinformatics, economics, machine learning, psychology, sociology, and aspects of the physical sciences.

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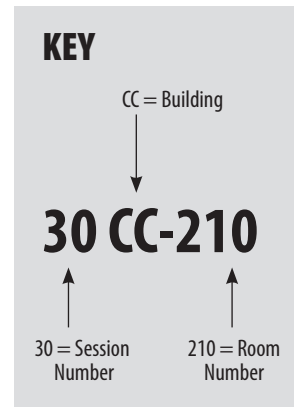
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TECHNICAL SESSIONS AT A GLANCE



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MEM				219 CC-W180		
MHSS	109 CC-W179b	183 CC-W193b				
MHR	109 CC-W179b	183 CC-W193b				
MKTG	132 CC-W192a	155 CC-W196c				
NPAR	124 CC-W181b	156 CC-W178a/185 CC-W178b / 194 CC-Hall F1 West/ 201 CC-Hall F1 West	204 CC-Hall F1 West	260 CC-W186c		
PRIV				227 CC-W195		
Q&P		150 CC-W196b/ 192 CC-Hall F1 West				
RISK		168 CC-W176c				
RSS	96 CC-W375b / 97 CC-W190a / 121 CC-192b			217 CC-W375b		
SBSS	102 CC-W179a / 139 CC-W177	157 CC-W179a/ 171 CC-W183b / 184 CC-W179b		223 CC-W187b/ 235 CC-W187a / 258 CC-W187c / 268 CC-Hall F1 West	271 CC-Hall F1 West	
SDNS		152 CC-W176a				
SGG	118 CC-W185d/ 134 CC-W186c	142 CC-W183a		252 CC-W190b		
SI				224 CC-W190a/ 246 CC-W181b / 253 CC-W191		
SIS	135 CC-W175a	199 CC-Hall F1 West				
SLDS	104 CC-W196a/ 131 CC-W195	167 CC-W175c / 176 CC-W175b		248 CC-W185a/ 249 CC-W186a		
SOC	138 CC-W175b	154 CC-W192b/ 196 CC-Hall F1 West		238 CC-W175a		
SPES	98 CC-W190b	193 CC-Hall F1 West		220 CC-W183b		

TECHNICAL SESSIONS AT A GLANCE



MONDAY SESSIONS, CONTINUED							
SPONSOR	8:30 a.m.	10:30 a.m.	11:35 a.m.	2:00 p.m.	3:05 p.m.	4:45 p.m.	
SRMS	101 CC-W178a/ 120 CC-W176c / 136 CC-W176b	164 CC-W192a/ 179 CC-W191 / 197 CC-Hall F1 West		236 CC-W176b / 255 CC-W175c			
SSC	96 CC-W375b	141 CC-W180		217 CC-W375b			
TSHS		159 CC-W194b		257 CC-W177			
TSIG		198 CC-Hall F1 West					
WNAR	96 CC-W375b	147 CC-W187b		217 CC-W375b			

TUESDAY SESSIONS							
SPONSOR	8:30 a.m.	10:30 a.m.	11:35 a.m.	2:00 p.m.	3:05 p.m.	4:45 p.m.	8:00 p.m.
ASA	280 CC-W375b	325 CC-W375b				454 H-International Ballroom	455 H-International Ballroom
B&E	288 CC-W184bc / 301 CC-W184d	345 CC-W176b/ 354 CC-W181b / 365 CC-W178b		437 CC-W175b/ 450 CC-Hall F1 West	453 CC-Hall F1 West		
BIOM	311 CC-W194a / 309 CC-W193b / 302 CC-W193a	327 CC-W196c / 341 CC-W193a / 356 CC-W193b / 357 CC-W194a /		418 CC-W193a/ 428 CC-W193b / 430 CC-W191 / 448 CC-Hall F1 West	451 CC-Hall F1 West		
BIOP	300 CC-W196c/ 304 CC-W195 / 306 CC-W181a / 317 CC-W194b	343 CC-W194b/ 346 CC-W196a / 362 CC-W192c / 363 CC-W191 / 380 CC-Hall F1 West	383 CC-Hall F1 West	397 CC-W196b/ 422 CC-W194b / 435 CC-W195			
CNSL	305 CC-W183a	360 CC-W179b		410 CC-W183a			
COC		326 CC-W186c					
CRAAAS				401 CC-W181a			
CSD				417 CC-W181b			
COMP	294 CC-W185a	331 CC-W183a/ 358 CC-W186a		427 CC-W179b			
DEM						454 H-International Ballroom	
EDUC	312 CC-W175b	332 CC-W184bc		414 CC-W176b			
ENAR	280 CC-W375b / 283 CC-W196b	325 CC-W375b/ 337 CC-W196b		403 CC-W196a/ 424 CC-W190a		454 H-International Ballroom	455 H-International Ballroom
ENVR	289 CC-W179a	359 CC-W182		429 CC-W184d/ 446 CC-Hall F1 West			
EPI	307 CC-W181b / 313 CC-W192b / 296 CC-W192a	375 CC-Hall F1 West/ 381 CC-Hall F1 West	384 CC-Hall F1 West	400 CC-W190b/ 431 CC-W192a			
GOVT	297 CC-W179b	333 CC-W180/ 371 CC-Hall F1 West		416 CC-W184bc/ 440 CC-W184a			
GRPH				407 CC-W179a/ 444 CC-Hall F1 West			
HPSS	308 CC-W183b / 323 CC-W175c	334 CC-W185bc/ 372 CC-Hall F1 West/ 382 CC-Hall F1 West	385 CC-Hall F1 West	413 CC-W178a			
ISBA	464 CC-W375b			585 CC-W175c	624 H-International Ballroom		
ICSA	280 CC-W375b	325 CC-W375b		408 CC-W185bc		454 H-International Ballroom	455 H-International Ballroom
IISA	280 CC-W375b	325 CC-W375b		404 CC-W185d		454 H-International Ballroom	455 H-International Ballroom
IMS	280 CC-W375b / 291 CC-W178a / 321 CC-W177	325 CC-W375b / 350 CC-W176c		399 CC-W187a/ 438 CC-W186a		454 H-International Ballroom	455 H-International Ballroom
ISBA	280 CC-W375b	325 CC-W375b		411 CC-186c		454 H-International Ballroom	455 H-International Ballroom
ISI	280 CC-W375b	325 CC-W375b				454 H-International Ballroom	455 H-International Ballroom
JCGS		330 CC-W187b					



TECHNICAL SESSIONS AT A GLANCE

TUESDAY SESSIONS, CONTINUED

SPONSOR	8:30 a.m.	10:30 a.m.	11:35 a.m.	2:00 p.m.	3:05 p.m.	4:45 p.m.	8:00 p.m.
KISS	280 CC-W375b	325 CC-W375b / 328 CC-W187c		415 CC-W175c		454 H-International Ballroom	455 H-International Ballroom
MDD		348 CC-W192a					
MHR	303 CC-W175a	374 CC-Hall F1 West					
MHSS	303 CC-W175a	374 CC-Hall F1 West					
MKTG		335 CC-W190b		442 CC-Hall F1 West			
NPAR	324 CC-W176b	329 CC-W175a/ 369 CC-W175b		421 CC-W187c			
Q&P	310 CC-W184a	340 CC-W179a					
RISK	287 CC-W185d			426 CC-W177/ 443 CC-Hall F1 West			
RSS	280 CC-W375b / 295 CC-W186c	325 CC-W375b				454 H-International Ballroom	455 H-International Ballroom
SBSS	322 CC-W182 / 282 CC-W180	351 CC-W178a/ 368 CC-W176a / 367 CC-W175c		409 CC-W375b/ 423 CC-W187b / 439 CC-W186b			
SDNS	316 CC-W186a	342 CC-W185d					
SFHR		336 CC-W187a					
SGG	318 CC-W196a	347 CC-W192b/ 376 CC-Hall F1 West		405 CC-W196c/ 434 CC-W194a			
SI	293 CC-W190b/ 319 CC-W191	377 CC-Hall F1 West		420 CC-W192c			
SIS		338 CC-W190a					
SLDS	298 CC-W187c/ 314 CC-W187a / 315 CC-W186b	344 CC-W183c/ 353 CC-W181a / 361 CC-W186b		406 CC-W180/ 432 CC-W178b / 433 CC-W182 / 445 CC-Hall F1 West/ 449 CC-Hall F1 West	452 CC-Hall F1 West		
SOC	281 CC-W178b	366 CC-W185a		425 CC-W192b			
SPES	292 CC-W183c	355 CC-W177		419 CC-W175a			
SRMS	299 CC-W176c/ 320 CC-W176a	349 CC-W184a/ 364 CC-W184d		398 CC-W183b/ 436 CC-W183c			
SSC	280 CC-W375b / 284 CC-W190a	325 CC-W375b/ 378 CC-Hall F1 West		412 CC-W185a		454 H-International Ballroom	455 H-International Ballroom
SSPA	290 CC-W185bc						
TSHS				402 CC-W176a			
UQCSIG				447 CC-Hall F1 West			
WNAR	280 CC-W375b / 285 CC-W192c	325 CC-W375b/ 339 CC-W195 / 379 CC-Hall F1 West				454 H-International Ballroom	455 H-International Ballroom
WOMEN	286 CC-W187b						

WEDNESDAY SESSIONS

SPONSOR	8:30 a.m.	10:30 a.m.	11:35 a.m.	2:00 p.m.	4:45 p.m.
ASA	464 CC-W375b				624 H-International Ballroom
B&E	482 CC-W184d/ 504 CC-W184a	550 CC-W194b		588 CC-W183b	
BIOM	484 CC-W176a/ 495 CC-W176b / 496 CC-W177	511 CC-W185a/ 531 CC-W186c / 542 CC-W186b / 538 CC-W186a / 559 CC-Hall F1 West	562 CC-Hall F1 West	580 CC-W184d/ 599 CC-W184a / 603 CC-W186c / 607 CC-W186b /	
BIOP	473 CC-W178a/ 481 CC-W179a / 490 CC-W181a / 500 CC-W175c	530 CC-W187a / 535 CC-W183a/ 546 CC-W184d / 548 CC-W187c		596 CC-W185d/ 597 CC-W185bc / 611 CC-W185a / 612 CC-W187a	
CARCH				586 CC-W196c	
CNSL	476 CC-W183a	536 CC-W192b/ 557 CC-Hall F1 West			
COPSS					624 H-International Ballroom
COMP	468 CC-W196b/ 494 CC-W195	526 CC-W180/ 540 CC-W179b / 556 CC-Hall F1 West		581 CC-W180/ 604 CC-W179b	

TECHNICAL SESSIONS AT A GLANCE



WEDNESDAY SESSIONS, CONTINUED					
SPONSOR	8:30 a.m.	10:30 a.m.	11:35 a.m.	2:00 p.m.	4:45 p.m.
EDUC	489 CC-W192b	522 CC-W190a/ 558 CC-Hall F1 West		605 CC-W194a	
ENAR	464 CC-W375b/ 487 CC-W182	510 CC-W185d		579 CC-W183a/ 615 CC-W186a	624 H-International Ballroom
ENVR	472 CC-W184bc	525 CC-W193a/ 541 CC-W193b		589 CC-W194b	
EPI	497 CC-W175b	528 CC-W183b/ 543 CC-W183c		606 CC-W184bc	
GOVT	507 CC-W187a	527 CC-W196b		590 CC-W190b/ 620 CC-W191	
GRPH				600 CC-W179a	
HPSS	465 CC-W192a	529 CC-W190b		621 CC-W193b	
ICSA	464 CC-W375b/ 505 CC-W196a			594 CC-W178a	624 H-International Ballroom
IISA	464 CC-W375b			583 CC-W175a	624 H-International Ballroom
IMS	464 CC-W375b / 466 CC-W185bc	513 CC-W175a/ 523 CC-W175c		584 CC-W375b/ 616 CC-W176c	624 H-International Ballroom
ISBA	464 CC-W375b			585 CC-W175c	624 H-International Ballroom
ISI	464 CC-W375b				624 H-International Ballroom
JASAAPP				591 CC-W196b	
JBES		520 CC-W184bc			
KISS	464 CC-W375b			617 CC-W182	624 H-International Ballroom
MDD	474 CC-W180			623 CC-W187c	
MEM				592 CC-W192b	
MHSS	471 CC-W191			618 CC-W196a	
MHR	471 CC-W191			618 CC-W196a	
NOETHER		514 CC-W375b			
NPAR	508 CC-W186b	532 CC-W176a/ 553 CC-W176b		587 CC-W176a/ 622 CC-W177	
PUB		554 CC-Hall F1 West			
Q&P				582 CC-W183c	
RISK	493 CC-W193a				
RSS	464 CC-W375b	517 CC-W181a / 551 CC-W181b			624 H-International Ballroom
SA		521 CC-W185bc			
SBSS	480 CC-W185d/ 506 CC-W186a	516 CC-W178a/ 537 CC-W176c / 552 CC-W177		598 CC-W175b/ 619 CC-W176b	
SDNS	475 CC-W196c			610 CC-W178b	
SGG	469 CC-W179b/ 491 CC-W181b / 501 CC-W178b	545 CC-W184a/ 560 CC-Hall F1 West	563 CC-Hall F1 West	593 CC-W187b	
SI		547 CC-W182			
SIS	479 CC-W190a				
SLDS	485 CC-W194b/ 498 CC-W194a / 499 CC-W193b	518 CC-W179a/ 544 CC-W178b		608 CC-W181a/ 609 CC-W181b	
SOC	503 CC-W187c	509 CC-W195/ 533 CC-W194a		601 CC-W190a	
SPAAC		554 CC-W Hall F1 West			
SPAIG	478 CC-W190b				
SPES	486 CC-W185a	519 CC-W192a/ 539 CC-W191			
SRMS	470 CC-W183c/ 483 CC-W187b / 492 CC-W183b / 502 CC-W186c	524 CC-W196c/ 549 CC-W196a / 561 CC-Hall F1 West	564 CC-Hall F1 West	595 CC-W193a/ 602 CC-W192a/ 613 CC-W192c	
SSC	464 CC-W375b	512 CC-W175b			624 H-International Ballroom
SWB		534 CC-W192c			
TSHS	488 CC-W192c				
TSIG	467 CC-W175a			614 CC-W195	
WNAR	464 CC-W375b / 477 CC-W176c	515 CC-W187b			624 H-International Ballroom



TECHNICAL SESSIONS AT A GLANCE

THURSDAY SESSIONS

SPONSOR	8:30 a.m.	10:30 a.m.
ACCCP	631 CC-W179b	
B&E	642 CC-W176b/ 663 CC-W176a	676 CC-W196c/ 706 CC-W195
BIOM	629 CC-W184d/ 644 CC-W186c/ 649 CC-W186a / 654 CC-W186b	689 CC-W184d/ 698 CC-W186c / 699 CC-W187a / 700 CC-W187b
BIOP	639 CC-W184bc / 648 CC-W183a/ 658 CC-W187a / 660 CC-W184a	685 CC-W185d/ 687 CC-W185bc / 702 CC-W186b / 704 CC-W185a
CNSL	637 CC-W176c	
COMP	632 CC-W181a/ 651 CC-W181b	693 CC-W176b
EDUC	652 CC-W192b	678 CC-W192c/ 694 CC-W192a
ENAR	625 CC-W183b	674 CC-W183b/ 682 CC-W186a
ENVR	627 CC-W194b	691 CC-W181a/ 692 CC-W181b
EPI	643 CC-W185bc/ 653 CC-W185a	675 CC-W183a/ 696 CC-W184a
GOVT	647 CC-W195/ 666 CC-W194a	683 CC-W176c/ 708 CC-W177
GRPH		695 CC-W176a
HPSS	635 CC-W190b	688 CC-W193a
ICSA		680 CC-W190b
IMS	628 CC-W192a/ 664 CC-W191	668 CC-W194b
ISI	626 CC-W178a	
MDD	646 CC-W187c	
MEM	636 CC-W175a	
MKTG		701 CC-W196a
NPAR	638 CC-W192c/ 667 CC-W193a	709 CC-W194a
PRMA		672 CC-W184bc
Q&P	645 CC-W175c	
RSS		679 CC-W182
SBSS	665 CC-W193b	673 CC-W192b/ 707 CC-W191
SDNS	634 CC-W179a	
SGG	657 CC-W185d	703 CC-W183c
SI	659 CC-W187b	681 CC-W187c
SLDS	641 CC-W180/ 655 CC-W178b / 656 CC-W182	677 CC-W175a/ 697 CC-W175b
SOC	633 CC-W196a	686 CC-W179a
SPES	650 CC-W175b	671 CC-W175c
SRMS	640 CC-W196b/ 661 CC-W196c	670 CC-W180/ 684 CC-W178b / 705 CC-W179b
SSC	662 CC-W177	
TSHS		690 CC-W193b



Looking for stats swag?

Swing by the ASA Store in the EXPO.
We've stocked some surprises this year!

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 2016 theme, "The Extraordinary Power of Statistics." 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.

FRIDAY JULY 29

Committee/Business Meetings & Other Activities

8:00 a.m. – 5:00 p.m. H-Stevens Salon A 3
ASA Board of Directors Meeting (Closed)

SATURDAY JULY 30

JSM Hours

7:30 a.m. – 6:00 p.m. CC-Hall F1 West Central Concourse
ASA Membership/Help Desk/Press Desk

7:30 a.m. – 6:00 p.m. CC-Hall F1 West Central Concourse
JSM Main Registration

7:30 a.m. – 6:00 p.m. CC-Hall F1 West Central Concourse
Cyber Center

8:00 a.m. – 5:00 p.m. CC-Hall F1 West
Exhibitor Move-in and Lounge

9:00 a.m. – 5:00 p.m. CC-Hall F1 West
JSM Career Service (Job Posting and Resume Submission Only)

Committee/Business Meetings & Other Activities

8:00 a.m. – 4:00 p.m. H-Stevens Salon C 5&6
ACTStat 2016 Annual Meeting (Closed)
Organizer(s): Leah J. Welty, Northwestern University

8:00 a.m. – 5:00 p.m. H-Stevens Salon A 3
ASA Board of Directors Meeting (Closed)

8:30 a.m. – 4:30 p.m. H-Stevens Salon C 2
Workshop: Teaching the Statistical Investigation Process with Simulation-Based Inference (Closed)
Organizer(s): Dennis Pearl, CAUSE/Penn State

3:00 p.m. – 5:00 p.m. H-Stevens Salon C 4
Diversity Mentoring Program-Mentor Orientation
Chair(s): Jesse Chittams, University of Pennsylvania

Professional Development

CE_02C

Best Practices in Data Visualization: Present Your Data Clearly, Accurately, and Attractively (ADDED FEE)

8:00 a.m. – 12:00 p.m. CC-W470b
ASA

Instructor(s): Teresa Larsen, *ScientificLiteracy.org*

CE_43P

Effective Collaboration, Part I (ADDED FEE)

8:00 a.m. – 12:00 p.m. CC-W473
ASA

Instructor(s): Doug Zahn, Florida State University; Eric Vance, Laboratory for Interdisciplinary Statistical Analysis; Heather S. Smith, Cal Poly

CE_01C

Introduction to Bayesian Methods, Computation, and Modeling Part I (ADDED FEE)

8:30 a.m. – 5:00 p.m. CC-W474
ASA

Instructor(s): Joseph G. Ibrahim, The University of North Carolina at Chapel Hill

CE_03C

Applied Longitudinal Analysis (ADDED FEE)

8:30 a.m. – 5:00 p.m. CC-W471
ASA, Biometrics Section

Instructor(s): Garrett Fitzmaurice, Harvard T.H. Chan School of Public Health

Saturday Professional Development (continued)

CE_04C
 A Primer to Web Scraping with R (ADDED FEE)
 8:30 a.m. – 5:00 p.m. CC-W470a
 ASA
 Instructor(s): Simon Munzert, University of Konstanz

CE_05C
 Advanced Topics in Survey Sampling (ADDED FEE)
 8:30 a.m. – 5:00 p.m. CC-W475a
 ASA, Survey Research Methods Section
 Instructor(s): Jae-kwang Kim, Iowa State University; Wayne Fuller, Iowa State University

CE_06C
 Statistical Analysis of Financial Data with R (ADDED FEE)
 8:30 a.m. – 5:00 p.m. CC-W475b
 ASA, Business and Economic Statistics Section
 Instructor(s): David Matteson, Cornell University; David Ruppert, Cornell University

CE_07C
 Introduction to Bayesian Inference with Stan and R (ADDED FEE)
 1:00 p.m. – 5:00 p.m. CC-W470b
 ASA
 Instructor(s): Eric Novik, Benjamin Goodrich, Columbia University

CE_44P
 Preparing Statisticians for Leadership: How to See the Big Picture and Have More Influence, Part I (ADDED FEE)—
 1:00 p.m. – 6:30 p.m. CC-W473
 ASA
 Instructor(s): Gary R. Sullivan, Eli Lilly and Company; Vaneeta Kaur Grover, Chemours; Matthew James Gurka, University of Florida

SUNDAY JULY 31

JSM Hours

7:30 a.m. – 7:00 p.m. CC-Hall F1 West Central Concourse
 ASA Membership/Help Desk/Press Desk

7:30 a.m. – 7:00 p.m. CC-Hall F1 West Central Concourse
 Cyber Center

7:30 a.m. – 7:00 p.m. CC-Hall F1 West Central Concourse
 JSM Main Registration

8:00 a.m. – 11:00 a.m. CC-Hall F1 West
 Exhibitor Move-in

9:00 a.m. – 5:00 p.m. CC-Hall F1 West Central Concourse
 Restaurant Reservations/Chicago Concierge Service

9:00 a.m. – 7:00 p.m. CC-W181c
 Speaker Management Room

1:00 p.m. – 4:30 p.m. CC-Hall F1 West
 EXPO 2016

1:00 p.m. – 4:30 p.m. CC-Hall F1 West
 American Statistical Association Booth #504

1:00 p.m. – 4:30 p.m. CC-Hall F1 West
 ASA Store

1:00 p.m. – 6:00 p.m. CC-Hall F1 West
 JSM Career Service (Full Placement Service Open)

Committee/Business Meetings & Other Activities

7:00 a.m. – 8:30 a.m. H-PDR6
 Significance Magazine Management Meeting (Closed)
 Chair(s): Stephen Porzio, ASA

7:00 a.m. – 8:30 a.m. H-PDR7
 Section on Statistical Graphics Executive Committee Meeting (Closed)
 Chair(s): Michael Kane, Yale University

7:30 a.m. – 10:00 a.m. H-Stevens Salon A 1
 Joint COP/Editors Meeting (Closed)
 Chair(s): Hal Stern, University of California at Irvine

7:30 a.m. – 4:30 p.m. H-Stevens Salon C 8
 Statistical Ambassadors Training (Closed)
 Chair(s): Donna LaLonde, ASA

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

8:00 a.m. – 1:30 p.m. H-Stevens Salon C 2
CAR Chairs Workshop
 Chair(s): Jean Opsomer, ASA

8:00 a.m. – 3:30 p.m. H-Stevens Salon A 3
Diversity Workshop-Breakout Session (Closed)
 Chair(s): Jesse Chittams, University of Pennsylvania

8:00 a.m. – 4:00 p.m. H-Stevens Salon A 4
Diversity Workshop-General Session (Closed)
 Chair(s): Jesse Chittams, University of Pennsylvania

8:00 a.m. – 4:00 p.m. H-Stevens Salon A 5
ACTStat 2016 Annual Meeting (Closed)
 Organizer(s): Leah J. Welty, Northwestern University

8:30 a.m. – 11:30 a.m. H-PDR5
Council of Sections Governing Board Business Meeting (Closed)
 Chair(s): Bonnie Ghosh-Dastidar, RAND Corporation

8:30 a.m. – 4:30 p.m. H-Stevens Salon C 6
2016 NISS/ASA/IMS/ENAR/ICSA Writing Workshop for Junior Researchers (Closed)
 Organizer(s): Keith Crank, Retired

9:00 a.m. – 10:30 a.m. H-Stevens Salon C 1
Caucus for Women in Statistics Governing Council Meeting (Closed)
 Organizer(s): Jessica Kohlschmidt, The Ohio State University

10:30 a.m. – 12:30 p.m. CC-W183c
JSM Presentation Skills Workshop (Open to JSM Speakers)

11:00 a.m. – 12:30 p.m. H-Stevens Salon A 2
Journal of Statistics Education Meeting (Closed)
 Chair(s): Soma Roy, Cal Poly

11:30 a.m. – 1:30 p.m. H-Buckingham
NISS Affiliates Lunch Meeting (Closed)
 Organizer(s): Nell Sedransk, National Institute of Statistical Sciences

12:00 p.m. – 1:30 p.m. H-Stevens Salon A 1
Uncertainty Quantification Interest Group Business Meeting
 Chair(s): Dave Higdon, Virginia Tech

12:15 p.m. – 1:45 p.m. CC-W176c
Funding Opportunities for Statisticians
 Chair(s): Ming-Wen An, Vassar University

12:30 p.m. – 2:00 p.m. CC-W375a
First-Time Attendee Orientation and Reception
 Chair(s): Mary Kwasny, Northwestern University; Jiayang Sun, Case Western Reserve University

12:30 p.m. – 2:00 p.m. H-Stevens Salon C 1
Leadership Support Council Business Meeting (Closed)
 Chair(s): Barry Nussbaum, EPA

1:00 p.m. – 2:00 p.m. H-PDR6
Committee on Statistics and Disability Business Meeting
 Chair(s): Matthew Brault, Harvard

1:00 p.m. – 4:00 p.m. H-Pullman Boardroom
Statistics without Borders Executive Committee Meeting (Closed)
 Chair(s): Cathy Furlong, Statistics without Borders

1:00 p.m. – 5:00 p.m. H-Grand Tradition
Council of Sections Opening Business Meeting (Closed)
 Chair(s): Bonnie Ghosh-Dastidar, RAND Corporation

2:00 p.m. – 3:30 p.m. H-Stevens Salon C 7
Statistics Initiative Meeting
 Organizer(s): Leslie McClure, Drexel University

2:00 p.m. – 3:30 p.m. H-Stevens Salon C 4
Accreditation Committee Business Meeting (Closed)
 Chair(s): Theresa Utlaut, Intel Corporation

4:00 p.m. – 5:30 p.m. H-Stevens Salon C 2
Education Council Business Meeting (Closed)
 Chair(s): Robert Santos, The Urban Institute

4:00 p.m. – 5:30 p.m. H-Stevens Salon A 1
Awards Council Business Meeting (Closed)
 Chair(s): David Morganstein, Westat

4:00 p.m. – 5:30 p.m. H-Stevens Salon C 5
Professional Issues and Visibility Council Business Meeting (Closed)
 Chair(s): Katherine B. Ensor, Rice University

4:00 p.m. – 5:30 p.m. H-4B
Membership Council Business Meeting (Closed)
 Chair(s): Jeri Metzger Mulrow, Bureau of Justice Statistics

4:00 p.m. – 5:30 p.m. H-Stevens Salon C 3
CAR Business Meeting (Closed)
 Chair(s): David Hunter, Penn State University

Sunday

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

4:00 p.m. – 5:30 p.m. KISS Leadership Development Workshop Organizer(s): Dongseok Choi, Oregon Health & Science University	H-4M	6:00 p.m. – 8:00 p.m. Women in Mathematics Society Networking Session Organizer(s): Stephanie Thomas, National Security Agency	CC-W476
4:00 p.m. – 6:00 p.m. Diversity Mentoring Program-Opening Session Chair(s): Jesse Chittams, University of Pennsylvania	H-Stevens Salon A 2	6:00 p.m. – 8:00 p.m. JSM Opening Mixer Sponsored by Eli Lilly and Company and Microsoft	CC-Hall F1 West
4:00 p.m. – 8:00 p.m. ENAR Executive Committee Meeting (Closed) Organizer(s): Jianwen Cai, ENAR; Scarlett Bellamy, ENAR	H-PDR6	6:00 p.m. – 9:00 p.m. ICSA Board Meeting (Closed) Organizer(s): Zhezhen Jin, Columbia University	H-4C
4:30 p.m. – 6:30 p.m. JMP Mixer for Friends and Users of JMP Organizer(s): Robin Moran, JMP	H-Normandie Lounge	6:00 p.m. – 8:00 p.m. Section on Quality and Productivity Executive Committee Meeting (Closed) Chair(s): William Brenneman, Procter & Gamble	H-McCormick Boardroom
4:30 p.m. – 6:00 p.m. Isolated Statisticians Business Meeting Chair(s): KB Boomer, Bucknell University	H-4G	6:00 p.m. – 9:00 p.m. Section on Physical and Engineering Sciences Executive Committee Meeting (Closed) Chair(s): Jennifer Van Mullekom, DuPont	H-4E
4:30 p.m. – 6:00 p.m. Statistical Programmers and Analysts Section Executive Meeting (Closed) Chair(s): Pandurang Kulkarni, Eli Lilly and Company	H-PDR5	6:30 p.m. – 7:30 p.m. ASA Awards Celebration and Editor Appreciation	CC-W183b
5:00 p.m. – 6:30 p.m. CHANCE Business Meeting (Closed) Chair(s): Scott Evans, Harvard	H-4H	6:30 p.m. – 8:30 p.m. Purdue Alumni Reception Organizer(s): Aaron Kosdrosky, Purdue	H-Stevens Salon C 6
5:30 p.m. – 6:30 p.m. ASA Partners and JSM Sponsors Reception (Invitation Only) Chair(s): Amanda Malloy, ASA	CC-W375a	7:00 p.m. – 8:30 p.m. Cancer Center Biostatistics Directors Meeting Organizer(s): Terry Hyslop, Duke University	H-Stevens Salon A 3
5:30 p.m. – 6:30 p.m. KISS Board Meeting (Closed) Organizer(s): Dongseok Choi, Oregon Health & Science University	H-4K	7:00 p.m. – 9:00 p.m. Reception for RSS Fellows Organizer(s): Peter J. Diggle, University of Lancaster	H-Grand Tradition
6:00 p.m. – 7:00 p.m. Section on Medical Devices and Diagnostics Officers Meeting (Closed) Chair(s): Gene Pennello, FDA/CDRH/OSB/DBS	H-Pullman Boardroom	8:00 p.m. – 10:00 p.m. University of Minnesota Alumni and Friends Reception Organizer(s): Bradley Carlin, University of Minnesota	CC-W375a
6:00 p.m. – 7:30 p.m. IISA Executive Board Meeting (by Invitation Only) Organizer(s): Sowmya Rao, IISA	H-4D	8:30 p.m. – 10:00 p.m. Citadel Reception Organizer(s): Lindsay Martens, Citadel LLC	H-720 South Bar

Professional Development

CE_08C

An Example-Driven Hands-On Introduction to Rcpp (ADDED FEE)

8:00 a.m. – 12:00 p.m. CC-W470b
ASA

Instructor(s): Dirk Eddebuettel, Ketchum Trading/Debian & R Projects

CE_44P

Preparing Statisticians for Leadership: How to See the Big Picture and Have More Influence, Part II (ADDED FEE)

8:00 a.m. – 12:00 p.m. CC-W473
ASA

Instructor(s): Gary R. Sullivan, Eli Lilly and Company, Vaneeta Kaur Grover, Chemours, Matthew James Gurka, University of Florida

CE_01C

Introduction to Bayesian Methods, Computation, and Modeling Part II (ADDED FEE)

8:30 a.m. – 5:00 p.m. CC-W474
ASA

Instructor(s): Joseph G. Ibrahim, The University of North Carolina at Chapel Hill

CE_09C

Regression Modeling Strategies (ADDED FEE)

8:30 a.m. – 5:00 p.m. CC-W471
ASA, Biometrics Section

Instructor(s): Frank Harrell, Vanderbilt University School of Medicine

CE_10C

Introduction to Statistical Learning for Unsupervised Problems (ADDED FEE)

8:30 a.m. – 5:00 p.m. CC-W470a
ASA, Section on Statistical Learning and Data Science

Instructor(s): Ali Shojaie, University of Washington

CE_11C

Monte Carlo and Bayesian Computation with R (ADDED FEE)

8:30 a.m. – 5:00 p.m. CC-W475a
ASA

Instructor(s): James Albert, Bowling Green State University; Maria Rizzo, Bowling Green State University

CE_12C

Managing Statistical Consulting Projects: Lessons from the Front (ADDED FEE)

8:30 a.m. – 5:00 p.m. CC-W475b
ASA

Instructor(s): Michael Greene; David Steier, Deloitte Consulting

CE_47P

JSM Presentation Skills Workshop (Open to JSM Speakers)

10:30 a.m. – 12:30 p.m. CC-W183c
JSM

Organizer(s): Brian Wiens, Portola Pharmaceuticals

CE_13C

Making Quantitative Decisions During the Clinical Development of a New Drug (ADDED FEE)

1:00 p.m. – 5:00 p.m. CC-W470b
ASA, Biopharmaceutical Section

Instructor(s): Christy Chuang-Stein, Independent Consultant

CE_43P

Effective Collaboration, Part II (ADDED FEE)

1:00 p.m. – 5:00 p.m. CC-W473
ASA

Instructor(s): Doug Zahn, Florida State University, Eric Vance, Laboratory for Interdisciplinary Statistical Analysis, Heather S. Smith, Cal Poly

CE_45P

Career Development: Power Careers in Statistics (Open to All JSM Attendees)

2:00 p.m. – 4:00 p.m. CC-W192c
ASA**Speaker with Lunch 12:30 p.m. – 1:15 p.m.**1 CC-W476
SPAIG Committee Speaker with Lunch (Added Fee)—Speaker with Lunch

SPAIG Committee

Organizer(s): Kelly Zou, Pfizer

SL01 Modeling Means and Variances Using Mixed-Effects Location Scale Models for Intensive Longitudinal Data—◆ Donald Hedeker, The University of Chicago

Invited Sessions 2:00 p.m. – 3:50 p.m.

2 CC-W196c

◆● **Novel Statistical Methods in Imaging—Invited**

Section on Statistics in Imaging, International Chinese Statistical Association

Organizer(s): Ping Ma, University of Georgia

Chair(s): Ping Ma, University of Georgia

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 2:05 p.m. From Statistical Visual Modeling and Computing to Communicative Learning—◆Tianfu Wu, University of California at Los Angeles
- 2:30 p.m. Nonparametric Spatio-Temporal Analysis of Neuroimaging Data—◆Nathaniel Helwig, University of Minnesota-Twin Cities
- 2:55 p.m. Bayesian Feature Screening for Big Neuroimaging Data via Massively Parallel Computing—◆Jian Kang, University of Michigan
- 3:20 p.m. Joint Analysis of Brain Imaging Data and Genetics Data—◆Wenxuan Zhong, University of Georgia
- 3:45 p.m. Floor Discussion

3 CC-W190a

■ ● **Integrative Genomics Analytics for Personalized Medicine—Invited**

WNAR, ENAR

Organizer(s): Li-Xuan Qin, Memorial Sloan Kettering Cancer Center; Yen-Tsung Huang, Brown University

Chair(s): Li-Xuan Qin, Memorial Sloan Kettering Cancer Center

- 2:05 p.m. Global Versus Local Observations in Personalized Medicine—◆Debashis Ghosh, Colorado School of Public Health; Subhajyoti De, University of Colorado School of Medicine
- 2:30 p.m. Integrative Sparse K-Means for Disease Subtype Discovery—◆George Tseng, University of Pittsburgh; Zhiguang Huo, University of Pittsburgh
- 2:55 p.m. A Penalized Multivariate Linear Mixed Effects Model for Integrative Proteo-Genomics Analysis Based on ITRAQ Data—Weiping Ma, Icahn School of Medicine at Mount Sinai; Lin Chen, The University of Chicago; Sung Won Han, New York University; Hua Zhong, New York University; ◆Pei Wang, Icahn School of Medicine at Mount Sinai
- 3:20 p.m. Survival Mediation Analysis Using Semiparametric Probit Models with Application to Integrative Genomics—◆Yen-Tsung Huang, Brown University; Tianxi Cai, Harvard
- 3:45 p.m. Floor Discussion

4 CC-W185bc

■ ● **High-Dimensional Bayesian Statistics: Spike-and-Slab and Global-Local Shrinkage—Invited**

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

Organizer(s): Anindya Bhadra, Purdue University

Chair(s): Jyotishka Datta, Duke University/Statistical and Applied Mathematical Sciences Institute

- 2:05 p.m. Global-Local Shrinkage Priors for Variable Selection and an Oracle Property—◆Malay Ghosh, University of Florida
- 2:30 p.m. The Spike and Slab Lasso—Veronika Rockova, The Wharton School; ◆Edward I. George, The Wharton School
- 2:55 p.m. Global-Local Shrinkage with Horseshoe Priors—◆Nicholas Polson, The University of Chicago
- 3:45 p.m. Floor Discussion

5 CC-W184d

■ **Survey Costs and Survey Designs: Trade-Offs and Advances—Invited**

Government Statistics Section, Survey Research Methods Section

Organizer(s): Stanislav Kolenikov, Abt SRBI

Chair(s): Stanislav Kolenikov, Abt SRBI

- 2:05 p.m. Dual Frame RDD Survey Costs: Landline vs. Cell Phone Comparisons—◆Paul John Lavrakas, Self-Employed; Thomas M. Guterbock, University of Virginia; Grant Benson, University of Michigan
- 2:30 p.m. Survey Costs: The Missing Half of the ‘Cost-Error’ Tradeoff—◆James Wagner, University of Michigan; Kristen Olson, University of Nebraska-Lincoln
- 2:55 p.m. Can Microsimulation Help Us Understand (and Control) Survey Costs?—◆Alan Karr, RTI International
- 3:20 p.m. Disc: John Eltinge, Bureau of Labor Statistics
- 3:40 p.m. Floor Discussion

6 CC-W184bc

■ **Open Source Statistical Software for Data Science—Invited**

Journal of Statistical Software, Section for Statistical Programmers and Analysts, Committee on Applied Statisticians

Organizer(s): John Emerson, Yale University

Chair(s): Christopher Fonesbeck, Vanderbilt University

- 2:05 p.m. Software Engineering for Data Science—◆Skipper Seabold, Civi Analytics
- 2:25 p.m. The Python Data Science Stack—◆Jake VanderPlas, University of Washington
- 2:45 p.m. Flexibility and Speed: Can We Have Both?—◆Douglas Bates, University of Wisconsin
- 3:05 p.m. If You Can’t Beat ‘Em .—◆Dirk Eddelbuettel, Ketchum Trading/Debian & R Projects
- 3:25 p.m. Grammars and Structures for Computing with Data—◆Michael Kane, Yale University
- 3:45 p.m. Floor Discussion

7 CC-W179a ■ ● Statistical Learning of Health Care Systems—Invited

Health Policy Statistics Section, Committee on Applied Statisticians

Organizer(s): Ying Lu, Palo Alto VA Health Care System/Stanford University

Chair(s): Ying Lu, Palo Alto VA Health Care System/Stanford University

- 2:05 p.m. Two Case Studies of Statistical Approaches That Simplify the VHA Learning Health Care System—◆Rebecca B. McNeil, Durham VA Medical Center; Kellie J. Sims, Durham VA Medical Center; Leah L. Zullig, Durham VA Medical Center; George L. Jackson, Durham VA Medical Center; Dawn T. Provenzale, Durham VA Medical Center
- 2:30 p.m. An Overview of Innovative Statistical Designs for Point-of-Care Comparative Effectiveness Trials—◆Mei-Chiung Shih, Palo Alto VA Health Care System/Stanford University
- 2:55 p.m. Model Fitting with Distributed Data—◆Balasubramanian Narasimhan Narasimhan, Stanford University
- 3:20 p.m. Disc: Ryan Ferguson, Boston VA CSP Coordinating Center
- 3:40 p.m. Floor Discussion

8 CC-W190b ■ ● Issues in Predictive Biomarker in Oncology Drug Development—Invited

Biopharmaceutical Section, Committee on Applied Statisticians

Organizer(s): Peipei Shi, Biogen

Chair(s): Peipei Shi, Biogen

- 2:05 p.m. Issues in Biomarker-Based Oncology Trial Design—◆Daniel Sargent, Mayo Clinic
- 2:25 p.m. Accuracy Measures for Predictive Biomarkers—◆Richard Macey Simon, National Cancer Institute
- 2:45 p.m. Adjusting for Enrichment Effects When Estimating Oncology Biomarker Clinical Utility—◆Jared Lunceford, Merck Research Laboratories
- 3:05 p.m. Bias in Lifetime Data Analysis for Validation of Biomarkers—◆Tinghui Yu, FDA/CDRH; Yabing Mai, Merck Research Laboratories
- 3:25 p.m. Disc: Gene Pennello, FDA/CDRH/OSB/DBS
- 3:45 p.m. Floor Discussion

9 CC-W185d ● Random Fields in Statistics and Applications—Invited

IMS, Royal Statistical Society

Organizer(s): Yimin Xiao, Michigan State University

Chair(s): Yimin Xiao, Michigan State University

- 2:05 p.m. Quadratic Estimation of Random Field Nonstationarity—◆Ethan Anderes, University of California at Davis
- 2:30 p.m. Multiple Testing of Local Maxima for Detection of Peaks on the Sphere, with Applications in Astronomy—◆Dan Cheng, University of California at San Diego; Armin Schwartzman, University of California at San Diego; Valentina Cammarota, University of Rome "Tor Vergata"; Domenico Marinucci, University of Rome "Tor Vergata"; Yabebal Fantaye, University of Rome "Tor Vergata"
- 2:55 p.m. Intrinsic Random Functions on the Sphere—◆Chunfeng Huang, Indiana University; Haimeng Zhang, The University of North Carolina at Greensboro; Scott Robeson, Indiana University
- 3:20 p.m. Infill Asymptotics for Multivariate Spatial Processes—◆Hao Zhang, Purdue University
- 3:45 p.m. Floor Discussion

10 CC-W196b Statistical Methods in Integrative Genomics—Invited

ENAR, Section on Statistics in Imaging

Organizer(s): Heping Zhang, Yale School of Public Health

Chair(s): Yuan Jiang, Oregon State University

- 2:05 p.m. Assessing Genomic Risk for Learning Problems with Neuroimaging Data—◆Heping Zhang, Yale School of Public Health; Chintan Mehta, Yale University
- 2:30 p.m. Network-Based Analysis of Multidimensional Cancer Omics Data—◆Shuangge Ma, Yale University
- 2:55 p.m. Statistical Methods in Integrative Genomics—◆Lan Liu, Harvard; Wang Miao, Peking University; Baoluo Sun, Harvard; James Robins, Harvard; Eric Tchetgen, Harvard
- 3:20 p.m. Instrumental Variable Regression Models Using Multiple Genetic Markers—◆Rui Feng, University of Pennsylvania Perelman School of Medicine; Fan Wang, Cleveland Clinic
- 3:45 p.m. Floor Discussion

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

11 CC-W183b

■ ● **Statistical Climatology—Invited**

Section on Statistics and the Environment

Organizer(s): Joseph Guinness, North Carolina State University

Chair(s): Joseph Guinness, North Carolina State University

- 2:05 p.m. Are Climate System Models Built Using Statistics?—◆Doug Nychka, National Center for Atmospheric Research
- 2:30 p.m. Connecting Climate Science and Impacts Analysis: Quantifying Decision-Relevant Uncertainties in Climate Model Ensembles—◆Ryan Sriver, University of Illinois
- 2:55 p.m. Disc: Michael Stein, The University of Chicago
- 3:15 p.m. Disc: Larissa Back, University of Wisconsin
- 3:35 p.m. Floor Discussion

12 CC-W185a

Chicago and Its Extraordinary Impact on Statistics and the American Statistical Association—Invited

Host Chapter-Chicago

Organizer(s): Larry V. Hedges, Northwestern University

Chair(s): Larry V. Hedges, Northwestern University

- 2:05 p.m. The Future of the Chicago Chapter—◆Joe DeCosmo, Enova International
- 2:35 p.m. The Chicago Chapter of ASA—◆Edward Hirschland, The Landhart Corporation
- 3:05 p.m. Early and Often: Some History of Statistics in Chicago Universities—◆Stephen M. Stigler, The University of Chicago
- 3:35 p.m. Floor Discussion

13 CC-W187b

● **Advances and Novel Problems in Network Statistics—Invited**

Section on Nonparametric Statistics, International Chinese Statistical Association

Organizer(s): David Sungjun Choi, Carnegie Mellon University

Chair(s): Minh Tang, The Johns Hopkins University

- 2:05 p.m. Novel Approaches to Snowball Sampling That Circumvent the Critical Threshold—◆Karl Rohe, University of Wisconsin-Madison
- 2:30 p.m. Information Recovery in Errorfully Labeled Graphs via Graph Matching—◆Vince Lyzinski, The Johns Hopkins University
- 2:55 p.m. Estimating the Population Mean Network from a Random Sample of Networks—◆Daniel Sussman, Harvard

3:20 p.m. Co-Clustering of Nonsmooth Graphons—◆David Sungjun Choi, Carnegie Mellon University

3:45 p.m. Floor Discussion

Topic-Contributed Sessions 2:00 p.m. – 3:50 p.m.

14 CC-W179b

■ ● **Causal Inference for Complex Public Health Interventions: Methods for Interference, Spatially Indexed Data, and Complex Networks—Topic-Contributed**

Section on Statistics in Epidemiology

Organizer(s): Corwin Zigler, Harvard T.H. Chan School of Public Health

Chair(s): Sebastien Haneuse, Harvard T.H. Chan School of Public Health

- 2:05 p.m. Causal Inference from Observational Studies with Partial Interference—◆Brian Barkley, The University of North Carolina at Chapel Hill; Michael Hudgens, The University of North Carolina at Chapel Hill
- 2:25 p.m. Addressing Spatial Interference in Causal Analysis—◆Keith William Zirkle, Virginia Commonwealth University; David C. Wheeler, Virginia Commonwealth University; Saba W. Masho, Virginia Commonwealth University
- 2:45 p.m. Network Dynamics of Network Interventions: A Multilevel Network Analysis—◆Weihua An, Indiana University
- 3:05 p.m. Evaluating Air Quality Control Policies: Bipartite Causal Inference with Interference—◆Corwin Zigler, Harvard T.H. Chan School of Public Health
- 3:25 p.m. Causal Mechanisms and Spillover Effects in Clustered Encouragement Designs—◆Fabrizia Mealli, University of Florence; Laura Forastiere, University of Florence
- 3:45 p.m. Floor Discussion

15 CC-W196a

■ **Recent Advances in Early Phase I/II Cancer Trials Using Drug Combinations—Topic-Contributed**

Biopharmaceutical Section, International Chinese Statistical Association, Committee on Applied Statisticians

Organizer(s): Mourad Tighiouart, Cedars-Sinai Medical Center

Chair(s): Ying Yuan, MD Anderson Cancer Center

- 2:05 p.m. The Utility of Conditional Autoregressive (CAR) Models for Modeling Efficacy of Molecularly Targeted Agents in Early-Phase Trials—◆Thomas Braun, University of Michigan

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- 2:25 p.m. Two-Stage Design for Phase I/II Cancer Clinical Trials Using Drug Combinations of Cytotoxic Agents—◆Mourad Tighiouart, Cedars-Sinai Medical Center; Quanlin Li
- 2:45 p.m. Early-Phase Design for a Combination of Immunotherapies—◆Nolan Wages, University of Virginia; Craig Slingluff, University of Virginia; Gina Petroni, University of Virginia
- 3:05 p.m. Disc: Andre Rogatko, Cedars-Sinai Medical Center
- 3:25 p.m. Floor Discussion

16 CC-W186a

● Practical Utility-Based Bayesian Clinical Trial Design—Topic-Contributed

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

Organizer(s): Peter F. Thall, MD Anderson Cancer Center

Chair(s): Peter F. Thall, MD Anderson Cancer Center

- 2:05 p.m. Robust Treatment Comparison Based on Utilities of Semi-Competing Risks in Non-Small-Cell Lung Cancer—◆Thomas Murray, MD Anderson Cancer Center; Peter F. Thall, MD Anderson Cancer Center; Ying Yuan, MD Anderson Cancer Center; Daniel Gomez, MD Anderson Cancer Center; Sarah McAvoy, MD Anderson Cancer Center
- 2:25 p.m. A Decision-Theoretic Comparison of Treatments to Resolve Air Leaks After Lung Surgery Based on Nonparametric Modeling—◆Yanxun Xu; Peter F. Thall, MD Anderson Cancer Center; Peter Mueller, The University of Texas at Austin; Reza Mehran, MD Anderson Cancer Center
- 2:45 p.m. Bayesian Group Sequential Clinical Trial Design Using Total Toxicity Burden and Progression-Free Survival—◆Brian Hobbs, MD Anderson Cancer Center; Peter F. Thall, MD Anderson Cancer Center; Steven H. Lin, MD Anderson Cancer Center
- 3:05 p.m. A Decision-Theoretic Phase I-II Design for Ordinal Outcomes in Two Cycles—◆Juhee Lee, University of California at Santa Cruz; Peter F. Thall, MD Anderson Cancer Center; Peter Mueller, The University of Texas at Austin; Yuan Ji, The University of Chicago
- 3:25 p.m. Disc: George Luta, Georgetown University
- 3:45 p.m. Floor Discussion

17 CC-W194b

■ ● Missing Data in Neuroscience Clinical Trials: Truth or Consequences—Topic-Contributed

Mental Health Statistics Section, ENAR, Biopharmaceutical Section, Committee on Applied Statisticians

Organizer(s): Pilar Lim, Janssen R&D

Chair(s): Hsien-Ming James Hung, FDA

- 2:05 p.m. Estimands, Estimators, and Sensitivity for CNS Clinical Trials—◆Craig Mallinckrodt, Eli Lilly and Company

- 2:25 p.m. Reference-Based Imputation Versus Dropout = Failure Imputation for Tackling Missing Data—◆Devan V. Mehrotra, Merck; Fang Liu, Merck
- 2:45 p.m. Role of Simulations in the Selection of the Primary Estimand and Statistical Methods for Handling Missing Data—◆Elena Polverejan, Janssen R&D
- 3:05 p.m. Assessing the Impact of Missing Data: Is It Being Done Correctly in Neuroscience Clinical Trials?—◆Ralph D'Agostino, Boston University
- 3:25 p.m. Disc: Scott Emerson, University of Washington
- 3:45 p.m. Floor Discussion

18 CC-W192b

■ ● Exploiting Low-Dimensional Structures: Recent Advances of Statistical Learning Methods in Genetics and Genomics—Topic-Contributed

Biometrics Section, Biopharmaceutical Section

Organizer(s): Irina Gaynanova, Texas A&M University

Chair(s): Ursula Mueller-Harknett, Texas A&M University

- 2:05 p.m. A Scalable Empirical Bayes Approach to Variable Selection—◆Haim Y. Bar, University of Connecticut; James Booth, Cornell University; Martin T. Wells, Cornell University
- 2:25 p.m. Biclustered Matrix Completion—◆Eric Chi, North Carolina State University
- 2:45 p.m. Canonical Variate Regression for Integrative Analysis of Genomics Data—◆Kun Chen, University of Connecticut
- 3:05 p.m. Estimating High-Dimensional Multi-Layered Networks Through Penalized Maximum Likelihood—◆George Michailidis, University of Florida
- 3:25 p.m. Disc: Irina Gaynanova, Texas A&M University
- 3:45 p.m. Floor Discussion

19 CC-W186c

■ ● Strengthening the Science in Forensic Science—Topic-Contributed

Ad Hoc Advisory Committee on Forensic Science, Scientific and Public Affairs Advisory Committee

Organizer(s): Munir Winkel, North Carolina State University

Chair(s): Lucas Mentch, North Carolina State University

- 2:05 p.m. Reliability of Eyewitness Identification as a Forensic Tool—◆Karen Kafadar, University of Virginia
- 2:25 p.m. The Same Smoking Gun? Uncertainty in Matching Cartridge Casings—◆Munir Winkel, North Carolina State University

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- 2:45 p.m. Modeling Spatial Relationships Between Features When Quantifying the Weight of Fingerprint Evidence—◆Cedric Neumann, San Diego State University; Vered Madar, Statistical and Applied Mathematical Sciences Institute; Michael L. Lavine, University of Massachusetts; Jonah K. Amponsah, South Dakota State University; Christopher Saunders, MITRE/South Dakota State University
- 3:05 p.m. Biased by Design—◆Clifford Spiegelman, Texas A&M University
- 3:25 p.m. Disc: Hal Stern, University of California at Irvine
- 3:45 p.m. Floor Discussion

20 CC-W175c

● **Ranking Methods: Infinite Permutations, Statistical Physics, Copulas, and Seriation for Discovery of Subpopulations in Big Data—Topic-Contributed**

Section on Statistical Learning and Data Science, IMS
 Organizer(s): Joseph S. Verducci, The Ohio State University
 Chair(s): Stephen Bamattre, Ensemble Lending

- 2:05 p.m. Viewing a Permutation as a Measure on the Unit Square—◆Sumit Mukherjee, Columbia University
- 2:25 p.m. The Large N Limit of the Mallows Model—◆Shannon Starr, University of Alabama at Birmingham; Meg L. Walters, University of Rochester
- 2:45 p.m. A Multiparameter Mallows Model for Infinite Rankings—◆Marina Meila, University of Washington
- 3:05 p.m. Top-K Tau-Path Subpopulation Screen for Monotone Association—◆Joseph S. Verducci, The Ohio State University; Srinath Sampath, Hamilton Capital Management; Adriano Caloiaro, Myatt and Johnson; Wayne Johnson, Myatt and Johnson
- 3:25 p.m. A Distribution Function Approach for Signal Reconstruction from Ranking Data—◆Michael Schimek, Medical University of Graz; Vendula Svendova, Medical University of Graz
- 3:45 p.m. Floor Discussion

21 CC-W175b

■ **Statistical Computing and Graphics Student Awards—Topic-Contributed**

Section on Statistical Computing, Section on Statistical Graphics
 Organizer(s): Patrick Breheny, University of Iowa
 Chair(s): Patrick Breheny, University of Iowa

- 2:05 p.m. A Fully Bayesian Strategy for High-Dimensional Hierarchical Modeling Using Massively Parallel

- Computing—◆William Landau, Iowa State University; Jarad Niemi, Iowa State University
- 2:25 p.m. The PICASSO Package for High Dimensions Nonconvex Sparse Learning in R—◆Xingguo Li; Tuo Zhao, The Johns Hopkins University; Tong Zhang, Rutgers University; Han Liu, Princeton
- 2:45 p.m. Nonparametric Signal Procession of Space-Time Trajectory Data: Algorithm for Eye Movement Pattern Recognition—◆Shinjini Nandi, Temple University; Subhadeep Mukhopadhyay, Temple University Fox School of Business
- 3:05 p.m. Using the Geomnet Package: Visualizing African Slave Trade, 1514-1866—◆Samantha Tyner, Iowa State University
- 3:25 p.m. Xgboost: An R Package for Fast and Accurate Gradient Boosting—◆Tong He, Simon Fraser University
- 3:45 p.m. Floor Discussion

22 CC-W183c

■ **Health Care Panel Surveys: Methodological Challenges Demonstrated Through the Medicare Current Beneficiary Survey and the Medical Expenditure Panel Survey—Topic-Contributed**

Survey Research Methods Section
 Organizer(s): Kimberly Lochner, Centers for Medicare and Medicaid Services
 Chair(s): Debra Reed-Gillette, Centers for Medicare and Medicaid Services

- 2:05 p.m. Results of Recent Improvements in the Sampling Design for the MCBS—◆Whitney Murphy, NORC at the University of Chicago; Ying Li, NORC at the University of Chicago; Kirk Wolter, NORC at the University of Chicago; Lisa B. Mirel, Centers for Medicare and Medicaid Services; Cheryl Sharpless, Centers for Medicare and Medicaid Services
- 2:25 p.m. Design and Analytic Considerations for the MEPS Longitudinal Insurance Component—David Kashihara, Agency for Healthcare Research and Quality; Frederick Rohde, Agency for Healthcare Research and Quality; ◆Steve Machlin, Agency for Healthcare Research and Quality
- 2:45 p.m. A Demonstration of How to Combine Access to Care and Cost and Use Medicare Current Beneficiary Survey Files for Analysis—Ronald Hazen, NORC at the University of Chicago; ◆Sai Loganathan, NORC at the University of Chicago; Jennifer Hasche, NORC at the University of Chicago; Sara Darga, NORC at the University of Chicago; Lisa B. Mirel, Centers for Medicare and Medicaid Services

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3:05 p.m. Utilizing Linked Administrative and Survey Data for Survey Design and Assessment of Measurement Error: The Medicare Current Beneficiary Survey—◆Lisa B. Mirel, Centers for Medicare and Medicaid Services

3:25 p.m. Evaluation of Health Care Use Reporting in the MEPS Household Component Overlapping Panel Design—◆Emily Mitchell, Agency for Healthcare Research and Quality; Pradip Muhuri, Agency for Healthcare Research and Quality; Steve Machlin, Agency for Healthcare Research and Quality

3:45 p.m. Floor Discussion

23 CC-W186b
Bayesian Prediction—Topic-Contributed

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

Organizer(s): Bertrand Clarke, University of Nebraska

Chair(s): Bertrand Clarke, University of Nebraska

2:05 p.m. On the Use of Cauchy Prior Distributions for Bayesian Logistic Regression—◆Joyee Ghosh, University of Iowa; Yingbo Li, Clemson University; Robin Mitra, University of Southampton

2:25 p.m. Model Averaging Versus Model Selection—◆Tri Le, University of Nebraska; Bertrand Clarke, University of Nebraska

2:45 p.m. Efficient Importance Sampling Methods for Estimating Kernel Parameters in Relevance Vector Machine and Improving Prediction—◆Vivekananda Roy, Iowa State University

3:05 p.m. Advanced Algorithmic Implementations of Bayesian Inference in Cosmology—◆Jeffrey Jewell, Jet Propulsion Laboratory

3:25 p.m. Standard Errors, Solution Paths, and Selection of Tuning Parameters for Bayesian Lassos—◆Sounak Chakraborty, University of Missouri-Columbia; Vivekananda Roy, Iowa State University

3:45 p.m. Floor Discussion

24 CC-W176b

Statistical and Computational Challenges and Opportunities in Forensic Science—Topic-Contributed

Section on Statistics in Defense and National Security

Organizer(s): Lingling An, University of Arizona

Chair(s): Lingling An, University of Arizona

2:05 p.m. On the Different Classes of Forensic Identification of Source Problems—◆Christopher Saunders, MITRE/South Dakota State University; Cedric Neumann, San Diego State University; Danica Ommen, South Dakota State University

2:25 p.m. Utility of Minority Variant Calling for Microbial Forensics: Challenges and Successes—◆Viacheslav Fofanov, Northern Arizona University

2:45 p.m. Microbial DNA for Forensic Identification and Environmental Source Tracking—◆Dan Knights, University of Minnesota

3:05 p.m. A Hybrid Machine-Learning Approach for DNA Mixture Interpretation—◆Michael Marciano, Syracuse University; Jonathan Adelman, Syracuse University

3:25 p.m. Disc: Hongmei Jiang, Northwestern University

3:45 p.m. Floor Discussion

25 CC-W181b

Employer List Linking: Methods, Implementation, and Usage of Probabilistic Matches for Enhancing Workforce Statistics—Topic-Contributed

Business and Economic Statistics Section

Organizer(s): Mark J. Kutzbach, U.S. Census Bureau

Chair(s): Lars Vilhuber, Cornell University

2:05 p.m. Robustness of Employer List Linking to Methodological Variation—◆Mark J. Kutzbach,

Sunday



Honor your colleagues!

Come to the ASA Awards Celebration and Editor Appreciation **Sunday** at **6:30 p.m. in CC-W183b.**

U.S. Census Bureau; Graton Gathright, U.S. Census Bureau; Andrew Green, U.S. Census Bureau/Cornell University; Kristin McCue, U.S. Census Bureau; Holly Monti, U.S. Census Bureau; Ann Rodgers, University of Michigan; Lars Vilhuber, Cornell University; Nada Wasi, University of Michigan; Christopher Wignall, Amazon.com

- 2:25 p.m. Two Perspectives on Commuting and Workplace: A Microdata Comparison of Home-to-Work Flows Across Linked Survey and Administrative Files—◆Andrew Green, Cornell University/U.S. Census Bureau; Mark J. Kutzbach, U.S. Census Bureau; Lars Vilhuber, Cornell University
- 2:45 p.m. Developing Job Linkages for the Health and Retirement Study—◆Kristin McCue, U.S. Census Bureau; John M. Abowd, U.S. Census Bureau/Cornell University; Margaret Levenstein, University of Michigan; Matthew Shapiro, University of Michigan; Ann Rodgers, University of Michigan; Nada Wasi, University of Michigan; Dhiren Patki, University of Michigan
- 3:05 p.m. Comparing Survey and Administrative Earnings: An Application of Employer-List Linking—◆Lori Reeder; Holly Monti, U.S. Census Bureau
- 3:25 p.m. Disc: Manfred Antoni, Institute for Employment Research
- 3:45 p.m. Floor Discussion

Topic-Contributed Panels 2:00 p.m. – 3:50 p.m.

26 CC-W176c

◆ ● Distinguishing Between Statistics Education for Undergraduate and Graduate Nonstatistics Major Students—Topic-Contributed

Section on Statistical Education, Section on Teaching of Statistics in the Health Sciences

Organizer(s): Matthew J. Hayat, Georgia State University

Chair(s): Jenna Krall, Emory University

- Panelists: ◆Matthew J. Hayat, Georgia State University
 ◆Michael Jiroutek, Campbell University
 ◆Myoungjin Kim, Illinois State University
 ◆Todd Schwartz, The University of North Carolina at Chapel Hill

3:45 p.m. Floor Discussion

27 CC-W183a

◆ ● The First Self-Administered Survey in North Korea: A Glimpse of Self-Esteem of North Koreans Compared with Peers in 53 Other Countries—Topic-Contributed

Social Statistics Section

Organizer(s): Asaph Young Chun, U.S. Census Bureau

Chair(s): Darryl Creel, RTI International

- Panelists: ◆Elliott Chun, ISR Center for Science Diplomacy
 ◆Jacquelyn Pennings, Elite Research
 ◆Asaph Young Chun, U.S. Census Bureau
 ◆Cindy Won, ISR Center for Science Diplomacy
 ◆Clara Kyung, McGill University and ISR Foundation Center for Interdisciplinary Research

3:45 p.m. Floor Discussion

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

28 CC-W193a

◆ ● Recent Advances in Precision Medicine—Contributed

Biometrics Section, Biopharmaceutical Section, International Chinese Statistical Association

Chair(s): Neal Thomas, Pfizer

- 2:05 p.m. A Subgroup Identification Method Based on Quantitative Criteria—◆Yan Sun, AbbVie; Samad Hedayat, University of Illinois at Chicago
- 2:20 p.m. Personalized Time-to-Event Prediction in Intensive Care—◆Yingying Xu; Joel Dubin, University of Waterloo; Joon Lee, University of Waterloo
- 2:35 p.m. Using the Case-Only Estimator for Applications in Marker-Guided Treatment—◆Chao-Kang Jason Liang, Fred Hutchinson Cancer Research Center; Holly Janes, Fred Hutchinson Cancer Research Center; James Dai, Fred Hutchinson Cancer Research Center
- 2:50 p.m. Nonparametric Bayesian Accelerated Failure-Time Models for Estimation of Heterogeneous Treatment Effects and Individualized Treatment Decisions—◆Nicholas Henderson, The Johns Hopkins University; Ravi Varadhan, The Johns Hopkins University; Thomas A. Louis, The Johns Hopkins University; Gary Rosner, The Johns Hopkins University
- 3:05 p.m. Joint Dichotomization of Continuous Variables to Discriminate Disease Status—◆Bethany Wolf, Medical University of South Carolina; Sybil Prince-Nelson, Medical University of

South Carolina; Paul J. Nietert, Medical University of South Carolina; Viswanathan Ramakrishnan, Medical University of South Carolina; Paula S. Ramos, Medical University of South Carolina; Diane Kamen, Medical University of South Carolina

- 3:20 p.m. **Adaptive Sampling for Subgroup Analyses—**
◆Alexander Luedtke, University of California at Berkeley; Antoine Chambaz, L'Université Paris Ouest Nanterre
- 3:35 p.m. **Individualized Subgroup Variable Selection—**
◆Xiwei Tang, University of Illinois at Urbana-Champaign; Annie Qu, University of Illinois at Urbana-Champaign

29 CC-W181a

■ ● Reliability, Degradation, and Competing Risks—Contributed

Quality and Productivity Section, Section on Physical and Engineering Sciences

Chair(s): Ming Li, REANCON

- 2:05 p.m. **Degradation Analysis with Measurement Errors—**
◆Chien-Yu Peng, Institute of Statistical Science, Academia Sinica
- 2:20 p.m. **Bayesian Estimation and Variable Selection for Reliability in Multicomponent Systems—**
◆Yiqing Tian, North Carolina State University; Howard Bondell, North Carolina State University; Alyson Wilson, North Carolina State University
- 2:35 p.m. **Frequentist and Bayesian Simulation Using a Random Coefficients Model to Establish Shelf-Life Specification Limits for a Drug Product—**
◆Richard Montes, Hospira, a Pfizer Company; David LeBlond, CMStats
- 2:50 p.m. **Guardbanding Techniques for the Semiconductor Industry: A Comparative Study—**◆Thomas Nowak, University of Graz; Vera Hofer, University of Graz; Johannes Leitner, University of Graz; Horst Lewitschnig, Infineon Technologies Austria AG
- 3:05 p.m. **A Model for Dependent Competing Risks and Its Bayesian Analysis—**◆Yiqing Wang, Northern Illinois University; Ananda Sen, University of Michigan; Sanjib Basu, Northern Illinois University
- 3:20 p.m. **Statistical Lifetime Inference Based on Skew-Normal Accelerated Destructive Degradation Test Model—**◆Chih-Chun Tsai, Tamkang University; Chien-Tai Lin, Tamkang University
- 3:35 p.m. **Component Integrated Importance: Modeling Complex Aging Systems—**◆Peng Liu, SAS Institute; Leo Wright, SAS Institute

30 CC-W195

Recent Developments in Biostatistical Research—Contributed

ENAR, Biopharmaceutical Section

Chair(s): Zheng Ke, The University of Chicago

- 2:05 p.m. **A Hierarchical Approach to Multivariate Models for Global Climate Ensembles—**
◆Matthew Edwards, Newcastle University; Stefano Castruccio, Newcastle University; Dorit Hammerling, National Center for Atmospheric Research
- 2:20 p.m. **Evaluating Particle-Filtering Methods for Analyzing Time-Series Data from Complex Multi-Serotype Disease Systems—**◆Xi Meng; Nicholas G. Reich, University of Massachusetts-Amherst
- 2:35 p.m. **A Spatiotemporal Hierarchical Bayesian Model for Understanding Vectors and Vector-Borne Disease—**◆Erica Billig, University of Pennsylvania; Jason Roy, University of Pennsylvania; Michael Levy, University of Pennsylvania; Michelle Ross, University of Pennsylvania
- 2:50 p.m. **Surrogate-Guided Sampling Designs for Biomedical Natural Language Processing with Rare Outcomes—**◆Wei Ling (Katherine) Tan, University of Washington; Patrick Heagerty, University of Washington
- 3:05 p.m. **Accounting for Potential Measurement Errors in Environmental Preterm Studies—**◆Yinjun Zhao, Yale University; Shuangge Ma, Yale University
- 3:20 p.m. **Development of a Stochastic Model Using Setting the Clock Back to Zero (SCBZ) for Expected Time to Seroconversion Under Correlated Inter-Contact Times—**◆Kannan R, Annamalai University; Balasubramani G.K., University of Pittsburgh
- 3:35 p.m. **Functional Multiple Indicators, Multiple Causes Measurement Error Models—**◆Carmen Tekwe, Texas A&M University; Roger Zoh, Texas A&M University; Raymond Carroll, Texas A&M University; Guoyao Wu, Texas A&M University; Fuller Bazer, Texas A&M University

31 CC-W182

■ Environmental Applications—Contributed

Section on Statistics and the Environment

Chair(s): Huang Huang, KAUST

- 2:05 p.m. **In My Time of Dying: John Graunt's Observations About the Bills of Mortality Revisited Using Modern Spatial Epidemiological Methods—**
◆Olaf Berke, University of Guelph

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 2:20 p.m. Study of K-Sample Capture-Recapture Experiments with Known Losses on Capture Under Partial Stratification—◆Lasantha Premarathna, Simon Fraser University; Carl Schwarz, Simon Fraser University
- 2:35 p.m. Visualizing Long-Term Monitoring Data: Tools for Researchers and Managers—◆Derek Sonderegger, Northern Arizona University
- 2:50 p.m. Temporal Trend Estimation with Many Short Time Series—◆Brian Gray, U.S. Geological Survey; Richard Erickson, U.S. Geological Survey; Eric Eager, University of Wisconsin-La Crosse
- 3:05 p.m. Statistical Models for the Movement of Halibut in the Gulf of Alaska—◆Margaret Short, University of Alaska Fairbanks; Andrew Seitz, University of Alaska Fairbanks; Julie Nielsen, University of Alaska Fairbanks
- 3:20 p.m. A Generalized Measure of Uncertainty in Geostatistical Regression Model Selection—◆Chun-Shu Chen, National Changhua University of Education; Jun Zhu, University of Wisconsin-Madison; Tingjin Chu, Renmin University of China
- 3:35 p.m. Spatio-Temporal Modeling of Rainfall in the Murray-Darling Basin—◆Gen Nowak; Alan Welsh, Australian National University; Terry O'Neill, Bond University

32 **CC-W175a**

■ ● Regression Models—Contributed

Section on Statistical Computing

Chair(s): Niloofar Ramezani, University of Northern Colorado

- 2:05 p.m. Predictive Analytics: Modes of Collection—◆Tian Luo, Bureau of Labor Statistics; Amar Mann, Bureau of Labor Statistics; Richard Holden, Bureau of Labor Statistics
- 2:20 p.m. Assessing the Prediction Performance of Some Shrinkage Regression Techniques—◆Yunfan Li, Purdue University; Anindya Bhadra, Purdue University
- 2:35 p.m. Variable Selection Utilizing the Whole Solution Path—◆Yang Liu, Fred Hutchinson Cancer Research Center; Peng Wang, University of Cincinnati
- 2:50 p.m. Modeling with Gamuts—◆William Heavlin, Google
- 3:05 p.m. A Penalized Likelihood Approach for Heteroscedastic Linear Models—◆Kwame Kankam, Penn State University; James Rosenberger, Penn State University
- 3:20 p.m. A Scalable Framework for Minimum Distance Estimation with Applications to Mixture Modeling and Robust, Structured Regression—◆Jocelyn Chi, North Carolina State University; Eric Chi, North Carolina State University

- 3:35 p.m. Cross-Validation Methods for Assessing Prediction Models in a Survival Context—◆Hongying Li, University of California at San Diego; Karen Messer, University of California at San Diego

33 **CC-W177**
Efficient Methods for Structured Large Genomics Data—Contributed

Section on Statistics in Genomics and Genetics, Biopharmaceutical Section, International Society for Bayesian Analysis (ISBA), Section on Bayesian Statistical Science

Chair(s): Jing Ma, University of Pennsylvania

- 2:05 p.m. Integrative Analysis of Transcriptomic and Metabolomic Data via Sparse Canonical Correlation Analysis with Incorporation of Biological Information—◆Sandra Safo, Emory University; Qi Long, Emory University
- 2:20 p.m. Statistical Inference in Partially Observed Stochastic Compartmental Models with Application to Cell Lineage Tracking of In-Vivo Hematopoiesis—◆Jason Xu, University of Washington; Vladimir Minin, University of Washington; Peter Guttorp, University of Washington; Samson Koelle, University of Washington; Janis Abkowitz, University of Washington; Chuanfeng Wu, National Heart, Lung, and Blood Institute; Cynthia Dunbar, National Heart, Lung, and Blood Institute
- 2:35 p.m. An Empirical Bayes Approach to Adjust for Hidden Confounders in Large-Scale Gene Expression Studies—◆David Gerard, The University of Chicago; Matthew Stephens, The University of Chicago
- 2:50 p.m. Big Data Regression and Prediction for High-Throughput Genomic Data—◆Weiqiang Zhou, Johns Hopkins Bloomberg School of Public Health; Ben Sherwood, Johns Hopkins Bloomberg School of Public Health; Zhicheng Ji, Johns Hopkins Bloomberg School of Public Health; Fang Du, Johns Hopkins Bloomberg School of Public Health; Jiawei Bai, Johns Hopkins Bloomberg School of Public Health; Hongkai Ji, Johns Hopkins Bloomberg School of Public Health
- 3:05 p.m. Bayesian Nonlocal Prior-Based Gene Expression Data Analysis Using Chi-Square-Type Pathway Scores—◆Nilotpal Sanyal, Texas A&M University; Wenyi Wang, MD Anderson Cancer Center; Anirban Bhattacharya, Texas A&M University; Valen E. Johnson, Texas A&M University
- 3:20 p.m. Bayesian Large-Scale Multiple Regression with Summary Statistics from Genome-Wide Association Studies—◆Xiang Zhu, The University of Chicago; Matthew Stephens, The University of Chicago

3:35 p.m. RefCNV: Identification of Gene-Based Copy Number Variants Using Whole-Exome Sequencing—◆Lun-Ching Chang, National Cancer Institute; Biswajit Das, Leidos Biomedical Research; Chih-Jian Lih, Leidos Biomedical Research; Corrine Camalier, Leidos Biomedical Research; Paul Mcgregor, Leidos Biomedical Research; Eric Polley, National Cancer Institute

34 CC-W193b

■ Advances in Analysis of Categorical Data—Contributed

Biometrics Section, Biopharmaceutical Section

Chair(s): Codruta Chiuzan, Columbia University

- 2:05 p.m. A Power Study of the GFit Statistic as a Lack-of-Fit Diagnostic for Sparse Two-Way Subtables—◆Junfei Zhu, ASU; Mark Reiser, Arizona State University; Silvia Cagnone, University of Bologna
- 2:20 p.m. On the Discovery and Use of Disease Risk Factors with Logistic Regression: New Prostate Cancer Risk Factors—◆David Booth, Kent State University; Venugopal Gopapalakrishna-Remani, The University of Texas at Tyler; Matthew Cooper, Washington University; Fiona Green, University of Manchester; Margaret Rayman, University of Surrey
- 2:35 p.m. A Generalized Estimating Equations Framework for the Analysis of Intracellular Cytokine Staining Data—◆Amit Meir, University of Washington; Raphael Gottardo, Fred Hutchinson Cancer Research Center; Greg Finak, Fred Hutchinson Cancer Research Center
- 2:50 p.m. A Latent Variable Poisson Model for Assessing Regularity of Circadian Pattern Over Time—◆Sung Duk Kim, Eunice Kennedy Shriver National Institute of Child Health and Human Development; Paul Albert, Eunice Kennedy Shriver National Institute of Child Health and Human Development
- 3:05 p.m. Confidence Intervals for the Difference Between Two Proportions for Correlated Binary Response—◆Krishna Saha, Central Connecticut State University
- 3:20 p.m. Estimation for Zero-Inflated Over-Dispersed Count Data Model with Ignorable Missing Response—◆Sudhir Paul, University of Windsor; Rajibul Mian, University of Windsor
- 3:35 p.m. Sobol Sensitivity Indices Under Generalized Linear Models—◆Rong Lu, The Ohio State University; Grzegorz Rempala, The Ohio State University

35 CC-W178b

■ Epidemiologic Methods for Biomarker Discovery and Disease Prediction—Contributed

Section on Statistics in Epidemiology, Biopharmaceutical Section, International Chinese Statistical Association

Chair(s): Karen Messer, University of California at San Diego

- 2:05 p.m. Estimation and Distribution of T-Cell Repertoire During Human HSV-2 Infection—◆Alvason Li, Fred Hutchinson Cancer Research Center; Jia Zhu, Fred Hutchinson Cancer Research Center; Trevor Bedford, Fred Hutchinson Cancer Research Center
- 2:20 p.m. A Statistical Framework for Using External Information in Updating Prediction Models with New Biomarker Measures—◆Wenting Cheng, University of Michigan; Jeremy M. G. Taylor, University of Michigan; Bhramar Mukherjee, University of Michigan
- 2:35 p.m. Developing Combinations of Prognostic and Diagnostic Biomarkers in Multicenter Studies—◆Allison Meisner, University of Washington; Kathleen F. Kerr, University of Washington
- 2:50 p.m. Sensitivity Analysis of a CD4-Based HIV Incidence Estimation Method—◆Ruiguang Song, CDC
- 3:05 p.m. Automated Feature Selection for Prediction with Electronic Medical Records Data—◆Jessica Minnier, Oregon Health & Science University; Sheng Yu, Tsinghua University; Katherine Liao, Brigham and Women's Hospital; Tianxi Cai, Harvard
- 3:20 p.m. Comparison of Predictive Modeling Approaches for 30-Day All-Cause Nonelective Readmission Risk—◆Liping Tong, Advocate Health Care; Cole Erdmann, Cerner Corporation; Marina Daldalian, Cerner Corporation; Jing Li, Cerner Corporation; Tina Esposito, Advocate Health Care
- 3:35 p.m. Optimum Sample Size Allocation in Multilevel Disease Detection Problem—◆Yinan Fang, Iowa State University; Chong Wang, Iowa State University; Jeffrey Zimmerman, Iowa State University

36 CC-W176a

■ Sufficient Dimension Reduction and Projection Methods—Contributed

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

Chair(s): Glen Wright Colopy, University of Oxford

- 2:05 p.m. Selective Combinations of Central Matrices for Dimension Reduction—◆Son Nguyen

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 2:20 p.m. On Sufficient Dimension Reduction for Functional Data—◆Jun Song, Penn State University; Bing Li, Penn State University
- 2:35 p.m. Determining the Number of Components in a Generalized Spiked Population Model—◆Hyo Young Choi
- 2:50 p.m. On Likelihood Ratio Tests in Dimensionality-Restricted Models—◆Mingyue Gao; Michael Trosset, Indiana University; Carey Priebe, The Johns Hopkins University
- 3:05 p.m. Partial Projective Resampling Method for Dimension Reduction: With Applications to Partially Linear Models—◆Haileab Hilafu, University of Tennessee; Wenbo Wu, University of Oregon
- 3:20 p.m. On Estimating Regression-Based Causal Effects Using Sufficient Dimension Reduction—◆Wei Luo, Baruch College
- 3:35 p.m. Supervised Dimensionality Reduction for Exponential Family Data—◆Andrew Landgraf, Battelle; Yoonkyung Lee, The Ohio State University

37 **CC-W178a**

■ ● Statistical and Computational Methods for Analysis of Rare Variant Association—Contributed

Section on Statistics in Genomics and Genetics, Biopharmaceutical Section, Royal Statistical Society

Chair(s): Yilong Zhang, New York University

- 2:05 p.m. A Rediscovery of Dissimilarity Measure with U-Statistic for Rare Variant Association—◆Charlotte Wang, Institute of Statistical Science, Academia Sinica; Jung-Ying Tzeng, North Carolina State University; Chuhsing Kate Hsiao, National Taiwan University
- 2:20 p.m. Statistical Methods for Rare Variant Test for Multiple Phenotypes—◆Diptavo Dutta; Seunggeun Lee, University of Michigan
- 2:35 p.m. Correcting for Population Stratification in Spatially Structured Populations for Sequencing Data—◆Ye Ting Du, Harvard T.H. Chan School of Public Health; Xihong Lin, Harvard T.H. Chan School of Public Health
- 2:50 p.m. Searching for Gene Sets with Mutually Exclusive Mutations—◆Paul Ginzberg, Imperial College London; Federico Giorgi, Columbia University; Andrea Califano, Columbia University
- 3:05 p.m. Sparse Signal Detection in the Presence of Rare Variants and Binary Phenotype—◆Sixing Chen, Harvard; Xihong Lin, Harvard T.H. Chan School of Public Health
- 3:20 p.m. Detection of Associations Between a Set of Rare Variants and Multiple Continuous Phenotypes—Zhonghua Liu, Harvard; Xihong Lin, Harvard

- T.H. Chan School of Public Health; ◆Zilin Li, Harvard T.H. Chan School of Public Health
- 3:35 p.m. A Powerful Statistical Test for Rare Variant Associations in Pedigree Studies—◆Keng-Han Lin, University of Michigan; Sebastian Zoellner, University of Michigan

38 **CC-W191**

■ Statistical Methods in Early Development Trials—Contributed

Biopharmaceutical Section, International Chinese Statistical Association

Chair(s): Anjana Grandhi, Merck

- 2:05 p.m. Enabling Robust Concentration-QTc Assessment for Single Ascending Dose (SAD) Clinical Pharmacology Trials—◆Li Fan, Merck; Devan V. Mehrotra, Merck; Fang Liu, Merck; Kuenhi Tsai, Merck
- 2:20 p.m. Comparison of Methods to Deal with Separation Problem in Clinical Trials with Binary Data—◆Shuyan Wan, Merck
- 2:35 p.m. Cluster Enrichment Method to Identify Inhibitors of Down-Regulators of Immune Signaling in a Kinetic High-Throughput Screening Assay—◆Minya Pu, University of California at San Diego; Karen Messer, University of California at San Diego; Howard Cottam, University of California at San Diego; Tomoko Hayashi, University of California at San Diego; Maripat Corr, University of California at San Diego; Dennis Carson, University of California at San Diego
- 2:50 p.m. Concentration-Response (QT/QTc) Analysis for Classifying Risk of QT Prolongation—◆Xiaoli Glasgow, Merck; Kuenhi Tsai, Merck; Li Fan, Merck; Fang Liu, Merck; Wei Gao, Merck
- 3:05 p.m. A Comparison Between Dried Blood Spots and Traditional PK Sampling Using Concordance Correlation Coefficient for Repeated Measurements—◆Yang Liu, Merck; Tian Zhao, Merck; Patrick Larson, Merck
- 3:20 p.m. Bioassay Case Study Applying the Maximin D-Optimal Design Algorithm to the Four-Parameter Logistic Model—◆Todd Coffey, Washington State University
- 3:35 p.m. Experimental Designs for Multi-Drug Combination Studies Using Signaling Networks—◆Hengzhen Huang; Hong-Bin Fang, Georgetown University; Ming Tan, Georgetown University

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

39 CC-W192a

■ ● Disease-Specific Applied Case Studies—Contributed

Biopharmaceutical Section

Chair(s): Feng Dai, Yale School of Public Health

- 2:05 p.m. Dependence Liability Study Using Healthy Subjects—◆Ling Chen, FDA/CDER
- 2:20 p.m. Ebola Vaccine Update: Data Analysis Challenges in Developing the Ebola Vaccine—◆Kenneth Liu, Merck
- 2:35 p.m. Efficiency of N-of-1 Studies in Cystic Fibrosis Research—◆Michele Shaffer, Seattle Children's Research Institute; Nicole Mayer-Hamblett, Seattle Children's Research Institute
- 2:50 p.m. Can Early Analysis Predict Alzheimer's Trial Success?—◆Kun Jin, FDA/CDER
- 3:05 p.m. Crossover Design and Its Application in Late-Phase Diabetes Studies—◆Tao Wang; James Malone, Eli Lilly and Company; Haoda Fu; Cory Heilmann, Eli Lilly and Company; Yongming Qu, Eli Lilly and Company; William Huster, Eli Lilly and Company
- 3:20 p.m. APOE's Genetic Effect on Cognitive Decline in Alzheimer's Disease Prodromal Population and the Impact on Clinical Trial Design—◆Sheng Feng, AbbVie
- 3:35 p.m. Sensitivity Analyses to Assess the Missing-at-Random Assumption—◆Shailaja Suryawanshi, Merck; Anjela Tzontcheva, Merck; Raymond Lam, Merck; Gregory Golm, Merck

40 CC-W184a

New Approaches to Small Area/Domain Estimation—Contributed

Survey Research Methods Section

Chair(s): Xia Li, University of Maryland

- 2:05 p.m. Estimating Design Effects in Small Areas and Domains by Aggregation of Domains/Areas—◆Jerry Maples, U.S. Census Bureau
- 2:20 p.m. Hierarchical Models for AK Estimators in the Current Population Survey—◆Yuan Li, The George Washington University; Michael Larsen, The George Washington University
- 2:35 p.m. Bayesian Rank Estimation Between Radio Stations for Small Demographic Groups—Neung Ha, Nielsen; ◆William Waldron, Nielsen; Ekaterina Sortiriz, Nielsen
- 2:50 p.m. Using a Power Prior to Improve County-Level Diabetes Incidence Estimation—◆Hui Xie, CDC; Deborah Rolka, CDC

- 3:05 p.m. Standard Regression Model-Based Ratio-Synthetic Estimators Assuming Unequal or Equal Unit Error Variances and Their Use in Survey Practice—◆Prabhakar Ghangurde

- 3:20 p.m. Pooling Information from Multiple Surveys in the Presence of Measurement Error—◆Mariana Saenz, Georgia Southern University

- 3:35 p.m. Floor Discussion

41 CC-W180

Unit Roots, Change Points, Goodness-of-Fit, and Other Time Series Modeling Issues—Contributed

Business and Economic Statistics Section

Chair(s): Bernard Dillard, Fashion Institute of Technology

- 2:05 p.m. Unit Roots in Time Series with Change-points—◆Edward Herranz, George Mason University; James E. Gentle, George Mason University; George Wang, George Mason University

- 2:20 p.m. A Self-Normalized Approach to a Unit Root Testing—◆Yeonwoo Rho, Michigan Technological University

- 2:35 p.m. A Robust Goodness-of-Fit Test for Generalized Autoregressive Conditional Heteroscedastic Models—◆Yao Zheng, The University of Hong Kong; Wai Keung Li, The University of Hong Kong; Guodong Li, The University of Hong Kong

- 2:50 p.m. Bootstrap-Based Tests for Seasonal Unit Roots in Autoregressive Processes with GARCH (1, 1) Innovations—◆Xiao Zhong, Missouri University of Science and Technology; V.A. Samaranyake, Missouri University of Science and Technology

- 3:05 p.m. More on Signal Discrimination Without Denoising—◆Ferebee Tunno, Arkansas State University

- 3:20 p.m. An Approach of Fitting Regression Line Not Based on Least Square Estimates—◆Silvey Shamsi, Ball State University; Mian Adnan, Ball State University; Rahmatullah Imon, Ball State University

- 3:35 p.m. Floor Discussion

42 CC-W187c

Statistics in Science—Contributed

IMS

Chair(s): Michael Fundator

- 2:05 p.m. Alignment-Free Methods for Comparative Genomic Analysis—◆Shuai Hao; Hsin-Hsiung Huang, University of Central Florida; Jie Yang, University of Illinois at Chicago; Saul Alarcon, University of Illinois at Chicago

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 2:20 p.m. Rare Variant Test Based on Next-Generation Sequencing Data with Arbitrary Length—◆Zheng Xu; Yun Li, The University of North Carolina at Chapel Hill
- 2:35 p.m. Estimating Longitudinal Covariance Structure in Functional Mapping of Quantitative Trait Loci—◆Ashwini Maurya, Michigan State University
- 2:50 p.m. Flexible Spectral Methods for Community Detection in Networks—◆Pengsheng Ji, University of Georgia
- 3:05 p.m. Perturbation Bound on Unilateral Singular Vectors—◆Anru Zhang, University of Wisconsin-Madison
- 3:20 p.m. Fallacies of Classical Statistics and What Needs to Be Done to Correct Them—◆Herman Rubin, Purdue University
- 3:35 p.m. A Novel Model for Binary Data Analysis—◆Linbo Wang, University of Washington; Thomas Richardson, University of Washington; James Robins, Harvard

43 **CC-W187a**

Bayesian Models and Applications—Contributed

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

Chair(s): Mehdi Maadooliat, Marquette University

- 2:05 p.m. A Class of Bayesian Multivariate Time Series Models for Counts—◆Refik Soyer, The George Washington University; Tefvik Aktekin, University of New Hampshire; Nicholas Polson, The University of Chicago
- 2:20 p.m. Bayesian Matrix Autoregressive Models—◆Seyed Yaser Samadi, Southern Illinois University Carbondale; Lynne Billard, University of Georgia
- 2:35 p.m. Reliability Growth Test and Evaluation for Multistate Systems—◆Thomas Mazzuchi, The George Washington University
- 2:50 p.m. A Bayesian Decision Theoretic Methodology for Analyzing Gene Expression Data Under Skewed Alternatives—◆Naveen Bansal, Marquette University
- 3:05 p.m. Consensus and Disagreement Among Distributions for Bayesian Inference—◆Ehsan Soofi, University of Wisconsin-Milwaukee; Mehdi Shoja, Citigroup
- 3:20 p.m. Imputing Drone Strikes Casualty Counts Given Estimated Interval Ranges—◆Earvin Balderama, Loyola University Chicago
- 3:35 p.m. Markov Marked Space-Time Point Process Models in a Bayesian Framework with Applications—◆Athanasios Micheas, University of Missouri; Christopher Wikle, University of Missouri

44 **CC-W194a**
Trial Design and Analysis Issues in Medical Devices—Contributed

Section on Medical Devices and Diagnostics, Biopharmaceutical Section

Chair(s): Zengri Wang, Medtronic

- 2:05 p.m. Analysis of Matched Data for Noninferiority Trials—◆Jeremiah Perez, Boston University; Joseph M. Massaro, Boston University
- 2:20 p.m. A Constancy-Enforced Noninferiority Design of Medical Device Trials with a Binary Endpoint—◆Ying Yang, FDA/CDRH; Yunling Xu, FDA/CDRH; Nelson Lu, FDA/CDRH; Yu Zhao, FDA
- 2:35 p.m. Incorporation of Historical Information in Bayesian Analysis of Crossover Medical Device Clinical Trials—◆Youssef Toubouti, Johnson & Johnson Vision Care; Xiwei Chen, Johnson & Johnson Vision Care
- 2:50 p.m. On Weighted Performance Goals in Medical Device Single-Arm Clinical Studies—◆Nelson Lu, FDA/CDRH; Yunling Xu, FDA/CDRH
- 3:05 p.m. Developing and Validating Visual Assessment Tools for Use in Medical Device Trials—◆Alvin Van Orden, FDA
- 3:20 p.m. Tests for Interaction in Clinical Studies—◆Chul Ahn, FDA/CDRH; Mourad Atlas, FDA/CDRH
- 3:35 p.m. Statistical Study Design Considerations for Medical Device Clinical Studies from an FDA Reviewer's Perspective—◆Xu Yan, FDA; Heng Li, FDA; Vandana Mukhi, FDA

Special Presentation 4:00 p.m. – 5:50 p.m.

45 **CC-W190a**
Introductory Overview Lecture: Spatio-Temporal Data Analysis—Invited

ASA, ENAR, WNAR, IMS, SSC, International Chinese Statistical Association, International Indian Statistical Association, Korean International Statistical Society, International Society for Bayesian Analysis (ISBA), Royal Statistical Society, International Statistical Institute

Organizer(s): Christopher Wikle, University of Missouri

Chair(s): Mevin Hooten, Colorado State University

- 4:05 p.m. An Introduction to Spatio-Temporal Statistics: There Is No History Without Geography (and Vice Versa!)—◆Christopher Wikle, University of Missouri
- 5:45 p.m. Floor Discussion

Invited Sessions 4:00 p.m. – 5:50 p.m.46 CC-W176b**■ Modeling, Analysis, and Inference from Surveys Using Bayesian Methods—Invited**

Survey Research Methods Section, Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA)

Organizer(s): Maria DeYoreo, Duke University

Chair(s): Satkartar Kinney, RTI International

- 4:05 p.m. Nonparametric Bayes Modeling with Sample Survey Weights—◆Tsuyoshi Kuniyama, University of Washington; Amy Herring, The University of North Carolina at Chapel Hill; Carolyn Halpern, The University of North Carolina at Chapel Hill; David Dunson, Duke University
- 4:25 p.m. The Use of Sampling Weights in Bayesian Hierarchical Models for Small-Area Estimation—◆Cici Bauer, Brown University
- 4:45 p.m. Survey Integration and Estimation of Joint Distributions with Conditionally Representative Data Sources—◆Maria DeYoreo, Duke University; Bailey Fosdick, Colorado State University
- 5:05 p.m. Scalable Bayes Under Informative Sampling—◆Terrance Savitsky, Bureau of Labor Statistics; Sanvesh Srivastava, University of Iowa
- 5:25 p.m. A Bayesian Approach for Regression Analysis of Complex Survey Data with Missing Values—◆Trivellore Raghunathan, University of Michigan
- 5:45 p.m. Floor Discussion

47 CC-W183b**● Making the Most of R Tools—Invited**

Section on Statistical Computing, Royal Statistical Society, International Chinese Statistical Association, Section for Statistical Programmers and Analysts

Organizer(s): Wendy Martinez, Bureau of Labor Statistics

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

- 4:05 p.m. Thinking with Data Using R and RStudio: Powerful Idioms for Analysts—◆Nicholas Jon Horton, Amherst College; Randall Pruim, Calvin College; Daniel Kaplan, Macalester College
- 4:35 p.m. Transform Your Workflow and Deliverables with Shiny and R Markdown—◆Garrett Grolemond, RStudio
- 5:05 p.m. Disc: Hadley Wickham, Rice University
- 5:25 p.m. Floor Discussion

48 CC-W192a**■ ● Statistical Methods for Aging and Dementia—Invited**

Biometrics Section, Royal Statistical Society, International Chinese Statistical Association

Organizer(s): Yorghos Tripodis, Boston University

Chair(s): Yorghos Tripodis, Boston University

- 4:05 p.m. Relevant Brain Region Selection for Predicting MCI to AD Conversion via Functional Data Analysis Approach—◆Ah Yeon Park, University of Cambridge; John Aston, University of Cambridge; Frederic Ferraty, Toulouse Jean Jaures University
- 4:30 p.m. Dynamic Network Analysis in Resting-State fMRI for Alzheimer's Disease—Eric D. Kolaczyk, Boston University; ◆Heather Shappell, Boston University; Yorghos Tripodis, Boston University; Ron Killiany, Boston University
- 4:55 p.m. Alzheimer's Disease Severity, Objectively Determined and Measured—◆Alden Gross, Johns Hopkins Bloomberg School of Public Health; Jeannie M. Leoutsakos, The Johns Hopkins University; Marilyn Albert, The Johns Hopkins University; Dan M. Mungas, University of California at Davis; Richard Norman Jones, Brown University
- 5:20 p.m. Disc: Richard Kryscio, University of Kentucky
- 5:40 p.m. Floor Discussion

49 CC-W180**■ ● Annals of Applied Statistics (AOAS) Lecture—Invited**

IMS

Organizer(s): Tilmann Gneiting, Heidelberg Institute for Theoretical Studies; Edoardo M. Airoldi, Harvard

Chair(s): Edoardo M. Airoldi, Harvard

- 4:05 p.m. Coauthorship and Citation Networks for Statisticians—◆Jiashun Jin, Carnegie Mellon University; Pengsheng Ji, University of Georgia

50 CC-W178a**■ 1 Statistical Challenges and Power in Integrating Big and Complex Imaging Data—Invited**

SSC, Section on Statistics in Imaging, Royal Statistical Society, International Chinese Statistical Association, Committee on Applied Statisticians

Organizer(s): Linglong Kong, University of Alberta

Chair(s): Linglong Kong, University of Alberta

- 4:05 p.m. Estimation and Inference for Brain Connectivity Analysis—◆Lexin Li, University of California at Berkeley

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 4:30 p.m. PDEs and Regularized Principal Component Analysis of Functional Connectivity Maps—
◆Eardi Lila, University of Cambridge; John Aston, University of Cambridge; Laura Sangalli, Politecnico di Milano
- 4:55 p.m. An Autologistic Regression Model for Binary Classification of Hyperspectral Remote Sensing Imagery—Charmaine Dean, University of Western Ontario; ◆Mark Wolters, Fudan University
- 5:20 p.m. Functional Connectivity for Prediction and Classification: Characterization and Estimation—
◆DuBois Bowman, Columbia University
- 5:35 p.m. Floor Discussion

51 **CC-W185bc**
Media and Statistics—Invited

Excellence in Statistical Reporting Award, Scientific and Public Affairs Advisory Committee
 Organizer(s): Morteza Marzjarani, Saginaw
 Chair(s): Alan Schwarz, *The New York Times*

- 4:05 p.m. Causal Inferences from Observational Studies: Fracking, Earthquakes, and Oklahoma—◆Howard Wainer, NBME
- 4:25 p.m. It's Not What We Say, It's Not What They Hear, It's What They Say They Heard—◆Barry Nussbaum, EPA
- 4:45 p.m. Bad Statistics, Bad Reporting, Bad Impact on Patients: The Story of the PACE Trial—◆Julie Rehmeyer, Discover Magazine
- 5:05 p.m. Can Statisticians Enlist the Media to Successfully Change Policy?—◆Donald A. Berry, MD Anderson Cancer Center
- 5:25 p.m. Disc: Andrew Gelman, Columbia University
- 5:45 p.m. Floor Discussion

52 **CC-W196c**
Recent Advances in Spatial and Spatio-Temporal Functional Data Analysis—Invited

ENAR, Section on Statistics in Imaging, International Chinese Statistical Association
 Organizer(s): Ying Sun, King Abdullah University of Science and Technology
 Chair(s): Ying Sun, King Abdullah University of Science and Technology

- 4:05 p.m. Bayesian Modeling and Inference for High-Dimensional Spatiotemporal Data Sets—◆Sudipto Banerjee, University of California at Los Angeles
- 4:30 p.m. Copula Random Field with Application to Longitudinal Neuroimaging Data Analysis—
◆Peter X. K. Song, University of Michigan; Jian Kang, University of Michigan

- 4:55 p.m. A Multiresolution Model for Activation and Connectivity in fMRI Data with Functional Estimation of the Haemodynamic Response—
◆Stefano Castruccio, Newcastle University; Hernando Ombao, University of California at Irvine; Thomas Theussl, King Abdullah University of Science and Technology; Marc Genton, KAUST
- 5:20 p.m. Disc: Doug Nychka, National Center for Atmospheric Research
- 5:40 p.m. Floor Discussion

53 **CC-W190b**
Statistical Challenges and Advances in the Precision Medicine Initiative—Invited

Section on Statistics in Epidemiology, International Chinese Statistical Association
 Organizer(s): Peng Wei, The University of Texas Health Science Center at Houston
 Chair(s): Peng Wei, The University of Texas Health Science Center at Houston

- 4:05 p.m. New Integrative Paradigms of Personalized Medicine for Cancer—◆Kim-Anh Do, MD Anderson Cancer Center; Veera Baladandayuthapani, MD Anderson Cancer Center; Francesco Stingo, MD Anderson Cancer Center; Min Jin Ha, MD Anderson Cancer Center; Thierry Chekouo Tekougang, MD Anderson Cancer Center
- 4:30 p.m. Integrative Analysis for Incorporating the Microbiome to Improve Precision Medicine—
◆Hongzhe Li, University of Pennsylvania
- 4:55 p.m. Set-Based Association Analysis of Gene-Environment Interaction Using Mixed Effects Models—◆Li Hsu, Fred Hutchinson Cancer Research Center
- 5:20 p.m. Disc: Bhramar Mukherjee, University of Michigan
- 5:40 p.m. Floor Discussion

54 **CC-W183c**
Recent Advances in Information Visualization—Invited

Section on Statistical Graphics, Committee on Applied Statisticians
 Organizer(s): Yihui Xie, RStudio
 Chair(s): Carlos E. Scheidegger, University of Arizona

- 4:05 p.m. Using Maximum Topology Matching to Explore Differences in Species Distribution Models—
◆Jorge Poco, University of Washington
- 4:25 p.m. Automatic Selection of Partitioning Variables for Small Multiple Displays—◆Anushka Anand, Tableau Research

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 4:45 p.m. Visualizing Statistical Mix Effects and Simpson's Paradox—◆Zan Armstrong, Freelance Data Visualization
- 5:05 p.m. ImMens: Real-Time Visual Querying of Big Data—◆Zhicheng Liu, Adobe Research
- 5:25 p.m. An Algebraic Process for Visualization Design—◆Gordon Kindlmann, The University of Chicago
- 5:45 p.m. Floor Discussion

55 CC-W196b

■ Recent Advances in Sequencing Association Studies and Rare-Variant Analysis for Complex Traits—Invited

Section on Statistics in Genomics and Genetics

Organizer(s): Seunggeun Lee, University of Michigan

Chair(s): Xiaoquan Wen, University of Michigan

- 4:05 p.m. Sequencing 10,000s of Human Genomes: Early Results, Opportunities, and Statistical Challenges—◆GonAalo Abecasis, University of Michigan
- 4:30 p.m. Detecting Signal Regions in Whole-Genome Association Studies—◆Xihong Lin, Harvard T.H. Chan School of Public Health; Zilin Li, Harvard T.H. Chan School of Public Health
- 4:55 p.m. Improving Power for Rare Variant Tests by Using External Control Samples While Mitigating for Possible Biases—◆Seunggeun Lee, University of Michigan
- 5:20 p.m. A Spectral Approach for the Integration of Functional Genomics Annotations for Both Coding and Noncoding Sequence Variants—◆Iuliana Ionita-Laza, Columbia University; Kenneth McCallum, Columbia University
- 5:45 p.m. Floor Discussion

56 CC-W184bc

■ ● Extraordinary Impact of Statistics—Invited

Caucus for Women in Statistics, Royal Statistical Society, Committee on Career Development, Joint Committee on Women in the Mathematical Sciences

Organizer(s): Jiayang Sun, Case Western Reserve University; Helen Zhang, University of Arizona

Chair(s): Jiayang Sun, Case Western Reserve University

- 4:05 p.m. A Short History of Statistical Ideas—◆David Siegmund, Stanford University
- 4:30 p.m. Cutting-Edge Research in Modern Statistical Sciences: Modern Tools and Impact in Data Science—◆Heike Hofmann, Iowa State University
- 4:55 p.m. Women in Statistics: Past, Present, and Future—◆Sally Morton, University of Pittsburgh

- 5:20 p.m. Disc: Xiao-Li Meng, Harvard
- 5:40 p.m. Floor Discussion

Invited Panels 4:00 p.m. – 5:50 p.m.

57 CC-W183a

■ ● The Extraordinary Impact of Janet Norwood on the Federal Statistical System and the Statistical Profession—Invited

Memorial, Caucus for Women in Statistics, Scientific and Public Affairs Advisory Committee

Organizer(s): John Eltinge, Bureau of Labor Statistics

Chair(s): Katherine K. Wallman, Office of Management and Budget

- Panelists: ◆Constance F. Citro, Committee on National Statistics
- ◆Erica L. Groshen, Bureau of Labor Statistics
- ◆Judith Tanur, SUNY Stony Brook
- ◆John Thompson, U.S. Census Bureau

- 5:45 p.m. Floor Discussion

Topic-Contributed Sessions 4:00 p.m. – 5:50 p.m.

58 CC-W175a

■ ● Challenges in the Analysis of Large Spatial Data—Topic-Contributed

Section on Statistics and the Environment, Korean International Statistical Society, Section on Statistics in Imaging

Organizer(s): Chae Young Lim, Seoul National University

Chair(s): Jarrett Barber, Northern Arizona University

- 4:05 p.m. Spatially Partitioning Curves Based on Functional Covariates, with Two Applications—◆Zhen Zhang, The University of Chicago
- 4:25 p.m. High-Dimensional Variable Selection and Covariance Estimation in Spatial Regression via Penalized Likelihood—◆Abolfazl Safikhani, Columbia University; Tapabrata Maiti, Michigan State University; Chae Young Lim, Seoul National University
- 4:45 p.m. Compression and Conditional Emulation of Climate Model Output—◆Joseph Guinness, North Carolina State University; Dorit Hammerling, National Center for Atmospheric Research
- 5:05 p.m. Computational Instability of Inverse of Spatial Covariance Matrices—◆Chae Young Lim, Seoul

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- National University; Wei-Ying Wu, National Dong Hwa University; Chien-Hung Chen, National Dong Hwa University
- 5:25 p.m. **A Low-Rank Covariance Estimation Methodology for Understanding Brain Connectivity—**
◆Siddhartha Nandy, Michigan State University; Chae Young Lim, Seoul National University; Tapabrata Maiti, Michigan State University
- 5:45 p.m. Floor Discussion

59 CC-W185d

New Matching Designs to Get the Most from Observational Data—Topic-Contributed

Health Policy Statistics Section

Organizer(s): Samuel D. Pimentel, University of Pennsylvania

Chair(s): Colin B. Fogarty, MIT

- 4:05 p.m. **Maximizing the Information Content of a Balanced Matched Sample—**◆Jose Zubizarreta, Columbia University; Cinar Kilcioglu, Columbia University
- 4:25 p.m. **Generalized Full Matching—**Fredrik Savje, University of California at Berkeley; Michael Higgins, Kansas State University; ◆Jasjeet Sekhon, University of California at Berkeley
- 4:45 p.m. **Constructed Second Control Groups and Attenuation of Unmeasured Biases—**◆Samuel D. Pimentel, University of Pennsylvania; Dylan Small, University of Pennsylvania; Paul R. Rosenbaum, University of Pennsylvania
- 5:05 p.m. **Propensity Score Calipers and the Overlap Condition—**◆Ben Hansen, University of Michigan
- 5:25 p.m. Disc: Elizabeth Stuart, Johns Hopkins Bloomberg School of Public Health
- 5:45 p.m. Floor Discussion

60 CC-W187a

Power of Blinded Data Reviews—Topic-Contributed

Section on Statistical Consulting, Biopharmaceutical Section, International Chinese Statistical Association, Committee on Applied Statisticians

Organizer(s): Ibrahim Turkoz, Janssen R&D

Chair(s): Ibrahim Turkoz, Janssen R&D

- 4:05 p.m. **Predicting the Timing of the Final Event in a Clinical Trial Using the Bayesian Bootstrap and Beyond—**◆Marc Sobel, Temple University; Ibrahim Turkoz, Janssen R&D
- 4:25 p.m. **Control Charts for Monitoring Accumulating Adverse Event Count Frequencies from Single and Multiple Blinded Trials—**◆A. Gould, Merck Research Laboratories

- 4:45 p.m. **Continuous Event Monitoring via a Bayesian Predictive Approach—**◆Jianing Di, Janssen R&D; Daniel Wang, Janssen R&D; Robert Brashear, Janssen R&D; Vlad Dragalin, Janssen; Michael Krams, Janssen R&D
- 5:05 p.m. **Enrollment and Event Prediction for Blinded Clinical Trials—**◆Hrishikesh Kulkarni, Cytel; Yannis Jemai, Cytel
- 5:25 p.m. Disc: Sue-Jane Wang, FDA
- 5:45 p.m. Floor Discussion

61 CC-W175c

Modeling Multivariate Count Data: Multivariate Extensions and Generalizations of Standard Count Distributions—Topic-Contributed

Government Statistics Section, Section on Statistical Computing

Organizer(s): Darcy S. Morris, U.S. Census Bureau

Chair(s): Andrew Raim, U.S. Census Bureau

- 4:05 p.m. **Modeling with Bivariate Geometric Distributions—**◆Jing Li
- 4:25 p.m. **Bivariate Exponentiated-Exponential Geometric Regression Model—**◆Felix Famoye, Central Michigan University
- 4:45 p.m. **Introducing the Bivariate Conway-Maxwell-Poisson Distribution—**◆Kimberly Sellers, Georgetown University; Darcy S. Morris, U.S. Census Bureau; Narayanaswamy Balakrishnan, McMaster University
- 5:05 p.m. **Multivariate Discrete Distributions and Goodness-of-Fit—**◆Sunil Dhar, New Jersey Institute of Technology
- 5:25 p.m. **Recent Developments in Multivariate Count Data and Ordered Response Models—**◆Shiferaw Gurmu, Georgia State University
- 5:45 p.m. Floor Discussion

62 CC-W178b

Recent Advances in Bayesian Nonparametric Methods—Topic-Contributed

Section on Nonparametric Statistics, Section on Bayesian Statistical Science, IMS, International Society for Bayesian Analysis (ISBA), International Chinese Statistical Association

Organizer(s): Peter Mueller, The University of Texas at Austin

Chair(s): Peter Mueller, The University of Texas at Austin

- 4:05 p.m. **Bayesian High-Dimensional Sparse Models with Unknown Symmetric Errors—**◆Lizhen Lin, The University of Texas; Minwoo Chae, The University of Texas at Austin; David Dunson, Duke University
- 4:25 p.m. **Dependent Nonparametric Priors with Hierarchical Structures—**◆Igor Pruenster, Bocconi University

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 4:45 p.m. Dependent Nonparametric Priors with Nested Structures—◆Antonio Lijoi, University of Pavia
- 5:05 p.m. Posterior Contraction of the Population Structure in Admixture Models—◆Long Nguyen
- 5:25 p.m. On a Simple Time-Dependent Bayesian Nonparametric Model for Air Quality Analysis—◆Ramses Mena, Universidad Nacional Autónoma de México; Luis Gutierrez, Universidad de Chile
- 5:45 p.m. Floor Discussion

63 CC-W193b

■ ● New Developments on Network Meta-Analysis in Clinical Trials—Topic-Contributed

Biopharmaceutical Section, International Chinese Statistical Association, Committee on Applied Statisticians

Organizer(s): Cindy Lu, Bayer HealthCare Pharmaceuticals

Chair(s): Jerry Weaver, Celgene

- 4:05 p.m. On the Sensitivity Analysis for Bayesian Network Meta-Analysis—◆Haoda Fu
- 4:25 p.m. Network Meta-Analysis for Ordinal Outcomes: An Application in Comparing Crohn's Disease Treatments—◆May Mo, Amgen; Yeongjin Gwon, University of Connecticut; Ming-Hui Chen, University of Connecticut; Amy Xia, Amgen; Juan Li, Amgen; Joseph G. Ibrahim, The University of North Carolina at Chapel Hill
- 4:45 p.m. Incorporation of Individual Patient Data in Network Meta-Analysis for Multiple Continuous Endpoints, with Application to Diabetes Treatment—◆Hwanhee Hong, Johns Hopkins Bloomberg School of Public Health; Haoda Fu; Karen Price, Eli Lilly and Company; Bradley Carlin, University of Minnesota
- 5:05 p.m. Network Meta-Analysis for Missing Binary Outcomes from Part of the Network—◆Cindy Lu, Bayer HealthCare Pharmaceuticals; Robert Wan, AstraZeneca
- 5:25 p.m. Use of Informative Prior Information in Network Meta-Analysis of Rare Adverse Events—◆David Ohlssen, Novartis
- 5:45 p.m. Floor Discussion

64 CC-W184a

■ ● The World of Statistical Analysis Professionals—Topic-Contributed

Section for Statistical Programmers and Analysts, Section on Statistics in Marketing, Royal Statistical Society, International Chinese Statistical Association, Caucus for Women in Statistics

Organizer(s): Nancy C. Wang, Celerion

Chair(s): Nancy C. Wang, Celerion

- 4:05 p.m. Personalized Marketing and the Role of the Statistician in Retail—◆Rebecca Schulthess, Eastbay/Footlocker.com

- 4:25 p.m. When Analytics Meet Marketing: Statistics in Action with Marketing Data—◆Huimin Liu, Ocwen Financial
- 4:45 p.m. Searching for Statistical Evidence of Better Health: Working as a Statistician on the Campus of a Major Academic Health Center—◆Harlan Sayles, University of Nebraska Medical Center
- 5:05 p.m. What Can a Statistician Do at an Airline?—◆Aleksandra Stein
- 5:25 p.m. Expanding the Use of Statistics at a Financial Institution—◆Kristin Carney, Cabela's

65 CC-W192b

■ ● Synthesizing Evidence from Different Sources for Robust Decision Making in Cancer Clinical Trials—Topic-Contributed

Biopharmaceutical Section, Committee on Applied Statisticians

Organizer(s): Suddhasatta Acharyya, Novartis

Chair(s): Sofia Paul, Novartis

- 4:05 p.m. Combining Safety and Efficacy Data for Assessing Risk Benefit in Cancer Clinical Trials: Some Recent Examples—◆Thomas Kelleher, Bristol-Myers Squibb
- 4:25 p.m. Inference for Time-to-Event Endpoints in Combined Populations Under Disproportionate Stratified Sampling—◆Jyotirmoy Dey, AbbVie; Wuyan Zhang, Pfizer
- 4:45 p.m. Using Meta-Analysis in the Design and Analysis of Early-Phase Cancer Studies—◆Ashok Panneerselvam, Novartis Oncology; Sofia Paul, Novartis; Suddhasatta Acharyya, Novartis
- 5:05 p.m. Regulatory Challenges in Evidence Synthesis in Cancer Clinical Trials—◆Rajeshwari Sirdhara, FDA
- 5:25 p.m. Disc: Amit Bhattacharyya, GlaxoSmithKline
- 5:45 a.m. Floor Discussion

66 CC-W194b

■ Kathryn Chaloner: Contributions and Reflections from Former Students and Colleagues—Topic-Contributed

Biometrics Section, Biopharmaceutical Section, International Chinese Statistical Association

Organizer(s): Jeffrey D. Dawson, University of Iowa

Chair(s): Jeffrey D. Dawson, University of Iowa

- 4:05 p.m. Accounting for Uncertainty in the Design—◆Sharon Lohr, Westat
- 4:25 p.m. Kathryn Chaloner: Contributions and Reflections from Former Students and Colleagues—◆Gideon Zamba, University of Iowa

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 4:45 p.m. Prestige in Latent Social Space—◆Gary Oehlert, University of Minnesota
- 5:05 p.m. A Bayesian Framework for Diagnosis of E2-Antibody Using ELISA Tests Without a Gold Standard—◆Jingyang Zhang, Fred Hutchinson Cancer Research Center
- 5:25 p.m. Accelerating Computation for Bayesian Spatial Modeling—◆Mary Kathryn Cowles, University of Iowa
- 5:45 p.m. Floor Discussion

67 CC-W179a

■ ● **The Consumer Expenditure Survey Redesign: Development, Concept Testing, and Evaluation—Topic-Contributed**

Survey Research Methods Section

Organizer(s): Adam Safir, Bureau of Labor Statistics

Chair(s): Minsun Riddles, Westat

- 4:05 p.m. Removing Survey Questions Through Aggregation: Assessing the Balance Between Specificity, Accuracy, and Burden Through Cognitive Interviewing—◆Jennifer Crafts, Westat; Rachel Tesler, Westat; Brandon Kopp, Bureau of Labor Statistics; Erica Yu-Wright, Bureau of Labor Statistics; Laura Erhard, Bureau of Labor Statistics
- 4:25 p.m. Testing New Interview Protocols: Lessons Learned About Interviewers, Respondents, and Survey Content—◆Erica Yu, Bureau of Labor Statistics
- 4:45 p.m. Demonstrating Feasibility: Results from the Consumer Expenditure Survey Redesign Proof of Concept Test—◆Laura Erhard, Bureau of Labor Statistics; Lucilla Tan, Bureau of Labor Statistics; Nhien To, Bureau of Labor Statistics; Brett McBride, Bureau of Labor Statistics; Song Park, Bureau of Labor Statistics
- 5:05 p.m. Survey Redesign Recommendations from a Survey of Data Collection Field Staff—◆Adam Safir, Bureau of Labor Statistics; Brandon Kopp, Bureau of Labor Statistics; Lucilla Tan, Bureau of Labor Statistics; Wallace Fraser, U.S. Census Bureau; Tanisha Keller, U.S. Census Bureau
- 5:25 p.m. Disc: Rob Cage, Bureau of Labor Statistics
- 5:45 p.m. Floor Discussion

68 CC-W181a
SBSS Student Travel Award Session 1—Topic-Contributed

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

Organizer(s): Tanzy Love, University of Rochester

Chair(s): Tanzy Love, University of Rochester

- 4:05 p.m. Analyzing MCMC Output—◆Dootika Vats, University of Minnesota-Twin Cities; James Flegal, University of California at Riverside; Galin Jones, University of Minnesota-Twin Cities
- 4:25 p.m. Bayesian Multiple Imputation Procedures to Equate Health Assessment Questionnaires—◆Chenyang Gu, Brown University; Roee Gutman, Brown University
- 4:45 p.m. Bayesian Dynamic Modeling and Analysis of Streaming Network Data—◆Xi Chen, Duke University; Kaoru Irie, Duke University; David Banks, Duke University; Robert Haslinger, MaxPoint; Jewell Thomas, MaxPoint; Mike West, Duke University
- 5:05 p.m. A Bayesian Multivariate Functional Dynamic Linear Model—◆Daniel Ryan Kowal, Cornell University; David Matteson, Cornell University; David Ruppert, Cornell University
- 5:25 p.m. Modeling Spatial Compositional Data: Reconstructions of Past Land Cover and Uncertainties—◆Behnaz Pirzamanbein, Lund University; Johan Lindström, Lund University; Anneli Poska, Lund University; Marie-José Gaillard-Lemdhahl, Linnaeus University
- 5:45 p.m. Floor Discussion

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

69 CC-W193a

■ ● **Novel Methods in Causal and Mediation Analysis—Contributed**

Biometrics Section, Biopharmaceutical Section, International Chinese Statistical Association

Chair(s): Hrishikesh Chakraborty, University of South Carolina

- 4:05 p.m. Multiple Imputation Framework to Estimate Causal Effect of Testing on Treatment Decision—◆Irina Bondarenko, University of Michigan; Yun Li, University of Michigan
- 4:20 p.m. Causal Moderation Assessment with Zero-Inflated Data—◆Robert Gallop; Paul Crits-Christoph, University of Pennsylvania
- 4:35 p.m. Characterizing Causal Treatment Effect Heterogeneity with Conditional Inference Trees—◆Julian Wolfson, University of Minnesota; Lauren

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- Erickson, HealthPartners Institute for Education and Research
- 4:50 p.m. **Sharp Bounds of Causal Effects on Ordinal Outcomes**—◆Jiannan Lu, Microsoft; Peng Ding, University of California at Berkeley; Dasgupta Tirthankar, Harvard
- 5:05 p.m. **Centering of Interactions in Lower-Level Mediation Models**—◆Haeike Josephy, UGent; Tom Loeys, Ghent University
- 5:20 p.m. **Nonlinear Structural Equation Models in Environmental Epidemiology**—◆Esben Budtz-Jørgensen
- 5:35 p.m. **Integrative Genomic Association Testing via Kernel Machine Mediation Analysis**—◆Angela Hsiaohan Chen, University of Illinois at Urbana-Champaign; Sihai Zhao, University of Illinois at Urbana-Champaign

70 CC-W191
■ ● Important Issues in Meta-Analysis and Clinical Trials—Contributed

Biometrics Section, Biopharmaceutical Section

Chair(s): Arkendu S. Chatterjee, Novartis

- 4:05 p.m. **Detecting Publication Bias in Multivariate Random-Effects Meta-Analysis**—◆Chuan Hong, The University of Texas Health Science Center at Houston; Haitao Chu, University of Minnesota; Yong Chen, University of Pennsylvania Perelman School of Medicine
- 4:20 p.m. **Maximum Likelihood Estimation and EM Algorithm of Copas Selection Model for Publication Bias Correction**—◆Jin Piao, The University of Texas Health Science Center at Houston; Jing Ning, MD Anderson Cancer Center; Yong Chen, University of Pennsylvania Perelman School of Medicine
- 4:35 p.m. **Integration of Significance Information from Independent Gene Expression Studies**—◆Nusrat Jahan, James Madison University; Aylin Alin, Dokuz Eylul University
- 4:50 p.m. **Falsification of Epidemiological Models from Ongoing Clinical Trials**—◆Sayan Dasgupta, Fred Hutchinson Cancer Research Center; Jim P. Hughes, University of Washington
- 5:05 p.m. **An Evaluation of Treatment Effect in Opt-In Versus Opt-Out Consent Frameworks Under a Mixture of Participant Motivation Levels**—◆Alessandra Valcarcel, University of Pennsylvania
- 5:20 p.m. **Cluster Randomized Trials: How Can We Handle Cluster-Level and Individual-Level Dropout?**—◆Catherine Crespi, University of California at Los Angeles; Robert Erin Weiss, University of California at Los Angeles; Beth Glenn, University of California at Los Angeles; Roshan Bastani, University of California at Los Angeles

- 5:35 p.m. **Comparing Novel Approaches to Subgroup Analysis in Early-Phase Clinical Trials**—◆Marius Thomas, Novartis; Björn Bornkamp, Novartis

71 CC-W175b

Environmental Extremes—Contributed

Section on Statistics and the Environment, Section on Risk Analysis

Chair(s): Whitney Huang, Purdue University

- 4:05 p.m. **Bivariate Quantile-Based Calibration of Numerical Model Outputs with Application to Climate Projections**—◆Brooke Alhanti, Emory University; Howard Chang, Emory University
- 4:20 p.m. **Detecting Change-Points Using an Extreme Value Approach for Climate Data**—◆Andrew Bartlett, Southern Illinois University Edwardsville
- 4:35 p.m. **Modeling the Frequency and Magnitude of Extreme Events**—◆Piyas Chakraborty, Purdue University; Hao Zhang, Purdue University
- 4:50 p.m. **Quantifying Waves of Extreme Weather**—◆Joshua French, University of Colorado Denver; Piotr Kokoszka, Colorado State University; Stilian Stoev, University of Michigan
- 5:05 p.m. **Bayesian Clustering and Dimension Reduction in Multivariate Extremes**—◆Sabrina Vettori, KAUST; Raphaël Huser, KAUST; Marc Genton, KAUST
- 5:20 p.m. **Censored Local Likelihood Inference for Modeling Nonstationarity in Spatial Extremes**—◆Daniela Castro, King Abdullah University of Science and Technology; Raphaël Huser, KAUST

Sunday

ASA President's Invited Address



Joe Palca, NPR

"Science and News: A Marriage of Convenience"

Hilton International Ballroom
Monday at 4:45 p.m.

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

5:35 p.m. Bayesian Modeling of Days in Risk Due to Concentration of PM10 in Kuwait—◆Fahimah Alawadhi, Kuwait University

72 **CC-W185a**
Alternative Classroom Strategies: Flipped, Blended, and Others—Contributed

Section on Statistical Education, Section on Teaching of Statistics in the Health Sciences

Chair(s): Adam Sullivan, Brown University

4:05 p.m. Flipping an Introduction to Applied Statistics Course for Mathematics Teacher Candidates—◆Ananda Jayawardhana, Pittsburg State University

4:20 p.m. Some Observations of Students' Performance and Attitudes Toward a Flipped Classroom for Introductory Statistics—◆Carl Lee, Central Michigan University

4:35 p.m. Restructuring the Introductory Statistics Course to Free Class Time for Exploration and Deeper Understanding—◆Bonnie Moon, Brigham Young University; Craig Johnson, Brigham Young University; Ryan Cromar, Brigham Young University

4:50 p.m. Continual Improvement Using Data by Comparing the Online Vs Face-to-Face Introductory Statistics Course—◆Ryan Cromar, Brigham Young University; Bonnie Moon, Brigham Young University

5:05 p.m. Investigating the HyFlex (Hybrid-Flexible) Model of Course Delivery in an Introductory Statistics Course—◆Jackie Bryce Miller, University of Michigan

5:20 p.m. Prior Online and Blended Experience: Does It Affect Outcomes in a Blended Course?—◆James Schmidt, University of Nebraska-Lincoln; Carlos Asarta, University of Delaware

5:35 p.m. Mary Worth Teaches Statistics via Scripting—◆James J. Cochran, University of Alabama

73 **CC-W186a**
Resistant and Outlier-Robust Methods—Contributed

Section on Statistical Learning and Data Science

Chair(s): Carolyn Bradshaw Morgan, Hampton University

4:05 p.m. Using L₁ Data Depth Unsupervised Classifier for Detecting Communities in Networks—◆Yahui Tian; Yulia R. Gel, The University of Texas at Dallas

4:20 p.m. Fast and Robust Vertex Classification by Sequential Screening—◆Li Chen, Intel Corporation; Cencheng Shen, Temple University; Carey Priebe, The Johns Hopkins University

4:35 p.m. Efficient Robust Regression with Variable Selection via Generalized Empirical Likelihood—◆Sohini Raha, North Carolina State University; Howard Bondell, North Carolina State University

4:50 p.m. Asymptotic Relative Efficiency for Robust Estimation of the Mean of Contaminated Graphs Under a Low Rank Model—◆Runze Tang, The Johns Hopkins University; Minh Tang, The Johns Hopkins University; Michael Ketcha, The Johns Hopkins University; Carey Priebe, The Johns Hopkins University; Joshua Vogelstein, The Johns Hopkins University

5:05 p.m. Fully Efficient and Outlier-Robust Estimation in the Linear Mixed Model—◆Won Gyo Suh, North Carolina State University; Howard Bondell, North Carolina State University

5:20 p.m. A Model-Selection Criterion for Regression Estimators Based on Data Depth—◆Subhabrata Majumdar, University of Minnesota-Twin Cities; Snigdhasu Chatterjee, University of Minnesota-Twin Cities

5:35 p.m. Robust Clustering Methods for Time-Evolving Brain Signals—◆Tianbo Chen, KAUST; Ying Sun, King Abdullah University of Science and Technology; Carolina Euan, CIMAT; Hernando Ombao, University of California at Irvine

74 **CC-W186b**
Estimation and Learning in Graphical Models—Contributed

Section on Statistical Learning and Data Science

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

4:05 p.m. Topological Property Hypotheses for Graphical Models—◆Junwei Lu, Princeton; Matey Neykov, Princeton; Han Liu, Princeton

4:20 p.m. Learning Large-Scale DAG Models Using Overdispersion—◆Gunwoong Park, University of Wisconsin-Madison

4:35 p.m. An Exposition on the Propriety of Restricted Boltzmann Machines—◆Andrea Kaplan, Iowa State University; Daniel Nordman, Iowa State University; Stephen Vardeman, Iowa State University

4:50 p.m. Joint Multilevel Gaussian Graphical Model—◆Liang Shan; Inyoung Kim, Virginia Tech

5:05 p.m. A Convex Framework for High-Dimensional Sparse Cholesky Selection with Convergence Guarantees—◆Syed Rahman, University of Florida; Kshitij Khare, University of Florida

5:20 p.m. Topological Inference on Time-Varying Gaussian Graphical Models—◆Kean Ming Tan; Junwei Lu, Princeton; Han Liu, Princeton; Tong Zhang, Rutgers University

5:35 p.m. Blessing of Massive Scale: Spatial Graphical Model Estimation with a Total Cardinality Constraint Approach—◆Ethan Fang, Princeton; Han Liu, Princeton; Mendi Wang, Princeton

75 CC-W194a
■ ● Bayesian Methods and Applications—Contributed

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

Chair(s): Paulette Ceesay, Merck

- 4:05 p.m. Use of Bayesian Approach for the Design and Evaluation of Multiregional Clinical Trials—◆Chinfu Hsiao, National Health Research Institutes; Yu-Chieh Cheng, National Chiao Tung University; Hsiuying Wang, National Chiao Tung University
- 4:20 p.m. Comparing Parametric and Semiparametric Bayesian Models for Subgroup Analysis in Clinical Trials—◆Margaret Gamalo-Siebers, Eli Lilly and Company
- 4:35 p.m. Bayesian Clinical Trial Design for Survival Studies with Historical Study Data Under a Proportional Hazards Assumption—◆Matthew Psioda, The University of North Carolina at Chapel Hill; Joseph G. Ibrahim, The University of North Carolina at Chapel Hill
- 4:50 p.m. Shelf Life Estimation: Bayesian Approach—◆Maryna Ptukhina; Walter Stroup, University of Nebraska-Lincoln
- 5:05 p.m. The Case for Bayesian Methods in Benefit-Risk Assessment: Overview and Future Directions—◆Carl DiCasoli, Bayer HealthCare Pharmaceuticals; Yannis Jemai, Cytel; Maria Costa, GlaxoSmithKline; Weili He, Merck; Yueqin Zhao, FDA/CDER
- 5:20 p.m. A Bayesian Adaptive Group Sequential Design for Biosimilars with Historical Data—◆Haitao Pan, MD Anderson Cancer Center; Ying Yuan, MD Anderson Cancer Center
- 5:35 p.m. Bayesian Methods in Phase 3 HCV Trials: Borrowing Historical Control Arm Data—◆Ran Liu, AbbVie; Qi Tang, AbbVie; Martin King, AbbVie; Bo Fu, AbbVie; Sandra Lovell, AbbVie; Alan Harford, AbbVie

76 CC-W196a
■ ● Network and Graphical Models for Analysis of Genomic Data—Contributed

Section on Statistics in Genomics and Genetics, Biopharmaceutical Section

Chair(s): Jiang Gui, Dartmouth Medical School

- 4:05 p.m. Identification of Marginal Causal Relationships in Gene Networks from Observational and Interventional Expression Data—◆Andrea Rau, INRA; Gilles Monneret, INRA/Universite Pierre et Marie Curie; Florence Jaffrezic, INRA; Gregory Nuel, Universite Pierre et Marie Curie
- 4:20 p.m. Longitudinal Gaussian Graphical Models for Autism Risk Gene Detection—◆Kevin Lin, Carnegie Mellon University
- 4:35 p.m. XTalk: A Path-Based Approach for Identifying Crosstalk Between Signaling Pathways—◆Allison Tegge; T. M. Murali, Virginia Tech; Nicholas Sharp, Virginia Tech
- 4:50 p.m. Graphlet Screening for High-Dimensional Variable Selection—◆Qi Zhang, University of Nebraska-Lincoln; Jiashun Jin, Carnegie Mellon University; Cun-Hui Zhang, Rutgers University
- 5:05 p.m. Pathway-Based Integrative Bayesian Modeling of Multi-Platform Genomics Data—◆Elizabeth McGuffey, U.S. Naval Academy; Jeffrey S. Morris, MD Anderson Cancer Center; Raymond Carroll, Texas A&M University; Ganiraju C. Manyam, MD Anderson Cancer Center; Veera Baladandayuthapani, MD Anderson Cancer Center
- 5:20 p.m. Detecting Association to Precision Networks via Conditional Multi-Type Graphical Models—◆Yanming Li, University of Michigan; Kevin He, University of Michigan; Jian Kang, University of Michigan; Hyokyung (Grace) Hong, Michigan State University; Ji Zhu, University of Michigan; Yi Li, University of Michigan
- 5:35 p.m. Network Analysis for Gene Signaling Pathways—◆Samir Lababidi, FDA; Taxiarchis Botsis, FDA

77 CC-W177
Statistical Methods for Brain Connectivity and Network Analysis—Contributed

Section on Statistics in Imaging, International Chinese Statistical Association

Chair(s): Daniel Rowe, Marquette University

- 4:05 p.m. A Novel Group-Fused Lasso with Applications to Dynamic Brain Connectivity—◆David Degras, DePaul University; Martin Lindquist, The Johns Hopkins University

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 4:20 p.m. Spatial Integration of Functional Connectivity Methods in the Default Mode Network of the Brain—◆Priyangi Bulathsinhala; Richard Gunst, Southern Methodist University; Jeffery Spence, The University of Texas at Dallas
- 4:35 p.m. Regime-Switching Dynamic Factor Models with Applications to Estimating Large-Scale Time-Varying Brain Connectivity—◆Chee-Ming Ting, Universiti Teknologi Malaysia; Hernando Ombao, University of California at Irvine; S. Balqis Samdin, Universiti Teknologi Malaysia; Sh-Hussain Salleh, Universiti Teknologi Malaysia
- 4:50 p.m. Exploiting Biology’s Structure: Function Relationship to Improve Network Modeling in Neuroimaging—◆Barbara Wendelberger, University of Wisconsin-Madison; M. Elizabeth Meyerand, University of Wisconsin-Madison
- 5:05 p.m. Wavelet Analysis of Large-P-Small-N Cross-Correlation Matrices in fMRI Studies of Neuroplasticity—◆Jiayi Wu; Sam Efromovich, The University of Texas at Dallas
- 5:20 p.m. A Joint Model for Assessing the Link Between Functional and Structural Brain Connectivity—◆Phebe Kemmer, Emory University; Ying Guo, Emory University
- 5:35 p.m. Floor Discussion

78 CC-W184d

■ For the Love of the Game: Applications of Statistics in Sports—Contributed

Section on Statistics in Sports, Section on Statistical Education

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

- 4:05 p.m. To Go or Not to Go: Fourth Down Analysis in the NFL—◆Dan Nettleton, Iowa State University; Joshua Zimmerman, Iowa State University
- 4:20 p.m. Estimating NCAA Football Coaches’ Abilities: An Application of Item Response Theory—◆Brandon LeBeau, University of Iowa; Andrew Zieffler, University of Minnesota; Kyle Nickodem, University of Minnesota
- 4:35 p.m. Does the Threat of Suspension Curb Dangerous Behavior in Soccer? A Case Study from the Premier League—◆Douglas VanDerwerken, U.S. Naval Academy; Jacek Rother, U.S. Naval Academy; Brice Merlin Nguellifack, U.S. Naval Academy
- 4:50 p.m. An Examination of Statistical Disclosure Issues Related to Publication of Aggregate Statistics in the Presence of a Known Subset of the Data Set Using Baseball Hall of Fame Ballots—◆Gregory Matthews; Petala Gardenia da Silva Estrela Tuy, Loyola University Chicago
- 5:05 p.m. Collegiate Football Ticket Sales in El Paso—◆Thomas Fullerton, The University of Texas at El

Paso; Wesley A. Miller, The University of Texas at El Paso

- 5:20 p.m. Tennis Analytics: Creating Seasonal Team and Individual Statistical Profiles—◆Andy Mauromoustakos, University of Arkansas; Andy Jackson, University of Arkansas; Nestor Briceno, University of Arkansas; Warren Pretorius, Tennis Analytics
- 5:35 p.m. Exploring the Predictive Characteristics of Dynamic NTRP Ratings in USTA League Tennis—◆Douglas Noe, Miami University

79 CC-W176c

Raking, Post-Stratification, and Calibration Methods—Contributed

Survey Research Methods Section

Chair(s): Nancy Clusen, Mathematica Policy Research

- 4:05 p.m. Calibration on Partly Known Counts in Frequency Tables with Application to Real Data—◆Michael Sverchkov, Bureau of Labor Statistics; Richard Tiller, Bureau of Labor Statistics
- 4:20 p.m. Use of IIS Vaccination Data for Calibration Purposes in the National Immunization Survey—◆Xian Tao, NORC at the University of Chicago; Kirk Wolter, NORC at the University of Chicago; Vicki Pineau, NORC at the University of Chicago; Zhen Zhao, CDC; Sarah Reagan-Steiner, CDC/NCIRD; David Yankey, CDC/NCIRD
- 4:35 p.m. Calibration Estimators Including Fractional Exponents of Auxiliary Variables—◆Panagiotis Merkouris, Athens University of Economics and Business
- 4:50 p.m. Applying Post-Stratification Raking Adjustments to Survey Weights Using the High School Longitudinal Survey of 2009 (HSL:09)—◆Austin Lasseter, American Institutes for Research; Jonathan Phelan, American Institutes for Research
- 5:05 p.m. Higher-Order Calibrated Estimators in Two-Stage Sampling—◆Veronica Salinas, Texas A&M University-Kingsville; Stephen Sedory, Texas A&M University-Kingsville; Sarjinder Singh, Texas A&M University-Kingsville
- 5:20 p.m. Asymptotics of MDIA Estimates Under Complex Sampling Designs—◆Lili Yao, Educational Testing Service; Shelby Haberman, Educational Testing Service; Daniel F. McCaffrey, Educational Testing Service; J.R. Lockwood, Educational Testing Service
- 5:35 p.m. The Survey of Juveniles Charged in Adult Criminal Court (SJCACC): A Census, Sample, Model-Based, and Model-Assisted Estimation Hybrid—Martha Rozsi, Westat; Jim Green, Westat; ◆Elizabeth Petraglia, Westat

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CC-W186c

■ Panel and Distributional Data Analysis—Contributed

Business and Economic Statistics Section

Chair(s): Kevin Moore, Board of Governors of the Federal Reserve System

- 4:05 p.m. Specification Tests for Dynamic Binary Response Models with State Dependence—◆Alexandru M. Lefter, Mount Royal University; Brian P. McCall, University of Michigan
- 4:20 p.m. Small-Sample Methods for Cluster-Robust Variance Estimation and Hypothesis Testing in Fixed Effects Models—◆James Eric Pustejovsky, The University of Texas at Austin; Elizabeth Tipton, Columbia University
- 4:35 p.m. The Kumaraswamy Skew G Distributions—◆Rui Li, University of Manchester
- 4:50 p.m. A Simple, Graphical Procedure for Comparing Multiple Treatment Effects—◆Matthew Webb, Carleton University; Brennan Scott Thompson, Ryerson University
- 5:05 p.m. Semiparametric GEE Model in Financial Market—◆Liu Yang, Florida State University
- 5:20 p.m. Principal Axes Analyses of Distributional Data—◆Sun Makosso-Kallyth, McMaster University; Brahim Brahim, Big Data Visualizations Inc.
- 5:35 p.m. Are We Better Off with a Certain Amount of Nonrespondents in Business Tendency Survey of Turkey?—◆Türknur Brand, Central Bank of Turkey

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CC-W195

Clustering Methods—Contributed

ENAR

Chair(s): Xuelin Huang, MD Anderson Cancer Center

- 4:05 p.m. Feature Selection for Heterogeneous Diseases—◆Ping Xu, University of South Florida; Jeffrey Krischer, University of South Florida
- 4:20 p.m. Characterizing and Clustering an Adult Cystic Fibrosis Patient Population—◆Barbara Ann Bailey, San Diego State University
- 4:35 p.m. AC-PCA: Simultaneous Dimension Reduction and Adjustment for Confounding Variation—◆Zhixiang Lin, Stanford University; Can Yang, Hong Kong Baptist University; Hongyu Zhao, Yale University; Wing Hung Wong, Stanford University
- 4:50 p.m. Overlapping Community Detection in Networks via Sparse Principal Component Analysis—◆Jesus Daniel Arroyo Relion, University of Michigan; Elizaveta Levina, University of Michigan
- 5:05 p.m. An Entropy-Based Model Selection Criterion for Latent Class Analysis of Incomplete Data—

◆Chantal Larose, SUNY New Paltz; Ofer Harel, University of Connecticut; Katarzyna Kordas, University of Bristol; Dipak Dey, University of Connecticut

- 5:20 p.m. Clustered Random Data-Swapping Method for Statistical Disclosure Limitation—◆Guangyu Zhang, CDC/NCHS; Joe Fred Gonzalez, CDC/NCHS; Anna Oganian, CDC/NCHS

- 5:35 p.m. Floor Discussion

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CC-W182

Quantiles, Extremes, Long Memory, and Fractals—Contributed

IMS

Chair(s): Seyed Yaser Samadi, Southern Illinois University Carbondale

- 4:05 p.m. Interquantile Shrinkage in Additive Models—◆Zengyan Fan, Nanyang Technological University; Heng Lian, University of New South Wales
- 4:20 p.m. Efficient Estimation for Randomly Censored Data with Linear Conditional Quantiles—◆Hiroyuki Taniai, Waseda University
- 4:35 p.m. Restoration of Monotonicity Respecting in Dynamic Regression—◆Yijian Huang, Emory University
- 4:50 p.m. Statistics of Heteroscedastic Extremes: Varying Extreme Value Indices—◆Chen Zhou, Bank of The Netherlands; Laurens de Haan, Erasmus University Rotterdam; John Einmahl, Tilburg University
- 5:05 p.m. On Estimating the Cumulative Distribution Function of a Detrended Series Under Long-Range Dependence—◆Sucharita Ghosh, Swiss Federal Research Institute WSL
- 5:20 p.m. Estimation of Smooth Seasonal Components Under Long-Range Dependence—◆Britta Steffens, University of Konstanz; Jan Beran, University of Konstanz
- 5:35 p.m. On Estimation of Fractal Dimension—◆Khalil Shafie, University of Northern Colorado; AliReza Taheriyoun, Shahid Beheshti University; Chen Chen-Yueh, National Chung Cheng University

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CC-W187b

Nonparametric and Semiparametric Methods—Contributed

International Chinese Statistical Association, Section on Nonparametric Statistics

Chair(s): Hubert J. Chen, University of Georgia

- 4:05 p.m. Comparison of Difference-Based Variance Estimators for Partially Linear Models—◆Guoyi Zhang, University of New Mexico

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 4:20 p.m. A Class of Minimum Distance Estimators in AR(P) Models with Infinite Error Variance—
◆ Xiaoyu Li, Auburn University; Hira L. Koul, Michigan State University
- 4:35 p.m. Simultaneous Confidence Band for Survey Data—
◆ Jiangyan Wang, Soochow University; Suojin Wang, Texas A&M University; Lijian Yang, Soochow University
- 4:50 p.m. On Nonparametric Estimation of Distributionally Ordered Survival Functions—◆ Hsun-Chih Kuo, National Chengchi University
- 5:05 p.m. Treatment Allocation Methods Using Ordered Statistics—◆ Yisong Huang, Georgia Southern University; Hani Samawi, Georgia Southern University
- 5:20 p.m. Center and Log Range Models for Interval-Valued Data with an Application to Forecast Stock Returns—◆ Ying Wang, Peking University; Yundong Tu, Peking University
- 5:35 p.m. Applications of Registration of Functional Data—◆ Matthew William Tichenor, Texas Tech University; Jingyong Su, Texas Tech University

84 CC-W181b

Bayesian Temporal and Spatio-Temporal Modeling—Contributed

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

Chair(s): Jenny Brynjarsdottir, Case Western Reserve University

- 4:05 p.m. Bayesian Joint Modeling of Response Times with Dynamic Latent Ability in Educational Testing—
◆ Abhisek Saha, University of Connecticut; Xiaojing Wang, University of Connecticut; Dipak Dey, University of Connecticut
- 4:20 p.m. A Bayesian Approach to Measuring the Nonstationarity of a Time Series—◆ Sourav Das; Guy Nason, University of Bristol
- 4:35 p.m. Approximate Marginal Posterior for Log Gaussian Cox Processes—◆ Shinichiro Shirota, Duke University; Alan E. Gelfand
- 4:50 p.m. Detecting Change Points in Climatic Data Using Bayesian Analysis—◆ Cezareo Rodriguez; Andrew Bartlett, Southern Illinois University Edwardsville
- 5:05 p.m. Bayesian Inference in a PDE-Based Model of Exhaled Nitric Oxide—◆ Patrick Muchmore; Sandra P. Eckel, University of Southern California
- 5:20 p.m. A Dynamic Spatio-Temporal Model for Areal Data Applied to Dengue Disease Mapping—
◆ Gavino Puggioni, University of Rhode Island
- 5:35 p.m. Dynamic Multiscale Spatio-Temporal Models for Poisson Data: Spatio-Temporal Dependence Structure—◆ Marco A. R. Ferreira, Virginia Tech; Thais C. O. Fonseca, Universidade Federal do Rio de Janeiro

85 CC-W176a
Administrative Records and Data Disclosure—Contributed

Government Statistics Section, Scientific and Public Affairs Advisory Committee, Committee on Applied Statisticians

Chair(s): Jiashen You, Department of Transportation

- 4:05 p.m. Implementation and Results of a New Administrative Record-Linkage Methodology in the Quarterly Census of Employment and Wages—◆ Jessica Helfand, Bureau of Labor Statistics; Justin McIllece, Bureau of Labor Statistics
- 4:20 p.m. Documenting and Resolving the Discrepancy in Government Estimates of the Size and Legal Composition of the U.S. Foreign-Born Population—◆ Guillermina Jasso, New York University; Mark R. Rosenzweig, Yale University
- 4:35 p.m. Survey Respondents' Perceptions on Data Confidentiality and Data Sharing—◆ Jacob Bournazian, U.S. Energy Information Administration
- 4:50 p.m. ReASSESS: A Robust Adaptive Mechanism Using Subsetting and Multiplicative Weights in Data Synthesis—◆ Evercita Cuevas Eugenio, University of Notre Dame; Fang Liu, University of Notre Dame
- 5:05 p.m. Visualizing Mortality Differences in Rural Health—◆ Erin Tanenbaum, NORC at the University of Chicago; Alana Knudson, NORC at the University of Chicago; Marilyn Klug, University of North Dakota; Michael Meit, NORC at the University of Chicago; Joanne Brady, NORC at the University of Chicago; Tess Gilbert, NORC at the University of Chicago; Emily Arsen, NORC at the University of Chicago
- 5:20 p.m. An Ordering that Improves the Cell Suppression Pattern in Sequential Processing—◆ Bei Wang, U.S. Census Bureau
- 5:35 p.m. Reproducibility Promotes Transparency, Efficiency, and Aesthetics—◆ Richard Schwinn, U.S. Small Business Administration

86 CC-W179b

Biomedical Applications of Nonparametric Methods—Contributed

Section on Nonparametric Statistics, International Chinese Statistical Association

Chair(s): Sunil Mathur, Georgia Regents University

- 4:05 p.m. Predictive Accuracy of Markers or Risk Scores for Interval-Censored Survival Data—◆ Yuan Wu, Duke University; Xiaofei Wang, Duke University; Kouros Owzar, Duke University

- 4:20 p.m. **Dimension Reduction and Estimation in Secondary Analysis of Case-Control Studies**—◆Liang Liang, Texas A&M University; Yanyuan Ma, University of South Carolina; Raymond Carroll, Texas A&M University
- 4:35 p.m. **Composite Bootstrap Test with Counterintuitive Resampling Method to Compare Two Groups: An Application to Randomized Clinical Trials**—◆Alok Dwivedi, Texas Tech University Health Sciences Center El Paso; Christopher Dodoo, Texas Tech University Health Sciences Center El Paso; Sada Nand Dwivedi, All India Institute of Medical Sciences; Rakesh Shukla, University of Cincinnati
- 4:50 p.m. **Shared Frailty in Joint Model of Cancer Incidence, Metastases, and Mortality**—◆Qui Tran, University of Michigan; Kelley M. Kidwell, University of Michigan; Alex Tsodikov, University of Michigan
- 5:05 p.m. **Two-Sample Inference on Quantile Lost Lifespan**—◆Lauren Balmert, University of Pittsburgh; Jong-Hyeon Jeong, University of Pittsburgh
- 5:20 p.m. **A Structural Equation Model for a Dental Health-Related Quality-of-Life Framework**—◆Ana Nora Donaldson, SUNY Stony Brook; James Wallace, Bradford University; Nelarine Cornelius, Bradford University School of Management; Angelo Passalacqua, King's College London
- 5:35 p.m. **Time Series Smoother**—◆Cheng You, Penn State University; Dennis K. J. Lin, Penn State University; Stanley Young, National Institute of Statistical Sciences

87 **Optimization in Nonregular Designs—Contributed** **CC-W187c**
 Section on Physical and Engineering Sciences, Quality and Productivity Section
 Chair(s): Roshan J. Vengazhiyil, Georgia Tech

- 4:05 p.m. **A Study of Optimal Designs for GLMs Using Particle Swarm Optimization**—◆Zhongshen Wang, Arizona State University; John Stufken, Arizona State University; Wanchunzi Yu, Arizona State University
- 4:20 p.m. **Standardized Maximim D-Optimal Designs for Enzyme Kinetic Inhibition Models**—◆Ray-Bing Chen, National Cheng Kung University; Ping-Yang Chen, National Cheng Kung University; Heng-Chin Tung, National Cheng Kung University; Weng Kee Wong, University of California at Los Angeles
- 4:35 p.m. **Optimal Designs for Logistic Mixed Models Using Penalized Quasi-Likelihood Method**—◆Wanchunzi Yu, Arizona State University; John Stufken, Arizona State University; Zhongshen Wang, Arizona State University
- 4:50 p.m. **Model Fitting and Optimal Design for a Class of Binary Response Models**—◆Subir Ghosh,

- University of California at Riverside; Hans Nyquist, Stockholm University
- 5:05 p.m. **Bayesian Model Selection Applied to Definitive Screening Designs**—◆Patrick Gaffney, Eli Lilly and Company
- 5:20 p.m. **Decision-Theoretic Frequentist Optimal Design of Experiments**—◆Antony Overstall, University of Glasgow
- 5:35 p.m. **Bayesian Networks-Based Usable Access Control**—◆Anna Valeva, Western Illinois University; Binto George, Western Illinois University

Invited Poster Presentations 6:00 p.m. – 8:00 p.m.

- 88** **The Extraordinary Power of Data—Invited** **CC-Hall F1 West**
 Section on Statistical Learning and Data Science, Section on Statistical Graphics, Section on Statistics in Imaging, Business and Economic Statistics Section, Biometrics Section, ENAR, Section for Statistical Programmers and Analysts, Scientific and Public Affairs Advisory Committee, Section on Bayesian Statistical Science, Section on Statistics in Epidemiology, Section on Statistics in Marketing, Social Statistics Section
 Chair(s): Tyler McCormick, University of Washington
- 1** **Communicate Better with R, R Markdown, and Shiny**—◆Garrett Grolemond, RStudio
 - 2** **Spectral Filtering for Spatial-Temporal Dynamics**—◆Tian Zheng, Columbia University; Lu Meng, Columbia University
 - 3** **A Mixed-Effects Modeling Approach to Study the Impact of Pesticides on Farmworkers' Brain Networks Using RS-fMRI Data**—◆Mohsen Bahrami, Virginia Tech; Paul Laurienti, Wake Forest School of Medicine; Thomas Arcury, Wake Forest School of Medicine; Sean Simpson, Wake Forest School of Medicine
 - 4** **Cascaded High-Dimensional Histograms: A Generative Approach to Density Estimation**—◆Siong Thye Goh, MIT; Cynthia Rudin, Duke University
 - 5** **TV Advertising's Impact on Online Searches**—◆Yonathan Schwarzkopf, Google; Ying Liu, Google; Makoto Uchida, Google; Elissa Lee, Google; Jim Koehler, Google
 - 6** **Modeling Connectivity in High-Dimensional Time Series Data via Factor Analysis**—◆Hernando Ombao, University of California at Irvine; Yuxiao Wang, University of California at Irvine; Chee-Ming Ting, Universiti Teknologi Malaysia
 - 7** **Analysis of Longitudinal Multi-Sequence MRI in Multiple Sclerosis**—◆Elizabeth M. Sweeney, Johns Hopkins Bloomberg School of Public Health; Russell Shinohara, University of Pennsylvania; John Muschelli, The Johns Hopkins University; Daniel Reich, National



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| <p>Institute of Neurological Disorders and Stroke; Ciprian Crainiceanu, The Johns Hopkins University; Jonathan Gellar, Mathematica Policy Research; Philip Reiss, New York University/University of Haifa; Ani Eloyan, Brown University</p> <p>8 Law, Order, and Algorithms—◆Sharad Goel, Stanford University</p> <p>9 Defining and Estimating Reliability in Hierarchical Logistic Regression Models for Health Care Provider Profiling—Jessica Hwang, RAND Corporation; John Adams, Kaiser Permanente; ◆Susan M. Paddock, RAND Corporation</p> <p>10 Probabilistic Cause-of-Death Assignment Using Verbal Autopsies—◆Tyler McCormick, University of Washington; Sam Clark, University of Washington; Zehang Li, University of Washington</p> <p>11 We Are What We Ask: Mapping the Ecosystem of Software Development Using Stack Overflow Data—◆David G. Robinson, Stack Overflow</p> <p>12 Scaling Experimentation at Etsy—◆Hilary Parker, Stitch Fix</p> <p>13 Text Mining on Domain Names—◆Kenneth E. Shirley, AT&T Labs Research</p> <p>14 Fighting Fraud with Statistics!—◆Alyssa Frazee, Stripe</p> | <p>15 Forecasting Seasonal Epidemics with Ensemble Methods and Collective Human Judgment—◆Logan Conrad Brooks, Carnegie Mellon University; Sangwon Hyun, Carnegie Mellon University; Ryan Tibshirani, Carnegie Mellon University</p> <p>16 Geometric Methods for Network Comparison and Multilevel Modeling—◆Anna Smith, The Ohio State University ; Catherine Calder, The Ohio State University</p> <p>17 Mixed-Effects Models for Resampled Network Statistics Improve Statistical Power to Find Differences in Functional Brain Connectivity—◆Manjari Narayan, Rice University; Genevera Allen, Rice University</p> <p>18 Estimating the Causal Impact of Recommendation Systems from Observational Data—◆Amit Sharma, Microsoft Research; Jake Hofman, Microsoft Research; Duncan Watts, Microsoft Research</p> <p>19 The Future of the Journal Biostatistics—Dimitris Rizopoulos, Erasmus University Medical Center; ◆Jeffrey Leek, Johns Hopkins Bloomberg School of Public Health</p> <p>20 Sample Size Calculations for Micro-Randomized Trials in MHealth—◆Peng Liao, University of Michigan; Ji Sun, University of Michigan; Susan A. Murphy, University of Michigan</p> |
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Calling all **STUDENTS!**

Food! Drinks! Prizes!

Come meet fellow student attendees at the Student Mixer!

Hilton Grand Ballroom | Monday at 6:00 p.m.

Sponsored by



MONDAY AUGUST 1

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 2016 theme, "The Extraordinary Power of Statistics." 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.

Monday

JSM Hours

7:00 a.m. – 5:30 p.m.	CC-W181c
Speaker Management Room	
7:00 a.m. – 5:30 p.m.	CC-W181c
Speaker Management Room	
7:30 a.m. – 5:30 p.m.	CC-Hall F1 West Central Concourse
ASA Membership/Help Desk/Press Desk	
7:30 a.m. – 5:30 p.m.	CC-Hall F1 West Central Concourse
JSM Main Registration	
7:30 a.m. – 5:30 p.m.	CC-Hall F1 West Central Concourse
Cyber Center	
8:00 a.m. – 5:30 p.m.	CC-Hall F1 West
Exhibitor Lounge	
8:00 a.m. – 5:30 p.m.	CC-Hall F1 West
JSM Career Service	
9:00 a.m. – 5:00 p.m.	CC-Hall F1 West Central Concourse
Restaurant Reservations/Chicago Concierge Service	
9:00 a.m. – 5:30 p.m.	CC-Hall F1 West
EXPO 2016	
9:00 a.m. – 5:30 p.m.	CC-Hall F1 West
ASA Store	
9:00 a.m. – 5:30 p.m.	CC-Hall F1 West
American Statistical Association Booth #504	

Committee/Business Meetings & Other Activities

7:00 a.m. – 8:00 a.m.	H-PDR7
Social Statistics Section Executive Committee Meeting (Closed)	
Chair(s): Guillermina Jasso, New York University	
7:00 a.m. – 8:00 a.m.	H-PDR5
ISEF Breakfast Meeting (Closed)	
Chair(s): Theresa Utlaut, Intel Corporation	
7:00 a.m. – 8:30 a.m.	H-Stevens Salon C 4
SPAIG Committee Business Meeting (Closed)	
Chair(s): Kelly Zou, Pfizer Inc.	
7:00 a.m. – 8:30 a.m.	H-Boulevard A
Carnegie Mellon Alumni and Faculty Breakfast (Closed)	
Organizer(s): Margaret Smykla, Carnegie Mellon University	
7:00 a.m. – 8:30 a.m.	H-Stevens Salon C 7
Current Index to Statistics Management Committee (Closed)	
Organizer(s): Elyse Gustafson, IMS	
7:00 a.m. – 8:30 a.m.	H-Joliet
Caucus for Women in Statistics Roundtable Breakfast	
Organizer(s): Jessica Kohlschmidt, The Ohio State University	
7:00 a.m. – 8:30 a.m.	Offsite
Statistics in Defense and National Security Section Executive Board Meeting	
Chair(s): Alyson Wilson, North Carolina State University	

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

7:00 a.m. – 8:30 a.m. ASA Development Committee Business Meeting Chair(s): Jim Landwehr, Retired	H-PDR4	8:30 a.m. – 2:00 p.m. ASA DataFest Steering Committee (Closed) Chair(s): Robert Gould, University of California at Los Angeles	H-PDR3
7:00 a.m. – 8:30 a.m. Committee on International Relations in Statistics Business Meeting (Closed) Chair(s): Geert Molenberghs, Universiteit Hasselt	H-Stevens Salon C 2	9:00 a.m. – 10:00 a.m. Caucus for Women in Statistics Program Committee Meeting (Closed) Organizer(s): Helen Zhang, University of Arizona	H-Stevens Salon C 8
7:00 a.m. – 8:30 a.m. Technometrics Management Committee Meeting (Closed) Chair(s): Hugh Chipman, Acadia University	H-Stevens Salon C 6	9:00 a.m. – 10:30 a.m. Advisory Committee on Continuing Education Business (Closed) Chair(s): Maya Sternberg, CDC	H-Boulevard C
7:00 a.m. – 8:30 a.m. Health Policy Statistics Section (HPSS) Executive Committee Meeting (Closed) Chair(s): Susan M. Paddock, RAND Corporation	H-Williford A	10:30 a.m. – 12:00 p.m. COCCB Executive Committee Meeting (Closed) Chair(s): Ananda Jayawardhana, Pittsburg State University	H-PDR4
7:00 a.m. – 8:30 a.m. Section on Statistical Education Officers (Closed) Chair(s): Nicholas Jon Horton, Amherst College	H-PDR6	10:30 a.m. – 12:00 p.m. COCCB Chapter Status Committee (Closed) Chair(s): Ananda Jayawardhana, Pittsburg State University	H-PDR5
7:00 a.m. – 8:30 a.m. Section on Teaching of Statistics in the Health Sciences Executive Committee Meeting (Closed) Chair(s): Felicity Enders, Mayo Clinic	CC-N126	10:30 a.m. – 12:00 p.m. Navigations USAJOBS/Find and Apply to Jobs at the FDA Organizer(s): Kim Scarborough, U.S. Food and Drug Administration	CC-N228
7:30 a.m. – 9:00 a.m. Section on Statistics and the Environment (ENVR) Executive Committee Meeting (Closed) Chair(s): Megan Higgs, Neptune and Company	H-Boulevard B	12:00 p.m. – 1:30 p.m. Annals of Statistics Editors Meeting (Closed) Organizer(s): Elyse Gustafson, IMS	CC-N128
7:30 a.m. – 12:30 p.m. Biopharmaceutical Section Executive Committee Meeting (Closed) Chair(s): B. Christine Clark	H-Astoria	12:00 p.m. – 1:30 p.m. Rice University Department of Statistics Reception Organizer(s): Marina Vannucci, Rice University	CC-N135
8:00 a.m. – 9:00 a.m. Communications in Statistics Editorial Board Meeting (Closed) Organizer(s): Narayanaswamy Balakrishnan, McMaster University	H-Buckingham	12:00 p.m. – 1:30 p.m. ASA Finance Committee Meeting (Closed) Chair(s): Mingxiu Hu, Takeda	CC-N227b
8:30 a.m. – 10:30 a.m. Diversity Workshop and Mentoring Program-Parallel Session 1a: Best Practices for Recruiting and Retaining Minority Students and Faculty (Closed) Chair(s): Jesse Chittams, University of Pennsylvania	H-Stevens Salon A 1	12:00 p.m. – 1:30 p.m. Biostatistics Editorial Board Meeting (Closed) Organizer(s): Jeffrey Leek, Johns Hopkins Bloomberg School of Public Health	CC-N129
8:30 a.m. – 10:30 a.m. Diversity Mentoring Program-Parallel Session 1b Chair(s): Jesse Chittams, University of Pennsylvania	H-Stevens Salon A 5	12:00 p.m. – 5:00 p.m. Council of Chapters Governing Board Meeting (Closed) Chair(s): Ananda Jayawardhana, Pittsburg State University	H-PDR6

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

12:30 p.m. – 1:30 p.m. Meeting of the Editorial Board of the ASA Journal on Statistics and Public Policy (Closed) Chair(s): Michael Cohen, Committee on National Statistics	CC-N126	4:00 p.m. – 5:30 p.m. Section on Statistics in Imaging Business Meeting Chair(s): John Kornak, University of California at San Francisco	CC-N134
12:30 p.m. – 1:30 p.m. ASA-RSS/Significance Luncheon (Closed) Chair(s): Brian Tarran, RSS	CC-N139	4:00 p.m. – 5:30 p.m. CAUSE Business Meeting (Closed) Organizer(s): Dennis Pearl, CAUSE/Penn State	CC-N136
12:30 p.m. – 2:00 p.m. 2017 JSM Program Committee Meeting (Closed) Chair(s): Regina Liu, Rutgers University	CC-N226	4:00 p.m. – 6:00 p.m. UC Davis Department of Statistics Reception Organizer(s): Thomas Lee, University of California at Davis	H-4K
12:30 p.m. – 2:00 p.m. Citadel Lunch Organizer(s): Lindsay Martens, Citadel LLC	CC-N229	5:00 p.m. – 6:30 p.m. SSPA Mixer Chair(s): Pandurang Kulkarni, Eli Lilly and Company	H-Williford A
12:30 p.m. – 2:00 p.m. Committee on Women in Statistics Business Meeting (Closed) Chair(s): Dalene K. Stangl, Duke University	CC-N131	5:00 p.m. – 6:30 p.m. Social Mixer for Applied Statisticians Chair(s): Erin Tanenbaum, NORC at the University of Chicago	H-4L
12:30 p.m. – 2:00 p.m. Statistics in Medicine Editorial Board Meeting Luncheon (Closed) Organizer(s): Ralph B. D'Agostino, Sr., Boston University	CC-N136	5:00 p.m. – 6:30 p.m. University of Washington Department of Biostatistics and Statistics Alumni Reception Organizer(s): Patrick Heagerty, University of Washington	H-Boulevard B
12:30 p.m. – 2:00 p.m. Section on Statistical Computing Executive Committee Meeting Chair(s): David Poole, AT&T Labs Research	CC-N127	5:00 p.m. – 6:30 p.m. Section on Quality and Productivity Strategic Planning Meeting Chair(s): William Brenneman, Procter & Gamble	H-PDR3
12:30 p.m. – 2:00 p.m. JBES Associate Editor Luncheon (Closed)	CC-N134	5:00 p.m. – 6:30 p.m. Centers for AIDS Research Statisticians Organizer(s): Susan Ellenberg, University of Pennsylvania	H-Pullman Boardroom
12:30 p.m. – 2:00 p.m. Committee on Funded Research Business Meeting (Closed) Chair(s): Ming-Wen An, Vassar University	CC-N137	5:00 p.m. – 6:30 p.m. Section on Statistics and the Environment (ENVR) Meeting and Mixer Chair(s): Megan Higgs, Neptune and Company	H-Stevens Salon C 2
12:30 p.m. – 2:30 p.m. JCGS-Editor's Lunch (Closed) Chair(s): Dianne Cook, Monash University	CC-N133	5:00 p.m. – 6:30 p.m. Journal of Quality Technology Business Meeting (Closed) Organizer(s): Fugee Tsung, The Hong Kong University of Science and Technology	H-McCormick Boardroom
2:00 p.m. – 3:30 p.m. Navigations USAJOBS/Find and Apply to Jobs at the FDA Organizer(s): Kim Scarborough, U.S. Food and Drug Administration	CC-N228	5:00 p.m. – 6:30 p.m. University of Iowa Biostatistics, Statistics, and Actuarial Science Alumni Reception (Closed) Organizer(s): Tammy Siegel, University of Iowa	H-Stevens Salon C 5
3:00 p.m. – 4:30 p.m. StatCom Annual Meeting Organizer(s): Andrea Kaplan, Iowa State University	CC-N128		

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

5:00 p.m. – 8:00 p.m. Department of Statistics, Aggie Reunion Organizer(s): Valen Johnson	H-Stevens Salon A 1	6:00 p.m. – 7:30 p.m. KISS Annual Meeting Organizer(s): Dongseok Choi, Oregon Health & Science University	H-4M
5:30 p.m. – 7:00 p.m. Biometrics Section Mixer and Business Meeting Organizer(s): Debashis Ghosh, Colorado School of Public Health	H-Marquette	6:00 p.m. – 7:30 p.m. Business and Economic Statistics Section Executive Committee Meeting Chair(s): Ana Aizcorbe	H-PDR5
5:30 p.m. – 7:00 p.m. Yale Biostatistics Alumni Reception Organizer(s): Haiqun Lin, Yale School of Public Health	H-Stevens Salon C 7	6:00 p.m. – 8:00 p.m. Statistical Society of Ethiopians in North America Business Meeting Organizer(s): Misrak Gezmu, National Institutes of Health	H-PDR7
5:30 p.m. – 7:00 p.m. Social Statistics Section Business Meeting Chair(s): Guillermina Jasso, New York University	H-Stevens Salon C 8	6:00 p.m. – 8:00 p.m. Sections on Statistical Computing and Graphics Mixer Chair(s): David Poole, AT&T Labs Research	H-Stevens Salon A 4
5:30 p.m. – 7:00 p.m. Section on Statistics in Sports Business Meeting Chair(s): John Emerson, Yale University	Offsite	6:00 p.m. – 8:00 p.m. University of Chicago Statistics Alumni Reception Organizer(s): Yali Amit, The University of Chicago	Offsite
5:30 p.m. – 7:30 p.m. SMU Alumni Social Organizer(s): Wayne Woodward, Southern Methodist University	H-Stevens Salon C 1	6:00 p.m. – 8:00 p.m. RTI International Reception Organizer(s): Margo Jordan, RTI International	H-Stevens Salon A 3
6:00 p.m. – 7:00 p.m. Section on Medical Devices and Diagnostics Business Meeting Chair(s): Gene Pennello, FDA/CDRH/OSB/DBS	H-Boulevard A	6:00 p.m. – 8:00 p.m. Big Data and Social Science Organizer(s): Julia Lane, New York University	H-Astoria
6:00 p.m. – 7:30 p.m. University of Michigan JSM Joint Alumni Reception Organizer(s): Fatma Nedjari, University of Michigan	H-Stevens Salon C 3	6:00 p.m. – 8:00 p.m. Joint Health Policy Statistics Section/Mental Health Section Business Meeting and Mixer Chair(s): Susan M. Paddock, RAND Corporation	Offsite
6:00 p.m. – 7:30 p.m. Iowa State University Alumni and Friends Reception Organizer(s): Max D. Morris, Iowa State University	H-Williford C	6:00 p.m. – 8:30 p.m. IISA General Body Meeting and Mixer Organizer(s): Sowmya Rao, IISA	H-Boulevard C
6:00 p.m. – 7:30 p.m. Section on Teaching of Statistics in the Health Sciences Business Meeting and Mixer Chair(s): Felicity Enders, Mayo Clinic	H-PDR4	6:15 p.m. – 7:30 p.m. President's Invited Speaker Reception (by Invitation Only) Chair(s): Jessica Utts, University of California at Irvine	H-Buckingham
6:00 p.m. – 7:30 p.m. JSM Student Mixer Sponsored by Microsoft and Monsanto	H-Grand Ballroom	6:15 p.m. – 8:00 p.m. UC Berkeley Statistics Reunion (Closed) Organizer(s): Ben Saheli, University of California at Berkeley	H-720 South Bar
6:00 p.m. – 7:30 p.m. Christian Statisticians Informal Discussion Group Organizer(s): Jason Wilson, Biola University	H-Stevens Salon A 5	6:30 p.m. – 7:30 p.m. ASA Longtime Member Reception (by Invitation Only) Chair(s): Nancy Petersen, VA Medical Center	H-Normandie Lounge

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

6:30 p.m. – 8:00 p.m. H-Joliet
New Researchers Group Mixer
 Organizer(s): Alexander Volfovsky, Duke University

6:30 p.m. – 8:30 p.m. H-Williford B
Caucus for Women in Statistics Reception and Business Meeting
 Organizer(s): Jessica Kohlschmidt, The Ohio State University

6:30 p.m. – 8:30 p.m. H-Stevens Salon A 2
Harvard University Joint Biostatistics-Statistics JSM Reception
 Organizer(s): Madeleine Straubel, Harvard

6:30 p.m. – 8:30 p.m. H-Waldorf
NISS Reception
 Organizer(s): Nell Sedransk, National Institute of Statistical Sciences

6:30 p.m. – 8:30 p.m. Offsite
Temple University Statistics Department Reception
 Organizer(s): Chen Chen, Temple University

6:30 p.m. – 8:30 p.m. Offsite
UConn Alumni Dinner
 Organizer(s): Joseph Glaz, University of Connecticut

7:00 p.m. – 8:30 p.m. H-PDR6
Survey Research Methods Section Executive Meeting (Closed)
 Chair(s): Michael Larsen, The George Washington University

Professional Development

CE_14C
Designs for Phase I Oncology Trials (ADDED FEE)
 8:00 a.m. – 12:00 p.m. CC-W470b
 ASA, Biometrics Section
 Instructor(s): Nolan Wages, University of Virginia; Alexia Iasonos, Memorial Sloan Kettering Cancer Center

CE_15C
Bootstrap Methods and Permutation Tests for Doing and Teaching Statistics (ADDED FEE)
 8:00 a.m. – 12:00 p.m. CC-W475a
 ASA, Section on Statistical Education
 Instructor(s): Tim Hesterberg, Google

CE_46P
Effective Presentations for Statisticians: Success = (PD)2, Part I (ADDED FEE)
 8:00 a.m. – 12:00 p.m. CC-W473
 ASA
 Instructor(s): Jennifer Van Mullekom, DuPont

CE_16C
Analysis of Clinical Trials: Theory and Applications (ADDED FEE)
 8:30 a.m. – 5:00 p.m. CC-W474
 ASA, Biopharmaceutical Section
 Instructor(s): Alex Dmitrienko, Quintiles; Devan V. Mehrotra, Merck; Jeff Maca, Quintiles

CE_17C
Successful Data Mining in Practice (ADDED FEE)
 8:30 a.m. – 5:00 p.m. CC-W471
 ASA, Section on Statistical Learning and Data Science
 Instructor(s): Richard De Veaux, Williams College

CE_18C
Semiparametric Regression with R (ADDED FEE)
 8:30 a.m. – 5:00 p.m. CC-W470a
 ASA, Section on Nonparametric Statistics
 Instructor(s): Jaroslaw Harezlak, Indiana University Fairbanks School of Public Health; Matt Wand, University of Technology Sydney

CE_19C
Indirect Sampling and Hard-to-Reach Populations (ADDED FEE)
 8:30 a.m. – 5:00 p.m. CC-W475b
 ASA, Survey Research Methods Section
 Instructor(s): Pierre Lavallee, Statistics Canada

CE_20C
Patient-Reported Outcomes: Measurement, Implementation, and Interpretation (ADDED FEE)
 1:00 p.m. – 5:00 p.m. CC-W470b
 ASA, Biometrics Section
 Instructor(s): Joseph Cappelleri, Pfizer; Andrew Bushmakim, Pfizer

CE_21C
Confidence Distribution: A New Statistical Inference Approach and Its Applications in Meta-Analysis and Fusion Learning (ADDED FEE)
 1:00 p.m. – 5:00 p.m. CC-W475a
 ASA, Section on Nonparametric Statistics
 Instructor(s): Minge Xie, Rutgers University; Regina Liu, Rutgers University; Dungan Liu, University of Cincinnati

Monday

Roundtables with Coffee 7:00 a.m. – 8:15 a.m.

89 CC-W375a
Section on Bayesian Statistical Science A.M. Roundtable Discussion (Added Fee)
 Section on Bayesian Statistical Science
 Organizer(s): Tanzy Love, University of Rochester
 ML01 Bayesian Nonparametric Methods for Regression Modeling—◆Athanasios Kottas, University of California at Santa Cruz

90 CC-W375a
Section on Statistical Consulting A.M. Roundtable Discussion (Added Fee)
 Section on Statistical Consulting
 Organizer(s): Harry Dean Johnson, Washington State University
 ML02 From Criticism to Curiosity: Changing Our Attitudes in Consulting with Data-Oriented Individuals in Other Fields—◆Jason Brinkley, American Institutes for Research

ML03 Best Practices for Communicating with FDA CDRH Statistical Reviewers—◆Christopher Mullin, NAMSA

91 CC-W375a
Section on Statistical Education A.M. Roundtable Discussion (Added Fee)
 Section on Statistical Education
 Organizer(s): Dalene K. Stangl, Duke University
 ML04 How to Integrate Open-Access and Open-Source Educational Materials—◆Andrew Bray, Reed College; Mine Cetinkaya-Rundel, Duke University

92 CC-W375a
Government Statistics Section A.M. Roundtable Discussion (Added Fee)
 Government Statistics Section
 Organizer(s): Michael Hawes, U.S. Department of Education
 ML05 Developments in the Analysis of Cognitive Interview Data—◆Gordon Willis, National Cancer Institute

93 CC-W375a
Section on Statistical Learning and Data Science A.M. Roundtable Discussion (Added Fee)
 Section on Statistical Learning and Data Science
 Organizer(s): Genevera Allen, Rice University
 ML06 What Can Statistics Learn from Machine Learning? And Vice Versa?—◆Ryan Tibshirani, Carnegie Mellon University

94 CC-W375a
Section on Physical and Engineering Sciences A.M. Roundtable Discussion (Added Fee)
 Section on Physical and Engineering Sciences
 Organizer(s): Byran Smucker, Miami University
 ML07 Learn More About the Industrial Statistics Virtual Collaboratory—◆Jennifer Van Mullekom, DuPont

95 CC-W375a
Section for Statistical Programmers and Analysts A.M. Roundtable Discussion (Added Fee)
 Section for Statistical Programmers and Analysts
 Organizer(s): Michael Messner, EPA
 ML08 Quality Assurance for Statistical Programming and Analysis—◆Michael Messner, EPA

Special Presentation 8:30 a.m. – 10:20 a.m.

96 CC-W375b
Introductory Overview Lecture: Causal Inference—Invited
 ASA, ENAR, WNAR, IMS, SSC, International Chinese Statistical Association, International Indian Statistical Association, Korean International Statistical Society, International Society for Bayesian Analysis (ISBA), Royal Statistical Society, International Statistical Institute
 Organizer(s): Judea Pearl, University of California at Los Angeles
 Chair(s): Wei (Peter) Yang, University of Pennsylvania
 8:35 a.m. Causal Inference in Statistics: A Gentle Introduction—◆Judea Pearl, University of California at Los Angeles
 10:05 a.m. Floor Discussion

Invited Sessions 8:30 a.m. – 10:20 a.m.

97 CC-W190a
Modern Slavery: The Importance of Statistical Approaches—Invited
 Royal Statistical Society, International Chinese Statistical Association
 Organizer(s): Bernard W. Silverman, Home Office, UK
 Chair(s): Peter J. Diggle, University of Lancaster
 8:35 a.m. Modern Slavery Worldwide and the Global Slavery Index—Kevin Bales, University of Hull; Jacqueline Joudo Larsen, Walk Free Foundation; Monti Datta, University of Richmond; ◆Davina Durgana, Walk Free Foundation

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 8:55 a.m. **A Multiple Systems Estimate Approach to Quantifying Modern Slavery, in the Context of the UK Government's Strategy and Legislation**—◆ Bernard W. Silverman, Home Office, UK; Olivia Hesketh, Home Office, UK
- 9:15 a.m. **Estimating the Prevalence of Labor Trafficking with Respondent-Driven Sampling**—◆ Sheldon X. Zhang, San Diego State University
- 9:35 a.m. **Assessing the Predictors of Contemporary Slavery**—◆ Monti Datta, University of Richmond
- 9:55 a.m. Disc: John Picarelli, National Institute of Justice
- 10:15 a.m. Floor Discussion

98 CC-W190b

■ ● **Statistical Aspects of Computer Experiments—Invited**

Section on Physical and Engineering Sciences, International Chinese Statistical Association, Quality and Productivity Section

Organizer(s): Qiong Zhang, Virginia Commonwealth University

Chair(s): Qiong Zhang, Virginia Commonwealth University

- 8:35 a.m. **On the Convergence Rates of Expected Improvement Methods**—◆ Ilya O. Ryzhov, University of Maryland
- 9:00 a.m. **Prediction Based on the Kennedy-O'Hagan Calibration Model: Asymptotic Consistency and Other Properties**—◆ Rui Tuo, Chinese Academy of Sciences; Jeff Wu, Georgia Institute of Technology
- 9:25 a.m. **Simulation and Optimization Using Minimum Energy Designs**—◆ Roshan Joseph Vengazhiyil, Georgia Institute of Technology; Dasgupta Tirthankar, Harvard; Rui Tuo, Chinese Academy of Sciences; Jeff Wu, Georgia Institute of Technology
- 9:50 a.m. **Deep Learning for Emulation in Uncertainty Quantification**—◆ Jared D. Huling, University of Wisconsin-Madison; Peter Qian, University of Wisconsin-Madison
- 10:15 a.m. Floor Discussion

99 CC-W192c

■ ● **Recent Advances in Discrete-Valued Time Series—Invited**

Business and Economic Statistics Section, IMS

Organizer(s): Scott H. Holan, University of Missouri

Chair(s): Scott H. Holan, University of Missouri

- 8:35 a.m. **On Bivariate Time Series of Counts**—◆ Richard A. Davis, Columbia University; Heng Liu, Google; Camilla Mondrup Andreassen, University of Aarhus

- 9:00 a.m. **Modeling and Inference for Multivariate Count Time Series**—◆ Konstantinos Fokianos, University of Cyprus; Paul Doukhan, University Cergy-Pontoise; Bard Stove, University of Bergen; Dag Tjostheim, University of Bergen
- 9:25 a.m. **Some New Ways of Modeling Integer Count Time Series**—◆ Robert Lund, Clemson University
- 9:50 a.m. **Fast Approximate Bayesian Analysis of Multivariate Count Time Series in a Marketing Application**—◆ Nalini Ravishanker, University of Connecticut; Volodymyr Serhiyenko, University of Connecticut; Rajkumar Venkatesan, University of Virginia
- 10:15 a.m. Floor Discussion

100 CC-W184a

■ ● **Recent Developments in Joint Models of Longitudinal and Survival Data—Invited**

Section on Statistics in Epidemiology, International Chinese Statistical Association

Organizer(s): Haitao Chu, University of Minnesota

Chair(s): Yong Chen, University of Pennsylvania Perelman School of Medicine

- 8:35 a.m. **Assessing Model Fit in Joint Models of Longitudinal and Survival Data with Applications to Cancer Clinical Trials**—◆ Joseph G. Ibrahim, The University of North Carolina at Chapel Hill; Ming-Hui Chen, University of Connecticut; Mark Boye, Eli Lilly and Company; Wei Shen, Eli Lilly and Company; Danjie Zhang, Gilead Pharmaceuticals
- 9:00 a.m. **Joint Scale-Change Models for Recurrent Events and Failure Time**—Gongjun Xu, University of Minnesota; Sy Han Chiou, Harvard; ◆ Chiung-Yu Huang, The Johns Hopkins University; Mei-Cheng Wang, The Johns Hopkins University; Jun Yan, University of Connecticut
- 9:25 a.m. **A Flexible Joint Longitudinal-Survival Model for Quantifying the Association Between Serum Biomarkers and Mortality**—◆ Daniel Gillen, University of California at Irvine; Sepehr Arkhavan, University of California at Irvine; Babak Shahbaba, University of California at Irvine
- 9:50 a.m. **Joint Modeling of Longitudinal and Survival Data with Missing and Left-Censored Time-Varying Covariates**—◆ Qingxia Chen, Vanderbilt University; Ryan May, The EMMES Corporation; Joseph G. Ibrahim, The University of North Carolina at Chapel Hill; Haitao Chu, University of Minnesota; Stephen R. Cole, The University of North Carolina at Chapel Hill
- 10:15 a.m. Floor Discussion

101 CC-W178a
Statistical Inference with Clustered Data in Survey Sampling—Invited

Survey Research Methods Section

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

Chair(s): Zhengyuan Zhu, Iowa State University

- 8:35 a.m. Inference with Cluster Data Under Informative Sampling—◆Jae-kwang Kim, Iowa State University; Seunghwan Park, Seoul National University
- 9:00 a.m. Bayesian Analysis for Cluster Sampling—◆Susanna Makela, Columbia University; Yajuan Si, University of Wisconsin-Madison; Andrew Gelman, Columbia University
- 9:25 a.m. H-Likelihood Method for Analyzing Clustered Survey Data—◆Donghwan Lee, Ewha Womans University; Youngjo Lee, Seoul National University
- 9:50 a.m. Disc: Michael Cohen, American Institutes for Research
- 10:10 a.m. Floor Discussion

102 CC-W179a
■ ● Advances in Bayesian Regression Tree Modeling—Invited

Section on Bayesian Statistical Science, Section on Nonparametric Statistics, International Society for Bayesian Analysis (ISBA), Committee on Applied Statisticians

Organizer(s): Matthew Pratola, The Ohio State University

Chair(s): Matthew Pratola, The Ohio State University

- 8:35 a.m. BART for Classification—◆Robert B. Gramacy, The University of Chicago
- 9:00 a.m. Dispersion Modeling with an Ensemble of Trees—◆Hugh Chipman, Acadia University; Matthew Pratola, The Ohio State University; Robert McCulloch, The University of Chicago; Edward I. George, The Wharton School
- 9:25 a.m. Nonparametric Regression with Instrumental Variables—◆Purushottam Laud, Medical College of Wisconsin; Robert McCulloch, The University of Chicago; Rodney Sparapani, Medical College of Wisconsin
- 9:50 a.m. Bayesian Additive Regression Trees: Extensions and Embedding in Complex Models—◆Jared S. Murray, Carnegie Mellon University
- 10:15 a.m. Floor Discussion

103 CC-W183c
■ ● Cancer Genomics: Intratumor Heterogeneity and Beyond—Invited

ENAR

Organizer(s): Wei Sun, The University of North Carolina at Chapel Hill

Chair(s): Ran Tao, The University of North Carolina at Chapel Hill

- 8:35 a.m. Integrating Diverse Genomics Data Sets to Improve Precision Medicine in Cancer Treatment—◆Hongyu Zhao, Yale University
- 8:55 a.m. PairClone: A Bayesian Subclone Caller Based on Mutation Pairs—Tianjian Zhou, The University of Texas at Austin; Subhajit Sengupta, NorthShore University HealthSystem; Peter Mueller, The University of Texas at Austin; ◆Yuan Ji, NorthShore University HealthSystem
- 9:15 a.m. Intratumor Heterogeneity Analysis Using High-Throughput DNA Sequencing Data—◆Ronglai Shen, Memorial Sloan Kettering Cancer Center; Venkatraman Seshan, Memorial Sloan Kettering Cancer Center
- 9:35 a.m. Estimating Tumor Purity/Ploidy and Subclone Structure Using Multiple Types of Omic Data—Chong Jin, The University of North Carolina at Chapel Hill; ◆Wei Sun, Fred Hutchinson Cancer Research Center; Mengjie Chen, The University of North Carolina at Chapel Hill; Danyu Lin, The University of North Carolina at Chapel Hill
- 9:55 a.m. Construct Clonal History from Whole Genome Sequencing Data by Incorporating Phase Information—◆Mengjie Chen, The University of North Carolina at Chapel Hill
- 10:15 a.m. Floor Discussion

104 CC-W196a
■ ● Advanced Machine Learning Methods for Large-Scale Heterogeneous Data—Invited

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

Organizer(s): Annie Qu, University of Illinois at Urbana-Champaign

Chair(s): Annie Qu, University of Illinois at Urbana-Champaign

- 8:35 a.m. Sparse Regression for Block Missing Data Without Imputation—◆Yufeng Liu, The University of North Carolina at Chapel Hill
- 9:00 a.m. Automatic Summarization—Junhui Wang, University of Illinois at Chicago; ◆Xiaotong Shen, University of Minnesota; Yiwen Sun, University of Minnesota; Annie Qu, University of Illinois at Urbana-Champaign

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

9:25 a.m. Query-Specific Learning to Rank via Local Smoothing—◆Junhui Wang, City University of Hong Kong

9:50 a.m. Is Manifold Learning (Finding Low-Dimensional Nonlinear Embeddings for High-Dimensional Data) Impractical for Large Data?—◆Dominique PerraultJoncas, Google; James McQueen, University of Washington; Marina Meila, University of Washington; Zhongyue Zhang, University of Washington; Jake VanderPlas, University of Washington

10:15 a.m. Floor Discussion

105 CC-W180 Graphical Markov Models: Extending, Combining, and Evaluating Concepts—Invited

IMS, Royal Statistical Society

Organizer(s): Giovanni Maria Marchetti, University of Florence

Chair(s): Giovanni Maria Marchetti, University of Florence

8:35 a.m. What Can Be Learned from the Graphical Lasso? Generalizations of the Gaussian Assumption—◆Po-Ling Loh, University of Pennsylvania

9:00 a.m. A Complete Characterization of Graphical Probability Distributions—◆Kayvan Sadeghi, University of Cambridge

9:25 a.m. Totally Positive Exponential Families, Graphical Models, and Convex Optimization—◆Piotr Zwiernik, Pompeu Fabra University; Caroline Uhler, MIT; Steffen Lauritzen, University of Copenhagen

9:50 a.m. High-Dimensional Inference for Graphical Models: Theory and Applications—◆Bala Rajaratnam, Stanford University

10:15 a.m. Floor Discussion

106 CC-W196b ■ ● Applied Data Visualization in Industry and Journalism—Invited

Section on Statistical Graphics, Royal Statistical Society, Section for Statistical Programmers and Analysts, Committee on Applied Statisticians

Organizer(s): Hilary Parker, Stitch Fix

Chair(s): Hilary Parker, Stitch Fix

8:35 a.m. Linked Brushing in R—◆Hadley Wickham, Rice University

8:55 a.m. Creating Data Visualization Tools at Facebook—◆Andreas Gros, Facebook

9:15 a.m. Cocktail Party Horror Stories About Data Vis for Clients—◆Lynn Cherny, Ghostweather R&D

9:35 a.m. Visualizing the News at FiveThirtyEight—◆Andrei Scheinkman, *FiveThirtyEight.com*

9:55 a.m. Teaching Data Visualization to 100k Data Scientists: Lessons from Evidence-Based Data Analysis—◆Jeffrey Leek, Johns Hopkins Bloomberg School of Public Health

10:15 a.m. Floor Discussion

107 CC-W184bc ■ ● Joint Modeling of Survival Time with Another Outcome in Clinical Trials or Observation Studies—Invited

Biometrics Section, International Chinese Statistical Association, Committee on Applied Statisticians

Organizer(s): Tianle Hu, Eli Lilly and Company

Chair(s): Tianle Hu, Eli Lilly and Company

8:35 a.m. Bayesian Joint Modeling of Longitudinal and Survival Data with Treatment Switches—Fan Zhang, University of Connecticut; ◆Ming-Hui Chen, University of Connecticut; Qingxia Chen, Vanderbilt University; Xiuyu Julie Cong, Boehringer Ingelheim Pharmaceuticals

9:00 a.m. Joint Modeling of Survival Time and Longitudinal Outcomes with Flexible Random Effects—◆Jianwen Cai, The University of North Carolina at Chapel Hill; Jaeun Choi, Albert Einstein College of Medicine; Donglin Zeng, The University of North Carolina at Chapel Hill; Andy Olshan, The University of North Carolina at Chapel Hill

9:25 a.m. Joint Modeling of Survival Time with Another Outcome in Clinical Trials or Observational Studies—◆Ross L. Prentice, Fred Hutchinson Cancer Research Center; Shanshan Zhao, National Institute of Environmental Health Sciences

9:50 a.m. Analysis of Proportional Hazards Model with Sparse Longitudinal Covariates—◆Jason Fine, The University of North Carolina at Chapel Hill

10:15 a.m. Floor Discussion

108 CC-W194b ■ ● Inference of Network Structures—Invited

Committee on Applied Statisticians

Organizer(s): Dabao Zhang, Purdue University

Chair(s): Dabao Zhang, Purdue University

8:35 a.m. Measuring Influence of Users in Twitter Ecosystems Using a Counting Process Modeling Framework—Donggeng Xia, University of Michigan; George Michailidis, University of Florida; ◆Shawn Mankad, Cornell University

9:05 a.m. A Two-Stage Method for Genome-Wide Gene Regulatory Network Construction—Chen Chen, Purdue University; ◆Min Zhang, Purdue University; Dabao Zhang, Purdue University

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

9:35 a.m. Theoretic, Algorithmic, and Empirical Issues in the Application of Directed Probabilistic Graphical Models for Network Inference When Analyzing Genomics Data—◆Jason Mezey, Cornell University

10:05 a.m. Floor Discussion

109 CC-W179b

■ **The Nuts and Bolts of the DSM-5 Field Trials: Getting the Methodology Right—Invited**

Mental Health Statistics Section

Organizer(s): Diana E. Clarke, American Psychiatric Association

Chair(s): Juned Siddique, Northwestern University

8:35 a.m. Challenges of Testing DSM-5 in Routine Clinical Practice Settings—◆Eve K. Moscicki, American Psychiatric Association Foundation; Diana E. Clarke, American Psychiatric Association; Farifeh F. Duffy, American Psychiatric Association Foundation; Joyce C. West, American Psychiatric Association Foundation; William E. Narrow, St. Elizabeth's Hospital; Darrel A. Regier, Uniformed Services University of the Health Sciences; S. Janet Kuramoto-Crawford, American Psychiatric Association Foundation

9:00 a.m. Importance of Pilot Testing: Identifying Unique Challenges in DSM-5 Field Trials Design—◆Diana E. Clarke, American Psychiatric Association; Holly C. Wilcox, Johns Hopkins Bloomberg School of Public Health; Bernadette A. M. Cullen, Johns Hopkins School of Medicine

9:25 a.m. DSM-5 Field Trials in Large Academic Settings: A Pragmatic Test-Retest Reliability Study?—Diana E. Clarke, American Psychiatric Association; William E. Narrow, St. Elizabeth's Hospital; ◆Darrel A. Regier, Uniformed Services University of the Health Sciences; S. Janet Kuramoto-Crawford, American Psychiatric Association Foundation

9:50 a.m. Disc: C. Hendricks Brown, Northwestern University

10:10 a.m. Floor Discussion

Topic-Contributed Sessions 8:30 a.m. – 10:20 a.m.

110 CC-W193a

■ ● **Computational Astrostatistics—Topic-Contributed**

Astrostatistics Special Interest Group

Organizer(s): Jessi Cisewski, Yale University

Chair(s): Jogesh Babu, Penn State University

8:35 a.m. Secrets of the Dark Universe—◆Katrin Heitmann

8:55 a.m. Show Me the Exoplanets: Finding Evidence of Exoplanets in Noisy Data Stellar Spectra—◆Jessi Cisewski, Yale University; Allen Davis, Yale University; Debra Fischer, Yale University; Eric Ford, Penn State University

9:15 a.m. Building Models for Emission Lines—◆Chad Schafer, Carnegie Mellon University; Zongge Liu, Carnegie Mellon University; Peter Freeman, Carnegie Mellon University

9:35 a.m. Is the Distribution of Dark Matter in the Galaxy Identifiable Using the Information from the Baryonic Matter?—◆Gwendolyn Eadie, McMaster University; William Harris, McMaster University; Aaron Springford, Queen's University at Kingston

9:55 a.m. Calibration with Multiplicative Means but Additive Errors: A Log Normal Approach—◆Yang Chen, Harvard; Xufei Wang, Harvard; Xiao-Li Meng, Harvard; Herman Marshall, MIT; David A. van Dyk, Imperial College London; Matteo Guainazzi, JAXA; Paul Plucinsky, CXC/CfA; Vinay Kashyap, Harvard

10:15 a.m. Floor Discussion

111 CC-W187c

■ ● **Recent Statistical Developments in Cancer Research—Topic-Contributed**

Biometrics Section, Biopharmaceutical Section, International Chinese Statistical Association

Organizer(s): Sujay Datta, University of Akron

Chair(s): Sujay Datta, University of Akron

8:35 a.m. Normalization for Single-Cell RNA-Seq—◆Christina Kendziorski, University of Wisconsin; Rhonda Bacher, University of Wisconsin-Madison; Li-Fang Chu, Morgridge Institute for Research; James Thomson, Morgridge Institute for Research; Ron Stewart, Morgridge Institute for Research

8:55 a.m. Statistical Issues in Single-Cell Analysis for Cancer Research—◆Omar De La Cruz Cabrera, Case Western Reserve University

9:15 a.m. Residual-Based Trees for Clustered Binary Data—◆Mousumi Banerjee, University of Michigan; Rong Xia, University of Michigan

9:35 a.m. Cancer Mortality in USA, 1999-2012: A Review and Inter-State Comparisons—◆Desale Habtzghi, DePaul University

9:55 a.m. Disc: Sunil Mathur, Georgia Regents University

10:15 a.m. Floor Discussion

112 CC-W175c
■ ● Advances in Modeling and Inference for Spatial Nonstationarity with Environmental Applications—Topic-Contributed

Section on Statistics and the Environment

Organizer(s): Ying Sun, King Abdullah University of Science and Technology

Chair(s): Marc Genton, KAUST

- 8:35 a.m. Mixtures of Regression Models for Large Spatial Data Sets—◆Amanda Hering, Colorado School of Mines; Karen Kazor, Colorado School of Mines; Laura Condon, Colorado School of Mines; Reed Maxwell, Colorado School of Mines
- 8:55 a.m. High-Resolution Simulation of Nonstationary Random Fields—◆William Kleiber, University of Colorado
- 9:15 a.m. Regression-Based Covariance Functions for Nonstationary Spatial Modeling—◆Mark Risser, Lawrence Berkeley National Laboratory
- 9:35 a.m. Fused Adaptive Lasso for Spatial and Temporal Quantile Function Estimation—◆Ying Sun, King Abdullah University of Science and Technology; Huixia Wang, The George Washington University; Montse Fuentes, North Carolina State University
- 9:55 a.m. Collective Nonparametric Spectral Density Estimation with Applications in Clustering—◆Mehdi Maadooliat, Marquette University; Ying Sun, King Abdullah University of Science and Technology
- 10:15 a.m. Floor Discussion

113 CC-W185bc
■ Challenges in Design and Analysis of Multi-Regional Clinical Trials—Topic-Contributed

Biopharmaceutical Section, International Chinese Statistical Association, Committee on Applied Statisticians

Organizer(s): Gang Li, Johnson & Johnson

Chair(s): Gang Li, Johnson & Johnson

- 8:35 a.m. MRCT Design Models and Drop-Min Data Analysis—◆Kuang-Kuo Lan, Janssen R&D
- 8:55 a.m. Design and Analysis of Multiregional Clinical Trials in Evaluation of Medical Devices: Some Points to Consider from a Regional Regulatory Perspective—◆Yunling Xu, FDA/CDRH; Nelson LU, FDA/CDRH
- 9:15 a.m. Why Can't We Agree on MRCTs?—◆Joshua Chen, Sanofi Pasteur
- 9:35 a.m. Example-Based Illustrations of Design, Conduct, Analysis, and Result Interpretation of Multi-Regional Clinical Trials—◆Hui Quan, Sanofi; Xuezhou Mao, Sanofi

- 9:55 a.m. Disc: Hsien-Ming James Hung, FDA
- 10:15 a.m. Floor Discussion

114 CC-W194a
The NISS Postdoctoral Program: Success Stories—Topic-Contributed

Committee on Career Development

Organizer(s): David Banks, Duke University

Chair(s): James Rosenberger, Penn State University

- 8:35 a.m. Volatility Inference Using High-Frequency Financial Data and Efficient Computations—◆Jian Zou, Worcester Polytechnic Institute
- 8:55 a.m. Data Fusion for Predicting Long-Term Program Impacts—◆Michael Robbins, RAND Corporation
- 9:15 a.m. Conditional Logistic Regression in a Cluster-Specific M-to-M Treatment-Control Study with Binary Outcomes—◆Zhulin He, Iowa State University; Gabriel Demuth, Iowa State University; Zhengyuan Zhu, Iowa State University
- 9:35 a.m. Effect of Differential Discontinuities Across Treatment Arms on Survival Estimates in Randomized Clinical Trials—◆Shanti Gomatam, FDA
- 9:55 a.m. Disc: Nell Sedransk, National Institute of Statistical Sciences
- 10:15 a.m. Floor Discussion

115 CC-W176a
■ ● Tackling the Challenges of Missing Data in Surveys: Applying Methods and Assessing Uncertainty—Topic-Contributed

Government Statistics Section, Survey Research Methods Section

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

Chair(s): Mary Mulry, U.S. Census Bureau

- 8:35 a.m. Estimating the Variance Due to Hot Deck Imputation for Product Value Estimates in the 2017 Economic Census—◆Katherine Jenny Thompson, U.S. Census Bureau; Matthew Thompson, U.S. Census Bureau; Roberta Kurec, U.S. Census Bureau
- 8:55 a.m. Variance Estimation for Product Value Estimates in the 2017 Economic Census Under the Assumption of Complete Response—◆Matthew Thompson, U.S. Census Bureau; Katherine Jenny Thompson, U.S. Census Bureau
- 9:15 a.m. Using Auxiliary Marginal Information to Deal with Nonignorable Missing Data—◆Mauricio Sadinle, Duke University/National Institute of Statistical Sciences; Jerome Reiter, Duke University

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

9:35 a.m. Semiparametric Fractional Imputation Using Empirical Likelihood in Survey Sampling—◆Sixia Chen, University of Oklahoma; Jae-kwang Kim, Iowa State University

9:55 a.m. Disc: Darcy Miller, USDA/NASS

10:15 a.m. Floor Discussion

116 CC-W183a

● **What's Wrong with P-Value?—Topic-Contributed**

ENAR, IMS, Biopharmaceutical Section, Section on Teaching of Statistics in the Health Sciences, Royal Statistical Society, Scientific and Public Affairs Advisory Committee

Organizer(s): Eugene Demidenko, Dartmouth College

Chair(s): James O'Malley, Geisel School of Medicine at Dartmouth

8:35 a.m. On the Reproducibility of Psychology Experiments—◆Valen E. Johnson, Texas A&M University

8:55 a.m. Problems with P-Value Reform: Who Can We Blame?—◆Regina Nuzzo, Gallaudet University

9:15 a.m. P-Value Overdose in Medical Research: Problems and Solutions—◆J. Jack Lee, MD Anderson Cancer Center

9:35 a.m. The Death of the P-Value: What's the Chance?—◆Philip Sedgwick, University of London

9:55 a.m. P, Sorry, D-Value—◆Eugene Demidenko, Dartmouth College

10:15 a.m. Floor Discussion

117 CC-W187b

● **Methods and Applications in Multiplicity Adjustment—Topic-Contributed**

Biopharmaceutical Section

Organizer(s): Dong Xi, Novartis

Chair(s): Frank Bretz, Novartis Pharma

8:35 a.m. Sequential Multiple Testing for Variable Selection in High-Dimensional Linear Model—◆Xinping Cui, University of California at Riverside; Hailu Chen, University of California at Riverside

8:55 a.m. A Flexible Choice of Critical Constants for the Improved Hybrid Hochberg-Hommel Procedure—◆Ajit Tamhane, Northwestern University; Jiangtao Gou, Hunter College

9:15 a.m. Adjustment for Multiplicity in Clinical Trials: When Is It Necessary and When Is It Not?—◆Boguang Zhen, FDA

9:35 a.m. Optimizing Graphical Multiple Testing Schemes in Late-Phase Drug Development—◆Eric Nantz, Eli Lilly and Company

9:55 a.m. Optimal Tests for Multiple Binary Endpoints—◆Dong Xi; Robin Ristl, Medical University of Vienna; Ekkehard Glimm, Novartis; Martin Posch, Medical University of Vienna

10:15 a.m. Floor Discussion

118 CC-W185d

■ **Challenges in Metagenomic Data Analysis: Reproducibility and Interpretability of Inferences on Microbial Community Composition and Dynamics—Topic-Contributed**

Section on Statistics in Genomics and Genetics, Biopharmaceutical Section, Committee on Applied Statisticians

Organizer(s): Hector Corrada Bravo, University of Maryland

Chair(s): Jianxin Shi, National Cancer Institute

8:35 a.m. Dimensional Reduction of Metagenomic Data with Ecological Equivalence—◆Senthilkumar Muthiah, University of Maryland; Eric Slud, U.S. Census Bureau; Mihai Pop, University of Maryland; Hector Corrada Bravo, University of Maryland

8:55 a.m. Multivariate Dimension-Reduction Methods for Microbiome Data Analysis—◆Kim-Anh Le Cao, University of Queensland

9:15 a.m. Mediation Analysis of High-Dimensional Human Microbiome Data in the Longitudinal Study—◆Huilin Li, New York University Langone Medical Center; Yilong Zhang, New York University; Martin J. Blaser, New York University

9:35 a.m. Floor Discussion

119 CC-W193b

■ **First Steps in Analyzing Vaginal Microbiome Data—Topic-Contributed**

International Indian Statistical Association, WNAR, International Chinese Statistical Association

Organizer(s): Snehalata Huzurbazar, University of Wyoming

Chair(s): Snehalata Huzurbazar, University of Wyoming

8:35 a.m. Visualizing 16S RRNA Vaginal Microbiome Data—◆Eugenie Jackson, University of Wyoming; Anju Menon, University of Wyoming; Ekaterina Smirnova, University of Wyoming; Snehalata Huzurbazar, University of Wyoming

8:55 a.m. Quality Control for Microbiome Experiments—◆David Edwards, Virginia Commonwealth University

9:15 a.m. Microbiome Normalization Methods: Effect on Ordination Analysis—◆Ekaterina Smirnova, University of Wyoming; Snehalata Huzurbazar, University of Wyoming; Glen Alan Satten, CDC; Liyang Diao, Yale University

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

9:35 a.m. Community State Types and Major Shifts in the Microbiome—◆James Brooks, Virginia Commonwealth University

9:55 a.m. Disc: Jessica Galloway-Pena, MD Anderson Cancer Center

10:15 a.m. Floor Discussion

120 CC-W176c

■ **Improving Efficiency and Maintaining High Data Quality: Plans and Early Outcomes for the 2016 Survey of Consumer Finances—Topic-Contributed**

Survey Research Methods Section

Organizer(s): Catherine C. Haggerty, NORC at the University of Chicago

Chair(s): Steven Pedlow, NORC at the University of Chicago

8:35 a.m. Using Propensity Scores to Inform Respondent Incentive Escalation—◆Kate Bachtell, NORC at the University of Chicago; Catherine C. Haggerty, NORC at the University of Chicago; Shannon Nelson, NORC at the University of Chicago; Steven Pedlow, NORC at the University of Chicago; Katherine Archambeau, NORC at the University of Chicago; Kevin Moore, Board of Governors of the Federal Reserve System; Joanne Hsu, Board of Governors of the Federal Reserve System

8:55 a.m. Elusive Respondents: Target Interventions for Challenging Geographic 'Hot-Spots'—◆Catherine C. Haggerty, NORC at the University of Chicago; Kate Bachtell, NORC at the University of Chicago; Katherine Archambeau, NORC at the University of Chicago; Karen Veldman, NORC at the University of Chicago; Shannon Nelson, NORC at the University of Chicago; Ella Kemp, NORC at the University of Chicago

9:15 a.m. Recalcitrant Respondents, Data Quality Measures, and Mitigation Strategies—◆Shannon Nelson, NORC at the University of Chicago; Catherine C. Haggerty, NORC at the University of Chicago; Katherine Burda, NORC at the University of Chicago; Steven Pedlow, NORC at the University of Chicago; Richard Windle, Board of Governors of the Federal Reserve System

9:35 a.m. Geographic Distribution and Characteristics of Locked Buildings and Gated Communities: Gaining Access—◆Katherine Archambeau, NORC at the University of Chicago; Rebecca Curtis, NORC at the University of Chicago; Kate Bachtell, NORC at the University of Chicago; Steven Pedlow, NORC at the University of Chicago; Catherine C. Haggerty, NORC at the University of Chicago; Kevin Moore, Board of Governors of the Federal Reserve System; Jesse Bricker, Board of Governors of the Federal Reserve System

9:55 a.m. Within Household Gatekeepers: Overcoming Obstacles to Survey Participation—◆Micah Sjoblom, NORC at the University of Chicago; Karen Veldman, NORC at the University of Chicago; Anna Joyce, NORC at the University of Chicago; Katherine Burda, NORC at the University of Chicago; Catherine C. Haggerty, NORC at the University of Chicago; Ella Kemp, NORC at the University of Chicago

10:15 a.m. Floor Discussion

Topic-Contributed Panel 8:30 a.m. – 10:20 a.m.

121 CC-W192b

■ ● **The Policy Landscape for Statistics in the UK and U.S.—Topic-Contributed**

Royal Statistical Society, Section on Statistics in Defense and National Security, Scientific and Public Affairs Advisory Committee

Organizer(s): Hetan Shah, RSS

Chair(s): Katherine K. Wallman, Office of Management and Budget

Panelists: ◆Hetan Shah, RSS

◆Constance F. Citro, Committee on National Statistics

◆Steve Pierson, ASA

8:55 a.m. Floor Discussion

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

122 CC-W183b

SPEED: Statistics in Government and Engineering—Contributed

Government Statistics Section, Section on Physical and Engineering Sciences

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

The Poster portions will take place during Session 202 and Session 205.

8:35 a.m. Evaluating the Use of Child Restraint Systems and Resulting Injury and Fatalities Using Demographic and Social Characteristics of Driver's Home ZIP Code—◆Anastasia Vishnyakova, Temple University

8:40 a.m. Crash-Safety Ratings and the True Assessment of Injuries by Vehicle—◆Cody Philips, Miami University

8:45 a.m. Visualizing Crash Data Over Time—◆Richard M. Heiberger, Temple University Fox School of Business

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 8:50 a.m. **Predicting the Potential Economic Cost of a Car Accident Under Different Circumstances**—◆Tony Ng, Southern Methodist University; Lynne Stokes, Southern Methodist University; Yifan Zhong, Southern Methodist University; Robert Farrow, Southern Methodist University; Clayton Moore, Southern Methodist University; Gunes Alkan, Southern Methodist University; Haichen Liu, Southern Methodist University; Ziyuan Xu, Southern Methodist University; Yihan Xu, Southern Methodist University; Yuzhi Yan, Southern Methodist University
- 8:55 a.m. **Time-Dependent Clustering Tells a Danger on the Road**—◆Eunice Kim
- 9:00 a.m. **Seeing Through the Data: Data Visualization Methods of the Occupational Requirements Survey**—◆Jenette Muhar, Bureau of Labor Statistics; Michelle Myers, Bureau of Labor Statistics
- 9:05 a.m. **A Case Study in Adaptive LASSO Logistic Regression: Factors Related to Cyclist Death with a Distracted Driver**—◆Lysbeth Floden, University of Arizona; Patrick A. O'Connor, University of Arizona; Melanie L. Bell, University of Arizona
- 9:10 a.m. **Investigation of How Customers Respond to Demand Response**—◆Hung-Ming Chou, Texas A&M University; Fang-Yu Lin, Texas A&M University
- 9:15 a.m. **Implementation of the ICD-10-CM/PCS Coding System and Implications for the National Health Care Surveys**—◆Margaret Jean Hall, CDC; Kellina Phan, CDC/NCHS; Denys T. Lau, CDC/NCHS
- 9:30 a.m. **Review of Statistical Software for Joint Longitudinal and Time-to-Event Models**—◆Allison Cullen, University of Michigan; Jeremy M. G. Taylor, University of Michigan; Ananda Sen, University of Michigan
- 9:35 a.m. **Using Scores to Identify Small Cells in Tables for Disclosure Deidentification**—◆Stephen Cohen, NORC at the University of Chicago; Linette Scott, California Department of Health Care Services; Joshua Borton, NORC at the University of Chicago
- 9:40 a.m. **Degree Profile of Hierarchical Lattice Networks**—◆Yarong Feng, The George Washington University; Hosam Mahmoud, The George Washington University; Ludger Ruschendorf, Albert-Ludwigs University of Freiburg
- 9:45 a.m. **Optimal Monetary Policy with Noisy Information**—◆Jacob Orchard, Brigham Young University; James McDonald, Brigham Young University; Kerk Phillips, Brigham Young University
- 9:50 a.m. **Representing Inhomogeneous Microstructure in 3D Simulations of Stainless Steel**—◆Scott Vander Wiel, Los Alamos National Laboratory
- 9:55 a.m. **Statistical Challenges in Military Research**—◆Zoran Bursac, University of Tennessee Health Science Center; Melissa Little, University of Tennessee Health Science Center; Karen Derefinco, University of Tennessee Health Science Center; Rebecca Krukowski, University of Tennessee Health Science Center; Lauren Colvin, University of Tennessee Health Science Center; Gerald Wayne Talcott, University of Tennessee Health Science Center; Robert Klesges, University of Tennessee Health Science Center
- 10:00 a.m. **Mineral Species Frequency Distribution and the Prediction of Earth's Missing Minerals**—◆Grethe Hystad, Purdue University; Robert T. Downs, University of Arizona; Robert M. Hazen, Carnegie Institution
- 10:05 a.m. **Model-Based Point Estimates and Variance for State-Level Prevalence of Hypertension and Uncontrolled Hypertension in the United States Using NHANES and BRFSS**—◆Soyoun Park, CDC/NCCDPHP/DHDSP; Amy L. Valderrama, CDC/OPHPR/DSLIR; Jason Baumgardner, CDC/NCIPC/DVP; Cathleen Gillespie, CDC/NCCDPHP/DHDSP; Quanhe Yang, CDC/NCCDPHP/DHDSP; Jing Fang, CDC/NCCDPHP/DHDSP; Fleetwood Loustalot, CDC/NCCDPHP/DHDSP; Yuling Hong, CDC/NCCDPHP/DHDSP
- 10:10 a.m. **Using a Survey as a Sampling Frame: The UK Experience**—◆Matthew Greenaway, Office for National Statistics
- 10:15 a.m. **Floor Discussion**

123 **CC-W181a**
SPEED: Environmental Statistics—Contributed
 Section on Statistics and the Environment
 Chair(s): Sandy Burden, University of Wollongong
 The Poster portions will take place during Session 200 and Session 203.

- 8:35 a.m. **Underestimation of Standard Errors in Regression Analysis for Pollution Exposure Assessment Using Multi-Source Data**—◆Tomoshige Nakamura, Keio University; Mihoko Minami, Keio University
- 8:40 a.m. **Modeling Nonconstant Detection Rates in Removal-Sampled Point-Count Surveys**—◆Adam Martin-Schwarze; Philip Dixon, Iowa State University; Jarad Niemi, Iowa State University
- 8:45 a.m. **Modeling Blood Organic Mercury as a Function of Usual Fish Consumption and Demographics Using NHANES Data**—◆John Rogers, Westat; Rebecca Birch, Westat
- 8:50 a.m. **Spatial Confounding in Semiparametric Regression Models for Spatial Data**—◆Guilherme Ludwig, University of Wisconsin-Madison; Jun Zhu,

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- University of Wisconsin-Madison; Chun-Shu Chen, National Changhua University of Education
- 8:55 a.m. **Design Considerations for Vaccine Efficacy Trials in Outbreak Settings**—◆Natalie Dean, University of Florida; M Elizabeth Halloran, Fred Hutchinson Cancer Research Center; Ira Longini, University of Florida
- 9:00 a.m. **Using Wavelets to Discover Relationships Among Tree-Ring Records**—◆Megan Heyman, Rose-Hulman Institute of Technology; Snigdhasu Chatterjee, University of Minnesota-Twin Cities; Scott St. George, University of Minnesota
- 9:05 a.m. **Sequential Policy Making in Management of Emerging Infectious Disease with Monte Carlo Tree Search**—◆Sihan Wu, North Carolina State University
- 9:10 a.m. **A Standardized Signed Likelihood Ratio Test for the Threshold in a Generalized Pareto Distribution**—◆David Smith, Tennessee Tech University
- 9:15 a.m. **Combining Information from Multiple Marks in a Marked Point Pattern**—◆Philip Dixon, Iowa State University
- 9:20 a.m. **Can Sentinel Site Data Be Used to Estimate Vaccination Coverage in the United States?**—◆Xia Lin, CDC; Elizabeth Zell; Loren Rodgers, CDC; Laura Pabst, CDC
- 9:30 a.m. **Where Do Marine Mammals Go? Bayesian Data Fusion Provides the Answer**—◆Yang Seagle Liu, University of British Columbia; James V. Zidek, University of British Columbia; Brian C. Battaile, University of British Columbia; Andrew W. Trites, University of British Columbia
- 9:35 a.m. **Modeling Short-Term Population Dynamics with Unobserved Latent Stages**—◆Gabriel Demuth, Iowa State University; Philip Dixon, Iowa State University
- 9:40 a.m. **Application of INGARCH(P,Q) Models to Hurricane Count Series**—◆Yunwei Cui, Towson University; Rongning Wu, Baruch College
- 9:45 a.m. **Comparing Two Environmental Exposure Distributions in Presence of Detection Limits**—◆Yuchen Yang, University of Kentucky; Brent Shelton, University of Kentucky; Richard Kryscio, University of Kentucky; Thomas Tucker, University of Kentucky; Li Li, Case Western Reserve University; Li Chen, University of Kentucky
- 9:50 a.m. **Predictive Models in Horticulture: A Case Study with Royal Gala Apples**—◆Tom M. Logan, University of Michigan; Stella McLeod, Mr. Apple New Zealand; Seth Guikema, University of Michigan
- 9:55 a.m. **Using the R Caret Package as a Teaching Tool for Topics in Classification and Prediction Methods: A Case Study**—◆Keith Williams, University of Arkansas for Medical Sciences

- 10:00 a.m. **Analyzing Changes in the Proportions of Phytoplankton of a Freshwater Lake**—◆Stephen Colegate, Miami University; Thomas Fisher, Miami University; Jing Zhang

10:05 a.m. Floor Discussion

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CC-W181b

SPEED: Advances in Nonparametric Statistics—Contributed

Section on Nonparametric Statistics

Chair(s): Derek Young, University of Kentucky

The Poster portions will take place during Session 201 and Session 204.

- 8:35 a.m. **A Nonparametric Procedure for Change Point Detection in Linear Regression**—Sunil Mathur, Georgia Regents University; ◆Jing Sun, Augusta University; Deepak Sakate, Augusta University
- 8:40 a.m. **Convolution Weighting in Compound Estimation with or Without Heteroscedasticity**—◆Sisheng Liu, University of Kentucky; Richard Charnigo, University of Kentucky; Cidambi Srinivasan, University of Kentucky
- 8:45 a.m. **Nonparametric Kernel Estimation Using Ranks and Values**—◆Nicholas Kaukis, Oklahoma State University
- 8:50 a.m. **Measuring and Testing Mutual Multivariate Independence Based on Distance Covariance**—◆Ze Jin, Cornell University; David Matteson, Cornell University
- 8:55 a.m. **Testing the Sphericity of a Covariance Matrix When the Dimension Is Much Larger Than the Sample Size**—◆Zeng Li, The University of Hong Kong
- 9:00 a.m. **AUC Regression for Multiple Comparisons of Monotone Zero-Dose Control Experiments**—◆Johanna Van Zyl, Baylor University; Jack D. Tubbs, Baylor University
- 9:05 a.m. **Location and Scale Parameters Testing by Empirical Likelihood Estimation**—◆Ningning Wang, Jackson State University
- 9:10 a.m. **Multivariate Cure Rate Estimation Under Random Censoring**—◆Elnaz Ghadimi, Concordia University; Arusharka Sen, Concordia University
- 9:15 a.m. **Convolutional Functional Autoregressive Models: Model Building, Asymptotics, and Empirical Results**—◆Xialu Liu, San Diego State University
- 9:20 a.m. **Variable Bandwidth Local Polynomial Smoothing via Local Cross-Validation**—◆Katherine Grzesik, University of Rochester; Derick R. Peterson, University of Rochester
- 9:30 a.m. **Period Estimation for Sparsely Sampled Quasi-Periodic Functions: Application to Mira Variable Stars**—◆Shiyuan He, Texas A&M University

Monday

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 9:35 a.m. Bernstein-Von Mises Theorem for Individual Entries in Sparse High-Dimensional Linear Regression—◆Dana Yang, Yale University
- 9:40 a.m. Semiparametric Estimation for Multivariate Skew-Elliptical Distributions—◆Jing Huang, European School of Management and Technology
- 9:45 a.m. Test for Conditional Random Signs Censoring in Competing Risks—◆Shannon Woolley
- 9:50 a.m. Adjusted Empirical Likelihood for Time Series Models—◆Ramadha Dilhani Piyadi Gamage, Bowling Green State University; Wei Ning, Bowling Green State University; Arjun K. Gupta, Bowling Green State University
- 9:55 a.m. Significance Tests for Time-Varying Covariate Effect in Longitudinal Functional Data—◆Saebitna Oh, North Carolina State University; Ana-Maria Staicu, North Carolina State University
- 10:00 a.m. Estimation of Genetic Risk Function with Covariates in the Presence of Missing Genotypes—◆Annie J. Lee, Columbia University; Yuanjia Wang, Columbia University; Karen Marder, Columbia University; Roy N. Alcalay, Columbia University
- 10:05 a.m. An Agent-Based Modeling Approach for Tobacco Product Risk Assessments—◆Raheema Muhammad-Kah, Altria Client Services; YeZdi

B. Pithawalla, Altria Client Services; Maria Gogova, Altria Client Services; Lai Wei, Altria Client Services; Edward L. Boone, Virginia Commonwealth University

- 10:10 a.m. A STEPP Forward in Tailoring Treatment: New Research on the STEPP Methodology—◆Wai-Ki Yip, Dana-Farber Cancer Institute

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

125 CC-W187a
■ Statistical Methods for Functional Data—Contributed
 Biometrics Section, Biopharmaceutical Section, Section on Nonparametric Statistics, Section on Statistics in Imaging
 Chair(s): Andrada E. Ivanescu, Montclair State University

- 8:35 a.m. Fast Covariance Estimation for Sparse Functional Data—◆Cai Li, North Carolina State University; Luo Xiao, North Carolina State University; William Checkley, The Johns Hopkins University; Ciprian Crainiceanu, The Johns Hopkins University



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- 8:50 a.m. Estimation of Functional Connectivity Among Neuron Ensembles via Hawkes Processes—◆Shizhe Chen, University of Washington; Eric Shae-Brown, University of Washington; Ali Shojaie, University of Washington; Daniela Witten, University of Washington
- 9:05 a.m. Classification of Multivariate EEG Records via ϵ -Complexity of Continuous Vector-Functions—◆Alexandra Piryatinska, San Francisco State University; Boris Darkhovsky, Institute for Systems Analysis; Nathanael Aff, San Francisco State University
- 9:20 a.m. Statistical Model Selection in Differential Equations Using PACE Software for Functional Regression.—◆Charles Smith, North Carolina State University
- 9:35 a.m. Penalized Regression Method for Finding Differences in Brain Connectome Graphs—◆Donghyeon Yu, Keimyung University
- 9:50 a.m. Tensor Regression with Functionally Linked Parameters—◆Su Chen, University of Memphis; Ebenezer Olusegun George, University of Memphis
- 10:05 a.m. Functional Mixed-Effects Models for Longitudinal Data: An Application to Electrical Impedance Myography Data—◆Kush Kapur, Boston Children's Hospital/Harvard Medical School; Rajesh Selukar, SAS Institute; Basil Darras, Boston Children's Hospital; Seward Rutkove, Beth Israel Deaconess Medical Center

126 CC-W186b

■ Statistical Methods for High-Dimensional Data—Contributed

Biometrics Section, Biopharmaceutical Section, International Chinese Statistical Association

Chair(s): Kuolung Hu, Amgen

- 8:35 a.m. EigenPrism: Inference for High-Dimensional Signal-to-Noise Ratios—◆Lucas Janson; Emmanuel Candes, Stanford University; Rina Foygel Barber, The University of Chicago
- 8:50 a.m. Genomic Determination Index—◆Cheng Cheng, St. Jude Children's Research Hospital; Robert J. Autry, St. Jude Children's Research Hospital; Wenjian Yang, St. Jude Children's Research Hospital; Steven Paugh, St. Jude Children's Research Hospital; William E. Evans, St. Jude Children's Research Hospital
- 9:05 a.m. Group Feature Screening via F-Test—◆Won Chul Song, Purdue University; Jun Xie, Purdue University
- 9:20 a.m. Modeling Micronuclei Count Data Using the Generalized Monotone Incremental Forward Stagewise Method: Application in Women with

Breast Cancer—◆Rebecca Lehman, Virginia Commonwealth University; Colleen Jackson-Cook, Virginia Commonwealth University; Kellie J. Archer, Virginia Commonwealth University

- 9:35 a.m. Annotation Regression of Genome-Wide Association Studies with Multiple Phenotypes—◆Sunyoung Shin, University of Wisconsin-Madison; Sunduz Keles, University of Wisconsin-Madison
- 9:50 a.m. Stochastic Optimization for High-Dimensional Mixed Effect Generalized Linear Models—◆Jun Guo, University of Michigan; Yves F. Atchade, University of Michigan
- 10:05 a.m. Truncation-Based Nearest Neighbors Imputation for High-Dimensional Data with Detection Limit Thresholds—◆Jasmit Shah, University of Louisville; Guy N. Brock, The Ohio State University; Shesh N. Rai, University of Louisville; Aruni Bhatnagar, University of Louisville

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CC-W196c

■ R Tools for Statistical Computing—Contributed

Section on Statistical Computing, International Chinese Statistical Association

Chair(s): Haim Y. Bar, University of Connecticut

- 8:35 a.m. The Biglasso Package: Extending Lasso Model Fitting to Big Data in R—◆Yaohui Zeng, University of Iowa; Patrick Breheny, University of Iowa
- 8:50 a.m. Independent Sampling for a Spatial Model with Incomplete Data—◆Harsimran Somal, University of Iowa; Mary Kathryn Cowles, University of Iowa
- 9:05 a.m. Introduction to the TextmineR Package for R—◆Thomas Jones, Impact Research
- 9:20 a.m. Vector-Generalized Time Series Models—◆Victor Miranda Soberanis, University of Auckland; Thomas Yee, University of Auckland
- 9:35 a.m. New Computational Approaches to Large/Complex Mixed Effects Models—◆Norman Matloff, University of California at Davis
- 9:50 a.m. Broom: An R Package for Converting Statistical Modeling Objects Into Tidy Data Frames—◆David G. Robinson, Stack Overflow
- 10:05 a.m. Exact Parametric and Nonparametric Likelihood-Ratio Tests for Two-Sample Comparisons—◆Yang Zhao, SUNY Buffalo; Albert Vexler, SUNY Buffalo; Alan Hutson, SUNY Buffalo; Xiwei Chen, SUNY Buffalo

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

128 CC-W191
Statistical Consulting Applications—Contributed

Section on Statistical Consulting
 Chair(s): Adam Jaeger, Duke University

- 8:35 a.m. Application of Exploratory Factor Analysis for Survey Reduction in Neurology Research—◆Jayawant Mandrekar, Mayo Clinic
- 8:50 a.m. Transformation of Epidemiological Measures of Risk for Meta-Analysis—◆Jake Olivier, University of New South Wales
- 9:05 a.m. Exploring the Use of Robust Statistical Methods in Observational Data—◆Peter John De Chavez, Northwestern University; Mercedes Carnethon, Northwestern University; Juned Siddique, Northwestern University
- 9:20 a.m. Strategic Energy Management: Estimating the Uncertainty of Energy Savings Estimates—◆Jennifer Hockett, Cadmus
- 9:35 a.m. Estimating Energy Savings Resulting from Strategic Energy Management Programs—◆Andrew Bernath, Cadmus
- 9:50 a.m. Utilizing Experimental Designs for Multi-Country Consumer Tests—◆Jason Parcon, PepsiCo Global R&D
- 10:05 a.m. The Statistics of Credit Scoring: How to Use What You Already Know to Build a Credit Scorecard—◆Billie Anderson, Ferris State University

129 CC-W178b
Advancing Statistical Literacy—Contributed

Section on Statistical Education, Section on Teaching of Statistics in the Health Sciences

Chair(s): James Schmidt, University of Nebraska-Lincoln

- 8:35 a.m. Top 5 Reasons You Can't Blame Students for Not Getting Inference—◆Christopher J. Malone, Winona State University
- 8:50 a.m. Twelve Big Ideas for Introductory Statistics—◆Milo Schield, Augsburg College
- 9:05 a.m. Making Connections and Understanding Statistics: Students' Ratings of the Utility of Key Concepts in the Introductory Statistics Course—◆Rossi A. Hassad, Mercy College
- 9:20 a.m. Effect Size Really Does Matter—◆Jeffrey Witmer, Oberlin College
- 9:35 a.m. Emphasizing Critical Thinking in Introductory Statistics—◆Roger Woodard, North Carolina State University

- 9:50 a.m. Students' Understanding of the Expected Value of a Random Variable—◆Hyung Kim; Tim Fukawa-Connelly, Temple University
- 10:05 a.m. The Importance of Long-Term Retention: Preparing Students for the Workforce, Not Just for Our Tests—◆Michael Posner, Villanova University; Meghan Buckley, Villanova University

130 CC-W184d
Statistical Methods for Spatial Epidemiology—Contributed

Section on Statistics in Epidemiology, Section on Risk Analysis
 Chair(s): Nicholas Beyler, Mathematica Policy Research

- 8:35 a.m. Bayesian Spatio-Temporal Modeling of Multi-Pathogen Infectious Diseases Using Data from Multiple Sources—◆Hunter Merrill, University of Florida; Xueying Tang, University of Florida; Yang Yang, University of Florida; Nikolay Bliznyuk, University of Florida
- 8:50 a.m. Continuous Surface Modeling for Space-Time Infectious Disease Count Data—◆Katherine Wilson, University of Washington; Jonathan Wakefield, University of Washington
- 9:05 a.m. Spatial Model for Risk Prediction and Subnational Prioritization to Aid Poliovirus Eradication in Pakistan—◆Laina Mercer, Institute for Disease Modeling; Steve Kroiss, Institute for Disease Modeling; Hil Lyons, Institute for Disease Modeling; Guillaume Chabot-Couture, Institute for Disease Modeling
- 9:20 a.m. Spatial Variability in the Persistence of PCV-Targeted Pneumococcal Serotypes Among Adults—◆Joshua Warren, Yale University; S. Cassandra Pingali, Yale University; Daniel Weinberger, Yale University
- 9:35 a.m. Generalized Linear Mixed Model to Predict a Spatially Correlated Poisson Variable in the Presence of an Auxiliary Variable, with an Application to the West Nile Virus—◆Lynette Smith, University of Nebraska Medical Center; David B. Marx, University of Nebraska-Lincoln
- 9:50 a.m. Novel Application of a Weighted Zero-Inflated Negative Binomial Model in Modeling Count Data from a Complex Survey—◆Mulugeta Gebregziabher, Medical University of South Carolina; Lin Dai, Medical University of South Carolina
- 10:05 a.m. High-Dimensional Analysis of Spatial Count Data: A Penalized Estimating Equation Approach—◆Rejaul Karim, Michigan State University

131 CC-W195 Matrix Decomposition, Factor Models, and Applications to Recommender Systems—Contributed

Section on Statistical Learning and Data Science

Chair(s): Erin M. Schliep, University of Missouri

- 8:35 a.m. Orthogonal Symmetric Non-Negative Matrix Factorization Under Stochastic Block Model—◆Subhadeep Paul, University of Illinois at Urbana-Champaign; Yuguo Chen, University of Illinois at Urbana-Champaign
- 8:50 a.m. Sparse Spatial Dynamic Factor Model with Basis Expansion—◆Takamitsu Araki; Shotaro Akaho, National Institute of Advanced Industrial Science and Technology
- 9:05 a.m. A Statistical Algorithm for Phantom Clustering Using PPCA—◆Wei Q. Deng, University of Toronto; Radu V. Craiu, University of Toronto
- 9:20 a.m. Learning Network Dynamics via Regularized Tensor Decomposition—◆Yun-Jhong Wu, University of Michigan; Elizaveta Levina, University of Michigan; Ji Zhu, University of Michigan
- 9:35 a.m. Incorporating Informative Missingness into a Regression-Based Recommender System—◆Lin Su, North Carolina State University; Howard Bondell, North Carolina State University
- 9:50 a.m. E-Learning Data Analysis for Building a Personalized Recommendation System—◆Shuang Liu; K.F. Lam, The University of Hong Kong
- 10:05 a.m. Tree-Like Structure Classification Based on Distance Matrix LU Decomposition with Application to Galaxy Profile Data—◆Jianan Hui, University of California at Riverside; Xiping Cui, University of California at Riverside; James Flegal, University of California at Riverside; Miguel Aragon-Calvo, University of California at Riverside

132 CC-W192a Using Social Media, Text Mining, and Behavioral Data to Improve Marketing—Contributed

Section on Statistics in Marketing

Chair(s): Qian Chen

- 8:35 a.m. Social Signal Processing: Building Computational Models of Human Behavior in Digital Environments—◆William Rand, University of Maryland; David Darmon, Uniformed Services University of the Health Sciences; Michelle Girvan, University of Maryland
- 8:50 a.m. An Online Prediction Framework of Influential Users During Urgent Events on Twitter—◆Hechao Sun

- 9:05 a.m. Room for Improvement: Aspect-Specific Statistical Opinion-Mining of Online Hotel Reviews—◆Lynd Bacon, LBA/Northwestern University
- 9:20 a.m. Social Listening Analytics and Market Share for a Brand—◆Dmitri V. Kuznetsov, Genpact; David Hauser, Genpact
- 9:35 a.m. Competitive Intelligence: Text Mining Unstructured Data from the Internet of Things—◆James Wisnowski, Adsurgo LLC; Andrew Karl, Adsurgo LLC
- 9:50 a.m. Psychographic Market Segmentation with Very Large Number of Behavioral Factors—◆Atreyee Majumder, Michigan State University; Tapabrata Maiti, Michigan State University
- 10:05 a.m. Aggregate Propensity Matching in Market Research—◆Kurt Pflughoeft, MaritzCX; Sharon Alberg, MaritzCX; Kurt Salmela, MaritzCX; Greg Blevins, MaritzCX

133 CC-W185a Adaptive Designs in Clinical Trials—Contributed

Biopharmaceutical Section

Chair(s): Charles F. Contant

- 8:35 a.m. Conditional Power for Testing Equivalence of Two Proportions—◆Zejiang Yang, INC Research; Kalyan Ghosh, INC Research
- 8:50 a.m. Bayesian Response-Adaptive Covariate-Adjusted Randomization Design for Clinical Trials—◆Jianchang Lin, Takeda; LiAn Lin, Merck Research Laboratories; Serap Sankoh, Takeda; Fang Yang, Vertex Pharmaceuticals; Guohui Liu, Takeda
- 9:05 a.m. Consideration of the T-Statistic Adaptive Dose-Finding Design for Estimating Maximum Tolerated Dose—◆James Bolognese, Cytel
- 9:20 a.m. On Exact Sample Size of K-Stage Group Sequential Designs for Rare Diseases—◆Man Jin
- 9:35 a.m. Bayesian Adaptive Design for Trials with Delayed Binary Outcome Using Historical Control Data—◆Nusrat Harun, Cincinnati Children's Hospital; Mi-Ok Kim, Cincinnati Children's Hospital Medical Center; Chunyan Liu, Cincinnati Children's Hospital
- 9:50 a.m. Evaluation of Adaptive Sequential Designs in the Setting of Anticipated Crossing Survival—◆William Koh, University of Washington; Scott Emerson, University of Washington
- 10:05 a.m. Risk Analysis on Using Surrogate Endpoint at Interim Analysis—◆Ziqian Geng, AbbVie; Bo Fu, AbbVie; Alan Hartford, AbbVie; Jun Zhao, AbbVie

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

134 CC-W186c
■ ● Genome-Wide Association Studies and Related Topics—Contributed

Section on Statistics in Genomics and Genetics, Biopharmaceutical Section

Chair(s): Pixu Shi

- 8:35 a.m. **Weighted False Discovery Rate Control in Large-Scale Multiple Testing**—◆Pallavi Basu, University of Southern California
- 8:50 a.m. **Identifying SNP Interaction Patterns Using an Intensive Approach**—◆Hui-Yi Lin, Louisiana State University Health Sciences Center; Dung-Tsa Chen, Moffitt Cancer Center; Po-Yu Huang, National Chung-Hsing University; Yung-Hsin Liu, INC Research; Chia-Ho Cheng, Moffitt Cancer Center; Jong Park, Moffitt Cancer Center
- 9:05 a.m. **Leveraging Functional Annotations in Genetic Risk Prediction for Human Complex Diseases**—◆Yiming Hu, Yale University; Qiongshi Lu, Yale University; Hongyu Zhao, Yale University
- 9:20 a.m. **Generalized Functional Linear Models for Family Sequencing Data**—◆Sneha Jadhav; Hira L. Koul, Michigan State University; Qing Lu, Michigan State University
- 9:35 a.m. **A Graphical Model to Prioritizing GWAS Results by Integrating Pleiotropy**—◆Dongjun Chung, Medical University of South Carolina; Hang J. Kim, University of Cincinnati; Hongyu Zhao, Yale University
- 9:50 a.m. **Singular Values, Association Between Asthma and Single Nucleotide Polymorphisms, and Population Genetics**—◆Marepalli Rao, University of Cincinnati; Michael B. Wathen, University of Cincinnati; Koffi B. Wima, University of Cincinnati; Mohammad Alfred Nobel Bhuiyan, University of Cincinnati
- 10:05 a.m. **A Phylogenetic Model for Association Mapping with Multiple Loci**—◆Katherine Thompson, University of Kentucky

135 CC-W175a
■ Advanced Methods for Statistics in Sports—Contributed

Section on Statistics in Sports

Chair(s): Kendra K. Schmid, University of Nebraska Medical Center

- 8:35 a.m. **A Dynamic Multilevel Model for Measuring the Mental Game in Tennis**—◆Stephanie Kovalchik, Tennis Australia; Martin Ingram, Stratagem Technologies

- 8:50 a.m. **The Penalty Differential Effect in the Calling of Penalties in the NHL**—◆Steven E. Rigdon, Saint Louis University; Christopher J. Rigdon, Lindenwood University-Belleville
- 9:05 a.m. **Analysis of Basketball Shot Data via Log Gaussian Cox Processes with Spatially Varying Coefficients**—◆Qingpo Cai, Emory University; Jian Kang, University of Michigan; Lance Waller, Emory University
- 9:20 a.m. **A Ratio-Based Method for Predicting Point Differentials in Sports**—◆Andrew Swift, University of Nebraska-Omaha; Andrew Tew, University of Nebraska-Omaha
- 9:35 a.m. **Nuclear Penalized Multinomial Regression for Predicting At-Bat Outcomes in Baseball**—◆Scott Powers; Trevor Hastie, Stanford University; Robert Tibshirani, Stanford University
- 9:50 a.m. **A Bayesian Hierarchical Model of Pitch Framing in Major League Baseball**—◆Sameer Deshpande, The Wharton School; Abraham J. Wyner, The Wharton School
- 10:05 a.m. **A Statistical Study to Determine the Criteria for Winning in Mixed Martial Arts for the Ultimate Fighting Championship (UFC)**—◆Victor Villalpando, The University of Texas Rio Grande Valley

136 CC-W176b
Survey Modes, Including Web Surveys, Phone, and Multimode Surveys—Contributed

Survey Research Methods Section, Section on Statistics in Marketing

Chair(s): Alfredo Navarro, Nielsen

- 8:35 a.m. **Prevalence and Characteristics of Internet Users: National Health Interview Survey, 2014–2015**—◆Meena Khare, CDC/NCHS
- 8:50 a.m. **Estimating Mail or Web Survey Eligibility for Undeliverable Addresses: A Latent Class Analysis Approach**—Paul Biemer, RTI International; Phil Kott, RTI International; ◆Joe Murphy, RTI International
- 9:05 a.m. **Evaluating the Effects of Adding Cell Phone Samples to the Traditional Landline Phone Samples on Prevalence Estimates from a Telephone Call-Back Survey**—◆Xiaoting Qin, CDC; Hatice S. Zahran, CDC; Cathy M. Bailey, CDC
- 9:20 a.m. **Mail Versus Telephone Respondents in a Survey of Minority Populations**—◆Youlian Liao, CDC
- 9:35 a.m. **What Paradata Can Tell Us About Online Data Reporting by Juvenile Residential Facilities**—◆Suzanne Dorinski, U.S. Census Bureau
- 9:50 a.m. **Floor Discussion**

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

137 CC-W186a
■ ● Topics in Oncology Clinical Trial Design and Drug Development—Contributed

Biopharmaceutical Section

Chair(s): Elande Baro, FDA

- 8:35 a.m. Graphical Testing Procedure in a Hypothetical Seamless Phase II/III Oncology Study—
 ◆ Jiacheng Yuan, Bayer HealthCare Pharmaceuticals; Jonathan Siegel, Bayer HealthCare Pharmaceuticals; Daniel Haverstock, Bayer HealthCare Pharmaceuticals
- 8:50 a.m. The Rapid Enrollment Design for Phase I Clinical Trials—
 ◆ Yunfei Wang, Children's National
- 9:05 a.m. Paired Survival Endpoints in Crossover Trials—
 ◆ Rengyi Xu, University of Pennsylvania; Devan V. Mehrotra, Merck; Pamela A. Shaw, University of Pennsylvania
- 9:20 a.m. Multiplicity Adjustment Considerations in Designing a Confirmatory Oncology Clinical Trial with Multiple Endpoints—
 ◆ Di Li
- 9:35 a.m. A New Design for Drug Combination in Phase I Dose-Finding Clinical Trials—
 ◆ Jim Xiang, Janssen; Grace Liu, Johnson & Johnson; James Pan, Janssen
- 9:50 a.m. Benefit-Risk Analysis for Dose-Escalation Trial—
 ◆ Hiya Banerjee
- 10:05 a.m. Floor Discussion

138 CC-W175b
Statistical Applications in Criminal Justice and Law Enforcement—Contributed

Social Statistics Section

Chair(s): Valarie Bell, Texas Woman's University

- 8:35 a.m. A Log-Linear Model Approach to Eyewitness Identification Data—
 ◆ Amanda Luby
- 8:50 a.m. Spatio-Temporal Trends in Mass Shooting Incidents in the United States—
 ◆ Ali Arab, Georgetown University
- 9:05 a.m. Metrics and Tests for Measuring Segregation—
 ◆ Stephanie Zimmer, RTI International; Marcus Berzofsky, RTI International
- 9:20 a.m. Urban Analytics: Methodology and Results on Demographics in Philadelphia—
 ◆ Colman Humphrey, The Wharton School; Rachel Thurston, Stantec Architecture; Shane Jensen, The Wharton School
- 9:35 a.m. Longitudinal Modeling of the Future Development of Occupational Status in the Third Generation of Migrants by Means of a Dynamic Microsimulation—
 ◆ Dawid Bekalarczyk; Petra Stein, University of Duisburg-Essen

- 9:50 a.m. Testing for Network Effects in Field Experiments: Examples from Legislative Studies—
 ◆ Sayali Phadke, Penn State University; Bruce A. Desmarais, Penn State University

10:05 a.m. Floor Discussion

139 CC-W177
Bayesian Nonparametrics—Contributed

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

Chair(s): Robert Richardson, Brigham Young University

- 8:35 a.m. Bayesian Estimation of Heavy-Tailed Densities Using Transformations—
 ◆ Andrew Bean, The Ohio State University; Xinyi Xu, The Ohio State University; Steven N. MacEachern, The Ohio State University
- 8:50 a.m. The Attraction Indian Buffet Distribution—
 ◆ David Dahl, Brigham Young University; Arthur Lui, University of California at Santa Cruz
- 9:05 a.m. Environmental Stressors, Health Outcomes, and Bayesian Regression Trees—
 ◆ Gregory Watson, University of California at Los Angeles; Donatello Telesca, University of California at Los Angeles
- 9:20 a.m. Nonlocal Functional Priors for Nonparametric Bayesian Testing—
 ◆ Minsuk Shin, Texas A&M University; Valen E. Johnson, Texas A&M University; Anirban Bhattacharya, Texas A&M University
- 9:35 a.m. A Bayesian Formulation for Capturing Population Heterogeneity—
 ◆ Junxian Geng, Florida State University; Elizabeth Slate, Florida State University
- 9:50 a.m. A Nonparametric Bayesian Approach for Sparse Sequence Estimation—
 ◆ Yunbo Ouyang, University of Illinois at Urbana-Champaign; Feng Liang, University of Illinois at Urbana-Champaign
- 10:05 a.m. A Bayesian Approach to Generalized Signed-Rank Estimation for Nonlinear Models with Multidimensional Indices—
 ◆ Eddy Kwessi, Trinity University; Brice Merlin Nguelifack, U.S. Naval Academy; Guy-vanie Miakonkana, African School of Economics

140 CC-W182
■ ● Analysis of Health Quality in Survey and Administrative Data—Contributed

Health Policy Statistics Section

Chair(s): Joyce Chang, University of Pittsburgh

- 8:35 a.m. Missed Opportunities for Simultaneous Administration of the Fourth Dose of DTaP Among Children in the United States—
 ◆ Zhen Zhao, CDC; Philip J. Smith, CDC; Holly Hill, CDC

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 8:50 a.m. Reproducible Research in Survey Research—
◆Darryl Creel, RTI International; Alan Karr, RTI International
- 9:05 a.m. Identification of the Clinical Adverse Outcomes Using Control Chart in Health Care Data—
◆Chun-Jung Huang, MPA Healthcare Solutions
- 9:20 a.m. The Effect of Nursing Work Environment in Outcomes and Quality of Care—◆Carlos Alzola, Data Insights; Emily Cramer, Kansas University; Peggy Miller, Press Ganey; Nikolas Matthes, Press Ganey
- 9:35 a.m. Health Care Survey Analytic and Data Quality Enrichments Achieved Through Consolidation—◆Steven Cohen, RTI International
- 9:50 a.m. Effective Experience Analysis of Age-by-Period Data for Japanese Breast Cancer Deaths—
◆Nobutane Hanayama, Shobi University
- 10:05 a.m. Modeling Repeated Health Outcomes Using Discontinuous Risk Intervals: Application of Methods to Examine the Association Between Autism Spectrum Disorder and Multiple Injuries—◆Hong Zhou, CDC; William Thompson, CDC; Peter Hicks, CDC

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

- 141 CC-W180
■ ● Some New Perspectives in Statistical Analysis with Incomplete Data—Invited
 SSC, Committee on Applied Statisticians
 Organizer(s): Peisong Han, University of Waterloo
 Chair(s): Peisong Han, University of Waterloo
- 10:35 a.m. A Note on Multiple Imputation Under Informative Sampling—Jae-kwang Kim, Iowa State University; ◆Shu Yang, Harvard
 - 11:00 a.m. Weighted Estimating Equations for Semiparametric Transformation Models with Missing Covariates—◆Grace Yi, University of Waterloo; Yang Ning; Nancy Reid, University of Toronto
 - 11:25 a.m. On the Problem of Bias and Variance Amplification of the Instrumental Calibration Estimator in the Presence of Unit Nonresponse—◆David Haziza, Université de Montréal; Éric Lesage, INSEE; Xavier D’Haultfoeuille, CREST/ENSAE
 - 11:50 a.m. Disc: Jerry Lawless, University of Waterloo
 - 12:10 p.m. Floor Discussion

- 142 CC-W183a
● The Extraordinary Impacts of Statistics in Genomics and Genetics—Invited
 Section on Statistics in Genomics and Genetics, Royal Statistical Society
 Organizer(s): Hongzhe Li, University of Pennsylvania
 Chair(s): Hongzhe Li, University of Pennsylvania
- 10:35 a.m. Latent Variable Methods for the Analysis of Genomic Data—◆John D. Storey, Princeton
 - 11:00 a.m. Overcoming Bias and Batch Effects in RNAseq Data—Michael I. Love, Harvard T.H. Chan School of Public Health; ◆Rafael A. Irizarry, Dana-Farber Cancer Institute
 - 11:25 a.m. Testing High-Dimensional Differential Matrices, with Applications to Detecting Schizophrenia Genes—◆Kathryn Roeder, Carnegie Mellon University; Lingxue Zhu, Carnegie Mellon University; Jing Lei, Carnegie Mellon University
 - 11:50 a.m. Graph-Restricted Mixture Models—◆Michael Newton, University of Wisconsin-Madison; Tien Vo, University of Wisconsin-Madison; Vamsi Ithapu, University of Wisconsin-Madison; Vikas Singh, University of Wisconsin-Madison
 - 12:15 p.m. Floor Discussion

- 143 CC-W186c
● Challenges and Advancement in Biomarker Evaluation for Precision Medicine—Invited
 ENAR
 Organizer(s): Zheyu Wang, The Johns Hopkins University
 Chair(s): Jing Zhang, University of Maryland
- 10:35 a.m. List-Based Interpretable Dynamic Treatment Regimes—◆Yichi Zhang, North Carolina State University; Eric Lober, North Carolina State University; Anastasios Tsiatis, North Carolina State University; Marie Davidian, North Carolina State University
 - 11:00 a.m. Machine-Learning Tools for Finding Biomarkers in Precision Medicine—◆Jonathan Hibbard, The University of North Carolina at Chapel Hill; Michael R. Kosorok, The University of North Carolina at Chapel Hill
 - 11:25 a.m. Efficient Design and Analysis to Evaluate the Incremental Values of Novel Prognostic Markers—
◆Yingye Zheng, Fred Hutchinson Cancer Research Center; Tianxi Cai, Harvard
 - 11:50 a.m. Disc: Xiao-Hua Andrew Zhou, University of Washington
 - 12:10 p.m. Floor Discussion

144 CC-W184bc
■ ● Choosing Appropriate Estimands in Clinical Trials—Invited

Biopharmaceutical Section, Committee on Applied Statisticians

Organizer(s): Frank Bretz, Novartis Pharma

Chair(s): Estelle Russek-Cohen, FDA

- 10:35 a.m. Estimands: Are We Estimating What We Intend to Estimate?—◆Mouna Akacha, Novartis Pharma AG
- 11:00 a.m. Some Observations on De Jure Estimation—◆Thomas Permutt, FDA
- 11:25 a.m. The Treatment of Missing Data in a Large Cardiovascular Clinical Outcomes Study—◆Roderick Joseph Little, University of Michigan
- 11:50 a.m. Disc: Gary Koch, The University of North Carolina at Chapel Hill
- 12:10 p.m. Floor Discussion

145 CC-W196a
■ Integrating Evidence for Better Health Care and Policy Decisions—Invited

Health Policy Statistics Section, Committee on Applied Statisticians

Organizer(s): Laura Anne Hatfield, Harvard Medical School

Chair(s): Laura Anne Hatfield, Harvard Medical School

- 10:35 a.m. Tailoring Decision Making to Reflect Patient Preferences and Expected Treatment Outcomes—◆Megan S. Schuler, Harvard Medical School; Laura Anne Hatfield, Harvard Medical School
- 11:00 a.m. Hierarchical Regression and Variance-Function Modeling to Estimate the Inter-Rater Intraclass Correlation Coefficient in Assessments of Shared Decision Making—◆James O'Malley, Geisel School of Medicine at Dartmouth; Paul J. Barr, Geisel School of Medicine at Dartmouth; Glyn Elwyn, Geisel School of Medicine at Dartmouth
- 11:25 a.m. Integrating Patient Voice and Experience in Benefit and Risk Assessments—◆Laura Lee Johnson, FDA
- 11:50 a.m. Disc: Arlene Ash, University of Massachusetts Medical School
- 12:10 p.m. Floor Discussion

146 CC-W184a
■ ● Contemporary Topics in Design and Analysis of Complex Survival Data—Invited

Korean International Statistical Society

Organizer(s): Yi Li, University of Michigan

Chair(s): Yi Li, University of Michigan

- 10:35 a.m. Estimation and Inference for the Incremental Cost-Effectiveness Ratio for Censored Survival Data—◆Donna Spiegelman, Harvard T.H. Chan School of Public Health
- 11:00 a.m. Conditional Screening for Survival Data—◆Hyokyung (Grace) Hong, Michigan State University; Jian Kang, University of Michigan; Yi Li, University of Michigan
- 11:25 a.m. The Design of Cluster-Randomized Trials Using Robust Methods for Right- and Interval-Censored Event Times—Yujie Zhong, Cambridge Institute of Public Health; ◆Richard John Cook, University of Waterloo
- 11:50 a.m. Flexible Cure Rate Models and Associated Inference—◆Narayanaswamy Balakrishnan, McMaster University
- 12:15 p.m. Floor Discussion

147 CC-W187b
● Addressing Spatial Confounding—Invited

WNAF, Royal Statistical Society

Organizer(s): Adam A. Szpiro, University of Washington

Chair(s): Adam A. Szpiro, University of Washington

- 10:35 a.m. Understanding the Scale of Spatial Confounding Adjustment—◆Joshua Keller, University of Washington; Adam A. Szpiro, University of Washington
- 11:00 a.m. Accounting for Unmeasured Spatial Autocorrelation in Epidemiological Studies Using Areal Unit Data—◆Duncan Lee, University of Glasgow
- 11:25 a.m. Estimation and Prediction in the Presence of Spatial Confounding—◆Garritt L. Page, Brigham Young University; Yajun Liu, Wells Fargo Bank; Zhuoqiong He, University of Missouri; Dongchu Sun, University of Missouri
- 11:50 a.m. Modeling, Estimation, and Interpretation of Covariate Effects in the Presence of Spatial Confounding—◆Ephraim M. Hanks, Penn State University; Mevin Hooten, Colorado State University; Jennifer Hoeting, Colorado State University; Erin Schliep, University of Missouri
- 12:15 p.m. Floor Discussion

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

148 CC-W375b
● Medallion Lecture I: Tracing Pathways of Dependence: How Far Did We Get?—Invited
 IMS

Organizer(s): Jan Hannig, The University of North Carolina at Chapel Hill
 Chair(s): Peter McCullagh, The University of Chicago

- 10:35 a.m. Medallion Lecture: Tracing Pathways of Dependence: How Far Did We Get?—◆Nanny Wermuth, Johannes Gutenberg University/Chalmers University of Technology
- 12:15 p.m. Floor Discussion

149 CC-W190a
■ ● Recent Advances and Challenges of Big Data Inference with Complex Structures—Invited

International Chinese Statistical Association, Royal Statistical Society, Committee on Applied Statisticians
 Organizer(s): Zhao Ren, University of Pittsburgh
 Chair(s): Zhao Ren, University of Pittsburgh

- 10:35 a.m. Statistical Inference for High-Dimensional Linear Regression—◆Tony Cai, University of Pennsylvania; Zijian Guo, University of Pennsylvania
- 11:00 a.m. Distributed Estimation and Inference with Statistical Guarantees—Heather Battey, Imperial College London; ◆Jianqing Fan, Princeton; Han Liu, Princeton; Junwei Lu, Princeton; Ziwei Zhu, Princeton
- 11:25 a.m. Phase Transitions in Semidefinite Programming and Graph Estimation—◆Andrea Montanari, Stanford University
- 11:50 a.m. A General Framework for Bayes Structured Linear Models—Harrison Zhou, Yale University; ◆Chao Gao, Yale University
- 12:15 p.m. Floor Discussion

150 CC-W196b
■ ● The Extraordinary Power of Designed Experiments—Invited

Quality and Productivity Section
 Organizer(s): Byran Smucker, Miami University
 Chair(s): Byran Smucker, Miami University

- 10:35 a.m. Planning Experiments to Support the Scientific Method—◆Geoff Vining, Virginia Tech
- 10:50 a.m. Planning Efficient and Informative Experiments—◆Joanne Wendelberger, Los Alamos National Laboratory

- 11:05 a.m. Design of Excipient Compatibility Studies—Peter Goos, University of Leuven; ◆Wannes Akkermans, University of Leuven
- 11:20 a.m. Dose-Finding Designs: The Conundrum of Either Gaining More Information or Providing Better Treatment—◆Valerii Fedorov, ICON PLC
- 11:35 a.m. Mixture Design of Experiments Turns Loss to Profit—◆Pat Whitcomb, Stat-Ease
- 11:50 a.m. Randomized Experiments in Large Networks—◆Dean Eckles, MIT Sloan School of Management
- 12:05 p.m. Floor Discussion

151 CC-W183c
■ ● Benefit-Risk Evaluation in Medicine—Invited

Section on Medical Devices and Diagnostics, International Chinese Statistical Association, Committee on Applied Statisticians, Section on Risk Analysis
 Organizer(s): Martin Ho, FDA/CDRH
 Chair(s): Norberto Pantoja-Galicia, FDA/CDRH

- 10:35 a.m. An Overview of Structured Benefit-Risk Analysis—◆Qi Jiang, Amgen; Weili He, Merck
- 11:00 a.m. Bayesian Benefit Risk Assessments for Medical Products—◆Telba Irony, FDA
- 11:25 a.m. Recent Developments in Benefit-Risk Evaluation for Diagnostic Tests—◆Gene Pennello, FDA/CDRH/OSB/DBS; Norberto Pantoja-Galicia, FDA/CDRH; Scott Evans, Harvard
- 11:50 a.m. Disc: Scott Evans, Harvard
- 12:10 p.m. Floor Discussion

152 CC-W176a
■ ● Cyber Security in Support of National Defense and Global Security—Invited

Section on Statistics in Defense and National Security
 Organizer(s): Katherine B. Ensor, Rice University
 Chair(s): Yeshaya Adler, Rice University

- 10:35 a.m. Estimation of True Quantiles from Quantitative Data Obscured with Additive Noise—◆Bimal Roy, R.C. Bose Centre for Cryptology and Security
- 11:00 a.m. Enabling Privacy Preserving Machine Learning at Scale—◆Farinaz Koushanfar, Rice University
- 11:25 a.m. Disc: David Marchette, Naval Surface Warfare Center
- 11:50 a.m. Floor Discussion

153 CC-W190b
JASA T&M Invited Session—Invited

JASA, Theory and Methods

Organizer(s): Nicholas P. Jewell, University of California at Berkeley

Chair(s): David Ruppert, Cornell University

- 10:35 a.m. Personalized Dose Finding Using Outcome Weighted Learning—Guanhua Chen, Vanderbilt University; Donglin Zeng, The University of North Carolina at Chapel Hill; ◆Michael R. Kosorok, The University of North Carolina at Chapel Hill
- 11:15 a.m. Disc: Erica E. M. Moodie, McGill University
- 11:30 a.m. Disc: Michael Rosenblum, Johns Hopkins Bloomberg School of Public Health
- 11:45 a.m. Disc: Ming Yuan, University of Wisconsin
- 12:00 p.m. Floor Discussion

Invited Panels 10:30 a.m. – 12:20 p.m.

154 CC-W192b
Adaptive Design in Large-Scale Sample Surveys: Different Perspectives—Invited

Social Statistics Section, Committee on Applied Statisticians

Organizer(s): Marilyn Seastrom, National Center for Education Statistics

Chair(s): Brian Harris-Kojetin, Committee on National Statistics

- Panelists: ◆Peter Miller, U.S. Census Bureau
 ◆Marilyn Seastrom, National Center for Education Statistics
 ◆Paul Biemer, RTI International

12:15 p.m. Floor Discussion

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

155 CC-W196c
Causal Inference in a Networked World—Topic-Contributed

Section on Statistics in Marketing, IMS

Organizer(s): Edoardo M. Airoidi, Harvard

Chair(s): Daniel Sussman, Harvard

- 10:35 a.m. Potential Outcome Regression with Interference—◆Joseph Rigdon, Stanford University; Michael Hudgens, The University of North Carolina at Chapel Hill

- 10:55 a.m. Peer Encouragement Designs in Causal Inference with Interference—◆Hyunseung Kang, Stanford University
- 11:15 a.m. Model-Assisted Design of Experiments in the Presence of Network-Correlated Outcomes—◆Guillaume Basse, Harvard
- 11:35 a.m. Matching Methods for Large Networks—◆Alexander Volfovsky, Harvard
- 11:55 a.m. Inference in the Presence of Network Dependence Due to Contagion—◆Elizabeth Ogburn, The Johns Hopkins University
- 12:15 p.m. Floor Discussion

156 CC-W178a
Shedding Lights on the Hidden Structure Using Mixture Models: New Methods with Applications—Topic-Contributed

Section on Nonparametric Statistics, ENAR, International Chinese Statistical Association

Organizer(s): Zheyu Wang, The Johns Hopkins University

Chair(s): Charles Doss, University of Minnesota

- 10:35 a.m. Empirical Bayesball Remixed: Empirical Bayes Methods for Longitudinal Data—◆Roger Koenker, University of Illinois
- 10:55 a.m. Stochastic EM-Like Algorithms for Fitting Mixture of Lifetime Regression Models—◆Laurent Bordes; Didier Chauveau, University of Orleans
- 11:15 a.m. Nonparametric Identifiability of Finite Mixture Model and It's Application in Alzheimer's Disease—◆Zheyu Wang, The Johns Hopkins University; Xiao-Hua Andrew Zhou, University of Washington
- 11:35 a.m. Nonparametric Mixture Models with Conditionally Independent Multivariate Component Densities—◆Didier Chauveau, University of Orleans; Vy Thuy Lynh Hoang, University of Orleans
- 11:55 a.m. Clustering via Finite Nonparametric ICA Mixture Models—◆David Hunter, Penn State University; Xizotian Zhu, AbbVie
- 12:15 p.m. Floor Discussion

157 CC-W179a
Bayesian Innovations for Negotiating High-Dimensional Data—Topic-Contributed

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

Organizer(s): Edward I. George, The Wharton School

Chair(s): Edward I. George, The Wharton School

- 10:35 a.m. Why Popular Bayesian Nonparametric Methods Fail for Sparse Clustering Tasks—◆Rebecca Steorts, Duke University; Jeffrey Miller, Duke

- University; Brenda Betancourt; Abbas Zaidi, Duke University; Hanna Wallach, University of Massachusetts-Amherst/Microsoft Research
- 10:55 a.m. Fast Sampling with Gaussian Scale-Mixture Priors—◆Anirban Bhattacharya, Texas A&M University
- 11:15 a.m. Empirical Bayes Prediction Under Check Loss—◆Gourab Mukherjee, University of Southern California
- 11:35 a.m. How Many Needles in the Haystack? Adaptive Inference and Uncertainty Quantification for the Horseshoe—◆Stephanie Van Der Pas; Botond Szabo, Leiden University; Aad van der Vaart, Leiden University
- 11:55 a.m. Some Properties of the One Group Prior for Sparse High-Dimensional Models—◆Jean-Bernard Salomond
- 12:15 p.m. Floor Discussion

158 CC-W184d

■ ● **Advanced Methodology for Genetic Data Analysis—Topic-Contributed**

ENAR, Biopharmaceutical Section, International Chinese Statistical Association

Organizer(s): Anne Buu, University of Michigan

Chair(s): Anne Buu, University of Michigan

- 10:35 a.m. A Unified Framework for Variance Component Estimation with Summary Statistics in Genetic Association Studies—◆Xiang Zhou, University of Michigan
- 10:55 a.m. Integrative Genetical Genomics Analysis Incorporating Network Structures—◆Yuehua Cui, Michigan State University; Bin Gao, Michigan State University; Xu Liu, Michigan State University
- 11:15 a.m. Meta-Analysis for Case-Control GWAS—◆Zhongxue Chen, Indiana University Bloomington
- 11:35 a.m. Bayesian Variable Selection: An Alternative Route to Hierarchical Gene-Environment Interactions—◆Cen Wu, Kansas State University; Yu Jiang, University of Memphis; Jinfeng Wei, Maryville University; Shuangge Ma, Yale University
- 11:55 a.m. An Efficient Genome-Wide Association Test for Mixed Binary and Continuous Phenotypes with Applications to Substance Abuse Research—◆James Yang
- 12:15 p.m. Floor Discussion

159 CC-W194b

■ **Biostatistical Literacy: How Best to Teach Medical and Public Health Professionals What They Need to Know About Statistics—Topic-Contributed**

Section on Teaching of Statistics in the Health Sciences, Section on Statistical Education, International Chinese Statistical Association

Organizer(s): Ann M. Brearley, University of Minnesota School of Public Health

Chair(s): Jane Monaco, The University of North Carolina Gillings School of Global Public Health

- 10:35 a.m. The Results of Blended Instruction in Quantitative Methods in Public Health: A Pilot Study—◆Adam Sullivan, Brown University; Marcello Pagano, Harvard
- 10:55 a.m. Online Introductory Biostatistics for Graduate Students: Successes and Failures Teaching a Diverse Student Body—◆Rebecca Andridge, The Ohio State University
- 11:15 a.m. Teaching Biostatistical Literacy: A Flipped-Classroom Approach—◆Ann M. Brearley, University of Minnesota School of Public Health
- 11:35 a.m. Co-Teaching a Research Design Course to Clinicians—◆Amy Laird, Oregon Health & Science University
- 11:55 a.m. Biostatistics Training of Medical Students Through Their Own Research—◆Constantine Daskalakis, Thomas Jefferson University
- 12:15 p.m. Floor Discussion

160 CC-W185bc

■ **Design and Analysis of Bioequivalence and Biosimilar Assessment—Topic-Contributed**

Biopharmaceutical Section, International Chinese Statistical Association

Organizer(s): Yi Tsong, FDA/CDER

Chair(s): Mengdie Yuan, FDA

- 10:35 a.m. Determination of Equivalence Margin of Analytical Biosimilar Assessment—◆Yi Tsong, FDA/CDER; Cassie Dong, FDA; Meiyu Shen, FDA/CDER
- 10:55 a.m. Does the Direction of Scores Matter in Clinical Trials?—◆Wanjie Sun, FDA; Stella Grosser, FDA/CDER; Yi Tsong, FDA/CDER
- 11:15 a.m. Statistical Design and Analysis of Treatment Switching Effect—◆Cassie Dong, FDA
- 11:35 a.m. Disc: Shein-Chung Chow, Duke University
- 11:55 a.m. Floor Discussion

161 CC-W192c● **IRS's Statistics of Income at 100: New Directions—Topic-Contributed**

Government Statistics Section

Organizer(s): Barry W. Johnson, IRS/SOI

Chair(s): Barry W. Johnson, IRS/SOI

- 10:30 a.m. IRS's Statistics of Income at 100: New Directions—◆ Arthur Kennickell, Federal Reserve Board
- 10:55 a.m. Estimating Persistence in Employee Business Expense Correspondence Examinations Using Hidden Markov Models—◆ Anne Parker, IRS; Julie Buckel, IRS
- 11:15 a.m. Improving Techniques to Use Panel Data to Produce Cross-Sectional Estimates—◆ Yan Liu, IRS/SOI; Michael Strudler, IRS/SOI; Janette Wilson, IRS/SOI; Young Lim, IRS/SOI
- 11:35 a.m. Using Sample Data to Reduce Nonsampling Error in Unit-Level Tax Administrative Data—◆ Tracy Haines, IRS/SOI; Victoria Bryant, IRS/SOI; Kimberly Henry, IRS/SOI
- 11:55 a.m. Disc: Fritz Scheuren, NORC at the University of Chicago
- 12:15 p.m. Floor Discussion

162 CC-W175a■ ● **Using and Teaching the ASA Revised Ethical Guidelines for the Practice of Statistics—Topic-Contributed**

Committee on Professional Ethics, International Chinese Statistical Association

Organizer(s): Howard Hogan, U.S. Census Bureau

Chair(s): Howard Hogan, U.S. Census Bureau

- 10:35 a.m. Incorporating the ASA Ethical Guidelines into Every Quantitative Course—◆ Rochelle Tractenberg, Georgetown University Medical Center
- 10:55 a.m. Ethical Guidelines and Industry—◆ Marcia Levenstein, Pfizer; Pandurang Kulkarni, Eli Lilly and Company
- 11:15 a.m. Teaching the ASA Guidelines in a Cross-Cultural Setting—◆ Alan Elliott, Southern Methodist University; Jing Cao, Southern Methodist University; Lynne Stokes, Southern Methodist University
- 11:35 a.m. The Role of the Guidelines to Government Statisticians—◆ Michael Hawes, U.S. Department of Education
- 11:55 a.m. Floor Discussion

163 CC-W187c■ ● **Biometrics Section Student Paper Award Session 1—Topic-Contributed**

Biometrics Section, Biopharmaceutical Section, International Chinese Statistical Association

Organizer(s): Dipankar Bandyopadhyay, Virginia Commonwealth University

Chair(s): Colin O. Wu, National Heart, Lung, and Blood Institute

- 10:35 a.m. Fast Approximation of Small P-Values in Permutation Tests by Partitioning the Permutation Space—◆ Brian Segal; Hui Jiang, University of Michigan; Thomas Braun, University of Michigan
- 10:55 a.m. Multivariate Functional Principal Component Analysis for Data Observed on Different (Dimensional) Domains—◆ Clara Happ, Ludwig-Maximilians-University Munich; Sonja Greven, Ludwig-Maximilians-University Munich
- 11:15 a.m. Sequential BART for Imputation of Missing Covariates—◆ Dandan Xu, University of Florida; Michael Daniels, The University of Texas at Austin; Almut G. Winterstein, University of Florida
- 11:35 a.m. Recurrent Event Data Analysis with Intermittently Observed Time-Varying Covariates—◆ Shanshan Li, Indiana University Fairbanks School of Public Health; Yifei Sun, The Johns Hopkins University; Chiung-Yu Huang, The Johns Hopkins University; Dean Follmann, National Institute of Allergy and Infectious Diseases; Richard Krause, National Institute of Allergy and Infectious Diseases
- 11:55 a.m. Semiparametric Regression Analysis of Interval-Censored Competing Risks Data—◆ Lu Mao, The University of North Carolina at Chapel Hill; Danyu Lin, The University of North Carolina at Chapel Hill; Donglin Zeng, The University of North Carolina at Chapel Hill
- 12:15 p.m. Floor Discussion

164 CC-W192a■ ● **Innovative Uses of Linked Administrative and Survey Data—Topic-Contributed**

Survey Research Methods Section, Business and Economic Statistics Section

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

Chair(s): Brad Edwards, Westat

- 10:35 a.m. What Leads to Errors in Surveys? Evidence from Multiple Government Programs—◆ Pablo Celhay, The University of Chicago; Bruce Meyer, The University of Chicago; Nikolas Mittag
- 10:55 a.m. A Method of Correcting for Misreporting Applied to the Food Stamp Program—◆ Nikolas Mittag

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 11:15 a.m. Measuring Levels and Trends in Earnings Inequality with Nonresponse, Imputations, and Topcoding—◆Christopher Bollinger, University of Kentucky
- 11:35 a.m. Incomes of the Population 65+: A New Look with Linked Survey-Administrative Data—◆Adam Bee, U.S. Census Bureau; Joshua W. Mitchell, U.S. Census Bureau
- 11:55 a.m. The Wealth of Wealthholders—◆Minjoon Lee, University of Michigan; John Ameriks, The Vanguard Group; Andrew Caplin, New York University; Matthew Shapiro, University of Michigan; Christopher Tonetti, Stanford University
- 12:15 p.m. Floor Discussion

165 CC-W185d

■ ● Recent Advances on Interaction Modeling for Prediction in Personalized Medicine—Topic-Contributed

Section on Statistics in Epidemiology, Biopharmaceutical Section, International Chinese Statistical Association

Organizer(s): Li-Xuan Qin, Memorial Sloan Kettering Cancer Center; Pei Wang, Icahn School of Medicine at Mount Sinai

Chair(s): Pei Wang, Icahn School of Medicine at Mount Sinai

- 10:35 a.m. Quantifying Treatment Benefit in Molecular Subgroups to Assess a Predictive Biomarker—◆Jaya M. Satagopan, Memorial Sloan Kettering Cancer Center; Alexia Iasonos, Memorial Sloan Kettering Cancer Center
- 10:55 a.m. Identifying Interactions Using Convex Optimization—◆Jacob Bien, Cornell University; Robert Tibshirani, Stanford University; Noah Simon, University of Washington
- 11:15 a.m. Why Significant Variables Aren't Automatically Predictive—◆Adeline Lo
- 11:35 a.m. Phenotype Predictions by Genome and In-Between-Omes—◆Quan Long, University of Calgary
- 11:55 a.m. Impact of Handling Effects on Gene-Gene Interaction Discovery: An Empirical Assessment—◆Li-Xuan Qin, Memorial Sloan Kettering Cancer Center
- 12:15 p.m. Floor Discussion

166 CC-W176b

■ ● How Can Optimization Make Statistical Modeling More Actionable?—Topic-Contributed

Section on Statistical Computing

Organizer(s): Jane Chu, IBM

Chair(s): Jing Shyr, IBM

- 10:35 a.m. Optimization Under Uncertainty: Combining Statistics and Stochastic Optimization—◆Jean Francois Puget, IBM
- 10:55 a.m. Evidence-Based Optimization of Complex Infrastructures—◆Pascal Van Hentenryck
- 11:15 a.m. Optimization Under Uncertainty: Combining Statistics and Stochastic Optimization—◆Mark Squillante, IBM Research
- 11:35 a.m. Online Revenue Management Using Thompson Sampling—◆Kris Ferreira, Harvard Business School; He Wang, MIT Operations Research Center; David Simchi-Levi, MIT Operations Research Center
- 11:55 a.m. What-If Analysis and Goal-Seek Analysis for Prescriptive Time Series Forecasting—◆Jane Chu, IBM; Jean Francois Puget, IBM
- 12:15 a.m. Floor Discussion

167 CC-W175c

● Methodological Advances and Applications of Finite Mixture Modeling—Topic-Contributed

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

Organizer(s): Semhar Michael, South Dakota State University

Chair(s): Semhar Michael, South Dakota State University

- 10:35 a.m. Manly Transformation in Finite Mixture Modeling—◆Xuwen Zhu, University of Alabama; Volodymyr Melnykov, University of Alabama
- 10:55 a.m. Local Identifiability in Finite Mixture Model: A Gold Standard Solution?—◆Daeyoung Kim, University of Massachusetts-Amherst
- 11:15 a.m. Modeling Right-Censored Loss Data Using Mixture of Distributions—◆Tatjana Miljkovic, Miami University; Semhar Michael, South Dakota State University; Volodymyr Melnykov, University of Alabama
- 11:35 a.m. Model-Based Regression Clustering for High-Dimensional Data—◆Emilie Devijver
- 11:55 a.m. Studying the Importance of Variables for Clustering—◆Volodymyr Melnykov, University of Alabama; Yana Melnykov, University of Alabama; Xuwen Zhu, University of Alabama
- 12:15 p.m. Floor Discussion

168 CC-W176c
Credibility Analysis, Co-presented by the Society of Actuaries — Topic Contributed Panel

Section on Risk Analysis

Organizer(s): R. Dale Hall, Society of Actuaries

Chair(s): Michael Pennell, The Ohio State University

10:35 AM Credibility Analysis: Theory, Practice, and Evolution

- Panelists: ◆ Dale Hall, Society of Actuaries
 ◆ Krzysztof Ostaszewski, Illinois State University
 ◆ Olivier Le Courtois, EM Lyon
 ◆ Peng Shi, University of Wisconsin - Madison
 ◆ Liang Hong, Robert Morris University
 ◆ Enoch Nii Boy Quayee, University of Ghana

12:15 PM Floor Discussion

Contributed Sessions 10:30 a.m. – 12:20 p.m.

169 CC-W181a
SPEED: Statistical Computing and Sports—Contributed

Section on Statistical Computing, Section on Statistics in Sports

Chair(s): Daniel Yang, Bureau of Labor Statistics

The Poster portions will take place during Session 266 and Session 269.

- 10:35 a.m. Pitch Quantification in Baseball: Reducing a Pitch to a Single Number—◆ Jason Wilson, Biola University
- 10:40 a.m. Career Type Assessment of International Cyclists on Ratings from Ranked-Order Logit Model Results for Multi-Competitor Sports—◆ Kathryn McKeough; Mark Glickman, Harvard
- 10:45 a.m. Spectral Relationships Between High-Order Tensors and Their Multi-Mode Flattenings—◆ Miaoyan Wang, University of Pennsylvania; Khanh Dao Duc, University of Pennsylvania; Jonathan Fischer, University of California at Berkeley; Yun S. Song, University of California at Berkeley/University of Pennsylvania
- 10:50 a.m. Missing Data in the Context of Student Growth Models—◆ Katherine Wright, Loyola University Chicago; John Gatta, Northwestern University, ECRA Group; Therese D. Pigott, Loyola University Chicago
- 10:55 a.m. Developing Tools for Text Analysis of Survey Data—◆ Randall Powers, Bureau of Labor Statistics; Brandon Kopp, Bureau of Labor

Statistics; Wendy Martinez, Bureau of Labor Statistics

- 11:00 a.m. Applying Negative Binomial Regression to Estimate Outcomes in 2018 FIFA World Cup Qualification Matches—◆ James Mozur, University of South Alabama
- 11:05 a.m. Using Play-by-Play Data to Model, Simulate, and Predict NBA Games—◆ Sebastian Rodriguez, University of California at Merced
- 11:10 a.m. Improved Expected Points and Win Probability Models for NFL Coach and Player Evaluation—◆ Gregory Miller, Bucknell University; Gabrielle Flynt, Bucknell University; Sam Ventura, Carnegie Mellon University; Andrew Crossett, West Chester University
- 11:15 a.m. Managerial Duration Across Professional Soccer Leagues—Vittorio Addona, Macalester College; ◆ James Meyerson, Macalester College; Zach Gilfix, Macalester College
- 11:20 a.m. The Effect of Accounting for All Weight Adjustments in the Construction of Student Replicate Weights in a National, Cross-Sectional Study—◆ Ruby Johnson, RTI International; Peter Siegel, RTI International
- 11:30 a.m. Dropping or Keeping the Nonresponse Counts to Both Categorical Variables in an Incomplete Two-Way Contingency Table?—◆ Xifen Huang, The University of Hong Kong; Guo-Liang Tian, The University of Hong Kong; Hui-Qiong Li, University of Yun Nan
- 11:35 a.m. An Adaptive Importance Sampling Approach for Efficiently Estimating Small P-Values in Permutation Tests—◆ Yang Shi, University of Michigan; Huining Kang, University of New Mexico; Ji-Hyun Lee, University of New Mexico; Hui Jiang, University of Michigan
- 11:40 a.m. Estimating Dynamic Characteristics of Longitudinal and Survival Data in Stochastic Process Models: Insights from Simulation Studies—◆ Konstantin Arbeev, Duke University; Ilya Y. Zhbannikov, Duke University; Liubov S. Arbeeveva, Duke University; Igor Akushevich, Duke University; Anatoliy I. Yashin, Duke University
- 11:45 a.m. An Efficient Sampling Algorithm for Network Motif Detection—◆ Yinghan Chen
- 11:50 a.m. A Fast Two-Stage Anomaly-Detecting Method for Large Dynamic Networks—◆ Huan Li, University of Alabama; Michael D. Porter, University of Alabama
- 11:55 a.m. Comparison of Single Event, Competing Risks, and Frailty-Based Models for Competing Risks Data—◆ Yuliang Liu, University of Alabama at Birmingham; Charity Morgan, University of Alabama at Birmingham; Gary R. Cutter, University of Alabama at Birmingham

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 12:00 p.m. Variational Models—◆Dustin Tran; Rajesh Ranganath, Princeton; David Blei, Columbia University
- 12:05 p.m. More Efficient and Robust Permutation-Based Methods for Controlling the False Discovery Rate—◆Divya Nair; Christopher Corcoran, Utah State University; Pralay Senchaudhuri, Cytel; Alexandre Buer, Cytel; William Welbourn, Jr., Clinipace Worldwide
- 12:10 p.m. The Elliptically Symmetric Angular Gaussian Distribution with Application to Regression Modeling on the Sphere—◆Phillip Paine, University of Nottingham
- 12:15 p.m. The Orthogonally Partitioned EM Algorithm: Extending the EM Algorithm for Algorithmic Stability and Bias Correction Due to Imperfect Data—◆Michael Regier, West Virginia University; Erica E. M. Moodie, McGill University

170 CC-W181b

SPEED: Statistics for Education and Social Sciences Research—Contributed

Section on Statistical Education, Social Statistics Section

Chair(s): Ulrike Genschel, Iowa State University

The Poster portions will take place during Session 267 and Session 270.

- 10:35 a.m. Comparisons of Math Anxiety Levels and Study Habits Among Hispanic Students—◆Xiaohui Wang, The University of Texas Rio Grande Valley; Cristina Villalobos, The University of Texas Rio Grande Valley; Olga Ramirez, The University of Texas Rio Grande Valley; Luis Fernandez, The University of Texas at Austin
- 10:40 a.m. Political Change Strategy Preference—◆Catherine Durso, University of Denver; Cass Dorff, University of Denver
- 10:45 a.m. Using Introduction to Statistics Courses to Teach Quantitative Literacy—◆Cathy Poliak, University of Houston
- 10:50 a.m. Incorporating Big Data into an Introductory Statistics Course—◆Paul Stephenson, Grand Valley State University; Laura Kapitula, Grand Valley State University
- 10:55 a.m. Unified Definition of Effect Size and Universal Labeling of Its Magnitude—◆Panduan An, Ohio University; Wei Lin, Ohio University
- 11:00 a.m. Hypergraph Motifs: Representing and Analyzing Social Network with Group Relationships—◆Ryan Haunfelder, Colorado State University
- 11:05 a.m. Classroom Investigations of Recent Research Concerning the Gamblers' Fallacy—◆Kevin Ross, Cal Poly

- 11:10 a.m. Causal Inference with a Continuous Treatment and Outcome: Alternative Estimators for Parametric Dose-Response Functions—◆Douglas Galagate
- 11:15 a.m. The Evaluation of a Pedagogical Tool for Quantitative Literacy—◆Gerald Iacullo, Berkeley College
- 11:20 a.m. Multiple Regression Replaces the Need for a Tailor—◆Allison Davidson, Muhlenberg College
- 11:30 a.m. Examples of How a P-Value Interpretation Depends on the Underlying Statistical Philosophy—◆Andrew Neath, Southern Illinois University
- 11:35 a.m. Investigating How the Wording of a Survey Question Can Change the Results—◆Phyllis Curtiss, Grand Valley State University
- 11:40 a.m. Finding Event Transitions in Twitter Data—◆Ame Osotsi; Qunhua Li, Penn State University
- 11:45 a.m. Effect Comparison in Nonlinear Dyadic Mixed-Effects Models Between Equations—◆Christoph Kern, University of Duisburg-Essen; Petra Stein, University of Duisburg-Essen
- 11:50 a.m. The Unexamined Statistician Life—◆Ellen Endriss, Career Center
- 11:55 a.m. Pushing the Boundary Between Tools for Learning and for Doing Statistics—◆Amelia McNamara, Smith College
- 12:00 p.m. Automated Analytics and Data Dashboards for Evaluating the Impacts of Educational Technologies—◆Daniel Stanhope, Lea(R)n, Inc.; Joyce Yu, North Carolina State University; Karl Rectanus, Lea(R)n, Inc.
- 12:05 p.m. Are Volcanic Eruptions Increasing? An Example of Teaching Data Wrangling and Visualization in Stat 2—◆Kelly McConville, Swarthmore College
- 12:10 p.m. Performing Comparison of Normality Tests—◆Danush Wijekularathna, Troy University; Ananda Manage
- 12:15 p.m. Getting Past the Gatekeeper: Does Randomization-Based Curriculum in Introductory Statistics Promote Student Success?—◆Laura Hildreth, Montana State University; Jim Robison-Cox, Montana State University; Jade Schmidt, Montana State University

171 CC-W183b

SPEED: Bayesian Analysis—Contributed

Section on Bayesian Statistical Science, Section on Statistics in Imaging

Chair(s): Michael D. Swartz, The University of Texas Health Science Center at Houston

The Poster portions will take place during Session 268 and Session 271.

- 10:35 a.m. Bayesian Aggregation of Rank Data with Covariates—◆Dingdong Yi, Harvard; Xinran Li, Harvard; Jun S. Liu, Harvard

- 10:40 a.m. **A Bayesian Approach to Evaluating and Prioritizing Pathway Association with Disease**—◆Shu-Ju Lin, National Taiwan University; Chuhsing Kate Hsiao, National Taiwan University
- 10:45 a.m. **Multivariate Left-Censored Bayesian Model for Predicting Exposure Using Multiple Chemical Predictors During the Deepwater Horizon Oil Spill Clean-Up**—◆Caroline Groth, University of Minnesota; Sudipto Banerjee, University of California at Los Angeles; Gurumurthy Ramachandran, University of Minnesota; Mark R. Stenzel, Exposure Assessment Applications; Dale P. Sandler, National Institute of Environmental Health Sciences; Aaron Blair, National Cancer Institute; Lawrence S. Engel, The University of North Carolina at Chapel Hill; Richard R. Kwok, National Institute of Environmental Health Sciences; Patricia P. Stewart, Stewart Exposure Assessments
- 10:50 a.m. **Univariate and Joint Spatio-Temporal Models for Predicting the Occurrence of Culicoides Across Belgium**—◆Yimer Wasihun Kifle, Hasselt University; Christel Faes, Hasselt University; Niel Hens, Hasselt University
- 10:55 a.m. **Predicting Human Driving Behavior to Help Driverless Vehicles Drive: Random Intercept Bayesian Additive Regression Trees**—◆Yaoyuan Vincent Tan, University of Michigan; Carol A. C. Flannagan, University of Michigan Transport Research Institute; Michael Elliott, University of Michigan
- 11:00 a.m. **Bayesian Model with Continuous Shrinkage Prior in Agricultural Health Study**—◆Ran Wei, North Carolina State University; Subhashis Ghoshal, North Carolina State University; Brian J. Reich, North Carolina State University; Jane Hoppin, North Carolina State University
- 11:05 a.m. **Identification of Genetic Effects on Abnormalities of Cardiac Structure and Function Using Bayesian Hierarchical Model**—◆Akram Yazdani, The University of Texas Health Science Center at Houston; Azam Yazdani; Luca Sartore, National Institute of Statistical Sciences; Eric Boerwinkle, The University of Texas Health Science Center at Houston
- 11:10 a.m. **Prediction with Confidence: A General Framework for Prediction**—◆Jieli Shen, Rutgers University; Regina Liu, Rutgers University; Minge Xie, Rutgers University
- 11:15 a.m. **Bayesian Analysis for Survey Data with Margin of Error**—◆Yi Mu, CDC
- 11:20 a.m. **Convergence Diagnostic for MCMC Draws of a Categorical Variable**—◆Benjamin Deonovic, University of Iowa
- 11:30 a.m. **Bayesian Inference for Unidirectional Misclassification in Ordinal Covariates**—◆Liangrui Sun; Chaoxiong Xia, Northern Illinois University;
- Yuan Yuan Tang, Saint Luke's Health System; Shun Takai, Northern Illinois University
- 11:35 a.m. **Bayesian Approach for Proof of Concept and Dose-Finding Under Model Uncertainty for Binary Response**—◆Yuan Yuan Tang, Saint Luke's Health System; Chunyan Cai, The University of Texas at Houston; Jianghua He, University of Kansas Medical Center; Liangrui Sun
- 11:40 a.m. **Clustering Domains for Small Area Estimation with Application to the Current Employment Statistics Survey**—◆Julie Gershunskaya, Bureau of Labor Statistics; Terrance Savitsky, Bureau of Labor Statistics
- 11:45 a.m. **Predicting Efficacy Connecting Dots Among PK, PD, and Efficacy Data for Discovery Oncology Projects**—◆Wenli Luo
- 11:50 a.m. **Large-Scale MCMC Using GPU with Application in Brain Imaging**—◆Yang Yang, University of Minnesota; Galin Jones, University of Minnesota-Twin Cities
- 11:55 a.m. **Rolling Dose Escalation with Overdose Control: An Efficient and Safe Phase 1 Design**—◆Jiawen Zhu, RICNY; Daniel Sabanés Bové, F. Hoffmann-La Roche; Ulrich Beyer, F. Hoffmann-La Roche
- 12:00 p.m. **Clustering Mutations and Estimating Contamination Rates via Bayesian Nonparametrics**—◆Putu Ayu Sudyanti, Purdue University; Vinayak Rao, Purdue University; Hyonho Chun, Purdue University
- 12:05 p.m. **Identifying Risk Factors for Smoking Cessation and Relapse with EMA Data: A Deterministic Bayesian Variable Selection Approach for Multistate Models**—◆Matthew Koslovsky
- 12:10 p.m. **Using Bayesian Quantile Regression in Comparative Survey Research**—◆Robert Petrin, Ipsos Public Affairs; Marcus Maher, Ipsos Public Affairs; Benjamin Page, Ipsos Public Affairs; Meghana Raja, Ipsos Public Affairs
- 12:15 p.m. **Floor Discussion**
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- Contributed Sessions 10:30 a.m. – 12:20 p.m.**
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- 172 CC-W186b
■ Bayesian Analysis with Health Applications—Contributed
 Biometrics Section, Biopharmaceutical Section, International Society for Bayesian Analysis (ISBA), Section on Bayesian Statistical Science
 Chair(s): Rajarshi Guhaniyogi, University of California at Santa Cruz
- 10:35 a.m. **Bayesian Variable Selection for Multivariate Count Data with Excess Zeros: Application to**

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- the Pediatric HIV/AIDS Cohort Study—◆Kyu Ha Lee, The Forsyth Institute; Brent Coull, Harvard T.H. Chan School of Public Health; Jacqueline R. Starr, The Forsyth Institute
- 10:50 a.m. Semiparametric Bayesian Analysis of High-Dimensional Censored Outcome—◆Chetkar Jha, University of Missouri; Yi Li, University of Michigan; Steven Melly, Harvard; Dr Subharup Guha, University of Missouri
- 11:05 a.m. Practical Considerations in Analyzing Adverse Events with a Robust Mixture Prior—◆Jerry Weaver, Celgene; Jixian Wang, Celgene
- 11:20 a.m. Data-Driven Confounder Selection via Markov and Bayesian Networks—◆Jenny Haggstrom, Umea University
- 11:35 a.m. A Nonparametric Bayesian Hierarchical Survival Model for Pathway-Based Analysis—◆Lin Zhang, Virginia Tech; Inyoung Kim, Virginia Tech
- 11:50 a.m. A Bayesian Approach for the Integrative Analysis of Omics Data—◆Thierry Chekouo Tekougang, MD Anderson Cancer Center; Francesco Stingo, MD Anderson Cancer Center; Kim-Anh Do, MD Anderson Cancer Center; James Doecke, CSIRO Health and Biosecurity
- 12:05 p.m. Sparse Latent Class Regression for Multivariate Binary Data: A Bayesian Approach—◆Zhenke Wu, The Johns Hopkins University; Scott L. Zeger, The Johns Hopkins University

173 **CC-W193a**
Methods for Massive Spatial Data—Contributed
 Section on Statistics and the Environment
 Chair(s): James P. Howard, II, University of Maryland University College

- 10:35 a.m. Is Gun Violence Contagious? Descriptive Spatio-Temporal Testing and Modeling with Large-Scale Point Process—◆Charles Loeffler, University of Pennsylvania; Seth Flaxman, University of Oxford; William Herlands, Carnegie Mellon University; Hannes Nickisch, Philips Research Hamburg
- 10:50 a.m. Spatio-Temporal Error Characterization of Geophysical Variables Using Collocation Methods—◆Seyed Hamed Alemohammad, MIT; Kaighin A. McColl, MIT; Alexandra G. Konings, Stanford University; Dara Entekhabi, MIT
- 11:05 a.m. A Penalized Quasi-Likelihood Approach for Variable Selection in High-Dimensional Spatially Correlated Binary and Count Data—◆Abdhi Sarkar, Michigan State University; Chae Young Lim, Seoul National University; Tapabrata Maiti, Michigan State University
- 11:20 a.m. Approximate Optimal Weighted Composite Likelihood Approach for Large Spatial Data—

- ◆Furong Li, Texas A&M University; Huiyan Sang, Texas A&M University
- 11:35 a.m. Process-Based Hierarchical Models for Coupling High-Dimensional LiDAR and Forest Variables Over Large Geographic Domains—Andrew Finley, Michigan State University; Sudipto Banerjee, University of California at Los Angeles; ◆Yuzhen Zhou, University of Nebraska-Lincoln; Bruce Cook, NASA
- 11:50 a.m. Semiparametric Inference via Sparsity-Induced Kriging for Massive Spatial Data Sets—◆Pulong Ma, University of Cincinnati; Emily Lei Kang, University of Cincinnati
- 12:05 p.m. Global Nonstationary Spatial Covariance Through Deformations and Geographical Indicators—◆Jaehong Jeong, King Abdullah University of Science and Technology; Marc Genton, KAUST

174 **CC-W194a**
Students Doing and Communicating About Statistics—Contributed
 Section on Statistical Education
 Chair(s): David Jacobson, Metropolitan State University

- 10:35 a.m. Incorporating Service Learning into an Undergraduate Statistical Consulting Course—◆Samantha Bates Prins, James Madison University
- 10:50 a.m. Project SCHOLAR: Statistical Consulting Experiences for Undergraduates—◆Tracy Morris, University of Central Oklahoma; Lance Ford, University of Central Oklahoma
- 11:05 a.m. Measured Community Engagement Outcomes Increases in a Business Statistics Class—◆Amy Phelps, Duquesne University
- 11:20 a.m. A Cross-Discipline Modeling Capstone Experience—◆Marian Frazier, Gustavus Adolphus College; Thomas LoFaro, Gustavus Adolphus College
- 11:35 a.m. Spatial Data Analysis: An Elective Course for Advanced Undergraduates—◆Laura Boehm Vock, Gustavus Adolphus College
- 11:50 a.m. Do the 'Write' Thing: Bolstering Student Comprehension in Introductory Statistics Classes—◆Bernard Dillard, Fashion Institute of Technology
- 12:05 p.m. Building Communication Skills in a Theoretical Statistics Course—◆Amy Wagaman, Amherst College

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CC-W185a

Statistical Methods for Environmental Epidemiology—Contributed

Section on Statistics in Epidemiology, Section on Risk Analysis

Chair(s): Min Chen, ExxonMobil Biomedical Sciences

- 10:35 a.m. Application of Principal Components Analysis to Blood Metal Exposures in the National Health and Nutrition Examination Survey (NHANES) Data—◆Po-Yung Cheng, CDC; Mary Mortensen, CDC/NCEH; Robert Jones, CDC/NCEH; Kathleen Caldwell, CDC/NCEH
- 10:50 a.m. Predictive Geocoding—◆Jie Fan, University of Miami; J. Sunil Rao, University of Miami
- 11:05 a.m. Optimal Sampling Designs of Two-Compartment Nonlinear Regression Models—◆Noa Molshatzki, University of Southern California; Sandra P. Eckel, University of Southern California
- 11:20 a.m. A Latent Variable Model with Scaled Nonlinear Effects for Multiple Outcomes—◆Zhenzhen Zhang, University of Michigan; Brisa N. Sanchez, University of Michigan
- 11:35 a.m. Survival Analysis with Measurement Error in a Cumulative Exposure Variable: Radon Progeny in Relation to Lung Cancer Mortality—◆Polyna Khudyakov, Harvard T.H. Chan School of Public Health; Jonathan Samet, University of Southern California; Charles Wiggins, University of New Mexico; Xiaomei Liao, Harvard T.H. Chan School of Public Health; Angela Meisner, New Mexico Tumor Registry; Donna Spiegelman, Harvard T.H. Chan School of Public Health
- 11:50 a.m. A Two-Stage Approach to Analysis of Health Effects of Environmental Chemical Mixtures: Informed Sparse Principal Component Analysis Followed by Segmented Regression—◆Roman Jandarov, University of Cincinnati; Susan Pinney, University of Cincinnati; Liang Niu, University of Cincinnati
- 12:05 p.m. Floor Discussion

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CC-W175b

Functional Data Analysis and Extensions to Manifold Learning—Contributed

Section on Statistical Learning and Data Science

Chair(s): Umashanger Thyasivam, Rowan University

- 10:35 a.m. Supervised Functional Principal Component Analysis—◆Yunlong Nie, Simon Fraser University; Jiguo Cao, Simon Fraser University
- 10:50 a.m. A Geometric Approach to Confidence Regions and Bands for Functional Data—◆Hyunphil Choi, Penn State University; Matthew Reimherr, Penn State University

- 11:05 a.m. Manifold Data Analysis—◆Hyun Bin Kang; Matthew Reimherr, Penn State University
- 11:20 a.m. Functional Statistical Process Control Using Elastic Methods—◆James Derek Tucker, Sandia National Laboratories
- 11:35 a.m. Scalars-on-Function Linear Regression with Large Number of Functional Predictors—◆Ruiyan Luo; Xin Qi, Georgia State University
- 11:50 a.m. Nonlinear Function on Function Regression with Multiple Prediction Curves—◆Xin Qi, Georgia State University; Ruiyan Luo
- 12:05 p.m. Manifold Learning: Dimension Reduction Versus Parameterization Recovery—Michael Trosset, Indiana University; ◆Lijiang Guo, Indiana University

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CC-W186a

■ New Challenges in Complex Data Modeling I—Contributed

Biometrics Section, Biopharmaceutical Section, International Chinese Statistical Association

Chair(s): Xiujuan Wang, Dow AgroSciences

- 10:35 a.m. A Two-Stage Model for Wearable Device Data—◆Jiawei Bai, Johns Hopkins Bloomberg School of Public Health; Yifei Sun, The Johns Hopkins University; Ciprian Crainiceanu, The Johns Hopkins University; Mei-Cheng Wang, The Johns Hopkins University
- 10:50 a.m. Sample-Size Calculations for Stratified Micro-Randomized Trials in Mhealth—◆Walter Dempsey, University of Michigan; Peng Liao, University of Michigan; Susan A. Murphy, University of Michigan
- 11:05 a.m. Graphical LASSO with Auxiliary Information: Application to Neural Connectivity—◆Giuseppe Vinci, Carnegie Mellon University; Robert Kass, Carnegie Mellon University; Valerie Ventura, Carnegie Mellon University; Matthew A. Smith, University of Pittsburgh
- 11:20 a.m. Modeling Nonlinearity Using Splines: Applications and Simulations—◆Leila Amorim, UFBA; Maristela Dias Oliveira, Universidade Federal da Bahia; Daniele B. Trindade, Universidade Federal de Pernambuco
- 11:35 a.m. A Composite Group Penalization for Grouped Variable Selection with Prior Information—◆Kai Li; Yuan Jiang, Oregon State University
- 11:50 a.m. Binary Exposure and Longitudinal Cognition Outcomes in the Presence of Nonignorable Dropout and Death—◆Maria Josefsson, CEDAR
- 12:05 p.m. Biologically Pathway Information Incorporated Structured Model—◆Xuebei An, MD Anderson Cancer Center; Jianhua Hu, MD Anderson

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

Cancer Center; Kim-Anh Do, MD Anderson Cancer Center

178 CC-W187a

■ **Statistical Solutions to Problems in Specific Therapeutic Areas or Populations—Contributed**

Biopharmaceutical Section

Chair(s): Lynn Navale, Kite Pharma

- 10:35 a.m. An Integrated Bayesian Posterior Probability with Simon Two-Stage Design for a Randomized Phase II Clinical Trial—◆Dung-Tsa Chen, Moffitt Cancer Center; Po-Yu Huang, National Chung-Hsing University; Hui-Yi Lin, Louisiana State University Health Sciences Center
- 10:50 a.m. Correcting Treatment Effect for Treatment Switching in Randomized Oncology Trials with a Generalized Rank-Preserving Structural Failure Time Model—◆Jin Zhang, Merck; Cong Chen, Merck
- 11:05 a.m. Comparison of Treatment Effects Between U.S. and Non-U.S. Study Sites in Multiregional Alzheimer's Disease Clinical Trials—◆Jingyu Luan, FDA; Hsien-Ming James Hung, FDA; Ranjit Mani, FDA
- 11:20 a.m. Two-Stage Statistical Evaluation of Cardiovascular Safety Assessment of Diabetes Drugs—◆Raymond lam, Merck; Shailaja Suryawanshi, Merck
- 11:35 a.m. A Bayesian Approach for Classification Based on Continuous Glucose Monitoring Data of Diabetic Patients—◆Hui Zheng, Harvard Medical School
- 11:50 a.m. Mixture Model for Radiographic Progression in Psoriatic Arthritis—◆Bin Dong, Janssen R&D; Jiandong lu, Janssen R&D
- 12:05 p.m. Efficacy Outcomes in Elderly Patients Treated with Pembrolizumab and Nivolumab—◆Huanyu Chen, FDA; Harpreet Singh, FDA; Sirisha Mushti, FDA; Kun He, FDA; Rajeshwari Sridhara, FDA

179 CC-W191

Combined Data (Surveys + Administrative Data, etc.)—Contributed

Survey Research Methods Section

Chair(s): Julia Bienias, Nielsen

- 10:35 a.m. Using the 2015 Census Test Evaluation Follow-Up to Compare Nonresponse Follow-Up with Administrative Records—◆Mary Mulry, U.S. Census Bureau; Tom Mule, U.S. Census Bureau; Brian Clark, U.S. Census Bureau
- 10:50 a.m. Comparing National Immunization Survey (NIS) and Immunization Information Systems

(IIS) Vaccine Coverage Estimates—◆Elizabeth Zell; Laura Pabst, CDC; Stacie Greby, CDC; Laurie Elam-Evans, CDC

- 11:05 a.m. Bayesian Decision Theory for Further Optimizing the Use of Administrative Records in the Census NRFU—◆Yves Thibaudeau, U.S. Census Bureau; Darcy S. Morris, U.S. Census Bureau
- 11:20 a.m. Using 2010 Census Coverage Measurement Results to Better Understand Possible Administrative Records Incorporation in the Decennial Census—◆Andrew Keller, U.S. Census Bureau; Scott Konicki, U.S. Census Bureau
- 11:35 a.m. An Association Study Including Measurement Errors Using Linked NHIS and EPA Modeled Data—◆Rong Wei, CDC/NCHS; Van Parsons, CDC/NCHS; Jennifer Parker, CDC/NCHS; Ambarish Vaidyanathan, National Center for Environmental Health; Pavlina Rumcheva, CDC/NCHS
- 11:50 a.m. Correcting Biases in Auxiliary Data to Produce Better Estimates—◆Masahiko Aida, Civis Analytics
- 12:05 p.m. Convergence and Stability Properties of Variance-Function Estimators Used in the Integration of Surveys and Alternative Data Sources—◆John Ellinge, Bureau of Labor Statistics

180 CC-W195

High-Frequency and Other Financial Econometric Topics—Contributed

Business and Economic Statistics Section

Chair(s): Xiaohui Chang, Oregon State University

- 10:35 a.m. Quantile Regression for Location-Scale Time Series Models with Conditional Heteroscedasticity—◆Jungsik Noh, The University of Texas Southwestern Medical Center; Sangyeol Lee, Seoul National University
- 10:50 a.m. Order-Averaged Cholesky-GARCH Models: Comparison of Asset Ordination Methods—◆Xiaoning Kang, Virginia Tech; Xinwei Deng, Virginia Tech; Kam Tsui, University of Wisconsin-Madison; Mohsen Pourahmadi, Texas A&M University
- 11:05 a.m. On the Inference of the Spikes for the High-Dimensional Covariance Matrix Based on High-Frequency Data—◆Keren Shen; Jianfeng Yao, The University of Hong Kong; Wai Keung Li, The University of Hong Kong
- 11:20 a.m. Modified QMLEs for Location and Zero-Augmented Multiplicative Error Models—◆Qian Li, University of Kansas Medical Center
- 11:35 a.m. Network System Identification for Point Processes—◆Victor Solo, University of New South Wales

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

11:50 a.m. Spline Estimation of a Semiparametric GARCH Model—◆Rong Liu, University of Toledo; Lijian Yang, Soochow University

12:05 p.m. Intermittency of Superpositions of Ornstein-Uhlenbeck (OU)-Type Processes—◆Irena Tesnjak, Michigan State University; Danijel Grahovac, J.J. Strossmayer University of Osijek; Alla Sikorskii, Michigan State University; Nikolai Leonenko, Cardiff University

181 CC-W182

Finance, Heteroscedasticity, and Copulas—Contributed

IMS

Chair(s): Gregory Rice, University of Waterloo

10:35 a.m. An Innovative Moment-Implied Method for Financial Derivative Pricing—◆Shuang Zhou, University of Illinois at Chicago; Keren Li, University of Illinois at Chicago; Fangfang Wang, University of Illinois at Chicago; Jie Yang, University of Illinois at Chicago

10:50 a.m. Detection Boundary of the Generalized Likelihood Ratio Test for Heteroscedastic Gaussian Mixtures—◆Wenhua Jiang

11:05 a.m. Specification Tests for Multiplicative Error Models—◆Indeewara Perera, Monash University; Mervyn Silvapulle, Monash University

11:20 a.m. A Matching Coalescent with Application to Testing Model Adequacy with Heteroscedastic Variances—◆James Neill, Kansas State University; Forrest Miller, Kansas State University

11:35 a.m. Kernel Entropy Estimation for Linear Processes—◆Yongli Sang

11:50 a.m. The Empirical Beta and Bernstein Copula—◆Hideatsu Tsukahara, Seijo University; Johan Segers, Universite Catholique de Louvain; Masaaki Sibuya, Keio University; Nathan Uyttendaele, Universite Catholique de Louvain

12:05 p.m. Tail Nonexchangeability—◆Paramahansa Pramanik, Northern Illinois University; Lei Hua, Northern Illinois University; Alan M. Polansky, Northern Illinois University

182 CC-W177

Nonparametric Statistics—Contributed

IMS, Section on Nonparametric Statistics

Chair(s): Miles Lopes, University of California at Davis

10:35 a.m. A Nonparametric Regression Model for Panel Count Data Analysis—◆Huadong Zhao, East China Normal University

10:50 a.m. An ADMM-Based Algorithm for Envelope Estimation—◆Emre Barut, The George Washington University

11:05 a.m. Structure Testing for Sparse High-Dimensional Graphical Models: Lower Bounds and Algorithms—◆Matey Neykov, Princeton; Junwei Lu, Princeton; Han Liu, Princeton

11:20 a.m. Semiparametric Estimates of the Long-Term Background Trend, Periodicity, and Clustering Effect in Crime Data—◆Jiancang Zhuang, Institute of Statistical Mathematics; Jorge Mateau, Universitat Jaume I de Castello

11:35 a.m. Large-Scale Cluster Analysis Using Fusion Penalties—◆Trambak Banerjee, University of Southern California; Peter Radchenko, University of Southern California; Gourab Mukherjee, University of Southern California

11:50 a.m. A Unified Framework for Bayes Factor Asymptotics—◆Todd Kuffner, Washington University in St. Louis; Siddhartha Chib, Washington University in St. Louis

12:05 p.m. Nonparametric Regression Method for Broad Sense Agreement—◆AKM F. Rahman, Emory University; Limin Peng, Emory University; Amita Manatunga, Emory University; Ying Guo, Emory University

183 CC-W193b

Mismeasured Covariates, Missing Data, and Latent Signals—Contributed

Mental Health Statistics Section, Section on Statistics in Imaging

Chair(s): Douglas Gunzler, Case Western Reserve University

10:35 a.m. Discretized Longitudinal Data with Two Sources of Measurement Error—◆Amy Nussbaum, Southern Methodist University; Cornelis Potgieter, Southern Methodist University; Michael Chmielewski, Southern Methodist University

10:50 a.m. A Simple Fix for Bias Due to a Latent/Mismeasured Covariate in Propensity Score Weighting Analysis: Factor Scores from Models Inclusive Treatment and Other Covariates—◆Trang Q. Nguyen, Johns Hopkins Bloomberg School of Public Health; Cyrus Ebnesajjad, Johns Hopkins Bloomberg School of Public Health; Hwanhee Hong, Johns Hopkins Bloomberg School of Public Health; Elizabeth Stuart, Johns Hopkins Bloomberg School of Public Health

11:05 a.m. A Model for Estimating Missing Items Score on Self-Reported Psychometric Scales—◆Balasubramani G.K., University of Pittsburgh; Stephen R. Wisniewski, University of Pittsburgh

11:20 a.m. Cox Regression Model with Doubly Truncated Data—◆Lior Rennert, University of Pennsylvania; Sharon X. Xie, University of Pennsylvania

Monday

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 11:35 a.m. Rank-Preserving Regression: A More Robust Rank Regression Model Against Outliers—◆Tian Chen
- 11:50 a.m. Accounting for Nonignorable Missingness in Longitudinal Brain Imaging Studies—◆Anders Lundquist, Umea University; Michael Daniels, The University of Texas at Austin; Xavier de Luna, Umea University; Lars Nyberg, Umea University
- 12:05 p.m. Flexible Functional Regression Methods for Estimating Individualized Treatment Regimes—◆Adam Ciarleglio; Eva Petkova, New York University; Thaddeus Tarpey, Wright State University; Todd Ogden, Columbia University

184 CC-W179b
Bayesian Modeling in Life Sciences and Medicine I—Contributed

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

Chair(s): Andrew Womack, Indiana University

- 10:35 a.m. A Spatio-Temporal Model for Protein Structure Evolution and Alignment—◆Gary Larson, Duke University; Scott Schmidler, Duke University
- 10:50 a.m. Nonparametric Survival Analysis Using Bayesian Additive Regression Trees (BART)—◆Rodney Sparapani, Medical College of Wisconsin; Brent Logan, Medical College of Wisconsin; Robert McCulloch, The University of Chicago; Purushottam Laud, Medical College of Wisconsin
- 11:05 a.m. Bayesian Additive Regression Trees (BART) and Precision Medicine—◆Brent Logan, Medical College of Wisconsin; Rodney Sparapani, Medical College of Wisconsin; Robert McCulloch, The University of Chicago; Purushottam Laud, Medical College of Wisconsin
- 11:20 a.m. Robust Assessment of Trial Success Based on Co-Primary Endpoints by Bayesian and Bootstrapping Approaches with Discounting Option—◆Zongjun Zhang, Eli Lilly and Company; Fanni Natanegara, Eli Lilly and Company; Karen Price, Eli Lilly and Company
- 11:35 a.m. Profiling Hospitals Based on Degree of Aggressiveness in Treating Patients with Advanced Cancer—◆Tianyi Cai, Harvard; Sherri Rose, Harvard Medical School; Deborah Schrag, Dana-Farber Cancer Institute; Francesca Dominici, Harvard T.H. Chan School of Public Health
- 11:50 a.m. Bayesian Analysis of Quantal Bioassay Experiments Incorporating Historical Controls via Bayes Factors—◆Luis Leon Novelo, The University of Texas Health Science Center at Houston; Andrew Womack, Indiana University;

- Hongxiao Zhu, Virginia Tech; Xiaowei Wu, Virginia Polytechnic Institute and State University
- 12:05 p.m. A Bayesian High-Dimensional Couple-Based Latent Risk Model with an Application to Infertility—◆Zhen Chen, Eunice Kennedy Shriver National Institute of Child Health and Human Development; Beom Seuk Hwang, Chung-Ang University; Germaine M. Buck Louis, Eunice Kennedy Shriver National Institute of Child Health and Human Development; Paul Albert, Eunice Kennedy Shriver National Institute of Child Health and Human Development

185 CC-W178b

● **Special Session: Section on Nonparametrics Student Paper Competition—Contributed**

Section on Nonparametric Statistics

Chair(s): Jianhui Zhou, Healthy Birth, Growth and Development knowledge integration (HBGDki) Community

- 10:35 a.m. A Two-Sample Test for High-Dimensional Covariance Matrices via Sparse Principal Component Analysis—◆Lingxue Zhu, Carnegie Mellon University; Jing Lei, Carnegie Mellon University; Bernie Devlin, University of Pittsburgh School of Medicine; Kathryn Roeder, Carnegie Mellon University
- 10:50 a.m. Optimal Bayes Classifiers for Functional Data and Density Ratios—◆Xiongtao Dai, Healthy Birth, Growth and Development knowledge integration (HBGDki) Community; Hans-Georg Mueller, University of California at Davis; Fang Yao, University of Toronto
- 11:05 a.m. Estimating Network Edge Probabilities by Neighborhood Smoothing—◆Yuan Zhang, University of Michigan; Elizaveta Levina, University of Michigan; Ji Zhu, University of Michigan
- 11:20 a.m. Nonparametric Distributed Learning Architecture: Algorithm and Application—◆Scott Bruce, Temple University; Zeda Li, Temple University; Hsiang-Chieh Yang, Temple University; Subhadeep Mukhopadhyay, Temple University Fox School of Business
- 11:35 a.m. Testing Mutual Independence in High Dimension via Distance Covariance—◆Shun Yao, University of Illinois at Urbana-Champaign; Xianyang Zhang, Texas A&M University; Xiaofeng Shao, University of Illinois at Urbana-Champaign
- 11:50 a.m. Nonparametric Change-Point Detection in Multivariate Nonstationary Time Series—◆Raanju Ragavendar Sundararajan, Texas A&M University; Mohsen Pourahmadi, Texas A&M University
- 12:05 p.m. Floor Discussion

Topic-Contributed Poster Presentations**10:30 a.m. – 12:20 p.m.**

186 CC-Hall F1 West

**Topic-Contributed Poster Presentations:
Government Statistics Section—Topic-Contributed**

Government Statistics Section, Section on Statistics in Marketing

Chair(s): Nasrine Bendjilali, Rowan University

- 1 Exploring the Gig Economy Using a Web-Based Survey: Measuring the Online 'and' Offline Side Work-for-Pay Activity+—Barbara J. Robles, Federal Reserve Board; ◆Marysol G. McGee, Federal Reserve Board
- 2 Consumer Use of Mobile Financial Services: Results from the 2012-2015 Surveys and Reports—◆Alexandra Brown
- 3 Survey of Household Economics and Decision Making (SHED): Statistical and Trend Analysis—◆Anna Tranfaglia, Federal Reserve Board; Logan Thomas, Federal Reserve Board; Jeff Larrimore, Federal Reserve Board; Sam Dodini, Federal Reserve Board
- 4 In the Shadow of the Great Recession: Experience and Perspectives of Young Workers—Barbara J. Robles, Federal Reserve Board; ◆Heidi Kaplan, Federal Reserve Board

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

187 CC-Hall F1 West

**Contributed Poster Presentations: Business and
Economic Statistics Section—Contributed**

Business and Economic Statistics Section

Chair(s): Genevera Allen, Rice University

- 5 Clustering with Gaussian Mixture Using Greedy Coordinate Descent of Varying Step-Sizes—◆Priyam Das, North Carolina State University
- 6 Time Series Models for Ocean Wave Data—◆Ellis Shaffer, University of Connecticut; Nalini Ravishanker, University of Connecticut; James James O'Donnell, University of Connecticut
- 7 A Mathematical Optimization Approach to Balancing Time Series: Statistics Canada's GSeriesTSBalancing—◆Michel Ferland, Statistics Canada; Susie Fortier, Statistics Canada; Joana Bérubé, Statistics Canada
- 8 Market Microstructure in Agricultural Futures Markets—◆Julieta Frank

- 9 Forecasting IBNR Reserves by Generalized Autoregressive Score Models (GAS)—◆Daiane Dos Santos, Pontifícia Universidade Católica Rio de Janeiro; Joel Correa da Rosa, Rockefeller University; Cristiano Augusto Coelho Fernandes, Pontifícia Universidade Católica Rio de Janeiro
- 10 A Study of Unit Root Test Using Nonparametric Method—◆Ji Eun Moon, Yonsei University College of Medicine; Cheolyong Park, Keimyung University
- 11 A Translation Approach for Unstructured Online Reviews—◆Taikgun Song
- 12 Analytic Approaches to Labor Force Adjustment in the Face of Import Competition—◆Jacqueline Mauro, Carnegie Mellon University
- 13 Fed Raises Key Interest Rate: What Does the Past Data Tell About the Future? An Empirical Study—◆Rajneesh Rajneesh, SAS Institute
- 14 How to Tell the Truth with Statistics Using Graphs: Three Plots Showing That Daily Change in the DOW (at Closing) Is Random—◆John Stedl

188 CC-Hall F1 West

**Contributed Poster Presentations: International
Chinese Statistical Association—Contributed**

International Chinese Statistical Association

Chair(s): Genevera Allen, Rice University

- 15 Properties of Difference-Based Ridge Estimators in Partial Linear Models—◆June Luo

189 CC-Hall F1 West

**Contributed Poster Presentations: International
Indian Statistical Association—Contributed**

International Indian Statistical Association

Chair(s): Genevera Allen, Rice University

- 16 On the Maximum Likelihood and Least Squares Estimation for the Inverse Weibull Parameters with Progressively First-Failure Censoring—◆Amal Helu, Carnegie Mellon University

190 CC-Hall F1 West

**Contributed Poster Presentations: International
Statistical Institute—Contributed**

International Statistical Institute

Chair(s): Genevera Allen, Rice University

- 17 Multilevel Analysis of Achievement in Mathematics of Saudi Students Using TIMSS 2011—◆Mohammad Alomair; Enayetur Raheem, University of Northern Colorado

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

191 CC-Hall F1 West

Contributed Poster Presentations: Korean International Statistical Society—Contributed

Korean International Statistical Society

Chair(s): Genevera Allen, Rice University

- 18 Detecting Vaccine-Vaccine Interactions in Large Spontaneous Reporting Databases—◆Kijoung Nam, Merck; Nicholas Henderson, The Johns Hopkins University
- 19 Unsupervised Bump Hunting with Split-and-Recombine—◆Miriam Elman, Oregon Health & Science University; Jinho Park, Inha University; George Tiao, The University of Chicago; Dongseok Choi, Oregon Health & Science University

192 CC-Hall F1 West

Contributed Poster Presentations: Quality and Productivity Section—Contributed

Quality and Productivity Section

Chair(s): Genevera Allen, Rice University

- 20 Advanced Process Capability: Avoiding the Pitfalls—◆Scott Wise, JMP
- 21 An Insightful Alternative Calculation of the Pearson Chi-Squared Statistic—◆Duane K. Allen, Duane K. Allen
- 22 A Double EWMA Control Chart for Individual Measurements Based on a Linear Prediction—◆Rafael Perez Abreu; Jay R. Schaffer, University of Northern Colorado
- 23 Kruskal Wallis Test Under Scrutiny—◆Rong Zheng, University of Alabama; Subhabrata Chakraborti, University of Alabama
- 24 Acceptance Procedure for Process Control Based on Clustering—◆William Griffith, University of Kentucky; Michelle Smith, Eastern Kentucky University
- 25 Bayesian Analysis of Fractional Differential Equations for Petroleum Extraction—◆Edward L. Boone, Virginia Commonwealth University; Ryad Ghanam, Virginia Commonwealth University
- 26 Biostatistics-Quality Improvement Collaboration Supporting a Learning Health Care System—◆Henry Domenico, Vanderbilt University School of Medicine

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Contributed Poster Presentations: Section on Physical and Engineering Sciences—Contributed

Section on Physical and Engineering Sciences, Quality and Productivity Section

Chair(s): Genevera Allen, Rice University

- 27 The Use of Limited Available Data for Tests in the One-Way Layout—◆Yvonne Zubovic, Indiana

University; Chand Chauhan, Indiana University Purdue University Fort Wayne

- 28 Maximum Likelihood and Least Squares Estimation Comparison for the Three-Parameter Weibull Distribution: Case Study of Statistical Software—◆William Harper, Otterbein University; Thomas R. James, Otterbein University
- 29 Inference for the Progressively Type-I Censored Step-Stress Accelerated Life Test Under Interval Monitoring—◆Tianyu Bai; David Han, The University of Texas at San Antonio
- 30 Evacuation from a Room with Two (Contiguous) Exits—◆Guillermo Frank, CONICET; Ignacio Sticco, University of Buenos Aires; Claudio Dorso, University of Buenos Aires
- 31 Reanalysis of Mars Phoenix Mission Wet Chemistry Lab Data Using a New Data-Cleaning Method—◆Dongping Fang, Zurich; Elizabeth Oberlin, Tufts University; Wei Ding, University of Massachusetts-Boston; Samuel Kounave, Tufts University
- 32 Rat Vibrissae (Whiskers) as a Model to Study the Statistics of Sensory Data Acquisition: Analyzing the Natural Tactile Scene While Incorporating Sensor Dynamics—◆Hayley M. Belli, Northwestern University; Ian D. R. Abraham, Northwestern University; Sara A. Solla, Northwestern University; Todd D. Murphey, Northwestern University; Mitra J. Z. Hartmann, Northwestern University
- 33 Calibration and Uncertainty Quantification with Science Applications—◆K. Bhat, Los Alamos National Laboratory
- 34 An Approach to Characterizing Driving Behavior Using Distributions of Headway Paths in a Function Space—◆Ruofei Zhao
- 35 Using Mixed Model for Repeated Measures to Study the Changes of Physical Function for Breast Cancer Patients with Taxane-Based Chemotherapy—◆Xueliang Pan; Scott Monfort, The Ohio State University; Ajit Chaudhari, The Ohio State University; Maryam Lustberg, The Ohio State University

194 CC-Hall F1 West

Contributed Poster Presentations: Section on Nonparametric Statistics—Contributed

Section on Nonparametric Statistics

Chair(s): Genevera Allen, Rice University

- 36 Asymptotically Efficient Estimation of Linear Functionals in Inverse Regression Models—◆Eun-Joo Lee, Millikin University; Seung-Hwan Lee, Illinois Wesleyan University
- 37 Estimation of the Simultaneous Confidence Regions for the Ratios of Quantile Residual Lifetimes—◆Yu-Mei Chang

- 38 Testing for Interaction in Functional Varying-Coefficient Models—◆Merve Tekbudak, North Carolina State University
- 39 Dynamic Modeling with Conditional Quantile Trajectories for Longitudinal Snippet Data, with Application to Cognitive Decline of Alzheimer's Patients—◆Matthew Dawson, University of California at Davis; Hans-Georg Mueller, University of California at Davis
- 40 A Comparison of Bootstrap Methods for Multilevel Longitudinal Data—◆Lanlan Yao, Arizona State University; Mark Reiser, Arizona State University
- 41 Pairwise Comparison of Scale Using Medians and Permutation Tests—◆Scott Richter, The University of North Carolina at Greensboro; Melinda McCann, Oklahoma State University
- 42 Kernel Smoothing for Hierarchical Data—◆Christopher Wilson; Patrick Gerard, Clemson University
- 43 Random Forest and Classification and Regression Tree-Guided Parametric Regression: A Hybrid Approach—◆Jiayang Liu, Texas Tech University Health Sciences Center El Paso; Alok Dwivedi, Texas Tech University Health Sciences Center El Paso
- 44 Random Forest and Classification and Regression Tree-Guided Parametric Regression: A Hybrid Approach—◆Jiayang Liu, Texas Tech University Health Sciences Center El Paso; Alok Dwivedi, Texas Tech University Health Sciences Center El Paso
- 45 Multivariate Association in Respondent-Driven Sampling Data—◆Dongah Kim, University of Massachusetts; Krista Gile, University of Massachusetts-Amherst
- 46 Bayesian Approach to Survival Models for Events of Insurance Claims—◆Prashant KC, Minnesota State University Mankato; Deepak Sanjel, Minnesota State University Mankato

195 CC-Hall F1 West
Contributed Poster Presentations: Royal Statistical Society—Contributed

Royal Statistical Society

Chair(s): Genevera Allen, Rice University

Royal Statistical Society

Subgroup: **WITHDRAWN**
 Precise Semiparametric Model in
 Precise Vaccine—◆Xiaofei Chen

196 CC-Hall F1 West
Contributed Poster Presentations: Social Statistics Section—Contributed

Social Statistics Section

Chair(s): Genevera Allen, Rice University

- 47 Adjustment by Minimum Discriminant Information in the Presence of Measurement Error—◆Daniel F. McCaffrey, Educational Testing Service; J.R. Lockwood, Educational Testing Service; Shelby Haberman, Educational Testing Service; Lili Yao, Educational Testing Service
- 48 Teaching Online Statistics Courses to Diverse/First-Generation Students Who Are Smartphone-Literate, but Not Computer-Literate: Effective Strategies and Technological Tools—◆Valarie Bell, Texas Woman's University
- 49 Distributions of Age at Death from Roman Epitaph Inscriptions: An Application of Data Mining—◆Peter Pflaumer
- 50 Multiple Imputation of Missing Data in Structural Equation and Item Response Models: An Empirical Comparison of Within-Group vs. Total Sample Approaches—◆Jeffrey Kromrey, University of South Florida; Patricia Rodriguez de Gil, University of South Florida
- 51 Comparing Performance of Tests for One-Factor ANOVA Models Under Heterogeneity and Non-Normality: A Monte Carlo Simulation Study—◆Thanh Pham, University of South Florida; Yan Wang, University of South Florida; Diep Nguyen, University of South Florida; Eun Sook Kim, University of South Florida; Jeffrey Kromrey, University of South Florida; Yi-Hsin Chen, University of South Florida
- 52 An Empirical Comparison of BASE SAS and High-Performance Statistical Procedures: Do HP Procedures Really Perform 'Highly'?—◆Patricia Rodriguez de Gil, University of South Florida; Diep Nguyen, University of South Florida; Jeffrey Kromrey, University of South Florida; Yan Wang, University of South Florida; Jessica Montgomery, University of South Florida; Seang-Hwane Joo, University of South Florida; Anh Kellermann, University of South Florida

197 CC-Hall F1 West
Contributed Poster Presentations: Survey Research Methods Section—Contributed

Survey Research Methods Section

Chair(s): Genevera Allen, Rice University

- 53 ?-Furil Dioxime: DFT Exploration and Its Experimental Application to the Determination of Palladium by Square Wave Voltammetry—◆Reem Shah

Monday

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 54 Bayesian Model-Based Approaches for Raking—
◆Peigen Zhou, University of Wisconsin-Madison;
Yajuan Si, University of Wisconsin-Madison
- 55 Using Paradata to Inform the Collection of SSN
from Survey Respondents—◆Jennifer Parker, CDC/
NCHS; George Zipf, CDC/NCHS; Tala Fakhouri,
CDC/NCHS
- 56 Rapid Response Survey of Blood Donors in Support
of Public Health—FShannon McEwen, NORC at
the University of Chicago; Susan Hinkins, NORC at
the University of Chicago; Barbee Whitaker, AABB;
Mark Walderhaug, FDA; Michael Stern, NORC at the
University of Chicago; Steve Anderson, FDA
- 57 Assessing the Impact of Respondent Fatigue in the
National Crime Victimization Survey—◆George
Couzens, RTI International; Marcus Berzofsky,
RTI International
- 58 Using Statistical Matching as a Supplement to
Exact Record Linkage—◆Jonas Beste, Institute for
Employment Research; Jörg Drechsler, Institute for
Employment Research; Joseph Sakshaug; Jonathan
Gessendorfer, Institute for Employment Research
- 59 Misspecified Sampling Weights in Weight-Smoothing
Methods—◆Xia Li, University of Maryland; Eric Slud,
U.S. Census Bureau
- 60 Comparison of MCMC and ADM Methods for
Hierarchical Bayesian Estimates in Small-Area
Estimation—◆Ying Han, University of Maryland
- 61 Seizing Upper Extremity Function: How Does
PROMIS Do?—◆Man Hung, University of Utah;
Maren Wright Voss, University of Utah; Jerry
Bounsanga, University of Utah; Andrew Tyser, University
of Utah; Fangzhou Liu, University of Massachusetts-
Amherst; Charles Saltzman, University of Utah

198 CC-Hall F1 West
**Contributed Poster Presentations: Transportation
Statistics Interest Group—Contributed**

Transportation Statistics Interest Group

Chair(s): Genevera Allen, Rice University

- 62 Analysis of Airplane Crash Data—◆Yana Melnykov,
University of Alabama

199 CC-Hall F1 West
**Contributed Poster Presentations: Section on
Statistics in Sports—Contributed**

Section on Statistics in Sports

Chair(s): Genevera Allen, Rice University

- 63 Is There Any Racial Difference in Swimming Speed? A
Nonlinear Swim Hockey-Stick Mixed-Effects Model—

- ◆Din Chen, The University of North Carolina at Chapel
Hill; Jenny Ke Chen, East Chapel Hill High School
- 64 Classification of All-Rounders in Limited-Over
Cricket—◆Ananda Manage; Danush Wijekularathna,
Troy University
- 65 Rating Offensive Production in Baseball: A Summer
with the Martha's Vineyard Sharks—Jesse McNulty,
William Penn High School Sports Analytics Club;
◆Tyler Schanzenbach, William Penn High School
Sports Analytics Club
- 66 An Analysis of Classification Tree-Determined Strike
Zones in Major League Baseball—◆Tyler Zemla,
University of Iowa
- 67 Determining a Plus/Minus Metric for NCAA
Women's Volleyball from Incomplete Court Presence
Information—◆Zachary Hass; Bruce A. Craig, Purdue
University
- 68 New Classes of Discrete Bivariate Distributions—◆Xiao
Jiang, University of Manchester

200 CC-Hall F1 West
**SPEED: Environmental Statistics, Part 2A—
Contributed**

Section on Statistics and the Environment

Chair(s): Genevera Allen, Rice University

- 1 Underestimation of Standard Errors in Regression
Analysis for Pollution Exposure Assessment Using
Multi-Source Data—◆Tomoshige Nakamura, Keio
University; Mihoko Minami, Keio University
- 2 Modeling Nonconstant Detection Rates in Removal-
Sampled Point-Count Surveys—◆Adam Martin-
Schwarze; Philip Dixon, Iowa State University; Jarad
Niemi, Iowa State University
- 3 Modeling Blood Organic Mercury as a Function of
Usual Fish Consumption and Demographics Using
NHANES Data—◆John Rogers, Westat; Rebecca
Birch, Westat
- 4 Spatial Confounding in Semiparametric Regression
Models for Spatial Data—◆Guilherme Ludwig,
University of Wisconsin-Madison; Jun Zhu, University
of Wisconsin-Madison; Chun-Shu Chen, National
Changhua University of Education
- 5 Design Considerations for Vaccine Efficacy Trials
in Outbreak Settings—◆Natalie Dean, University
of Florida; M. Elizabeth Halloran, Fred Hutchinson
Cancer Research Center; Ira Longini, University
of Florida
- 6 Using Wavelets to Discover Relationships Among
Tree-Ring Records—◆Megan Heyman, Rose-Hulman

Institute of Technology; Snigdhanu Chatterjee, University of Minnesota-Twin Cities; Scott St. George, University of Minnesota

- 7 Sequential Policy Making in Management of Emerging Infectious Disease with Monte Carlo Tree Search—◆Sihan Wu, North Carolina State University
- 8 A Standardized Signed Likelihood Ratio Test for the Threshold in a Generalized Pareto Distribution—◆David Smith, Tennessee Tech University
- 9 Combining Information from Multiple Marks in a Marked Point Pattern—◆Philip Dixon, Iowa State University
- 10 Can Sentinel Site Data Be Used to Estimate Vaccination Coverage in the United States?—◆Xia Lin, CDC; Elizabeth Zell; Loren Rodgers, CDC; Laura Pabst, CDC

201 CC-Hall F1 West
SPEED: Advances in Nonparametric Statistics, Part 2A—Contributed

Section on Nonparametric Statistics

Chair(s): Genevera Allen, Rice University

- 11 A Nonparametric Procedure for Change Point Detection in Linear Regression—Sunil Mathur, Georgia Regents University; ◆Jing Sun, Augusta University; Deepak Sakate, Augusta University
- 12 Convolution Weighting in Compound Estimation with or Without Heteroscedasticity—◆Sisheng Liu, University of Kentucky; Richard Charnigo, University of Kentucky; Cidambi Srinivasan, University of Kentucky
- 13 Nonparametric Kernel Estimation Using Ranks and Values—◆Nicholas Kaukis, Oklahoma State University
- 14 Measuring and Testing Mutual Multivariate Independence Based on Distance Covariance—◆Ze Jin, Cornell University; David Matteson, Cornell University
- 15 Testing the Sphericity of a Covariance Matrix When the Dimension Is Much Larger Than the Sample Size—◆Zeng Li, The University of Hong Kong
- 16 AUC Regression for Multiple Comparisons of Monotone Zero-Dose Control Experiments—◆Johanna Van Zyl, Baylor University; Jack D. Tubbs, Baylor University
- 17 Location and Scale Parameters Testing by Empirical Likelihood Estimation—◆Ningning Wang, Jackson State University
- 18 Multivariate Cure Rate Estimation Under Random Censoring—◆Elnaz Ghadimi, Concordia University; Arusharka Sen, Concordia University
- 19 Convolutional Functional Autoregressive Models: Model Building, Asymptotics, and Empirical Results—◆Xialu Liu, San Diego State University

- 20 Variable Bandwidth Local Polynomial Smoothing via Local Cross-Validation—◆Katherine Grzesik, University of Rochester; Derick R. Peterson, University of Rochester

202 CC-Hall F1 West
SPEED: Statistics in Government and Engineering, Part 2A—Contributed

Government Statistics Section

Chair(s): Genevera Allen, Rice University

- 21 Evaluating the Use of Child Restraint Systems and Resulting Injury and Fatalities Using Demographic and Social Characteristics of Driver's Home ZIP Code—◆Anastasia Vishnyakova, Temple University
- 22 Degree Profile of Hierarchical Lattice Networks—◆Yarong Feng, The George Washington University; Hosam Mahmoud, The George Washington University; Ludger Ruschendorf, Albert-Ludwigs University of Freiburg
- 23 Crash-Safety Ratings and the True Assessment of Injuries by Vehicle—◆Cody Philips, Miami University
- 24 Predicting the Potential Economic Cost of a Car Accident Under Different Circumstances—◆Tony Ng, Southern Methodist University; Lynne Stokes, Southern Methodist University; Yifan Zhong, Southern Methodist University; Robert Farrow, Southern Methodist University; Clayton Moore, Southern Methodist University; Gunes Alkan, Southern Methodist University; Haichen Liu, Southern Methodist University; Ziyuan Xu, Southern Methodist University; Yihan Xu, Southern Methodist University; Yuzhi Yan, Southern Methodist University
- 25 Time-Dependent Clustering Tells a Danger on the Road—◆Eunice Kim
- 26 Seeing Through the Data: Data Visualization Methods of the Occupational Requirements Survey—◆Jenette Muhar, Bureau of Labor Statistics; Michelle Myers, Bureau of Labor Statistics
- 27 A Case Study in Adaptive LASSO Logistic Regression: Factors Related to Cyclist Death with a Distracted Driver—◆Lysbeth Floden, University of Arizona; Patrick A. O'Connor, University of Arizona; Melanie L. Bell, University of Arizona
- 28 Investigation of How Customers Respond to Demand Response—◆Hung-Ming Chou, Texas A&M University; Fang-Yu Lin, Texas A&M University
- 29 Implementation of the ICD-10-CM/PCS Coding System and Implications for the National Health Care Surveys—◆Margaret Jean Hall, CDC; Kellina Phan, CDC/NCHS; Denys T. Lau, CDC/NCHS

Contributed Poster Presentations 11:35 a.m. – 12:20 p.m.

**203 CC-Hall F1 West
SPEED: Environmental Statistics, Part 2B—Contributed**

Section on Statistics and the Environment

Chair(s): Genevera Allen, Rice University

- 1 Where Do Marine Mammals Go? Bayesian Data Fusion Provides the Answer—◆Yang Seagle Liu, University of British Columbia; James V. Zidek, University of British Columbia; Brian C. Battaile, University of British Columbia; Andrew W. Trites, University of British Columbia
- 2 Modeling Short-Term Population Dynamics with Unobserved Latent Stages—◆Gabriel Demuth, Iowa State University; Philip Dixon, Iowa State University
- 3 Application of INGARCH(P,Q) Models to Hurricane Count Series—◆Yunwei Cui, Towson University; Rongning Wu, Baruch College
- 4 Comparing Two Environmental Exposure Distributions in Presence of Detection Limits—◆Yuchen Yang, University of Kentucky; Brent Shelton, University of Kentucky; Richard Kryscio, University of Kentucky; Thomas Tucker, University of Kentucky; Li Li, Case Western Reserve University; Li Chen, University of Kentucky
- 5 Predictive Models in Horticulture: A Case Study with Royal Gala Apples—◆Tom M. Logan, University of Michigan; Stella McLeod, Mr. Apple New Zealand; Seth Guikema, University of Michigan
- 6 Using the R Caret Package as a Teaching Tool for Topics in Classification and Prediction Methods: A Case Study—◆Keith Williams, University of Arkansas for Medical Sciences
- 7 Analyzing Changes in the Proportions of Phytoplankton of a Freshwater Lake—◆Stephen Colegate, Miami University; Thomas Fisher, Miami University; Jing Zhang

**204 CC-Hall F1 West
SPEED: Advances in Nonparametric Statistics, Part 2B—Contributed**

Section on Nonparametric Statistics

Chair(s): Genevera Allen, Rice University

- 11 Period Estimation for Sparsely Sampled Quasi-Periodic Functions: Application to Mira Variable Stars—◆Shiyuan He, Texas A&M University
- 12 Bernstein-Von Mises Theorem for Individual Entries in Sparse High-Dimensional Linear Regression—◆Dana Yang, Yale University
- 13 Semiparametric Estimation for Multivariate Skew-Elliptical Distributions—◆Jing Huang, European School of Management and Technology

- 14 Test for Conditional Random Signs Censoring in Competing Risks—◆Shannon Woolley
- 15 Adjusted Empirical Likelihood for Time Series Models—◆Ramadha Dilhani Piyadi Gamage, Bowling Green State University; Wei Ning, Bowling Green State University; Arjun K. Gupta, Bowling Green State University
- 16 Significance Tests for Time-Varying Covariate Effect in Longitudinal Functional Data—◆Saebitna Oh, North Carolina State University; Ana-Maria Staicu, North Carolina State University
- 17 Estimation of Genetic Risk Function with Covariates in the Presence of Missing Genotypes—◆Annie J. Lee, Columbia University; Yuanjia Wang, Columbia University; Karen Marder, Columbia University; Roy N. Alcalay, Columbia University
- 18 An Agent-Based Modeling Approach for Tobacco Product Risk Assessments—◆Raheema Muhammad-Kah, Altria Client Services; Yezdi B. Pithawalla, Altria Client Services; Maria Gogova, Altria Client Services; Lai Wei, Altria Client Services; Edward L. Boone, Virginia Commonwealth University
- 19 A STEPP Forward in Tailoring Treatment: New Research on the STEPP Methodology—◆Wai-Ki Yip, Dana-Farber Cancer Institute

**205 CC-Hall F1 West
SPEED: Statistics in Government and Engineering, Part 2B—Contributed**

Government Statistics Section

Chair(s): Genevera Allen, Rice University

- 20 Visualizing Crash Data Over Time—◆Richard M. Heiberger, Temple University Fox School of Business
- 21 Review of Statistical Software for Joint Longitudinal and Time-to-Event Models—◆Allison Cullen, University of Michigan; Jeremy M. G. Taylor, University of Michigan; Ananda Sen, University of Michigan
- 22 Using Scores to Identify Small Cells in Tables for Disclosure Deidentification—◆Stephen Cohen, NORC at the University of Chicago; Linette Scott, California Department of Health Care Services; Joshua Borton, NORC at the University of Chicago
- 23 Optimal Monetary Policy with Noisy Information—◆Jacob Orchard, Brigham Young University; James McDonald, Brigham Young University; Kerk Phillips, Brigham Young University
- 24 Representing Inhomogeneous Microstructure in 3D Simulations of Stainless Steel—◆Scott Vander Wiel, Los Alamos National Laboratory
- 25 Statistical Challenges in Military Research—◆Zoran Bursac, University of Tennessee Health Science Center; Melissa Little, University of Tennessee

Health Science Center; Karen Derefinko, University of Tennessee Health Science Center; Rebecca Krukowski, University of Tennessee Health Science Center; Lauren Colvin, University of Tennessee Health Science Center; Gerald Wayne Talcott, University of Tennessee Health Science Center; Robert Klesges, University of Tennessee Health Science Center

- 26 **Mineral Species Frequency Distribution and the Prediction of Earth's Missing Minerals**—◆Grethe Hystad, Purdue University; Robert T. Downs, University of Arizona; Robert M. Hazen, Carnegie Institution
- 27 **Model-Based Point Estimates and Variance for State-Level Prevalence of Hypertension and Uncontrolled Hypertension in the United States Using NHANES and BRFSS**—◆Soyoun Park, CDC/NCCDPHP/DHDSP; Amy L. Valderrama, CDC/OPHPR/DSL; Jason Baumgardner, CDC/NCIPC/DVP; Cathleen Gillespie, CDC/NCCDPHP/DHDSP; Quanhe Yang, CDC/NCCDPHP/DHDSP; Jing Fang, CDC/NCCDPHP/DHDSP; Fleetwood Loustalot, CDC/NCCDPHP/DHDSP; Yuling Hong, CDC/NCCDPHP/DHDSP
- 28 **Using a Survey as a Sampling Frame: The UK Experience**—◆Matthew Greenaway, Office for National Statistics

Speaker with Lunch 12:30 p.m. – 1:50 p.m.

- 206 CC-W476
Section on Statistics in Sports Speaker with Lunch (Added Fee)—Speaker with Lunch
 Section on Statistics in Sports
 Organizer(s): Stephanie Kovalchik, Tennis Australia

- ML09 From Pixels to Points: Using Tracking Data to Measure Performance in Professional Sports—◆Luke Bornn, Simon Fraser University

Roundtables with Lunch 12:30 p.m. – 1:50 p.m.

- 207 CC-W375a
Section on Bayesian Statistical Science P.M. Roundtable Discussion (Added Fee)
 Section on Bayesian Statistical Science
 Organizer(s): Tanzy Love, University of Rochester
- ML10 Bayesian Model Selection—◆Philip Dawid, University of Cambridge

- 208 CC-W375a
Biopharmaceutical Section P.M. Roundtable Discussion (Added Fee)

Biopharmaceutical Section

Organizer(s): Jennifer Gauvin, Novartis

- ML11 Design for Dose-Finding Trials (Phase I/II or Post-Marketing Trials)—◆Lei Nie, FDA
- ML12 Best Practices for Interim Analysis in Clinical Trials—◆Jiang Hu, FDA
- ML14 Communicating Our Value: Are You a Tipping Point Maven?—◆Susan Duke, AbbVie

- 209 CC-W375a
Section on Statistical Consulting P.M. Roundtable Discussion (Added Fee)

Section on Statistical Consulting

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

- ML15 Statistical Consultants as Catalysts for Organizational Change—◆Richard Ittenbach, Cincinnati Children's Hospital
- ML16 Strategies for Working with Administrators and Collaborators to Ensure Academic and Financial Success of Statistical Consulting Centers—◆Todd Coffey, Washington State University; Jayawant Mandrekar, Mayo Clinic

- 210 CC-W375a
Section on Statistical Education P.M. Roundtable Discussion (Added Fee)

Section on Statistical Education

Organizer(s): Dalene K. Stangl, Duke University

- ML17 Specifications Grading in a Statistics Course—◆Eric Reyes, Rose-Hulman Institute of Technology
- ML18 LISA 2020: Educating Statistical Collaborators—◆James Rosenberger, Penn State University; Eric Vance, Laboratory for Interdisciplinary Statistical Analysis
- ML19 Incorporating Visual Literacy Standards in an Introductory Statistics Course—◆Jill Young
- ML20 Teaching Statistical Collaboration—◆Eric Vance, Laboratory for Interdisciplinary Statistical Analysis

- 211 CC-W375a
Government Statistics Section P.M. Roundtable Discussion (Added Fee)

Government Statistics Section

Organizer(s): Michael Hawes, U.S. Department of Education

- ML21 Writing for Scientific Publication—◆Ingegerd Jansson, Statistics Sweden

212 CC-W375a

Section on Statistical Graphics P.M. Roundtable Discussion (Added Fee)

Section on Statistical Graphics

Organizer(s): Kenneth E. Shirley, AT&T Labs Research

ML22 Graphics Software: Favorites and Best Practices—
◆ Amelia McNamara, Smith College

213 CC-W375a

Mental Health Statistics Section P.M. Roundtable Discussion (Added Fee)

Mental Health Statistics Section

Organizer(s): Booil Jo, Stanford University

ML23 Causality in a Social World: Moderation, Mediation, and Spill-Over—◆ Guanglei Hong, The University of Chicago

ML24 Beyond Bonferroni: Large-Scale Inference for Complex Disorders—◆ Wesley Thompson, University of California at San Diego

214 CC-W375a

Quality and Productivity Section P.M. Roundtable Discussion (Added Fee)

Quality and Productivity Section

Organizer(s): Anne Hansen, Intel Corporation

ML25 From Statistician to Data Scientist: How to Prepare?—◆ Ming Li, REANCON

215 CC-W375a

Section on Risk Analysis P.M. Roundtable Discussion (Added Fee)

Section on Risk Analysis

Organizer(s): Yishi Wang, The University of North Carolina at Wilmington

ML26 Statistical Precursors to the 'New' Predictive Analytics—◆ Stanley Sclove, University of Illinois at Chicago

216 CC-W375a

Section on Teaching of Statistics in the Health Sciences P.M. Roundtable Discussion (Added Fee)

Section on Teaching of Statistics in the Health Sciences

Organizer(s): Wenyaw Chan, The University of Texas Health Science Center at Houston

ML27 Training Statisticians to Teach Statistics—
◆ Jacqueline Milton

Special Presentation 2:00 p.m. – 3:50 p.m.

217 CC-W375b

Late-Breaking Session I: Invest in What Works: First Steps Toward Establishing Evidence-Based Policymaking Clearinghouse—Invited

ASA, ENAR, WNAR, IMS, SSC, International Chinese Statistical Association, International Indian Statistical Association, Korean International Statistical Society, International Society for Bayesian Analysis (ISBA), Royal Statistical Society, International Statistical Institute

Organizer(s): Amy O'Hara, U.S. Census Bureau; Sallie Keller, Virginia Tech

Chair(s): Stephanie Shipp, Virginia Tech

2:05 p.m. The Evidence-Based Policy Commission Act and Its Implications for the Federal Statistical System—◆ Shelly Wilkie Martinez, Office of Management and Budget

2:30 p.m. The Role of the Census Bureau Linkage Infrastructure—◆ Amy O'Hara, U.S. Census Bureau

2:55 p.m. Pilot Evaluations Using the Census Bureau Linkage Infrastructure—◆ Kathy Stack, Laura and John Arnold Foundation

3:20 p.m. Involving the Community to Establish an Evidence-Based Clearinghouse—◆ Jeri Metzger Mulrow, Bureau of Justice Statistics

3:45 p.m. Floor Discussion

Invited Sessions 2:00 p.m. – 3:50 p.m.

218 CC-W185bc

■ ● Advances in Statistical Methods for Dissemination and Analysis of Official Statistics—Invited

Government Statistics Section, Scientific and Public Affairs Advisory Committee, Survey Research Methods Section

Organizer(s): Scott H. Holan, University of Missouri

Chair(s): Jonathan R. Bradley, University of Missouri

2:05 p.m. An Integrated Approach to Providing Access to Confidential Social Science Data—◆ Jerome Reiter, Duke University

2:30 p.m. The Challenge of Reproducible Science and Privacy Protection for Statistical Agencies—◆ John M. Abowd, U.S. Census Bureau/Cornell University

2:55 p.m. Spatio-Temporal Change of Support with Application to American Community Survey Multi-Year Period Estimates—◆ Scott H. Holan, University of Missouri; Jonathan R. Bradley,

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

University of Missouri; Christopher Wikle,
University of Missouri

3:20 p.m. Disc: Thomas A. Louis, The Johns Hopkins University

3:40 p.m. Floor Discussion

219 CC-W180

■ ● Memorial Session for Bruce Lindsay—Invited

Memorial, IMS, Royal Statistical Society

Organizer(s): Lingzhou Xue, Penn State University

Chair(s): David Hunter, Penn State University

2:05 p.m. Bruce Lindsay: A Life Defined by Clear and Original Thinking—◆ Kathryn Roeder, Carnegie Mellon University

2:30 p.m. Mixture Models with Mixed Effects in Their Component Distributions—◆ Geoffrey John McLachlan, University of Queensland

2:55 p.m. In Memory of Bruce Lindsay: Quadratic Inference Function—◆ Annie Qu, University of Illinois at Urbana-Champaign

3:20 p.m. Geometry, Likelihood, and Inference—◆ Nancy Reid, University of Toronto

3:45 p.m. Floor Discussion

220 CC-W183b

● Optimal Experimental Design for Physical Models—Invited

Section on Physical and Engineering Sciences, IMS, Royal Statistical Society, Quality and Productivity Section

Organizer(s): Antony Overstall, University of Glasgow

Chair(s): Antony Overstall, University of Glasgow

2:05 p.m. Random Designs for Misspecified Regression Models—◆ Tim Waite, University of Manchester; David Woods, University of Southampton

2:30 p.m. Sequential Experimental Design for Differential Equation Models via Approximate Dynamic Programming—◆ Youssef Marzouk, MIT; Xun Huan, MIT

2:55 p.m. Using Computer Experiments and Gaussian Process Emulation to Facilitate Bayesian Optimal Design for Physical Models Derived from Ordinary Differential Equations—◆ David Woods, University of Southampton; Antony Overstall, University of Glasgow; Benjamin Parker, University of Southampton

3:20 p.m. Disc: Roshan Joseph Vengazhiyil, Georgia Institute of Technology

3:40 p.m. Floor Discussion

221 CC-W181a

The ASA Journal of Data Science: A Showcase—

Invited

Journal of Statistical Analysis and Data Mining, International Chinese Statistical Association

Organizer(s): David Banks, Duke University

Chair(s): David Madigan, Columbia University

2:05 p.m. Forest Resampling for Distributed Sequential Monte Carlo—◆ Anthony Lee, University of Warwick; Nick Whiteley, University of Bristol

2:30 p.m. Bayesian Visual Analytics: BaVA—◆ Leanna House, Virginia Tech; Scotland Leman, Virginia Tech; Chao Han, SAS Institute

2:55 p.m. Large-Margin Classification with Multiple Decision Rules—◆ Patrick Kimes, Roche Sequencing; Yufeng Liu, The University of North Carolina at Chapel Hill; J. S. Marron, The University of North Carolina at Chapel Hill; David Neil Hayes, The University of North Carolina at Chapel Hill

3:20 p.m. Disc: Niall Adams, Imperial College London

3:40 p.m. Floor Discussion

222 CC-W185d

■ ● Tricks and Treats in Classification and Regression Trees—Invited

Section on Statistical Computing, International Chinese Statistical Association, Committee on Applied Statisticians

Organizer(s): Wei-Yin Loh, University of Wisconsin

Chair(s): Wenwen Zhang, Takeda

2:05 p.m. Overcoming Computational Challenges of Subgroup Identification Using SIDES Method—◆ Ilya Lipkovich, Quintiles; Alex Dmitrienko, Quintiles

2:30 p.m. Smooth Sigmoid Surrogate (SSS): An Alternative to Greedy Search in Recursive Partitioning—◆ Xiaogang Su, The University of Texas at El Paso; Joseph Kang, CDC; Lei Liu, Northwestern University; Qiong Yang, Boston University; Juanjuan Fan, San Diego State University; Richard Levine, San Diego State University

2:55 p.m. Some Ideas Left Out of CART—◆ Padraic Grantier Neville, SAS Institute

3:20 p.m. Some Tricks Behind the GUIDE Algorithm—◆ Wei-Yin Loh, University of Wisconsin

3:45 p.m. Floor Discussion

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

223 CC-W187b

■ ● **Nonparametric Bayesian Methods in Biostatistics—Invited**

Section on Bayesian Statistical Science, Section on Nonparametric Statistics, International Society for Bayesian Analysis (ISBA), International Chinese Statistical Association

Organizer(s): Lili Zhao, University of Michigan; Jeremy M. G. Taylor, University of Michigan

Chair(s): Lili Zhao, University of Michigan

- 2:05 p.m. DPOAE Test-Retest Difference Curves via Hierarchical Gaussian Processes—◆ Timothy Hanson, University of South Carolina; Junshu Bao, University of South Carolina; Garnett McMillan, National Center for Rehabilitative Auditory Research; Kristin Knight, National Center for Rehabilitative Auditory Research
- 2:30 p.m. Bayesian Nonparametric Modeling and Inference for Mean Residual Life Functions—◆ Athanasios Kottas, University of California at Santa Cruz; Valerie Poynor, California State University at Fullerton
- 2:55 p.m. Bayesian Nonparametric Methods for Precision Medicine—Qian Guan, North Carolina State University; Eric Laber, North Carolina State University; Dipankar Bandyopadhyay, Virginia Commonwealth University; ◆ Brian J. Reich, North Carolina State University
- 3:20 p.m. Disc: Peter Mueller, The University of Texas at Austin
- 3:40 p.m. Floor Discussion

224 CC-W190a

■ ● **Statistical Methods to Integrate Imaging and Genomics Data for Precision Medicine—Invited**

Section on Statistics in Imaging, Royal Statistical Society, International Chinese Statistical Association

Organizer(s): Arvind Rao, MD Anderson Cancer Center

Chair(s): Caprichia Jeffers, Emory University

- 2:05 p.m. FVGWAS: Fast Voxelwise Genome-Wide Association Analysis of Large-Scale Imaging Genetic Data—◆ Hongtu Zhu, The University of North Carolina at Chapel Hill
- 2:25 p.m. Statistics on Tumor Images Using Trees and Shapes of Parameterized Curves—◆ Karthik Bharath, University of Nottingham; Veera Baladandayuthapani, MD Anderson Cancer Center; Arvind Rao, MD Anderson Cancer Center; Sebastian A. Kurtek, The Ohio State University; Dipak Dey, University of Connecticut
- 2:45 p.m. Novel Genotype-Phenotype Associations in Human Cancers Enabled by Advanced Molecular Platforms and Computational Analysis of Whole Slide Images—◆ Lee Cooper, Emory University/

Georgia Tech; Michael Nalisnik, Emory University; David Gutman, Emory University

- 3:05 p.m. Linking Image-Derived Radiophenotypes with Genomic Expression in Glioblastoma—◆ Arvind Rao, MD Anderson Cancer Center
- 3:25 p.m. Disc: Veera Baladandayuthapani, MD Anderson Cancer Center
- 3:45 p.m. Floor Discussion

225 CC-W178b

■ ● **The Power of Efficient Sampling Designs for Studies of Correlated Endpoints—Invited**

Section on Statistics in Epidemiology, Committee on Applied Statisticians

Organizer(s): Paul Rathouz, University of Wisconsin-Madison

Chair(s): Paul Rathouz, University of Wisconsin-Madison

- 2:05 p.m. Sparse Opportunistic Sampling in Population Pharmacokinetic Studies—William H. Fissell, Vanderbilt University; Pratish Patel, Vanderbilt University; ◆ Matthew S. Shotwell, Vanderbilt University
- 2:30 p.m. On the Analysis of Case-Control and Stratified Case-Control Studies in Cluster-Correlated Data Settings—◆ Sebastien Haneuse, Harvard T.H. Chan School of Public Health; Claudia Rivera, Harvard T.H. Chan School of Public Health
- 2:55 p.m. Auxiliary Variable Sampling Designs for Longitudinal Binary Data with Application to Spirometry-Based COPD Diagnosis—◆ Jonathan Scott Schildcrout, Vanderbilt University
- 3:20 p.m. Efficient Subsampling of Expensive-to-Evaluate Longitudinal Outcomes—◆ John Neuhaus, University of California at San Francisco; Charles McCulloch, University of California at San Francisco
- 3:45 p.m. Floor Discussion

226 CC-W196b

■ ● **Dynamic Prediction in Clinical Survival Analysis—Invited**

ENAR

Organizer(s): Xuelin Huang, MD Anderson Cancer Center

Chair(s): Ruosha Li, The University of Texas Health Science Center at Houston

- 2:05 p.m. Personalized Screening Intervals for Biomarkers Using Joint Models for Longitudinal and Survival Data—◆ Dimitris Rizopoulos, Erasmus University Medical Center
- 2:30 p.m. Functional Data Analysis Approach for Using Longitudinal Biomarker to Predict Disease

- Progression—◆Xuelin Huang, MD Anderson Cancer Center; Fangrong Yan, China Pharmaceutical University/MD Anderson Cancer Center; Xiao Lin, China Pharmaceutical University
- 2:55 p.m. Dynamic Prediction by Landmarking in Clinical Survival Analysis—◆Hans C. van Houwelingen, Leiden University Medical Center
- 3:20 p.m. Characterizing the Prognostic Potential of Dynamic Markers: Connections to Information Theory—◆Patrick Heagerty, University of Washington; Jason Chao-Kang Liang, Fred Hutchinson Cancer Research Center
- 3:45 p.m. Floor Discussion

227 **CC-W195**
● Statistical Foundations of Data Privacy—Invited
 Committee on Privacy and Confidentiality
 Organizer(s): Aleksandra Slavkovic, Penn State University
 Chair(s): Aleksandra Slavkovic, Penn State University

- 2:05 p.m. Connections Between Privacy Definitions and Arbitrage-Free Pricing Functions—◆Daniel Kifer, Penn State University
- 2:30 p.m. Differentially Private Statistical Inference and Hypothesis Testing—◆Vishesh Karwa, Carnegie Mellon University
- 2:55 p.m. Learning with Differential Privacy: Stability, Learnability, and the Sufficiency and Necessity of ERM Principle—◆Yu-Xiang Wang, Carnegie Mellon University; Jing Lei, Carnegie Mellon University; Stephen E. Fienberg, Carnegie Mellon University
- 3:20 p.m. Disc: Adam Smith, Penn State University
- 3:40 p.m. Floor Discussion

228 **CC-W183c**
■ ● The Extraordinary Power of Statistical Collaboration—Invited
 Section on Statistical Consulting, International Chinese Statistical Association, Scientific and Public Affairs Advisory Committee, Committee on Applied Statisticians
 Organizer(s): Eric Vance, Laboratory for Interdisciplinary Statistical Analysis
 Chair(s): Doug Zahn, Florida State University

- 2:05 p.m. Moving from Statistical Consulting to Collaboration—◆Kim Love, K. R. Love Quantitative Consulting and Collaboration
- 2:30 p.m. The Extraordinary Power of Statistical Collaboration in Industry—◆LeAnna Stork, Monsanto

- 2:55 p.m. The Power of Statistical Collaboration in Government—◆Carol Gotway Crawford, USDA/NASS
- 3:20 p.m. The Extraordinary Potential of Statistical Collaboration Laboratories—◆Eric Vance, Laboratory for Interdisciplinary Statistical Analysis
- 3:45 p.m. Floor Discussion

Invited Panels 2:00 p.m. – 3:50 p.m.

229 **CC-W183a**
■ ● Teaching a Large Introductory Statistics Course: Making It Work!—Invited
 Section on Statistical Education
 Organizer(s): Michelle G. Everson, The Ohio State University
 Chair(s): Roger Woodard, North Carolina State University
 Panelists: ◆Megan Mocko, University of Florida
 ◆Stacey Hancock, University of California at Irvine
 ◆Christopher Wild, University of Auckland
 ◆Brenda Gunderson, University of Michigan

3:45 p.m. Floor Discussion

230 **CC-W192b**
● Effective Self-Promotion to Advance Your Career in Statistics—Invited
 Joint Committee on Women in the Mathematical Sciences, Caucus for Women in Statistics, Committee on Women in Statistics, IMS, Royal Statistical Society, International Chinese Statistical Association, Committee on Career Development
 Organizer(s): Johanna G. Neslehova, McGill University
 Chair(s): Paula K. Roberson, University of Arkansas for Medical Sciences
 Panelists: ◆Charmaine Dean, University of Western Ontario
 ◆Martha Gardner, General Electric Company
 ◆Nicholas P. Jewell, University of California at Berkeley
 ◆Nandini Kannan, National Science Foundation
 ◆Michael R. Kosorok, The University of North Carolina at Chapel Hill

3:45 p.m. Floor Discussion

Monday

Topic-Contributed Sessions 2:00 p.m. – 3:50 p.m.

231 CC-W193a

■ ● Application of Novel Methods in Clinical Trials: Case Study Approaches—Topic-Contributed

Biometrics Section, Biopharmaceutical Section, International Chinese Statistical Association, Committee on Applied Statisticians

Organizer(s): Arkendu S. Chatterjee, Novartis

Chair(s): Soumi Lahiri, GlaxoSmithKline

- 2:05 p.m. Some New Metrics to Test for Biosimilarity—
◆Sujit K. Ghosh, North Carolina State University; Yifang Li, Novartis
- 2:25 p.m. BOIN: A Simple, Ethical Bayesian Optimal Design for Phase I Oncology Trials—◆Ying Yuan, MD Anderson Cancer Center; Suyu Liu, MD Anderson Cancer Center
- 2:45 p.m. Early-Phase Designs for Targeted and Immunotherapeutic Agents—◆Codruta Chiuзан, Columbia University
- 3:05 p.m. Using Surrogate Marker Information to Test for a Treatment Effect—◆Layla Parast, RAND Corporation; Tianxi Cai, Harvard; Lu Tian, Stanford University
- 3:25 p.m. A Note on Posterior Predictive Assessment to Assess Model Fit—◆Arkendu S. Chatterjee, Novartis; Dandan Xu, University of Florida; Michael Daniels, The University of Texas at Austin
- 3:45 p.m. Floor Discussion

232 CC-W196c

Mediation Analysis and Sensitivity Analysis in Advanced Settings—Topic-Contributed

Biometrics Section, Biopharmaceutical Section, Section on Statistics in Imaging, International Chinese Statistical Association

Organizer(s): Chanmin Kim, Harvard; Corwin Zigler, Harvard T.H. Chan School of Public Health

Chair(s): Chanmin Kim, Harvard

- 2:05 p.m. Sparse Mediation Analysis for High-Dimensional Mediators with Application of Neuroimaging and Methylation Data—
◆Seonjoo Lee, Columbia University
- 2:25 p.m. Meta-Mediation Analysis for Generating Mechanistic Hypotheses—◆John Jackson, Harvard; Tyler J. VanderWeele, Harvard
- 2:45 p.m. Region-Based Hypothesis Test of Mediation Effect with Epigenomic Data Using Kernel Machine Regression—◆Jincheng Shen, Harvard T.H. Chan School of Public Health
- 3:05 p.m. The Impact of Exposure Measurement Error in Mediation Analyses for Environmental

Epigenetic Studies—◆Linda Valeri, Harvard; Brent Coull, Harvard T.H. Chan School of Public Health

- 3:25 p.m. Sharp Sensitivity Bounds for Mediation Under Unmeasured Mediator-Outcome Confounding—◆Peng Ding, University of California at Berkeley
- 3:45 p.m. Floor Discussion

233 CC-W184d

■ Statistics for Business Process Improvement—Topic-Contributed

Business and Economic Statistics Section, Section on Statistics in Marketing

Organizer(s): Beatriz E. Etchegaray Garcia, IBM Research

Chair(s): Beatriz E. Etchegaray Garcia, IBM Research

- 2:05 p.m. Optimizing the Customer Experience Using Statistical Methods—◆Cheryl Flynn; David Poole, AT&T Labs Research; DeDe Paul, AT&T Labs Research
- 2:25 p.m. Quantifying Tail Risk in Health Insurance Pools with Extreme Value Theory—◆Grant Weller, Savvysherpa
- 2:45 p.m. Hierarchical Time Series Forecasting—◆Julie Novak, IBM; Beatriz E. Etchegaray Garcia, IBM Research; Yasuo Amemiya, IBM Research
- 3:05 p.m. Floor Discussion

234 CC-W179b

■ ● Recent Enhancements of Graphical Markov Models—Topic-Contributed

International Statistical Institute, IMS

Organizer(s): Nanny Wermuth, Johannes Gutenberg University/Chalmers University of Technology

Chair(s): Nanny Wermuth, Johannes Gutenberg University/Chalmers University of Technology

- 2:05 p.m. On Log-Mean Linear Regression Graph Models—◆Monia Lupparelli; Alessandra Mattei, University of Florence; Alberto Roverato, University of Bologna
- 2:25 p.m. Graphs of Confounding—◆Robin Evans
- 2:45 p.m. Brownian Motion Tree Models: Theory and Applications—◆Caroline Uhler, MIT
- 3:05 p.m. Causal Inference from Big Data: Theoretical Foundations and the Data-Fusion Problem—
◆Elias Bareinboim, Purdue University
- 3:25 p.m. Floor Discussion

235 CC-W187a Recent Advances in Bayesian Methodology and Computation for Ultra-High-Dimensional Data— Topic-Contributed

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA), Section on Statistics in Imaging, International Chinese Statistical Association

Organizer(s): Jyotishka Datta, Duke University/Statistical and Applied Mathematical Sciences Institute

Chair(s): Lou Mariano, RAND Corporation

- 2:05 p.m. Prediction Risk for Global-Local Shrinkage Regression—◆Anindya Bhadra, Purdue University; Jyotishka Datta, Duke University/Statistical and Applied Mathematical Sciences Institute; Yunfan Li, Purdue University; Nicholas Polson, The University of Chicago; Brandon Willard, The University of Chicago
- 2:25 p.m. A Bayesian Generalized CAR Model for Correlated Signal Detection—◆Andrew Brown, Clemson University; Gauri S. Datta, University of Georgia; Nicole A. Lazar, University of Georgia
- 2:45 p.m. Inference on High-Dimensional Sparse Poisson Means—◆Jyotishka Datta, Duke University/Statistical and Applied Mathematical Sciences Institute; David Dunson, Duke University
- 3:05 p.m. Approximations of Markov Chains and Bayesian Inference—◆James Johndrow, Duke University; Jonathan Mattingly, Duke University; Sayan Mukherjee, Duke University; David Dunson, Duke University
- 3:25 p.m. Bayesian Feature Selection for Ultra-High-Dimensional Imaging Genetics Data—◆Yize Zhao, Statistical and Applied Mathematical Sciences Institute; Hongtu Zhu, The University of North Carolina at Chapel Hill; Fei Zou, University of Florida
- 3:45 p.m. Floor Discussion

236 CC-W176b ■ ● Multiple Imputation—Multiple Challenges— Topic-Contributed

Survey Research Methods Section, Committee on Applied Statisticians

Organizer(s): Florian Meinfelder, Otto-Friedrich-Universitaet Bamberg

Chair(s): Trivellore Raghunathan, University of Michigan

- 2:05 p.m. Benchmarking and Assessment for Multiple Imputation—◆Gerko Vink, Utrecht University
- 2:25 p.m. Interactions and Squares: Don't Transform, Just Impute!—◆Philipp Gaffert, GfK SE; Volker Bosch, GfK SE; Florian Meinfelder, Otto-Friedrich-Universitaet Bamberg

- 2:45 p.m. Optimal Split Questionnaire Survey Design in the Longitudinal Setting—◆Paul Michael Imbriano, University of Michigan; Trivellore Raghunathan, University of Michigan
- 3:05 p.m. Optimal Missing-by-Design Patterns with Genetic Algorithms—◆Florian Meinfelder, Otto-Friedrich-Universitaet Bamberg; Sara Bahrami, Leibniz Institute for Educational Trajectories
- 3:25 p.m. Disc: Susanne Raessler, Otto-Friedrich-Universitaet Bamberg
- 3:45 p.m. Floor Discussion

237 CC-W196a ■ Quantitative Sciences for Safety Monitoring and Confirmatory Safety in Clinical Development— Topic-Contributed

Biopharmaceutical Section, Scientific and Public Affairs Advisory Committee, Committee on Applied Statisticians

Organizer(s): Judy X. Li, FDA

Chair(s): Qi Jiang, Amgen

- 2:05 p.m. ASA Biopharm's Safety Monitoring Subteam: Survey of Statisticians, Thought Leaders, and Regulatory Guidance—◆Mike Wright Colopy, UCB Bioscience; Susan Duke, AbbVie
- 2:25 p.m. Safety-Monitoring Methodology in the Premarketing Setting—◆Melvin Munsaka, Takeda Development Center
- 2:45 p.m. Statistical Considerations for Cardiovascular Outcome Trials in Patients with T2DM—◆Maria Matilde Sanchez-Kam, Arena Pharmaceuticals
- 3:05 p.m. Disc: William Wang, Merck
- 3:25 p.m. Disc: Ram Tiwari, FDA/CDER/OT/OB
- 3:45 p.m. Floor Discussion

238 CC-W175a If You Measure, They Will Publish: State and Federal Data on Sexual Orientation and Gender Identity in Action—Topic-Contributed

Social Statistics Section, Scientific and Public Affairs Advisory Committee

Organizer(s): Paul Guerino, Centers for Medicare and Medicaid Services

Chair(s): Paul Guerino, Centers for Medicare and Medicaid Services

- 2:05 p.m. Sexual Orientation and Health Outcomes in the U.S. Medicare-Aged Population: National Health Interview Survey, 2013–2014—◆Erkan Erdem, KPMG; Samuel "Chris" Haffer, Centers for Medicare and Medicaid Services

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 2:25 p.m. Marriage Equality and Health for the Lesbian, Gay, and Bisexual Population—◆Gilbert Gonzales, Vanderbilt University
- 2:45 p.m. Keeping the ‘T’ in LGBT: Testing and Implementing Gender Identity Questions in the California Health Interview Survey (CHIS)—◆Matt Jans, University of California at Los Angeles; David Grant, University of California at Los Angeles; Royce Park, University of California at Los Angeles; Ninez Ponce, University of California at Los Angeles; Jody Herman, The Williams Institute; Bianca D. M. Wilson, The Williams Institute; Gary Gates, The Williams Institute; Sue Holtby, Public Health Institute; Nicole Lordi, Public Health Institute; Joe Viana, University of California at Los Angeles
- 3:05 p.m. Difficulties in Assessing Sexual Minority Status Without Standardized Measures: The Youth Risk Behavior Survey—◆Gregory Phillips, Northwestern University
- 3:25 p.m. Disc: Diane Herz, Mathematica Policy Research
- 3:45 p.m. Floor Discussion

239 CC-W179a

● **Winning Solutions for Health Policy Puzzles: HPSS Student Paper Competition Winners—Topic-Contributed**

Health Policy Statistics Section, Scientific and Public Affairs Advisory Committee

Organizer(s): Ruth Etzioni, Fred Hutchinson Cancer Research Center

Chair(s): Ruth Etzioni, Fred Hutchinson Cancer Research Center

- 2:05 p.m. Nonparametric Methods for Doubly Robust Estimation of Continuous Treatment Effects—◆Edward Kennedy, University of Pennsylvania; Zongming Ma, University of Pennsylvania; Dylan Small, University of Pennsylvania
- 2:25 p.m. A Bayesian HSROC Model for Meta-Analysis of Multiple Diagnostic Tests—◆Qinshu Lian, University of Minnesota; Haitao Chu, University of Minnesota
- 2:45 p.m. Spatial Confounding Adjustment with Propensity Score Matching—◆Georgia Papadogeorgou, Harvard T.H. Chan School of Public Health; Corwin Zigler, Harvard T.H. Chan School of Public Health
- 3:05 p.m. Bayesian Bounding of the Population Subgroup Which Benefits from Treatment—◆Patrick Schnell, University of Minnesota; Qi Tang, AbbVie; Walt Offen, AbbVie; Bradley Carlin, University of Minnesota
- 3:25 p.m. Disentangling Bed Nets and Spillover Effects in a Clustered Encouragement Design for Malaria Control: A Bayesian Principal Stratification Approach—◆Laura Forastiere, University

of Florence; Fabrizia Mealli, University of Florence; Tyler J. VanderWeele, Harvard

3:45 p.m. Floor Discussion

Topic-Contributed Panels 2:00 p.m. – 3:50 p.m.

240 CC-W182

■ **Awareness and Quality Improvements for the Joint ASA/NCTM Poster Competition—Topic-Contributed**

Section on Statistical Education

Organizer(s): Richard M. Heiberger, Temple University Fox School of Business

Chair(s): Richard M. Heiberger, Temple University Fox School of Business

- Panelists:
- ◆Juergen Symanzik, Utah State University
 - ◆Christine Franklin, University of Georgia
 - ◆Rodney Jee, Discover Financial Services
 - ◆Rebecca Nichols, ASA
 - ◆Naomi B. Robbins, NBR

3:45 p.m. Floor Discussion

241 CC-W176c

■ **Professional Opportunities at Smaller Colleges and Universities—Topic-Contributed**

Section on Statistical Education

Organizer(s): KB Boomer, Bucknell University

Chair(s): Patricia Humphrey, Georgia Southern University

- Panelists:
- ◆KB Boomer, Bucknell University
 - ◆Douglas Andrews, Wittenberg University
 - ◆Monika Hu, Vassar University
 - ◆Adam Loy, Lawrence University
 - ◆Eric Reyes, Rose-Hulman Institute of Technology

3:45 p.m. Floor Discussion

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

242 CC-W193b

■ **Methods for Genetics and Genomics Data—Contributed**

Biometrics Section, Biopharmaceutical Section

Chair(s): Himel Mallick, Harvard

- 2:05 p.m. Case-Oriented Pathways Analysis in Pancreatic Adenocarcinoma—◆Yen-Yi Ho, University

- of Minnesota; Timothy K. Starr, University of Minnesota; Rebecca S. LaRue, Minnesota Super Computing Institute; David A. Largaespada, University of Minnesota
- 2:20 p.m. **A Bayesian GWAS Method Utilizing Haplotype Clusters for a Composite Breed Population**—◆Danielle Wilson-Wells, University of Nebraska-Lincoln; Stephen D. Kachman, University of Nebraska-Lincoln
- 2:35 p.m. **Region-Level Differential Methylation Testing with Smoothed Functional Principal Component Analysis**—◆Mohamed Milad; Gayla Olbricht, Missouri University of Science and Technology
- 2:50 p.m. **Genome-Wide Transcription Regulation Discovery for Breast Cancer Cell Lines**—◆Zangdong He, Indiana University Fairbanks School of Public Health; Lang Li, Indiana University School of Medicine; Changyu Shen, Indiana University School of Medicine
- 3:05 p.m. **Mapping Three-Dimensional Organization in Repetitive Regions of the Genomes**—◆Ye Zheng, University of Wisconsin-Madison; Sunduz Keles, University of Wisconsin-Madison; Ferhat Ay, La Jolla Institute for Allergy and Immunology
- 3:20 p.m. **Genomic Data Integration for GWAS and EQTL Analysis**—◆Constanza Rojo, University of Wisconsin-Madison; Sunduz Keles, University of Wisconsin-Madison; Qi Zhang, University of Nebraska-Lincoln
- 3:35 p.m. **Fast and Accurate Power Calculation Methods for Rare-Variant Association Tests**—◆Andriy Derkach, National Cancer Institute; Nilanjan Chatterjee, The Johns Hopkins University

243 CC-W186b

● Probability Estimation—Contributed

Section on Statistical Computing

Chair(s): Marie Vendettuoli, USDA

- 2:05 p.m. **A Prior for Time-Varying Covariance Matrices**—◆Georgios Papageorgiou, University of London
- 2:20 p.m. **Inference of Stress Strength for Gompertz Model with Record Sample**—◆Morgan Barnes, University of South Dakota; Yuhlong Lio, University of South Dakota; Nan Jiang, University of South Dakota
- 2:35 p.m. **Statistical Techniques Used in Simulation of Particle Size Distribution Profiles of Orally Inhaled Products**—◆Monisha Dey, Merck; J. David Christopher, Merck; Ziqing Pan, Statistician dDimension
- 2:50 p.m. **Maximum Likelihood Estimation of Gaussian Copula Models for Geostatistical Count Data**—

◆Zifei Han; Victor De Oliveira, The University of Texas at San Antonio

- 3:05 p.m. **Transmuted Kumaraswamy Weibull Distribution with Application**—◆Muhammad Shuaib Khan, University of Newcastle; Robert King, University of Newcastle; Irene Lena Hudson, University of Newcastle
- 3:20 p.m. **A Sequential Monte Carlo Approach to Estimate Parameters of Ornstein-Uhlenbeck Process from First Passage Times**—◆Long Tao, Boston University; Uri Eden, Boston University
- 3:35 p.m. **MM Algorithms for Variance Components Models**—◆Liuyi Hu, North Carolina State University; Hua Zhou, University of California at Los Angeles; Jin Zhou, University of Arizona; Kenneth Lange, University of California at Los Angeles

244

CC-W175b

■ Data Fusion for Environmental Applications—Contributed

Section on Statistics and the Environment, Section on Risk Analysis

Chair(s): Karen Ryberg, U.S. Geological Survey

- 2:05 p.m. **Comparing Estimation Techniques for Spatio-Temporal Models with Application to Gridded Data for Studying Perennial Biofuel Crops Impacts**—◆Meng Wang, Arizona State University; Yiannis Kamarianakis, Arizona State University; Alex Mahalov, Arizona State University; Melissa Wagner, Arizona State University; Matei Georgescu, Arizona State University; Gonzalo Miguez-Macho, Universidade de Santiago de Compostela; Mohamed Moustauoui, Arizona State University
- 2:20 p.m. **Spatial Data Fusion for Large Non-Gaussian Remote Sensing Data Sets**—◆Hongxiang Shi, University of Cincinnati; Emily Lei Kang, University of Cincinnati
- 2:35 p.m. **Downscaling of Climate Model Projections of Temperature and Related Uncertainty Quantification**—◆Ernst Linder, University of New Hampshire; Yiming Liu, University of New Hampshire; Meng Zhao, University of New Hampshire
- 2:50 p.m. **Tales of Five Chinese Cities: PM_{2.5} Data Reliability and Compatibility in Air Quality Assessment**—◆Xuan Liang, Peking University; Shuo Li, Peking University; Shuyi Zhang, Peking University; Hui Huang, Peking University; Song Xi Chen, Peking University/Iowa State University
- 3:05 p.m. **Stochastic Simulation of Predictive Space-Time Scenarios of Wind Speed Using Observations and Physical Models**—◆Julie Bessac, Argonne National Lab; Emil Mihai Constantinescu, Argonne National Lab; Mihai Anitescu, Argonne National Lab

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 3:20 p.m. **Evaluating Climate Models**—◆Eric Gilleland, National Center for Atmospheric Research; Barbara G. Brown, National Center for Atmospheric Research; Caspar Ammann, National Center for Atmospheric Research; William Gutowski, Iowa State University; Tressa Fowler, National Center for Atmospheric Research; John Halley Gotway, National Center for Atmospheric Research
- 3:35 p.m. **Estimating Rate of Change of Carbon Dioxide Emission Using Functional Approach**—◆Ram Kafle, Sam Houston State University; Netra Khanal, University of Tampa; Chris P. Tsokos, University of South Florida

245 **CC-W178a**

■ Statistical Methods for Inferring Genetic Associations—Contributed

Section on Statistics in Epidemiology, Biopharmaceutical Section
Chair(s): Tzu-Cheg Kao, Uniformed Services University of the Health Sciences

- 2:05 p.m. **USAT: A Unified Score-Based Association Test for Multiple Phenotype-Genotype Analysis**—◆Debashree Ray, University of Michigan; James S. Pankow, University of Minnesota; Saonli Basu, University of Minnesota
- 2:20 p.m. **Characterizing Uncertainty in Genetic Association Landscapes by Functional Bayesian Bands**—◆Olga A. Vsevolozhskaya, University of Kentucky; Ilai Keren, Washington Department of Fish and Wildlife; Dmitri Zaykin, National Institute of Environmental Health Sciences
- 2:35 p.m. **A Functional Data Analysis Framework for Investigating the Interaction Between Genetic Variant Profiles and Environmental Factors**—◆Li Luo, University of New Mexico; Marianne Berwick, University of New Mexico; Ji-Hyun Lee, University of New Mexico
- 2:50 p.m. **Simultaneous Detection and Estimation of Trait Associations with Genomic Phenotypes**—◆Jean Morrison, University of Washington; Noah Simon, University of Washington; Daniela Witten, University of Washington
- 3:05 p.m. **A Powerful Statistical Procedure for Pathway-Based Meta-Analysis Using Summary Statistics**—◆Han Zhang, National Cancer Institute; William Wheeler, Information Management Services; Paula L. Hyland, National Cancer Institute; Yifan Yang, University of Kentucky; Jianxin Shi, National Cancer Institute; Nilanjan Chatterjee, The Johns Hopkins University; Kai Yu, National Cancer Institute
- 3:20 p.m. **A Bayesian Hierarchical Model for Pathway Analysis with Simultaneous Inference on Pathway-Gene-SNP Structure**—◆Lei Zhang,

The University of Texas at Dallas; Swati Biswas, The University of Texas at Dallas; Pankaj Choudhary, The University of Texas at Dallas

- 3:35 p.m. **Massive Significance Testing in Genetic Epidemiology Amid Replicability Crisis**—◆Dmitri Zaykin, National Institute of Environmental Health Sciences; Olga A. Vsevolozhskaya, University of Kentucky

246 **CC-W181b**
Statistical Methods for Longitudinal Functional Data Analysis—Contributed

Section on Statistics in Imaging, Statistics in Business Schools Interest Group

Chair(s): Yanming Li, University of Michigan

- 2:05 p.m. **Multivariate Depth for Classification of Functional Data**—◆Chong Ma, University of South Carolina; David Hitchcock, University of South Carolina
- 2:20 p.m. **Estimating the Coefficients of a Linear Differential Operator to Model Functional Data**—◆Maria Ivette Barraza-Rios, The University of Texas at El Paso; Joan G. Staniswalis, The University of Texas at El Paso
- 2:35 p.m. **Evaluation of Functional Covariate-Environment Interaction in the Cox Model**—◆Ling Zhou, University of Michigan; Huazhen Lin, Southwestern University of Finance and Economics; Peter X. K. Song, University of Michigan
- 2:50 p.m. **A Functional Single Index Model with a Monotone Parameter Curve**—◆Eduardo Montoya, California State University at Bakersfield
- 3:05 p.m. **A Longitudinal Study of Broadway Show Success in a Hierarchical Bayes Framework**—◆Lan Nygren, Rider University; Kjell Nygren, Navigant Consulting; Jeffrey Simonoff, New York University
- 3:20 p.m. **Estimating Chinese Treasury Yield Curves with Bayesian Smoothing Splines**—◆Zhuoqiong He, University of Missouri; Xiaojun Tong, China Securities Index Co.; Dongchu Sun, University of Missouri
- 3:35 p.m. **Floor Discussion**

247 **CC-W184bc**
■ Toward Better Communication of Information with Statistical Graphics—Contributed

Section on Statistical Graphics, Biopharmaceutical Section, Section for Statistical Programmers and Analysts

Chair(s): Amelia McNamara, Smith College

- 2:05 p.m. **Clusters Beat Trend!? Testing Feature Hierarchy in Statistical Graphics**—◆Susan VanderPlas, Nebraska Public Power District; Heike Hofmann, Iowa State University

2:20 p.m. Identifying the Effects of Clear Visualization: Reduced Time to a Deeper Understanding of Data—◆Kathleen Campbell, Saint Joseph's University; Nicolle Clements, Saint Joseph's University; Virginia Miori, Saint Joseph's University; Corey Jones, Saint Joseph's University

2:35 p.m. The Linked Microposter Plot as a New Means for the Visualization of Eye-Tracking Data—◆Chunyang Li, Utah State University; Juergen Symanzik, Utah State University

2:50 p.m. Optimizing Diffusion Cartograms for Areal Data Using a New Evaluation Method—◆Xiaoyue Cheng, University of Nebraska-Omaha

3:05 p.m. Capitalizing on the Power of Dynamic Data Visualization—◆Neil Polhemus, Statpoint Technologies

3:20 p.m. What Can We Learn from Exact Calculation of Histograms?—◆James Weber

3:35 p.m. Interactive Graphics for Functional Data Analyses—◆Julia Wrobel, Columbia University; Jeff Goldsmith, Columbia Mailman School of Public Health

248 CC-W185a Bayesian Methods for Shrinkage in High-Dimensional and Complex Data—Contributed

Section on Statistical Learning and Data Science, International Society for Bayesian Analysis (ISBA), Section on Bayesian Statistical Science

Chair(s): Jennifer Sniadecki, Ultragenyx

2:05 p.m. A Variational Bayesian Algorithm for Variable Selection—◆Xichen Huang; Jin Wang, University of Illinois; Feng Liang, University of Illinois at Urbana-Champaign

2:20 p.m. Bayesian Regression Using a Prior on the Model Fit—◆Brian Naughton, North Carolina State University; Howard Bondell, North Carolina State University

2:35 p.m. High-Dimensional Linear Regression via the R2-D2 Shrinkage Prior—◆Yan Zhang, North Carolina State University; Brian J. Reich, North Carolina State University; Howard Bondell, North Carolina State University

2:50 p.m. A Topic Model for Hierarchical Documents—◆Feifei Wang; Yang Yang, Peking University

3:05 p.m. Determining the Optimum Number of Topics in a Latent Dirichlet Allocation Topic Model—◆Dale Bowman, University of Memphis

3:20 p.m. Modeling Bipartite Graph Using Dependent Indian Buffet Processes—◆Ketong Wang, University of Alabama; Michael D. Porter, University of Alabama

3:35 p.m. Bayesian Variable Selection for Binary Outcomes in High-Dimensional Genomic Studies Using Nonlocal Priors—◆Amir Nikooienejad; Wenyi Wang, MD Anderson Cancer Center; Valen E. Johnson, Texas A&M University

249 CC-W186a Regularization and Prediction in Time Series and Longitudinal Models—Contributed

Section on Statistical Learning and Data Science

Chair(s): Chuck Kincaid, Experis

2:05 p.m. Joint Modeling of Correlated Binary Response and Longitudinal Covariates via Random Forest Applied to Glaucoma Progression Prediction—◆Juanjuan Fan, San Diego State University; Lucie Sharpsten, United Health Group; Xiaogang Su, The University of Texas at El Paso; Shaban Demirel, Devers Eye Institute; Richard Levine, San Diego State University

2:20 p.m. Identifying Patterns of Trends and Classification in Financial Time Series—◆Seunghye Jung Wilson, George Mason University; James E. Gentle, George Mason University

2:35 p.m. Estimation of Multi-Granger Network Causal Models—◆Andrey Skripnikov, University of Florida; George Michailidis, University of Florida

2:50 p.m. High-Dimensional Regularized Estimation in Time Series Under Mixing Conditions—◆Kam Chung Wong, University of Michigan; Ambuj Tewari, University of Michigan; Zifan Li, University of Michigan

3:05 p.m. Next-Generation Flow Field Forecasting: Organizing and Searching Historical Time Series Data Using CART—◆Kyle Caudle, South Dakota School of Mines and Technology; Michael Frey, Bucknell University; Patrick Fleming, South Dakota School of Mines and Technology

3:20 p.m. Longitudinal Network Prediction with Applications to Network-Based Interventions—◆Ravi Goyal, Mathematica Policy Research

3:35 p.m. Applications of Machine Learning in Environmetrics: Detecting Dynamic Trend-Based Clusters—◆Xin Huang, The University of Texas at Dallas; Iliyan R. Iliev, The University of Texas at Dallas; Lyubchich Vyacheslav, University of Maryland Center for Environmental Science; Alexander Brenning, University of Jena; Yulia R. Gel, The University of Texas at Dallas

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

250 CC-W194a
■ Time-to-Event Data: New Horizons—
Contributed

Biometrics Section, Biopharmaceutical Section, International Chinese Statistical Association

Chair(s): Yang Liu, Fred Hutchinson Cancer Research Center

- 2:05 p.m. Survival Trees for Left-Truncated and Right-Censored Data, with Application to Time-Varying Covariate Data—◆Wei Fu; Jeffrey Simonoff, New York University
- 2:20 p.m. A Pairwise Likelihood-Augmented Estimator for Left-Truncated Data with Time-Dependent Covariates—◆Fan Wu, University of Michigan; Sehee Kim, University of Michigan; Yi Li, University of Michigan
- 2:35 p.m. Induced Smoothing and Efficient Variance Estimation for the Accelerated Gap Times Model with Recurrent Events Data—◆Tianmeng Lyu, University of Minnesota; Gongjun Xu, University of Minnesota; Chiung-Yu Huang, The Johns Hopkins University; Xianghua Luo, University of Minnesota
- 2:50 p.m. Semiparametric Estimation of the Accelerated Failure Time Model with Partly Interval-Censored Data—◆Fei Gao; Donglin Zeng, The University of North Carolina at Chapel Hill; Danyu Lin, The University of North Carolina at Chapel Hill
- 3:05 p.m. Data-Transformation Approach to Lifetimes Data Analysis—◆Kobby Asubonteng, AstraZeneca; Govind Mudholkar, University of Rochester
- 3:20 p.m. Regression Analysis of Clustered Failure Time Data with Informative Cluster Size Under the Additive Transformation Models—◆Ling Chen, Washington University in St. Louis; Yanqin Feng, Wuhan University; Jianguo Sun, University of Missouri
- 3:35 p.m. Analysis of Restricted Mean Survival Time for Length-Biased Data—◆Chi Hyun Lee, MD Anderson Cancer Center; Yu Shen, MD Anderson Cancer Center; Jing Ning, MD Anderson Cancer Center

251 CC-W194b
■ ● Bayesian Modeling and Applications—
Contributed

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

Chair(s): John Han, Johnson & Johnson

- 2:05 p.m. A Phase 2a Bayesian Adaptive Dose-Ranging Trial Evaluating Hypertension Therapy—◆Richann Liu, Pfizer

- 2:20 p.m. A Simple Bayesian Design to Identify Maximum Tolerated Dose Contour for Drug Combination Trials—◆Liangcai Zhang, Rice University; Ying Yuan, MD Anderson Cancer Center
- 2:35 p.m. Exploring Bayesian Go/No-Go Decision Criteria in Clinical Trials—◆Rodney Croos-Dabrera, Astellas Pharma; Misun Lee, Astellas Pharma
- 2:50 p.m. Use of Bayesian Methods in Dose-Escalation Studies—◆Mani Lakshminarayanan, Pfizer
- 3:05 p.m. Precision Medicine: How Bayesian Empirical Subgroup Analysis Plays a Role—◆Judy X. Li, FDA; Wei-Chen Chen, FDA/CBER; John Scott, FDA
- 3:20 p.m. Bayesian Statistical Models Assessing Disease Modification Drug Effects Using Doubly Randomized Delayed-Start and Matched Control Designs—◆Ibrahim Turkoz, Janssen R&D; Marc Sobel, Temple University
- 3:35 p.m. Bayesian Modeling of Phase II Dose-Ranging Clinical Trials—◆Shu-Yen Ho, PAREXEL

252 CC-W190b
■ ● Cancer Genomics and Tumor Sequencing—
Contributed

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

Chair(s): Jingyang Zhang, Fred Hutchinson Cancer Research Center

- 2:05 p.m. Modeling Multiple Primary Cancers Over Time Using a Novel Familywise Likelihood Under the Nonhomogeneous Poisson Process—◆Jialu Li, MD Anderson Cancer Center; Seung Jun Shin, Korea University; Wenyi Wang, MD Anderson Cancer Center
- 2:20 p.m. Testing for Differentially Expressed Pathways from Within-Subject Matched Pairs of RNA-Seq Data Sets—◆Grant Schissler, Statistics GDP; Walter W. Piegorsch, University of Arizona; Yves A. Lussier, University of Arizona
- 2:35 p.m. Genomic Analysis with Common Binary Outcomes via Mediation—◆Sheila Gaynor, Harvard; Xihong Lin, Harvard T.H. Chan School of Public Health
- 2:50 p.m. Analysis of High-Throughput Drug Screening Data of Cancer Cell Lines—◆Hongmei Liu; J. Sunil Rao, University of Miami
- 3:05 p.m. Assessing Intra-Tumor Heterogeneity and Tracking Longitudinal and Spatial Clonal Evolution by Next-Generation Sequencing—◆Yuchao Jiang, University of Pennsylvania; Yu Qiu, University of Pennsylvania; Andy J. Minn, University of Pennsylvania; Nancy Zhang, University of Pennsylvania

3:20 p.m. **A Beta-Binomial Model to Compare Somatic Mutation Rates Between Groups of Cancer Patients**—◆Hong Wang, University of Kentucky; Yong Chen, University of Pennsylvania Perelman School of Medicine; Jinze Liu, University of Kentucky; Heidi Weiss, University of Kentucky; Susanne M. Arnold, University of Kentucky; Aronld Stromberg, University of Kentucky; Chi Wang, University of Kentucky

3:35 p.m. **Cell Type-Specific Deconvolution of Heterogeneous Tumor Samples with Immune Infiltration Using Expression Data**—◆Zeya Wang, Rice University; Jeffrey S. Morris, MD Anderson Cancer Center; Jaeil Ahn, Georgetown University; Svitlana Tyekucheva, Harvard; Bo Li, Harvard; Wei Lu, MD Anderson Cancer Center; Ximing Tang, MD Anderson Cancer Center; Ignacio I. Wistuba, MD Anderson Cancer Center; Chris Holmes, University of Oxford; Wenyi Wang, MD Anderson Cancer Center

253 CC-W191 Predictive Modeling and Feature Selection for Neuroimaging Data—Contributed

Section on Statistics in Imaging, International Chinese Statistical Association

Chair(s): Zhe Fei, University of Michigan

2:05 p.m. **Topological Methods for fMRI Data**—◆Adam Jaeger, Duke University; Ezra Miller, Duke University

2:20 p.m. **Early Prediction of Alzheimer's Disease Using Longitudinal Volumetric MRI Data from ADNI**—◆Yingjie Li, Michigan State University; Liangliang Zhang, Michigan State University; Tapabrata Maiti, Michigan State University; David C. Zhu, Michigan State University; Jongeun Choi, Michigan State University

2:35 p.m. **Local Region Image-on-Scalar Regression**—◆Yao Chen; Xiao Wang, Purdue University

2:50 p.m. **Multivariate Pattern Analysis and Confounding in Neuroimaging**—◆Kristin Linn, University of Pennsylvania; Bilwaj Gaonkar, University of California at Los Angeles; Jimit Doshi, University of Pennsylvania; Christos Davatzikos, University of Pennsylvania; Russell Shinohara, University of Pennsylvania

3:05 p.m. **Symmetric Tensor Regression with Applications in Neuroimaging Data Analysis**—◆Weixin Cai, University of California at Berkeley; Lexin Li, University of California at Berkeley

3:20 p.m. **Nonparametric Estimation and Classification for Functional Data with Spatial Correlation**—◆Yuan Wang, Washington State University; Brian Hobbs, MD Anderson Cancer Center; Kim-Anh Do, MD Anderson Cancer Center; Jianhua Hu, MD Anderson Cancer Center

3:35 p.m. **An Integrative Classification Model for Multiple Sclerosis Lesion Detection in Multimodal MRI**—◆Fengqing Zhang, Drexel University; Wenxin Jiang, Northwestern University; Ji-Ping Wang, Northwestern University

254 CC-W192c ■● Early-Phase Clinical Trials: Setting the Stage for Success—Contributed

Biopharmaceutical Section

Chair(s): Yanxun Xu

2:05 p.m. **Randomization Does Not Prevent Confounding in Assessing Interaction or Subgroup Analyses**—◆Lei Nie, FDA; Zhiwei Zhang, FDA/CDRH; Jialu Zhang, FDA

2:20 p.m. **Application of Propensity-Score Matching in Data Augmentation of Randomized Clinical Trials: A Case Study**—◆Junjing Lin, AbbVie; Margaret Gamalo-Siebers, Eli Lilly and Company; Ram Tiwari, FDA/CDER/OT/OB

2:35 p.m. **Enabling Robust PK/QTc Assessment in Single and Multiple Ascending Dose Trials for Evaluation of QTc Prolongation**—◆Fang Liu, Merck; Li Fan, Merck; Kuenhi Tsai, Merck; Devan V. Mehrotra, Merck

2:50 p.m. **Enrichment Design with Patient Augmentation for Time-to-Event Data**—◆Yijie Zhou, AbbVie; Bo Yang, Vertex Pharmaceuticals; Lanju Zhang, AbbVie; Lu Cui, AbbVie

3:05 p.m. **Dose-Ranging Design and Analysis Based on MCP-Mod to Identify the Minimum Effective Dose (MED)**—◆Ying Zhang, AbbVie; Su Chen, AbbVie; Yihan Li, AbbVie; Wangang Xie, AbbVie; Yijie Zhou, AbbVie; Li Wang, AbbVie; Alan Hartford, AbbVie

3:20 p.m. **Optimal Borrowing of Historical Control Data in Clinical Trials**—◆Saurabh Mukhopadhyay, AbbVie; Qi Tang, AbbVie; Alan Hartford, AbbVie

3:35 p.m. **Never Fit Sequence: The Design and Analysis of Multi-Period Clinical Trials**—◆Hans Hockey, Biometrics Matters Ltd.

255 CC-W175c Advances in Small Area/Domain Estimation—Contributed

Survey Research Methods Section

Chair(s): Elizabeth Zell

2:05 p.m. **Survey Estimators of Ordered Domain Means**—◆Cristian Oliva, Colorado State University; Mary C. Meyer, Colorado State University; Jean Opsomer, Colorado State University

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 2:20 p.m. Structural Equation Mixed Models with an Application to Small-Area Estimation—◆Jyothsna Sainath, University of Utah
- 2:35 p.m. County-Level Crop Estimates Incorporating Auxiliary Sources of Information—◆Andreea Luisa Erciulescu, National Institute of Statistical Sciences/USDA/NASS; Nathan B. Cruze, USDA/NASS; Balgobin Nandram, Worcester Polytechnic Institute
- 2:50 p.m. A Design-Based Approach to Small-Area Estimation Using Semiparametric Generalized Linear Mixed Model—◆Hongjian Yu, University of California at Los Angeles; Yueyan Wang, University of California at Los Angeles; Pan Wang, University of California at Los Angeles; Jean Opsomer, Colorado State University; Ninez Ponce, University of California at Los Angeles; David Grant, University of California at Los Angeles
- 3:05 p.m. Parametric Bootstrap Mean Square Error Estimates for Different Small Areas in the Annual Survey of Public Employment and Payroll—◆Bac Tran, U.S. Census Bureau
- 3:20 p.m. Small-Area Estimation Methods for County-Level Vaccination Coverage Rates Using the NIS—◆Nadarajasundaram Ganesh, NORC at the University of Chicago; Adrijo Chakraborty, NORC at the University of Chicago; Kennon Copeland, NORC at the University of Chicago; Kirk Wolter, NORC at the University of Chicago; Kathleen Santos, NORC at the University of Chicago; Lin Liu, NORC at the University of Chicago; Philip J. Smith, CDC; David Yankey, CDC/NCIRD; Jenny Jeyarajah, CDC; Tammy Santibanez, CDC; Jim Singleton, CDC; Stacie Greby, CDC; Laurie Elam-Evans, CDC; Chalanda Smith, CDC
- 3:35 p.m. Multilevel Small-Area Estimation of Health Behaviors: An Extension of Multilevel Regression and Poststratification (MRP) Approach via Bootstrapping—◆Xingyou Zhang, CDC; Shumei Yun, Missouri Department of Health and Senior Services; Hua Lu, CDC; Yan Wang, CDC; Paul I. Eke, CDC; James B. Holt, CDC; Kurt Greenlund, CDC; Janet B. Croft, CDC

256 **CC-W184a**
Forecasting and ARMA Modeling—Contributed

Business and Economic Statistics Section

Chair(s): Brian Monsell, U.S. Census Bureau

- 2:05 p.m. Estimation of a Mixed VAR Model with Latent Factor Structure—◆Jiahe Lin, University of Michigan; George Michailidis, University of Florida
- 2:20 p.m. Time Series Model Selection via Adaptive Sparse Estimation—◆Seong-Tae Kim, North Carolina A&T State University; Kendra Kirby, North Carolina A&T State University
- 2:35 p.m. Forecasting Using Sparse Cointegration—◆Ines Wilms; Christophe Croux, KU Leuven

- 2:50 p.m. Time Series Models of Supply Chain Inventory Data—◆Morris Morgan, Hampton University; Carolyn Bradshaw Morgan, Hampton University; Eric Abram Morgan, St. Michael's; Kristin Denise Morgan, University of Kentucky
- 3:05 p.m. Optimal Reconciliation of Constrained and Unconstrained Apparel Demand Forecasts Using a Hierarchical Time Series Approach—◆Ginger Holt, Walmart Labs
- 3:20 p.m. Post-Model Selection Estimation for Regression Models with Spatial Autoregressive Error—◆Liqian Cai, Michigan State University; Tapabrata Maiti, Michigan State University
- 3:35 p.m. Information Sharing in Supply Chains—◆Vladimir Kovtun, Yeshiva University Sy Syms School of Business; Avi Giloni, Sy Syms School of Business; Clifford Hurvich, New York University Stern School of Business

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■ Motivating and Teaching Advanced Biostatistical Topics—Contributed

Section on Teaching of Statistics in the Health Sciences

Chair(s): Todd Schwartz, The University of North Carolina at Chapel Hill

- 2:05 p.m. Motivated Student Engagement in an Online Biostatistics Course—◆Wei Zhuang, Creighton University
- 2:20 p.m. Engaging Undergraduate Health Science Students in Advanced Statistics—◆Darlene Olsen, Norwich University
- 2:35 p.m. Didactic Exercises for Teaching Meta-Analysis to Students in the Health Sciences—◆Deborah Dawson, University of Iowa
- 2:50 p.m. An Easy Introduction to Group Sequential Methodology in Clinical Trials—◆Anthiyur Kannappan, Cytel
- 3:05 p.m. Using Clinical Trials to Better Understand Probability Theory—◆Michael Proschan; Pamela A. Shaw, University of Pennsylvania
- 3:20 p.m. Valar Morghulis: A Survival Analysis of a Song of Ice and Fire—◆Pierre-Jerome Bergeron, PJB Consulting; Samuel Archibald, UQAM
- 3:35 p.m. Floor Discussion

258 **CC-W187c**
Bayesian Theory and Methods—Contributed

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

Chair(s): Michael Baron, American University

- 2:05 p.m. Bayesian Multiple Testing Under Sparsity for Polynomial-Tailed Distributions—◆Xueying

- Tang, University of Florida; Ke Li, Southwestern University of Finance and Economics; Malay Ghosh, University of Florida
- 2:20 p.m. **Belief Functions: A Paradigm for Lower-Resolution Probabilistic Inference**—◆Ruobin Gong, Harvard; Xiao-Li Meng, Harvard
- 2:35 p.m. **Bayesian Statistics and Information Theory**—◆Jose Guardiola, Texas A&M University-Corpus Christi
- 2:50 p.m. **Bayesian Method for Histogram Smoothing**—◆Bhikhari Tharu; Chris P. Tsokos, University of South Florida
- 3:05 p.m. **Bayesian Variable Selection for Skewed Heteroscedastic Response**—◆Libo Wang, Florida State University; Yuanyuan Tang, Saint Luke's Health System; Debajyoti Sinha, Florida State University; Debdeep Pati, Florida State University; Stuart Lipsitz, Brigham and Women's Hospital
- 3:20 p.m. **Bayesian Single Index Models**—◆Kumaresh Dhara, Florida State University; Debajyoti Sinha, Florida State University; Debdeep Pati, Florida State University
- 3:35 p.m. **Robust Bayesian Inference via the Tilted Posterior**—◆Yixin Wang, Columbia University; David Blei, Columbia University

259 **CC-W176a**
Weighting—Contributed
 Government Statistics Section, Survey Research Methods Section
 Chair(s): LiAn Lin, Merck Research Laboratories

- 2:05 p.m. **A Method of Statistical Disclosure Limitation for Design and Strata-Defining Variables in Surveys**—◆Anna Oganian, CDC/NCHS
- 2:20 p.m. **Statistical Calibration of Engineering-Based End-Use Electricity Consumption Estimates: A Bayesian Multilevel Model Approach**—◆Hiroaki Minato, Energy Information Administration
- 2:35 p.m. **A Comparative Analysis of Approaches for Quantifying the Weight of Evidence in Forensic Science**—◆Hariharan Iyer, National Institute of Statistical Sciences; Steven Lund, National Institute of Standards and Technology
- 2:50 p.m. **The Development of a Variance Estimation Methodology for Large-Scale Dissemination of Quality Indicators for the 2016 Canadian Census Long-Form Sample**—◆Nancy Devin, Statistics Canada; Francois Verret, Statistics Canada
- 3:05 p.m. **Estimated Covariance Matrices Associated with Calibration**—◆Luca Sartore, National Institute of Statistical Sciences; Kelly Toppin, USDA/NASS; Clifford Spiegelman, Texas A&M University
- 3:20 p.m. **Defining a Strategy for National Weighting of Data from the Behavioral Risk Factor**

- Surveillance System (BRFSS)**—◆Machell Town, CDC; Ronaldo Iachan, ICF International; Carol Pierannunzi, CDC; Kristie Healey, ICF International; Kurt Greenlund, CDC
- 3:35 p.m. **Determining the Appropriate Sample Weights for Diabetes Estimates**—◆Xianfen Li, CDC/NCHS

260 **CC-W186c**
● Nonparametric Methods for 'Big Data'—Contributed

Section on Nonparametric Statistics, International Chinese Statistical Association

Chair(s): K.B. Kulasekera, University of Louisville

- 2:05 p.m. **Optimal Design for Sampling Functional Data**—◆So-Young Park, North Carolina State University; Luo Xiao, North Carolina State University; Jayson Wilbur, Metrum Research Group; Ana-Maria Staicu, North Carolina State University
- 2:20 p.m. **The Blessing of Derivatives in Nonparametric Estimation**—◆Xiaowu Dai, University of Wisconsin-Madison; Grace Wahba, University of Wisconsin-Madison; Peter Qian, University of Wisconsin-Madison
- 2:35 p.m. **Big Data Algorithms for Rank-Based Estimation**—John Kapenga, Western Michigan University; ◆John Kloke, University of Wisconsin; Joseph McKean, Western Michigan University
- 2:50 p.m. **Quantifying Spread in 3-D Rotation Data: Comparison of Nonparametric and Parametric Techniques**—◆Melissa Bingham
- 3:05 p.m. **Hypothesis Testing for Multilayer Network Data**—◆Jun Li, Boston University; Eric D. Kolaczyk, Boston University
- 3:20 p.m. **On Estimation of the Specification of Random Fields**—◆Zsolt Talata, University of Kansas
- 3:35 p.m. **Nonparametric Estimation Using Wavelet Tensor and Hyperbolic Wavelets with Fractional Gaussian Fields**—◆Justin Wishart, Macquarie University

261 **CC-W192a**
Diagnostics, Classification, and Prediction—Contributed

Section on Medical Devices and Diagnostics, Biopharmaceutical Section, International Chinese Statistical Association

Chair(s): Alexander Kaizer, University of Minnesota

- 2:05 p.m. **Receiver Operating Characteristic Analysis Under Tree Orderings of Disease Classes**—◆Dan Wang, SUNY Buffalo; Lili Tian, SUNY Buffalo; Kristopher Attwood, Roswell Park Cancer Institute
- 2:20 p.m. **Using ANOVA/Random-Effects Variance Estimates to Compute a Two-Sample U-Statistic**

- of Order (1,1) Estimate of Variance—◆Lucas Tcheuko, FDA; Brandon Gallas, FDA; Frank Samuelson, FDA
- 2:35 p.m. Case Studies of Discriminating Three Ordinal Outcomes with Continuous Measurements Utilizing Cumulative ROC Curve Analysis—◆Rey DeCastro, CDC/NCEH
- 2:50 p.m. A Metric for the Optimal Length of a Sequence of Tests for Classification Tasks—◆Christine Schubert Kabban, Air Force Institute of Technology
- 3:05 p.m. Design and Analysis Considerations for Precision Studies in In-Vivo Diagnostic Test Studies—◆Changhong Song, FDA
- 3:20 p.m. Generalized Linear Mixed Models for Analysis of Cross-Correlated Binary Response in Multireader Studies of Diagnostic Accuracy—◆Yuvika Paliwal; Andriy Bandos, University of Pittsburgh
- 3:35 p.m. Localized Semiparametric Prediction: A Precision Medicine Approach in a Trauma Patient Population—◆Sara E. Moore, University of California at Berkeley; Alan E. Hubbard, University of California at Berkeley; Mitchell J. Cohen, University of California at San Francisco

Contributed Poster Presentations 2:00 p.m. – 3:50 p.m.

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Contributed Poster Presentations: Biometrics Section—Contributed

Biometrics Section

Chair(s): Genevera Allen, Rice University

- 1 Model Selection for Marginal Regression Analysis of Longitudinal Data with Missing Observations and Covariate Measurement Error—◆Chung Wei Shen
- 2 Impact of the Violation of Independent Censoring Assumptions in Restricted Mean Survival Data Analysis for Time-to-Event Data—◆Eisuke Inoue, National Center for Child Health and Development
- 3 Efficient Estimation of Partially Linear Single-Index Models for Unbalanced Longitudinal Data—◆Quan Cai, Texas A&M University
- 4 Estimation of Entropy Rate of a Finite Markov Process in a Biological System—◆Brian Vegetabile, University of California at Irvine; Hal Stern, University of California at Irvine
- 5 Assess the Effects of Cold Ischemia on Tumor Protein Phosphorylation Analysis Using Time-Course Data—◆You Wu
- 6 Statistical Challenges in Analyzing the ‘Girls on the Move’ Intervention on Increasing Physical Activity

- Among Low-Active Underserved Urban Girls in Michigan—◆Dhruv Sharma, Michigan State University; Lorraine B. Robbins, Michigan State University; Jiyong Ling, Michigan State University; Kelly Bourne, Michigan State University; Karin Pfeiffer, Michigan State University
- 7 Interval-Censored Proportional Hazard Regression Model—◆Hung-Mo Lin, Icahn School of Medicine at Mount Sinai; John Michael Williamson, CDC; Hae-Young Kim, New York Medical College
- 8 Risk-Based Monitoring Rules for Binomial and Poisson Outcomes in Clinical Trials with Software Implementation in JMP—◆Anastasia Dmitrienko; Richard C. Zink, JMP Life Sciences, SAS Institute
- 9 Stratified Exact Test and Confidence Interval for Causal Effects on a Binary Outcome Based on Principal Stratification—◆Yasutaka Chiba
- 10 A Likelihood-Based Approach Using Shared Latent Random Variable Between Longitudinal Process and Censoring Mechanism—◆Miran Jaffa, American University of Beirut; Ayad A. Jaffa, American University of Beirut
- 11 On Growth Patterns of Japanese Boys and Girls—◆Koji Kanefuji, Institute of Statistical Mathematics
- 12 Statistical Model for the Separation Process of Chromatography—◆Xueyi Chen, University of Kansas Medical Center; Jonathan D. Mahnken, University of Kansas Medical Center
- 13 Random Forests for Survival Analysis Using Maximally Selected Rank Statistics—◆Marvin N. Wright, University of Luebeck; Theresa Dankowski, Universitaet zu Luebeck; Andreas Ziegler, University of Luebeck
- 14 Relative Performance of Heterogeneity Variance Estimators in Research Synthesis and Meta-Analysis—◆Kepher H. Makambi, Georgetown University; ◆Hanfei H. Xu, Georgetown University
- 15 Cluster-Level Dynamic Treatment Regimens and Sequential, Multiple Assignment, Randomized Trials: Estimation and Sample-Size Considerations—◆Timothy NeCamp, University of Michigan; Amy Kilbourne, University of Michigan Medical School; Daniel Almirall, University of Michigan Survey Research Center
- 16 Use Nonlinear Mixed Effects Model to Predict Unobservable AD Symptom Duration—◆Ho-Lan Peng; Wenyaw Chan, The University of Texas Health Science Center at Houston; Rachelle S. Doody, Baylor College of Medicine
- 17 Evaluation of Intraclass Correlation Coefficient (ICC) Difference Between Two Measurement Techniques—◆Huining Kang, University of New Mexico; Yang Shi, University of New Mexico; Ji-Hyun Lee, University of New Mexico

- 18 Multivariate Two-Part Statistics for Analysis of Correlated Mass Spectrometry Data from Multiple Biological Matrices—◆Kyoungmi Kim, University of California at Davis; Sandra L. Taylor, University of California at Davis
- 19 A New Resampling Method in Linear Regression Model with Application in Cancer Statistics—◆Huann-Sheng Chen, National Cancer Institute
- 20 Enhancing Box-Cox Transformation with Simulation of the Normal Distribution: 2007-2010 What We Eat in America, National Health and Nutrition Examination Survey Flavonoids Data—◆Theophile Murayi, USDA/ARS; Joseph D. Goldman, USDA/ARS; Rhonda G. Sebastian, USDA/ARS; Alanna J. Moshfegh, USDA/ARS
- 21 Applying Functional Principal Component Analysis to Improve Life Span Prediction from Sleep Properties in the Fly—◆Luyang Wang, Missouri University of Science and Technology; Courtney Fiebelman, Missouri University of Science and Technology; Rachel Craft, Missouri University of Science and Technology; V.A. Samaranayake, Missouri University of Science and Technology; Gayla R. Olbricht, Missouri University of Science and Technology; Matthew S. Thimgan, Missouri University of Science and Technology
- 22 Evaluation of Sensitivity of Statistical Methods That Assume Missing at Random—◆Takayuki Abe, Keio University School of Medicine; Kazuhito Shiosakai, Daiichi Sankyo Co.; Rachel Roberts, Keio University School of Medicine; Fumiya Sano, Keio University School of Medicine; Manabu Iwasaki, Seikei University
- 23 Subgroup Analyses for Count Data Using Bayesian Empirical Meta-Analytical Predictive Priors—◆Wei-Chen Chen, FDA/CBER; Judy X. Li, FDA; John Scott, FDA
- 24 Comparison Between Continuous- and Discrete-Dose EWOC Designs—◆Marcio Diniz, Cedars-Sinai Medical Center; Mourad Tighiouart, Cedars-Sinai Medical Center; Andre Rogatko, Cedars-Sinai Medical Center
- 25 Should We Perform a Sample-Size Re-Estimation After Interim Analysis? The Statistical Considerations—◆Lan Lan, Vertex Pharmaceuticals
- 26 Statistical Analysis of the Progression of Tumors in Rats—◆Mary Esther Nevener, University of Central Oklahoma; Cynthia Murray, University of Central Oklahoma; Wei Chen, University of Central Oklahoma
- 27 Sample Size and Duration of Study in Clinical Trials with Time-to-Event Endpoint—◆Ryunosuke Machida, Tokyo University of Science; Yosuke Fujii, Pfizer Japan; Takashi Sozu, Tokyo University of Science
- 28 A Bayesian Adaptive Design in Cancer Phase I Trials Using Dose Combinations in the Presence of a Baseline Covariate—◆Sungjin Kim; Mourad Tighiouart, Cedars-Sinai Medical Center; Marcio Diniz, Cedars-Sinai Medical Center
- 29 Statistical Inference on Dynamic System Models with Multiple Observation Units—◆Hongyuan Wang; David Allen, University of Kentucky
- 30 Bayesian Adaptive Dose-Finding for Combination Therapy in Phase I Oncology Trials—◆Chenyi Pan, University of Virginia; Yun Shen, Bristol-Myers Squibb; Helen Zhou, GlaxoSmithKline; Parul Gulati, Bristol-Myers Squibb; Xiaowei Guan, Bristol-Myers Squibb; Katy Simonsen, Bristol-Myers Squibb
- 31 Bayesian Adaptive Designs Using Copula-Type Models in Phase I Cancer Trials Using Drug Combination—◆Galen Cook-Wiens, Cedars-Sinai Medical Center; Mourad Tighiouart, Cedars-Sinai Medical Center; Marcio Diniz, Cedars-Sinai Medical Center; Andre Rogatko, Cedars-Sinai Medical Center
- 32 Optimal Sample Size Determination for Adaptive Seamless Phase II/III Design—◆Zhongying Xu, University of Pittsburgh; John A. Kellum, University of Pittsburgh; Gary M. Marsh, University of Pittsburgh; Chung-Chou H. Chang, University of Pittsburgh
- 33 An Extension of Clinical Trial Assurance to a Setting of Multiple Unknown Parameters in a Single-Arm Binomial Trial—Yizhou Jiang, Kite Pharma; ◆Lynn Navale, Kite Pharma; Allen Xue, Kite Pharma
- 34 The Impact of Regional Baseline Variation on the Type I Error and Power of Multiregional Clinical Trials—◆Weining Robieson, AbbVie; Jun Zhao, AbbVie
- 35 A Novel Approach to Non-Muscle Invasive Bladder Cancer Trials: Making Lemonade Out of Apples and Oranges—◆Yuqun Luo, FDA; John Scott, FDA
- 36 A Generalized Hochberg Procedure for Multiple Tests of Significance—◆Chen Chen, Prosoft Clinical; Dror Rom, Prosoft Clinical; Jaclyn McTague, Prosoft Clinical
- 37 Estimating the Maximum Tolerated Dose Curve in Cancer Phase I Trials Using the Continual Reassessment Method—◆Quanlin Li; Mourad Tighiouart, Cedars-Sinai Medical Center; Marcio Diniz, Cedars-Sinai Medical Center
- 38 A Simulation Study to Compare Recurrent Event Methods—◆Yansong Cheng; Helen Millns, GlaxoSmithKline; Tal Ofiker, GlaxoSmithKline
- 39 Estimating Survivor Average Causal Effect of Dynamic Treatment Regimes in Randomized Cancer Clinical Trial:

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CC-Hall F1 West

Contributed Poster Presentations: Biopharmaceutical Section—Contributed Biopharmaceutical Section

Chair(s): Genevera Allen, Rice University

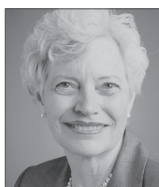
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Key Dates

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September 6

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knowledge

- A Simulation Study—◆Takuya Kawahara, University of Tokyo; Yutaka Matsuyama, University of Tokyo
- 40 Tolerance Cpk Contours: A New Tool to Enable Specification Setting in Development—◆Yuanyuan Duan, AbbVie; Russell L. Hertzler, AbbVie; Lanju Zhang, AbbVie; Dennis A. Stephens, AbbVie; David W. Werst, AbbVie; Paul A. David, AbbVie; Jie Zheng, AbbVie; Jian-Hwa H. Han, AbbVie
- 41 Design of Experiments for Hydrophobic Interaction Chromatography Optimization—◆Na Zhang, Bristol-Myers Squibb; Lily Squibb Tsang, Bristol-Myers Squibb; Kedar Dave, Bristol-Myers Squibb; Joseph Calzada, Bristol-Myers Squibb; Gregory A. Barker, Bristol-Myers Squibb; Angela Lewandowski, Bristol-Myers Squibb; Zhengjian Li, Bristol-Myers Squibb
- 42 Bayesian Adaptive Design for Delayed Binary Response Dose-Finding Studies—◆Xiaobi Huang, Sanofi; Haoda Fu
- 43 Web-Based Application of Likelihood Ratio Test (LRT)-Based Method for Signal Detection in OpenFDA—◆Yuyi Hsu, Jyoti Zalkikar, FDA; Ram Tiwari, FDA/CDER/OT/OB; Jay Levine, FDA
- 44 A Simulation Method Based on Interim Results to Assess Conditional Power in Clinical Trials—◆Lin Pan, ICON PLC; Jill Stankowski, ICON PLC; Joseph M. Massaro, Boston University
- 45 Confounder Adjustments by Propensity Score and Disease Risk Score in the Early Stage of Post-Marketing Drug Safety Surveillance—◆Tae Hyun Jung, Yale University; Jessica Kim, FDA
- 46 Internal Pilot Design for Clinical Trials with Repeated Measures—◆Xinrui Zhang; Yueh-Yun Chi, University of Florida
- 47 Assessment of Effect Size and Power for Survival Analysis Through a Binary Surrogate Endpoint in Clinical Trials—◆Judah Abberbock, University of Pittsburgh; Gong Tang, University of Pittsburgh
- 48 Statistical Issues Associated with Subjective Outcome Measures in Animal Drug Evaluation—◆Kyunghee Song, FDA/CVM
- 49 Bayesian Noncomparative Designs to Account for Uncertainty in Historical Response Rates—◆Francesca Matano, Carnegie Mellon University; Valeria Sambucini, University of Rome "La Sapienza"
- 50 Evaluation of Biosimilarity Between Two Biological Products Using Alternative Approaches—◆Hsiao-Hui Tsou, National Health Research Institutes; Chinfu Hsiao, National Health Research Institutes; Chi-Tian Chen, National Health Research Institutes; Wan-jung Chang, National Health Research Institutes
- 51 Robust Rules for Imputation of Binary Toxicity or Efficacy Indicators for Use in BCRM—◆Tao Feng; Aaron Camp, PPD; Joseph Adair, PPD; Kevin Lawson, PPD
- 52 Optimizing Adaptive Enrichment Designs—◆Aaron Fisher, The Johns Hopkins University; Michael Rosenblum, Johns Hopkins Bloomberg School of Public Health
- 53 An Assessment of the Impact of Competing Risks in Time-to-Event Analysis—◆Joe Jiang, Kite Pharma; Allen Xue, Kite Pharma; Lynn Navale, Kite Pharma
- 54 The Three-at-Risk Design: Reducing the Duration of Phase I Trials with a Queue-Based Method—◆Paul Frankel, City of Hope; Jeffrey Longmate, City of Hope; Richard Sposto, University of Southern California; Edward Newman, City of Hope; Susan Groshen, University of Southern California
- 55 Mid-Trial Event Projection in Blinded Oncology Clinical Trials—◆Wei Ye
- 56 Statistician Credit for Collaboration—◆Charles Goldsmith, GoldStats Consulting; Lehana Thabane, McMaster University; Yanling Jin, McMaster University; Fiona (Feng) He, McMaster University
- 57 Extended O'Brien Global Test for Multiple Endpoints with Survival and Continuous Outcomes—◆Chenkun Wang, Vertex Pharmaceuticals; Cynthia DeSouza, Vertex Pharmaceuticals
- 58 Analysis of Counts and Times—◆David Bristol, Statistical Consulting Services
- 59 Time and Cluster Interactions in the Stepped Wedge Trial Design—◆Christopher M. Keener, University of Pittsburgh; Chung-Chou H. Chang, University of Pittsburgh
- 60 Is Type I Error Control for Multiplicity Really 'Out of the Picture' in Epidemiology?—◆Yueqin Zhao, FDA/CDER; Rima Izem, FDA; Mark Levenson, FDA
- 264** **CC-Hall F1 West**
Contributed Poster Presentations: Lifetime Data Analysis Interest Group—Contributed
Lifetime Data Analysis Interest Group
Chair(s): Genevera Allen, Rice University
- 61 A Group Sequential Test of a Competing Risk Endpoint for Treatment Effect Based on the Fine-Gray Model—◆Michael Martens, Medical College of Wisconsin; Brent Logan, Medical College of Wisconsin
- 265** **CC-Hall F1 West**
Contributed Poster Presentations: Section on Medical Devices and Diagnostics—Contributed
Section on Medical Devices and Diagnostics
Chair(s): Genevera Allen, Rice University
- 62 Sufficient Markov Decision Processes—◆Longshaokan Wang, North Carolina State University

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 63 Analysis of Pleural Effusion After Allogeneic Hematopoietic Stem Cell Transplant Using Multistate Models—◆Joohyoung Lee, Karmanos Cancer Institute; Dipenkumar Modi, Wayne State University; Hyejeong Jang, Karmanos Cancer Institute; Joseph Uberti, Wayne State University; Seongho Kim, Karmanos Cancer Institute
- 64 Accelerometer Wear and Non-Wear Classification Using an Ensemble of Unsupervised Predictors—◆Madalina Fiterau Brostean, Stanford University; Manisha Desai, Stanford University; Jennifer Hicks, Stanford University; Thomas Robinson, Stanford University
- 65 Noninferiority Studies with Multiple Reference Treatments and Heterogeneous Variances—◆Li-Ching Huang; Miin-Jye Wen, National Cheng Kung University; Yu Shyr, Vanderbilt University
- 66 Spatio-Temporal Regression for Longitudinally Acquired MRI Data—◆Arnab Hazra, North Carolina State University; Brian J. Reich, North Carolina State University; Ana-Maria Staicu, North Carolina State University
- 67 Modeling Passively Collected Biomedical Data—◆Moumita Chakraborty; Eric Laber, North Carolina State University; Ana-Maria Staicu, North Carolina State University
- 68 Meta-Analysis of Predictive Values of Biomarkers—◆Mun Sang Yue, Brown University; Constantine Gatsonis, Brown University

266 **CC-Hall F1 West**
SPEED: Statistical Computing and Sports, Part 2A—Contributed

Section on Statistical Computing, Section on Statistics in Sports

Chair(s): Genevera Allen, Rice University

- 1 Pitch Quantification in Baseball: Reducing a Pitch to a Single Number—◆Jason Wilson, Biola University
- 2 Career Type Assessment of International Cyclists on Ratings from Ranked-Order Logit Model Results for Multi-Competitor Sports—◆Kathryn McKeough; Mark Glickman, Harvard
- 3 Spectral Relationships Between High-Order Tensors and Their Multi-Mode Flattenings—◆Miaoyan Wang, University of Pennsylvania; Khanh Dao Duc, University of Pennsylvania; Jonathan Fischer, University of California at Berkeley; Yun S. Song, University of California at Berkeley/University of Pennsylvania
- 4 Missing Data in the Context of Student Growth Models—◆Katherine Wright, Loyola University Chicago; John Gatta, Northwestern University, ECRA Group; Therese D. Pigott, Loyola University Chicago
- 5 Developing Tools for Text Analysis of Survey Data—◆Randall Powers, Bureau of Labor Statistics; Brandon Kopp, Bureau of Labor Statistics; Wendy Martinez, Bureau of Labor Statistics

- 6 Applying Negative Binomial Regression to Estimate Outcomes in 2018 FIFA World Cup Qualification Matches—◆James Mozur, University of South Alabama
- 7 Using Play-by-Play Data to Model, Simulate, and Predict NBA Games—◆Sebastian Rodriguez, University of California at Merced
- 8 Improved Expected Points and Win Probability Models for NFL Coach and Player Evaluation—◆Gregory Miller, Bucknell University; Gabrielle Flynt, Bucknell University; Sam Ventura, Carnegie Mellon University; Andrew Crossett, West Chester University
- 9 Managerial Duration Across Professional Soccer Leagues—◆Vittorio Addona, Macalester College; James Meyerson, Macalester College; Zach Gilfix, Macalester College
- 10 The Effect of Accounting for All Weight Adjustments in the Construction of Student Replicate Weights in a National, Cross-Sectional Study—◆Ruby Johnson, RTI International; Peter Siegel, RTI International

267 **CC-Hall F1 West**
SPEED: Statistics for Education and Social Sciences Research, Part 2A—Contributed

Section on Statistical Education, Social Statistics Section

Chair(s): Genevera Allen, Rice University

- 11 Comparisons of Math Anxiety Levels and Study Habits Among Hispanic Students—◆Xiaohui Wang, The University of Texas Rio Grande Valley; Cristina Villalobos, The University of Texas Rio Grande Valley; Olga Ramirez, The University of Texas Rio Grande Valley; Luis Fernandez, The University of Texas at Austin
- 12 Political Change Strategy Preference—◆Catherine Durso, University of Denver; Cass Dorff, University of Denver
- 13 Using Introduction to Statistics Courses to Teach Quantitative Literacy—◆Cathy Poliak, University of Houston
- 14 Incorporating Big Data into an Introductory Statistics Course—◆Paul Stephenson, Grand Valley State University; Laura Kapitula, Grand Valley State University
- 15 Unified Definition of Effect Size and Universal Labeling of Its Magnitude—◆Panduan An, Ohio University; Wei Lin, Ohio University
- 16 Hypergraph Motifs: Representing and Analyzing Social Network with Group Relationships—◆Ryan Haunfelder, Colorado State University
- 17 Classroom Investigations of Recent Research Concerning the Gamblers' Fallacy—◆Kevin Ross, Cal Poly
- 18 Causal Inference with a Continuous Treatment and Outcome: Alternative Estimators for Parametric Dose-Response Functions—◆Douglas Galagate

19 The Evaluation of a Pedagogical Tool for Quantitative Literacy—◆Gerald Iacullo, Berkeley College

20 Multiple Regression Replaces the Need for a Tailor—◆Allison Davidson, Muhlenberg College

268 **CC-Hall F1 West**
SPEED: Bayesian Analysis, Part 2A—Contributed
Section on Bayesian Statistical Science

Chair(s): Genevera Allen, Rice University

21 Bayesian Aggregation of Rank Data with Covariates—◆Dingdong Yi, Harvard; Xinran Li, Harvard; Jun S. Liu, Harvard

22 A Bayesian Approach to Evaluating and Prioritizing Pathway Association with Disease—◆Shu-Ju Lin, National Taiwan University; Chuhsing Kate Hsiao, National Taiwan University

23 Multivariate Left-Censored Bayesian Model for Predicting Exposure Using Multiple Chemical Predictors During the Deepwater Horizon Oil Spill Clean-Up—◆Caroline Groth, University of Minnesota; Sudipto Banerjee, University of California at Los Angeles; Gurumurthy Ramachandran, University of Minnesota; Mark R. Stenzel, Exposure Assessment Applications; Dale P. Sandler, National Institute of Environmental Health Sciences; Aaron Blair, National Cancer Institute; Lawrence S. Engel, The University of North Carolina at Chapel Hill; Richard R. Kwok, National Institute of Environmental Health Sciences; Patricia P. Stewart, Stewart Exposure Assessments

24 Univariate and Joint Spatio-Temporal Models for Predicting the Occurrence of Culicoides Across Belgium—◆Yimer Wasihun Kifle, Hasselt University; Christel Faes, Hasselt University; Niel Hens, Hasselt University

25 Predicting Human Driving Behavior to Help Driverless Vehicles Drive: Random Intercept Bayesian Additive Regression Trees—◆Yaoyuan Vincent Tan, University of Michigan; Carol A. C. Flannagan, University of Michigan Transport Research Institute; Michael Elliott, University of Michigan

26 Bayesian Model with Continuous Shrinkage Prior in Agricultural Health Study—◆Ran Wei, North Carolina State University; Subhashis Ghoshal, North Carolina State University; Brian J. Reich, North Carolina State University; Jane Hoppin, North Carolina State University

27 Identification of Genetic Effects on Abnormalities of Cardiac Structure and Function Using Bayesian Hierarchical Model—◆Akram Yazdani, The University of Texas Health Science Center at Houston; Azam Yazdani; Luca Sartore, National Institute of Statistical Sciences; Eric Boerwinkle, The University of Texas Health Science Center at Houston

28 Prediction with Confidence: A General Framework for Prediction—◆Jieli Shen, Rutgers University; Regina Liu, Rutgers University; Minge Xie, Rutgers University

29 Bayesian Analysis for Survey Data with Margin of Error—◆Yi Mu, CDC

30 Convergence Diagnostic for MCMC Draws of a Categorical Variable—◆Benjamin Deonovic, University of Iowa

Contributed Poster Presentations 3:05 p.m. – 3:50 p.m.

269 **CC-Hall F1 West**
SPEED: Statistical Computing and Sports, Part 2B—Contributed

Section on Statistical Computing, Section on Statistics in Sports

Chair(s): Genevera Allen, Rice University

1 Dropping or Keeping the Nonresponse Counts to Both Categorical Variables in an Incomplete Two-Way Contingency Table?—◆Xifen Huang, The University of Hong Kong; Guo-liang Tian, The University of Hong Kong; Hui-Qiong Li, University of Yun Nan

2 An Adaptive Importance Sampling Approach for Efficiently Estimating Small P-Values in Permutation Tests—◆Yang Shi, University of Michigan; Huining Kang, University of New Mexico; Ji-Hyun Lee, University of New Mexico; Hui Jiang, University of Michigan

3 Estimating Dynamic Characteristics of Longitudinal and Survival Data in Stochastic Process Models: Insights from Simulation Studies—◆Konstantin Arbeev, Duke University; Ilya Y. Zhbannikov, Duke University; Liubov S. Arbeeveva, Duke University; Igor Akushevich, Duke University; Anatoliy I. Yashin, Duke University

4 An Efficient Sampling Algorithm for Network Motif Detection—◆Yinghan Chen

5 A Fast Two-Stage Anomaly-Detecting Method for Large Dynamic Networks—◆Huan Li, University of Alabama; Michael D. Porter, University of Alabama

6 Comparison of Single Event, Competing Risks, and Frailty-Based Models for Competing Risks Data—◆Yuliang Liu, University of Alabama at Birmingham; Charity Morgan, University of Alabama at Birmingham; Gary R. Cutter, University of Alabama at Birmingham

7 Variational Models—◆Dustin Tran; Rajesh Ranganath, Princeton; David Blei, Columbia University

8 More Efficient and Robust Permutation-Based Methods for Controlling the False Discovery Rate—◆Divya Nair; Christopher Corcoran, Utah State University; Pralay Senchaudhuri, Cytel; Alexandre Buer, Cytel; William Welbourn, Jr., Clinipace Worldwide

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

9 The Elliptically Symmetric Angular Gaussian Distribution with Application to Regression Modeling on the Sphere—◆Phillip Paine, University of Nottingham

10 The Orthogonally Partitioned EM Algorithm: Extending the EM Algorithm for Algorithmic Stability and Bias Correction Due to Imperfect Data—◆Michael Regier, West Virginia University; Erica E. M. Moodie, McGill University

270 **CC-Hall F1 West**
SPEED: Statistics for Education and Social Sciences Research, Part 2B—Contributed

Section on Statistical Education, Social Statistics Section

Chair(s): Genevera Allen, Rice University

11 Examples of How a P-Value Interpretation Depends on the Underlying Statistical Philosophy—◆Andrew Neath, Southern Illinois University

12 Investigating How the Wording of a Survey Question Can Change the Results—◆Phyllis Curtiss, Grand Valley State University

13 Finding Event Transitions in Twitter Data—◆Ame Osotsi; Qunhua Li, Penn State University

14 Effect Comparison in Nonlinear Dyadic Mixed-Effects Models Between Equations—◆Christoph Kern, University of Duisburg-Essen; Petra Stein, University of Duisburg-Essen

15 The Unexamined Statistician Life—◆Ellen Endriss, Career Center

16 Pushing the Boundary Between Tools for Learning and for Doing Statistics—◆Amelia McNamara, Smith College

17 Automated Analytics and Data Dashboards for Evaluating the Impacts of Educational Technologies—◆Daniel Stanhope, Lea(R)n, Inc.; Joyce Yu, North Carolina State University; Karl Rectanus, Lea(R)n, Inc.

18 Are Volcanic Eruptions Increasing? An Example of Teaching Data Wrangling and Visualization in Stat 2—◆Kelly McConville, Swarthmore College

19 Performing Comparison of Normality Tests—◆Danush Wijekularathna, Troy University; Ananda Manage

20 Getting Past the Gatekeeper: Does Randomization-Based Curriculum in Introductory Statistics Promote Student Success?—◆Laura Hildreth, Montana State University; Jim Robison-Cox, Montana State University; Jade Schmidt, Montana State University

271 **CC-Hall F1 West**
SPEED: Bayesian Analysis, Part 2B—Contributed

Section on Bayesian Statistical Science

Chair(s): Genevera Allen, Rice University

21 Bayesian Inference for Unidirectional Misclassification in Ordinal Covariates—◆Liangrui Sun; Chaoxiong Xia, Northern Illinois University; Yuanyuan Tang, Saint Luke's Health System; Shun Takai, Northern Illinois University

22 Bayesian Approach for Proof of Concept and Dose-Finding Under Model Uncertainty for Binary Response—◆Yuanyuan Tang, Saint Luke's Health System; Chunyan Cai, The University of Texas at Houston; Jianghua He, University of Kansas Medical Center; Liangrui Sun

23 Clustering Domains for Small Area Estimation with Application to the Current Employment Statistics Survey—◆Julie Gershunskaya, Bureau of Labor Statistics; Terrance Savitsky, Bureau of Labor Statistics

24 Predicting Efficacy Connecting Dots Among PK, PD, and Efficacy Data for Discovery Oncology Projects—◆Wenli Luo

25 Large-Scale MCMC Using GPU with Application in Brain Imaging—◆Yang Yang, University of Minnesota; Galin Jones, University of Minnesota-Twin Cities

26 Rolling Dose Escalation with Overdose Control: An Efficient and Safe Phase 1 Design—◆Jiawen Zhu, RICNY; Daniel Sabanés Bové, F. Hoffmann-La Roche; Ulrich Beyer, F. Hoffmann-La Roche

27 Clustering Mutations and Estimating Contamination Rates via Bayesian Nonparametrics—◆Putu Ayu Sudyanti, Purdue University; Vinayak Rao, Purdue University; Hyonho Chun, Purdue University

28 Identifying Risk Factors for Smoking Cessation and Relapse with EMA Data: A Deterministic Bayesian Variable Selection Approach for Multistate Models—◆Matthew Koslovsky

29 Using Bayesian Quantile Regression in Comparative Survey Research—◆Robert Petrin, Ipsos Public Affairs; Marcus Maher, Ipsos Public Affairs; Benjamin Page, Ipsos Public Affairs; Meghana Raja, Ipsos Public Affairs

Invited Sessions 4:45 p.m. – 6:15 p.m.

272 **H-International Ballroom**
ASA President's Invited Address—Invited

ASA, International Chinese Statistical Association

Organizer(s): Jessica Utts, University of California at Irvine

4:50 p.m. Science and News: A Marriage of Convenience—◆Joe Palca, NPR

TUESDAY AUGUST 2

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 2016 theme, "The Extraordinary Power of Statistics." 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.

JSM Hours

7:00 a.m. – 5:30 p.m.	CC-W181c
Speaker Management Room	
7:30 a.m. – 5:30 p.m.	CC-Hall F1 West Central Concourse
ASA Membership/Help Desk/Press Desk	
7:30 a.m. – 5:30 p.m.	CC-Hall F1 West Central Concourse
JSM Main Registration	
7:30 a.m. – 5:30 p.m.	CC-Hall F1 West Central Concourse
Cyber Center	
8:00 a.m. – 5:30 p.m.	CC-Hall F1 West
JSM Career Service	
8:00 a.m. – 6:00 p.m.	CC-Hall F1 West
Exhibitor Lounge	
9:00 a.m. – 5:00 p.m.	CC-Hall F1 West Central Concourse
Restaurant Reservations/Chicago Concierge Service	
9:00 a.m. – 5:30 p.m.	CC-Hall F1 West
EXPO 2016	
9:00 a.m. – 5:30 p.m.	CC-Hall F1 West
ASA Store	
9:00 a.m. – 5:30 p.m.	CC-Hall F1 West
American Statistical Association Booth #504	

Committee/Business Meetings & Other Activities

7:00 a.m. – 8:00 a.m.	H-PDR6
Committee of Representatives to AAAS Business Meeting	
Chair(s): Robert Fay, Westat	
7:00 a.m. – 8:00 a.m.	H-Stevens Salon C 7
Mental Health Statistics Section Executive Meeting (Closed)	
Chair(s): Juned Siddique, Northwestern University	
7:00 a.m. – 8:30 a.m.	Offsite
Government Statistics Section Executive Committee Meeting (Closed)	
Chair(s): Michael Davern, NORC at the University of Chicago	
7:00 a.m. – 8:30 a.m.	H-Buckingham
Statistics Surveys Editors Meeting (Closed)	
Organizer(s): Elyse Gustafson, IMS	
7:00 a.m. – 8:30 a.m.	H-Joliet
Technometrics Editorial Meeting (Closed)	
Chair(s): Peihua Qiu, University of Florida	
7:00 a.m. – 8:30 a.m.	H-Boulevard B
2017 Conference on Statistical Practice Steering Committee (Closed)	
Chair(s): MoonJung Cho, Bureau of Labor Statistics	

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

7:00 a.m. – 8:30 a.m. International Conference on Health Policy Statistics (ICHPS) 2018 Planning Meeting (Closed) Chair(s): Bonnie Ghosh-Dastidar, RAND Corporation	H-Waldorf	8:00 a.m. – 9:30 a.m. Committee on Privacy and Confidentiality Meeting (Closed) Chair(s): Jacob Bournazian, U.S. Energy Information Administration	H-Stevens Salon C 8
7:00 a.m. – 8:30 a.m. Brigham Young University Friends and Alumni Open House Organizer(s): H. Dennis Tolley, Brigham Young University	H-Boulevard A	8:00 a.m. – 9:30 a.m. JASA Editors Meeting (Closed) Chair(s): Montse Fuentes, North Carolina State University	H-PDR3
7:00 a.m. – 8:30 a.m. Committee on Professional Ethics Business Meeting Chair(s): Howard Hogan, U.S. Census Bureau	H-Boulevard C	8:00 a.m. – 12:00 p.m. 2016 NISS/ASA/IMS/ENAR/ICSA Review and Editing Workshop for Junior Researchers (Closed) Organizer(s): Keith Crank, Retired	H-Stevens Salon C 3
7:00 a.m. – 8:30 a.m. ASA-MAA Joint Committee Meeting (Closed) Chair(s): Iwan Praton, Franklin & Marshall College	H-PDR1	8:00 a.m. – 4:00 p.m. Meeting Within a Meeting (MWM) Statistics Workshop for Math and Science Teachers: Grades 5–8 Strand Chair(s): Katherine T. Halvorsen, Smith College	UC-Loop & River Room
7:00 a.m. – 8:30 a.m. Journal of Official Statistics Editorial Board Meeting (Closed) Organizer(s): Ingegerd Jansson, Statistics Sweden	H-Williford A	8:00 a.m. – 4:00 p.m. Meeting Within a Meeting (MWM) Statistics Workshop for Math and Science Teachers: Grades 9–12 Strand Chair(s): Katherine T. Halvorsen, Smith College	UC-Lake Room
7:00 a.m. – 8:30 a.m. ASA Forensic Science Committee Business Meeting (Closed) Chair(s): Karen Kafadar, University of Virginia	H-PDR7	8:30 a.m. – 10:30 a.m. Diversity Mentoring Program (Closed) Chair(s): Jesse Chittams, University of Pennsylvania	H-Stevens Salon C 1
7:00 a.m. – 9:00 a.m. Research Agenda in Statistics Education Working Group (Closed) Chair(s): Donna LaLonde, ASA	H-PDR5	8:30 a.m. – 12:00 p.m. COPSS Business Meeting (Closed) Organizer(s): Nicholas Jon Horton, Amherst College	H-Stevens Salon A 1
7:00 a.m. – 10:00 a.m. Council of Chapters Business Meeting and Breakfast Chair(s): Ananda Jayawardhana, Pittsburg State University	H-Astoria	10:00 a.m. – 11:00 a.m. PSTAT and GSTAT Information Session Chair(s): Donna LaLonde, ASA	CC-N138
7:30 a.m. – 9:00 a.m. Department of Statistics Alumni and Friends Breakfast Organizer(s): Elizabeth Stasny, The Ohio State University	H-Grand Tradition	10:00 a.m. – 12:00 p.m. Committee on Career Development (CCD) Business Meeting (Closed) Chair(s): Monica Johnston, M. Lee & Company	CC-N132
7:30 a.m. – 10:00 a.m. SBR Editorial Board Meeting (Closed) Chair(s): Jose Pinheiro, Johnson & Johnson	H-Stevens Salon C 6	10:00 a.m. – 2:00 p.m. Biogen Talent Acquisition Organizer(s): Brian Jochim, JSM Lead Talent Acquisition for Biogen	H-PDR7
8:00 a.m. – 9:30 a.m. Committee on Membership Recruitment and Retention Business Meeting (Closed) Chair(s): Nancy Petersen, Department of Veterans Affairs Medical Center	H-Stevens Salon C 4	10:30 a.m. – 12:00 p.m. Navigations USAJOBS/Find and Apply to Jobs at the FDA Organizer(s): Kim Scarborough, U.S. Food and Drug Administration	CC-N228

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

10:30 a.m. – 12:30 p.m. H-Grand Tradition
Meet and Greet with NSF Program Officers
 Organizer(s): Nandini Kannan, National Science Foundation

10:30 a.m. – 1:00 p.m. CC-N226
Mentoring Workshop
 Chair(s): David Morganstein, Westat; Erin Tanenbaum, NORC at the University of Chicago

11:00 a.m. – 12:30 p.m. H-PDR6
Macmillan Focus Group
 Organizer(s): Tom DeMarco, Macmillan Learning

12:30 p.m. – 1:30 p.m. CC-N230a
Helen Walker Society Inaugural Luncheon
 Chair(s): Amanda Malloy, ASA

12:30 p.m. – 1:50 p.m. CC-N127
SIAM/ASA Journal on Uncertainty Quantification Editorial Board Meeting
 Organizer(s): Dave Higdon, Virginia Tech; Mitch Chernoff, SIAM

12:30 p.m. – 1:50 p.m. CC-N140
Colleague to Colleague Program Evaluation Luncheon (Closed)
 Chair(s): Nancy Petersen, Committee on Membership Recruitment and Retention

12:30 p.m. – 2:00 p.m. CC-N129
Statistica Sinica Editorial Board Meeting (Closed)
 Organizer(s): Hsin-Cheng Huang, Institute of Statistical Science, Academia Sinica

12:30 p.m. – 2:00 p.m. CC-N126
STAT Editorial Board Meeting (Closed)
 Organizer(s): Marc Genton, KAUST

12:30 p.m. – 2:30 p.m. CC-N128
The American Statistician— Editor’s Lunch (Closed)
 Chair(s): Nicole Lazar, University of Georgia

12:30 p.m. – 4:30 p.m. CC-N135
ENAR RAB and RECOM Lunch Meeting (by Invitation Only)
 Organizer(s): Jianwen Cai, ENAR; Scarlett Bellamy, ENAR

2:00 p.m. – 3:30 p.m. CC-N131
COC Traveling Course Committee Meeting
 Chair(s): Ananda Jayawardhana, Pittsburg State University

2:00 p.m. – 3:30 p.m. CC-N228
Navigations USAJOBS/Find and Apply to Jobs at the FDA
 Organizer(s): Kim Scarborough, U.S. Food and Drug Administration

2:00 p.m. – 3:30 p.m. CC-N136
Transportation Statistics Interest Group Business Meeting
 Chair(s): Feng Guo, Virginia Tech

2:30 p.m. – 3:30 p.m. CC-N130
Astrostatistics Interest Group Meeting
 Chair(s): Jessi Cisewski, Yale University

3:30 p.m. – 5:00 p.m. CC-N138
Lifetime Data Analysis Interest Group
 Chair(s): John Kalbfleisch, University of Michigan

4:00 p.m. – 5:00 p.m. CC-N132
Committee on Scientific Freedom and Human Rights Business Meeting
 Chair(s): Megan Price, Human Rights Data Analysis Group

4:00 p.m. – 5:00 p.m. CC-N129
Statistics in Business Schools Interest Group Business Meeting
 Chair(s): Amy Phelps, Duquesne University

4:00 p.m. – 5:30 p.m. CC-N139
Statistics Without Borders Business Meeting
 Chair(s): Cathy Furlong, Statistics without Borders

4:00 p.m. – 5:30 p.m. CC-N134
Biometrics Editorial Board Meeting (Closed)
 Organizer(s): Marie Davidian, North Carolina State University

4:00 p.m. – 6:00 p.m. H-Grand Tradition
Eli Lilly and Company DIA Bayesian Scientific Working Group Meeting
 Organizer(s): Karen Price, Eli Lilly and Company

4:00 p.m. – 6:00 p.m. H-Williford B
COC Officer Appreciation Reception and Workshop
 Chair(s): Ananda Jayawardhana, Pittsburg State University

4:30 p.m. – 6:00 p.m. H-Boulevard A
Berry Consultants FACTS Reception for Users and Friends
 Organizer(s): Scott Berry, Berry Consultants

Tuesday

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 5:00 p.m. – 6:00 p.m. H-Waldorf
International Community of Russian-Speaking Statisticians Meeting
 Organizer(s): Stanislav Kolenikov, Abt SRBI
- 5:00 p.m. – 6:00 p.m. H-Stevens Salon C 5
Section on Statistical Learning and Data Science Business Meeting
 Chair(s): Richard De Veaux, Williams College
- 5:00 p.m. – 6:00 p.m. H-PDR3
Section on Statistics in Marketing Business Meeting
 Chair(s): Kinshuk Jerath, Columbia University
- 5:00 p.m. – 6:30 p.m. H-Boulevard B
Section on Statistics in Epidemiology Business Meeting (Closed)
 Chair(s): Miguel Hernan, Harvard
- 5:00 p.m. – 7:00 p.m. H-Stevens Salon C 1
UCLA Statistics/Biostatistics Mixer
 Organizer(s): Jason Mesa, University of California at Los Angeles
- 5:00 p.m. – 7:00 p.m. H-PDR2
University of Illinois Statistics Alumni and Friends Reception
 Organizer(s): Douglas Simpson, University of Illinois at Urbana-Champaign
- 5:00 p.m. – 7:00 p.m. H-Stevens Salon A 2
SAMSI Reception
 Organizer(s): Richard L. Smith, Statistical and Applied Mathematical Sciences Institute
- 5:30 p.m. – 6:30 p.m. H-PDR5
2018 JSM Program Committee Meeting (Closed)
 Chair(s): Christian Leger, University of Montréal
- 5:30 p.m. – 7:00 p.m. H-Stevens Salon C 6
SSC Reception
 Organizer(s): Jack Gambino, SSC
- 5:30 p.m. – 7:00 p.m. H-PDR7
Section on Nonparametric Statistics Business Meeting
 Chair(s): Naisyin Wang, University of Michigan
- 5:30 p.m. – 7:00 p.m. H-Astoria
Government Statistics Section Business Meeting
 Chair(s): Michael Davern, NORC at the University of Chicago
- 5:30 p.m. – 7:00 p.m. H-Stevens Salon C 7
Committee on Minorities in Statistics Reception (Closed)
 Chair(s): Jesse Chittams, University of Pennsylvania
- 5:30 p.m. – 7:00 p.m. H-Williford C
Get Your Paper Published: A Workshop for Authors
 Organizer(s): Paulina Shirley, John Wiley & Sons
- 5:30 p.m. – 7:00 p.m. H-Stevens Salon A 3
Section on Bayesian Statistical Science Business Meeting
 Chair(s): Peter Mueller, The University of Texas at Austin
- 5:30 p.m. – 7:30 p.m. H-Joliet
Penn State University Alumni Relations
 Organizer(s): David Hunter, Penn State University
- 5:30 p.m. – 7:30 p.m. H-Marquette
Biopharmaceutical Section Mixer and Open Business Meeting
 Chair(s): B Christine Clark
- 5:30 p.m. – 7:30 p.m. H-Stevens Salon C 2
Section on Statistical Consulting Business Meeting and Mixer
 Chair(s): Christopher Holloman, Information Control Company
- 5:30 p.m. – 7:30 p.m. H-Williford A
Joint SPES/Q&P Business Meeting and Mixer
 Chair(s): William Brenneman, Procter & Gamble
- 6:00 p.m. – 7:30 p.m. H-Stevens Salon C 4
Columbia University, Statistics and Biostatistics Joint Reception
 Chair(s): Katy Hardy, Columbia University
- 6:00 p.m. – 7:30 p.m. H-Stevens Salon C 5
Section on Statistical Learning and Data Science Mixer
 Chair(s): Richard De Veaux, Williams College
- 6:00 p.m. – 7:30 p.m. H-PDR3
Section on Statistics in Marketing Social Mixer
 Chair(s): Kinshuk Jerath, Columbia Business School
- 6:00 p.m. – 7:30 p.m. H-PDR6
Business and Economic Statistics Section Meeting
 Chair(s): Ana Aizcorbe
- 6:00 p.m. – 8:00 p.m. H-Buckingham
IMS Member Reception
 Organizer(s): Elyse Gustafson, IMS

6:00 p.m. – 8:00 p.m. H-Stevens Salon A 4
North Carolina State University Alumni and Friends Reception
 Organizer(s): Montse Fuentes, North Carolina State University

6:00 p.m. – 8:00 p.m. H-Stevens Salon C 3
Wisconsin Welcome Reception
 Organizer(s): Yazhen Wang, University of Wisconsin-Madison

6:00 p.m. – 8:00 p.m. H-PDR4
Duke Biostatistics and Bioinformatics Reception
 Organizer(s): Huiman Barnhart, Duke University

6:30 p.m. – 7:00 p.m. H-Boulevard B
Section on Statistics in Epidemiology Business Meeting
 Chair(s): Miguel Hernan, Harvard

6:30 p.m. – 8:00 p.m. H-Stevens Salon C 8
Section on Risk Analysis Mixer
 Chair(s): Alexandra Kapatou, American University

6:30 p.m. – 8:00 p.m. H-Stevens Salon A 5
Tsinghua Center for Statistical Science Reception
 Organizer(s): Ke Deng, Tsinghua University

7:00 p.m. – 8:00 p.m. H-Boulevard B
Section on Statistics in Epidemiology Awards Ceremony
 Chair(s): Miguel Hernan, Harvard

9:30 p.m. – 12:00 a.m. H-Grand Ballroom
JSM Dance Party

Professional Development

CE_22C
Modeling Ordinal Categorical Responses, with Examples Using R (ADDED FEE)
 8:00 a.m. – 12:00 p.m. CC-W471
 ASA
 Instructor(s): Alan Agresti, University of Florida

CE_23C
Statistical Analysis of Zero-Inflated Continuous Data (ADDED FEE)
 8:00 a.m. – 12:00 p.m. CC-W475a
 ASA, Mental Health Statistics Section
 Instructor(s): Lei Liu, Northwestern University

CE_24C
Data Analysis in the Presence of Competing Risks (ADDED FEE)
 8:00 a.m. – 12:00 p.m. CC-W475b
 ASA
 Instructor(s): Ronald Geskus, Academic Medical Center

CE_25C
Adaptive Methods for Modern Clinical Trials (ADDED FEE)
 8:30 a.m. – 5:00 p.m. CC-W474
 ASA, Section on Bayesian Statistical Science
 Instructor(s): Frank Bretz, Novartis Pharma; Byron Jones, Novartis Pharma; Peter Mueller, The University of Texas at Austin

CE_26C
An Introduction to the Joint Modeling of Longitudinal and Survival Data, with Applications in R (ADDED FEE)
 8:30 a.m. – 5:00 p.m. CC-W470b
 ASA, Biometrics Section
 Instructor(s): Dimitris Rizopoulos, Erasmus University Medical Center

CE_27C
A Statistical Approach to Machine Learning: Boosting, Nearest Neighbors, Random Forests, and Support Vector Machines (ADDED FEE)
 8:30 a.m. – 5:00 p.m. CC-W470a
 ASA
 Instructor(s): Andreas Ziegler, University of Luebeck; Marvin N. Wright, University of Luebeck

CE_28C
Meta-Analysis: Combining the Results of Multiple Studies (ADDED FEE)
 1:00 p.m. – 5:00 p.m. CC-W471
 ASA, Health Policy Statistics Section
 Instructor(s): Christopher Schmid, Brown University; Thomas Trikalinos, Brown University

CE_29C
Statistical Analysis of Network Data (ADDED FEE)
 1:00 p.m. – 5:00 p.m. CC-W475a
 ASA
 Instructor(s): Eric D. Kolaczyk, Boston University

CE_30C
Designing Observational Comparative Studies Using Propensity Score Methodology in Regulatory Settings (ADDED FEE)
 1:00 p.m. – 5:00 p.m. CC-W475b
 ASA, Section on Medical Devices and Diagnostics
 Instructor(s): Donald B. Rubin, Harvard; Lilly Yue, FDA/CDRH/OSB

CE_46P
 Effective Presentations for Statisticians: Success = (PD)2,
 Part II (ADDED FEE)
 1:00 p.m. – 5:00 p.m. CC-W473
 ASA
 Instructor(s): Jennifer Van Mullekom, DuPont

Roundtables with Coffee 7:00 a.m. – 8:15 a.m.

273 CC-W375a
Biopharmaceutical Section A.M. Roundtable Discussion (Added Fee)

Biopharmaceutical Section
 Organizer(s): Jennifer Gauvin, Novartis
 TL01 Interim Futility Analysis in the Presence of Delayed Effect in Immunotherapy Clinical Trials—◆Xue Lin

274 CC-W375a
Section on Statistical Consulting A.M. Roundtable Discussion (Added Fee)

Section on Statistical Consulting
 Organizer(s): Harry Dean Johnson, Washington State University
 TL02 The Presentation of Results in Published Materials—◆Susan E. Spruill, Applied Statistics and Consulting

275 CC-W375a
Health Policy Statistics Section A.M. Roundtable Discussion (Added Fee)

Health Policy Statistics Section
 Organizer(s): Ruth Etzioni, Fred Hutchinson Cancer Research Center
 TL04 Learning Health Systems: From Ideas to Reality—◆Rebecca Yates Coley, Johns Hopkins Bloomberg School of Public Health
 TL05 Search for Truth Amidst the Bias: Evaluate the Impact of Unmeasured Confounding in Comparative Observational Studies—◆Xiang Zhang, Eli Lilly and Company; Douglas Faries, Eli Lilly and Company

276 CC-W375a
Section on Statistics in Imaging A.M. Roundtable Discussion (Added Fee)

Section on Statistics in Imaging
 Organizer(s): Ying Guo, Emory University
 TL06 Statistical Tools for Clinical Neuroimaging—◆Ciprian Crainiceanu, The Johns Hopkins University

277 CC-W375a
Section on Statistical Learning and Data Science A.M. Roundtable Discussion (Added Fee)

Section on Statistical Learning and Data Science
 Organizer(s): Genevera Allen, Rice University
 TL07 Data Science: Bridging Academia and Industry—◆Justin Dyer, Google; Donal McMahon, Google

278 CC-W375a
Survey Research Methods Section A.M. Roundtable Discussion (Added Fee)

Survey Research Methods Section
 Organizer(s): Tom Krenzke, Westat
 TL08 Alternative Goals for Adaptive Survey Design—◆Peter Miller, U.S. Census Bureau

279 CC-W375a
Section on Teaching of Statistics in the Health Sciences A.M. Roundtable Discussion (Added Fee)

Section on Teaching of Statistics in the Health Sciences
 Organizer(s): Wenyaw Chan, The University of Texas Health Science Center at Houston
 TL09 Utilizing Technology Tools Without Detracting Focus from Statistical Concepts—◆Jennifer Daddysman, University of Kentucky

Special Presentation 8:30 a.m. – 10:20 a.m.

280 CC-W375b
Introductory Overview Lecture: Data Science—Invited

ASA, ENAR, WNAR, IMS, SSC, International Chinese Statistical Association, International Indian Statistical Association, Korean International Statistical Society, International Society for Bayesian Analysis (ISBA), Royal Statistical Society, International Statistical Institute, Section for Statistical Programmers and Analysts
 Organizer(s): David A. van Dyk, Imperial College London
 Chair(s): David A. van Dyk, Imperial College London

8:35 a.m. On Mining Big Data and Social Network Analysis—◆Philip S. Yu, University of Illinois at Chicago

9:25 a.m. On Computational Thinking and Inferential Thinking—◆Michael I. Jordan, University of California at Berkeley

10:15 a.m. Floor Discussion

Invited Sessions 8:30 a.m. – 10:20 a.m.281 CC-W178b**■ ● Immigration: Measuring Integration and Impact on American Society—Invited**

Social Statistics Section, International Chinese Statistical Association, Scientific and Public Affairs Advisory Committee

Organizer(s): Carol C. House, Committee on National Statistics

Chair(s): Constance F. Citro, Committee on National Statistics

8:35 a.m. Integration of Immigrants into American Society—
◆Mary C. Waters, Harvard9:00 a.m. Economic and Fiscal Consequences of
Immigration—◆Ryan D. Edwards, Queens
College; Gretchen Donehower, University of
California at Berkeley

9:25 a.m. Disc: John R. Logan, Brown University

9:45 a.m. Disc: Kim S. Rueben, The Urban Institute

9:25 a.m. Floor Discussion

282 CC-W180**■ Bayesian Methods for Complex Networks—Invited**

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA), International Chinese Statistical Association, Committee on Applied Statisticians

Organizer(s): Francesco Stingo, MD Anderson Cancer Center

Chair(s): Francesco Stingo, MD Anderson Cancer Center

8:35 a.m. Decouple/Recouple: Dynamic Graphical Modeling
and Time Series Forecasting—◆Mike West, Duke
University; Lutz Gruber, QuantCo9:05 a.m. A Bayesian Framework for Modeling Human
Mobility—◆Adrian Dobra, University of
Washington9:35 a.m. Bayesian Multiplicity Control for Multiple
Graphs—◆Peter Mueller, The University of Texas
at Austin; Riten Mitra, University of Louisville;
Yuan Ji, NorthShore University HealthSystem

10:05 a.m. Floor Discussion

283 CC-W196b**■ ● Showcase of the Power of Statistics on Evaluating Dynamic Treatment Regimes Leading Toward Personalized Health Care—Invited**

ENAR, International Chinese Statistical Association

Organizer(s): Lu Wang, University of Michigan

Chair(s): Lu Wang, University of Michigan

8:35 a.m. Model Validation and Selection in Estimation of
Adaptive Treatment Strategies—◆Erica E. M.Moodie, McGill University; Michael P. Wallace,
McGill University; David A. Stephens, McGill
University9:00 a.m. Adaptive Treatment Allocations for Emerging
Infectious Diseases—◆Eric Laber, North
Carolina State University; Nicholas Meyer,
North Carolina State University; Brian J. Reich,
North Carolina State University; Krishna
Pacifi, North Carolina State University; Tao
Hu, North Carolina State University9:25 a.m. Stabilized Dynamic Treatment Regimes—◆Yingqi
Zhao, Fred Hutchinson Cancer Research Center;
Ruoqing Zhu, University of Illinois at Urbana-
Champaign; Guanhua Chen, Vanderbilt University

9:50 a.m. Disc: Peter F. Thall, MD Anderson Cancer Center

10:10 a.m. Floor Discussion

284 CC-W190a**■ ● Statistical Modeling for Climate Risk Assessment at the Interface of Climate Change and Insurance—Invited**

SSC, Section on Risk Analysis

Organizer(s): Yulia R. Gel, The University of Texas at Dallas;
Vyacheslav Lyubchich, University of Maryland Center for
Environmental Science

Chair(s): Yulia R. Gel, The University of Texas at Dallas

8:35 a.m. Developing an Index-Based Methodology to
Forecast the Integrated Risk of Extreme Weather
to Agricultural Production Systems—◆Nathaniel
Kenneth Newlands, Agriculture and Agri-Food
Canada9:05 a.m. U.S. Billion-Dollar Weather and Climate Disasters:
Data Sources, Methods, Biases, and Uncertainty—
◆Adam B. Smith, NOAA/NCEI9:35 a.m. The Effect of Climate Change on House
Insurance: Spatio-Temporal Modeling of Flood-
Related Damages and Claims—Yulia R. Gel,
The University of Texas at Dallas; ◆Vyacheslav
Lyubchich, University of Maryland Center for
Environmental Science

10:05 a.m. Floor Discussion

285 CC-W192c**● New Advances in Statistical Genetics for Large-Scale Genomic Data—Invited**

WNAR

Organizer(s): Timothy A. Thornton, University of Washington

Chair(s): Matthew Conomos, University of Washington

8:35 a.m. Statistical Methods for Joint Genetic Mapping
Based on Sequence Data of Two Interactive

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

Organisms—◆Mary Sara McPeck, The University of Chicago; Miaoyan Wang, The University of Chicago

9:00 a.m. Kernel-Based Association Mapping in Ancestrally Diverse Populations—◆Timothy A. Thornton, University of Washington; Caitlin McHugh, University of Washington; Matthew Conomos, University of Washington

9:25 a.m. A Statistical Approach for Testing Cross-Phenotype Effects of Rare Variants—◆Michael Epstein, Emory University School of Medicine

9:50 a.m. Kernel Machine Methods for Genetic Studies with High-Dimensional and Complex Outcomes—◆Michael C. Wu, Fred Hutchinson Cancer Research Center; Xiang Zhan, Fred Hutchinson Cancer Research Center; Ni Zhao, Fred Hutchinson Cancer Research Center

10:15 a.m. Floor Discussion

286 CC-W187b

■ ● Women in Statistics: Past, Present, Future—Invited

Committee on Women in Statistics, Royal Statistical Society, International Chinese Statistical Association, Caucus for Women in Statistics, Scientific and Public Affairs Advisory Committee

Organizer(s): Satkartar Kinney, RTI International

Chair(s): Telba Irony, FDA

8:35 a.m. Gender Realities in Cyberspace—◆Susmita Datta, University of Florida

9:00 a.m. Women in the ASA: Past, Present, Future—◆Bonnie Ghosh-Dastidar, RAND Corporation

9:25 a.m. Leaning In: What Does a Conference for Women in Statistics Accomplish?—◆Dalene K. Stangl, Duke University

9:50 a.m. Disc: Sally Morton, University of Pittsburgh

10:10 a.m. Floor Discussion

287 CC-W185d

■ ● Machine Learning Methods for 21st-Century Toxicological Risk Assessment—Invited

Section on Risk Analysis

Organizer(s): Matthew Wheeler, CDC/NIOSH

Chair(s): Edsel Aldea Pena, University of South Carolina

8:35 a.m. Statistical Issues in Nanotoxicology—◆Donatello Telesca, University of California at Los Angeles

8:55 a.m. Network Analysis-Based Algorithm Nebula for Risk Evaluation of Chemicals—◆Huixiao Hong, FDA

9:15 a.m. Predicting Chemical Dose-Response Toxicity Through Chemical Structure Activity Relationships—◆Matthew Wheeler, CDC/NIOSH

9:35 a.m. Integrative Analysis of High-Throughput Toxicity Screening Data—◆Eric F. Lock, University of Minnesota

9:55 a.m. Disc: A. John Bailer, Miami University

10:15 a.m. Floor Discussion

288 CC-W184bc

■ ● Economic and Business Applications in High-Dimensional and Big Data Contexts—Invited

Business and Economic Statistics Section, Royal Statistical Society

Organizer(s): Tapabrata Maiti, Michigan State University

Chair(s): Tapabrata Maiti, Michigan State University

8:35 a.m. Variable Selection in Empirical Economics: Potential Pitfalls and Solutions—◆Christian Hansen, The University of Chicago Booth School of Business; Esther Duflo, MIT; Victor Chernozhukov, MIT; Maddie McKelway, MIT

9:00 a.m. Functional Regression Models for Large Spatial Data with Endogeneity and Unstructured Dependence—◆Arnab Bhattacharjee, Heriot-Watt University; Tapabrata Maiti, Michigan State University

9:25 a.m. Autoregression on Multiple, Adaptively Detected Timescales for the Modeling of High-Frequency Returns—Rafal Baranowski, London School of Economics; ◆Piotr Fryzlewicz, London School of Economics

9:50 a.m. Inherently High-Dimensional Analysis with Indicator Saturation—◆Neil R. Ericsson, Federal Reserve Board

10:15 a.m. Floor Discussion

289 CC-W179a

■ ● Environmental and Health Effects of Air Pollution in a Changing Climate—Invited

Section on Statistics and the Environment, Royal Statistical Society, Section on Risk Analysis

Organizer(s): Elizabeth Mannshardt, EPA

Chair(s): Kimberly Kaufeld

8:35 a.m. Statistical Methods for Projecting Future Ambient Air Quality Under a Changing Climate—◆Howard Chang, Emory University; Brooke Alhanti, Emory University; Stefanie E Sarnat, Emory University; Xinyi Zhao, Emory University

8:55 a.m. Implication of Nonlinear Air Pollutant Concentrations: Response Functions in Risk Assessment—◆Ana G. Rappold, EPA; James Crooks, National Jewish Health

9:15 a.m. Estimating Pathways and Health Benefits in Air Pollution Interventions—◆Roger Peng, The Johns Hopkins University

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

9:35 a.m. A Dynamic Spatial Factor Model for Speciated Pollutants—◆Montse Fuentes, North Carolina State University; Maria Terres, Climate Corporation

9:55 a.m. Disc: Elizabeth Mannshardt, EPA

10:15 a.m. Floor Discussion

290 CC-W185bc

■ ● **What to Do with Messy Data? Four Case Studies—Invited**

Section for Statistical Programmers and Analysts, International Chinese Statistical Association, Committee on Applied Statisticians

Organizer(s): Taylor B. Arnold

Chair(s): Taylor B. Arnold

8:35 a.m. A Changepoint Model for Housing Values—◆Xiaofei Susan Wang, Yale University; John Emerson, Yale University

9:00 a.m. From Sports to Real Estate: Real-World Data Facts of Life—◆John Emerson, Yale University

9:25 a.m. Two Approaches to Topic Modeling Within an Encyclopedic Corpus—◆Lauren Tilton, Yale University

9:50 a.m. Floor Discussion

291 CC-W178a

● **Bridging BFF (Bayesian/Frequentist/Fiducial) Inferences in the Era of Data Science (No. 1)—Invited**

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

Organizer(s): Thomas Lee, University of California at Davis

Chair(s): Randy Lai, University of Maine

8:35 a.m. Combining Inference Across Diverse Information Sources via Confidence Distributions: The II-CC-FF Paradigm—◆Nils Lid Hjort, University of Oslo

9:00 a.m. Bayesian Inference with Half a Prior—◆Keli Liu, Stanford University; Xiao-Li Meng, Harvard

9:25 a.m. Generalized Fiducial Inference for High-Dimensional Sparse Additive Models—◆Thomas Lee, University of California at Davis; Randy Lai, University of Maine

9:50 a.m. Objective Bayesian Analysis Under Partial Invariance—Xiaoyan Lin, University of South Carolina; James Berger, Duke University; ◆Dongchu Sun, University of Missouri

10:15 a.m. Floor Discussion

292 CC-W183c

■ ● **Online Experimentation: What Is It, Why Use It, and How to Do It Well?—Invited**

Section on Physical and Engineering Sciences, Section on Statistics in Marketing, Quality and Productivity Section

Organizer(s): Xinwei Deng, Virginia Tech

Chair(s): Xinwei Deng, Virginia Tech

8:35 a.m. Multifactor Online Testing—◆David M. Steinberg, Tel Aviv University; Tamar Haizler, Tel Aviv University

9:00 a.m. Statistical Design for Online Experiments Across Desktops, Tablets, Smartphones (and Maybe Wearable Gadgets)—◆Peter Qian, University of Wisconsin-Madison; Soheil Sadeghi, University of Wisconsin-Madison; Neeraj Arora, University of Wisconsin-Madison

9:25 a.m. How NOT to Do A/B Testing—◆David Charles Draper, University of California at Santa Cruz

9:50 a.m. Disc: David Woods, University of Southampton

10:10 a.m. Floor Discussion

293 CC-W190b

● **Power and Meta-Analysis in Neuroimaging: Contributing to Reproducible Science—Invited**

Section on Statistics in Imaging, International Chinese Statistical Association

Organizer(s): Beatrijs Moerkerke, Ghent University

Chair(s): Beatrijs Moerkerke, Ghent University

8:35 a.m. Power Analysis for fMRI Studies: Demands and Difficulties—◆Jeanette A. Mumford, University of Wisconsin-Madison

8:55 a.m. New Tools and Methods for Power Analyses in Neuroimaging—◆Joke Durnez, Stanford University

9:15 a.m. Using Meta-Analysis to Enhance Power and Replicability in Neuroimaging Research: Current Practices and Open Opportunities—◆Tor D. Wager, University of Colorado Boulder

9:35 a.m. Computerintensive Validation of Meta-Analysis in Neuroimaging—◆Ruth Seurinck, Ghent University; Han Bossier, Ghent University; Freya Acar, Ghent University; Simone Kuehn, MPI for Human Development; Beatrijs Moerkerke, Ghent University

9:55 a.m. Disc: Martin Lindquist, The Johns Hopkins University

10:15 a.m. Floor Discussion

Topic-Contributed Sessions 8:30 a.m. – 10:20 a.m.

294 CC-W185a
■ ● Recent Developments of Graphical Modeling of Data with Complex Structures—Topic-Contributed
 Section on Statistical Computing, Section on Statistical Graphics
 Organizer(s): Wen Zhou, Colorado State University; Zhao Ren, University of Pittsburgh
 Chair(s): Wendy Martinez, Bureau of Labor Statistics

- 8:35 a.m. Two-Sample Tests for High-Dimensional Linear Regression with an Application to Detecting Interactions—◆Yin Xia, Fudan University/The University of North Carolina at Chapel Hill
- 8:55 a.m. Testing Independence with High-Dimensional Correlated Samples—◆Xi Chen; Weidong Liu, Shanghai Jiao Tong University
- 9:15 a.m. Testing for Vector White Noise Using Maximum Cross Correlations—◆Jinyuan Chang, University of Melbourne; Qiwei Yao, London School of Economics; Wen Zhou, Colorado State University
- 9:35 a.m. Large-Scale Inference in Multiple Gaussian Graphical Models—◆Zhao Ren, University of Pittsburgh; Yongjian Kang, University of Southern California; Yingying Fan, University of Southern California; Jinchi Lv, University of Southern California
- 9:55 a.m. A Neighborhood-Assisted Test for High-Dimensional Mean Vector—◆Yumou Qiu, University of Nebraska-Lincoln
- 10:15 a.m. Floor Discussion

295 CC-W186c
■ ● Statistical Developments in the Application of Functional Data Analysis to Environmental Satellite Remote Sensing Data—Topic-Contributed
 Royal Statistical Society
 Organizer(s): Claire Miller, University of Glasgow
 Chair(s): Duncan Lee, University of Glasgow

- 8:35 a.m. Functional Regression Model with Spatially Correlated Errors: Application to Satellite Rainfall Data—◆Ramon Giraldo, Universidad Nacional de Colombia; Johann Ospina, Universidad del Valle; Mercedes Andrade, Universidad del Valle
- 8:55 a.m. GloboLakes: Functional Clustering of MERIS and AATSR Lake Quality and Temperature Data—◆Ruth O'Donnell, University of Glasgow; Claire Miller, University of Glasgow; Marian Scott, University of Glasgow

- 9:15 a.m. Integrated Framework for Analyzing Spatially Correlated Functional Data—◆Surajit Ray, University of Glasgow
- 9:35 a.m. Functional Regression and Model Calibration for Air Pollution Data—◆Marian Scott, University of Glasgow; Alan Hills, Scottish Environment Protection Agency; Lauren Sim, University of Glasgow
- 9:55 a.m. Disc: Claire Miller, University of Glasgow
- 9:55 a.m. Floor Discussion

296 CC-W192a
Fresh Perspectives in Causal Inference—Topic-Contributed
 Section on Statistics in Epidemiology, International Chinese Statistical Association
 Organizer(s): Susan Gruber, Harvard T.H. Chan School of Public Health
 Chair(s): David Vock, University of Minnesota School of Public Health

- 8:35 a.m. Lasso Adjustments of Treatment Effect Estimates in Randomized Experiments—◆Adam Bloniarz, University of California at Berkeley; Cun-Hui Zhang, Rutgers University; Hanzhong Liu, University of California at Berkeley; Jasjeet Sekhon, University of California at Berkeley; Bin Yu, University of California at Berkeley
- 8:55 a.m. Causal Inference in Network-Dependent Observational Data—◆Oleg Sofrygin, University of California at Berkeley; Mark van der Laan, University of California at Berkeley
- 9:15 a.m. Causal Effect Among the Exposed: Multiple Data Sources and Censored Outcomes—◆Parichoy Pal Choudhury, Johns Hopkins Bloomberg School of Public Health; Daniel Scharfstein, Johns Hopkins Bloomberg School of Public Health; Ivan Diaz, Johns Hopkins Bloomberg School of Public Health; Chris McMahan, Clemson University; Xun Luo, Johns Hopkins School of Medicine; Allan Massie, Johns Hopkins School of Medicine; Dorry Segev, Johns Hopkins School of Medicine
- 9:35 a.m. Asymptotic Analysis of Collaborative Targeted Learning in Confounder Selection—◆Lin Liu, Harvard T.H. Chan School of Public Health
- 9:55 a.m. Bayesian Structural Mean Models—◆Bret Zeldow, University of Pennsylvania; Jason Roy, University of Pennsylvania
- 10:15 a.m. Floor Discussion

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

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CC-W179b

■ ● **Data Challenge 2016 I—Topic-Contributed**

Government Statistics Section, Scientific and Public Affairs Advisory Committee

Organizer(s): Wendy Martinez, Bureau of Labor Statistics

Chair(s): Roya Amjadi, Federal Highway Administration

- 8:35 a.m. Alcohol-Related Crashes in the United States—
◆Dane Korver
- 8:55 a.m. U.S. Roadways—◆Michael Jadoo, Bureau of
Labor Statistics
- 9:15 a.m. Predictive Modeling of Severity of Injuries in
Motor Vehicle Crashes—◆Aditi Pradeep Sharma,
University of Maryland Baltimore County; Michael
Wierzbicki, The EMMES Corporation; Gaurav
Sharma, The EMMES Corporation
- 9:35 a.m. Understanding the Reduction in Vehicle Fatalities
in the United States—◆Elizabeth Hohman,
MITRE; Jing Jian, MITRE; Andrew Wan, Institute
for Defense Analyses
- 9:55 a.m. Accidents, Injuries, and Driving Speeds: A Causal
Investigation—◆Christopher Eshleman, Port
Authority of New York and New Jersey; Jonathan
Auerbach, Columbia University
- 10:15 a.m. Floor Discussion

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CC-W187c

■ ● **Regularization: A Versatile Technique for High-Dimensional Data Analysis—Topic-Contributed**

Section on Statistical Learning and Data Science, Korean International Statistical Society

Organizer(s): Cheolwoo Park, University of Georgia

Chair(s): Seungeun Lee, University of Michigan

- 8:35 a.m. Regularized LDA for High-Dimensional Data—
◆Jeongyoun Ahn, University of Georgia; Yongho
Jeon, Yonsei University
- 8:55 a.m. Variable Selection for Haitian Tuberculosis (TB)
Patients Metabolomics Studies—◆Myung Hee
Lee, Weill Cornell Medicine
- 9:15 a.m. Principal Quantile Regression for Sufficient
Dimension Reduction with Heteroscedasticity—
◆Chong Wang, North Carolina State University;
Yichao Wu, North Carolina State University;
Seeing Jun Shin, Korea University
- 9:35 a.m. Sparse Additive Graphical Models—◆Hyonho
Chun, Purdue University; Ji Hwan Oh, Purdue
University
- 9:55 a.m. Disc: Woncheol Jang, Seoul National University
- 10:15 a.m. Floor Discussion

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CC-W176c

● **2020 Census: Operational Design and Methods—Topic-Contributed**

Survey Research Methods Section, Scientific and Public Affairs Advisory Committee

Organizer(s): Robin A. Pennington, U.S. Census Bureau

Chair(s): Lisa Blumerman, U.S. Census Bureau

- 8:35 a.m. The Operational Design of the 2020 Census:
Overview of the Current Status—◆Robin A.
Pennington, U.S. Census Bureau
- 8:55 a.m. An Overview of the Master Address File Coverage
Study—◆Evan Boyd, U.S. Census Bureau
- 9:15 a.m. Optimizing Self-Response for the 2020 Census—
◆Michael Bentley
- 9:35 a.m. Using Administrative Records to Identify Occupied
and Vacant Units—◆Vincent Mule, U.S. Census
Bureau; Andrew Keller, U.S. Census Bureau;
Darcy S. Morris, U.S. Census Bureau
- 9:55 a.m. Field Re-Engineering for the 2020 Census—
◆Tamara Adams, U.S. Census Bureau
- 10:15 a.m. Floor Discussion

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CC-W196c

■ ● **Recent Advancement of Statistical Methods and Tools for Go/No-Go Decision Making—Topic-Contributed**

Biopharmaceutical Section, International Chinese Statistical Association, Committee on Applied Statisticians

Organizer(s): Qi Tang, AbbVie

Chair(s): Deli Wang, AbbVie

- 8:35 a.m. Comparison of Various Early-Phase Go/No Go
Decision Criteria—◆Yili Pritchett, MedImmune;
Masanori Ito, Astellas Pharma
- 8:55 a.m. Using Little 'Go' Decisions—◆Scott Berry, Berry
Consultants
- 9:15 a.m. Interim Go/No-Go Decision Making in Clinical
Trials with Longitudinal Outcomes—◆Ming
Zhou, Bristol-Myers Squibb; Qi Tang, AbbVie; Lixin
Lang, Bristol-Myers Squibb; Jun Xing, Bristol-Myers
Squibb; Kay Tatsuoka, Bristol-Myers Squibb
- 9:35 a.m. Statistical Software for Decision Making in
Clinical Development—◆Charles Liu, Cytel;
Yannis Jemai, Cytel
- 9:55 a.m. Enhancing the Probability of Success Framework for
Go/No-Go Decision Making Using ROC Curves—
◆Alan Hartford, AbbVie; Qi Tang, AbbVie; Deli
Wang, AbbVie; Jyotirmoy Dey, AbbVie; Walt
Offen, AbbVie; Frank Shen, AbbVie
- 10:15 a.m. Floor Discussion

Tuesday

301 CC-W184d
■ ● Statistical Challenges in Big Data, Finance, and Business Analytics—Topic-Contributed

Business and Economic Statistics Section, Section on Statistics in Marketing

Organizer(s): Kai-Sheng Song, University of North Texas

Chair(s): Ta-Hsin Li, IBM T.J. Watson Research Center

8:35 a.m. Statistical Challenges in Big Data Analysis of the Hotel Industry—◆Kai-Sheng Song, University of North Texas

8:55 a.m. Unsupervised Anomaly Detection in Time Series with Application in Electricity Demand Forecasting—◆Bei Chen, IBM Research; Mathieu Sinn, IBM Research; Ulrike Fischer, IBM Research

9:15 a.m. Marketing Market Value at Risk—◆Zhengjun Zhang, University of Wisconsin-Madison; Zhicheng Wang, Peking University; Yu Chen, University of Science and Technology of China

9:35 a.m. Least Tail-Trimmed Absolute Deviation Estimation for Autoregressions with Infinite/Finite Variance—◆Rongning Wu, Baruch College

9:55 a.m. Floor Discussion

302 CC-W193a
■ ● Advanced Statistical Methods for High-Dimensional Microbiome Data Analysis—Topic-Contributed

Biometrics Section, Biopharmaceutical Section

Organizer(s): Yilong Zhang, New York University Langone Medical Center

Chair(s): Huilin Li, New York University Langone Medical Center

8:35 a.m. Kernel-Based Association Test in Microbiome-Profilng Studies with Multivariate Outcomes—◆Xiang Zhan, Fred Hutchinson Cancer Research Center

8:55 a.m. A Model for Paired-Multinomial Data and Its Application to Analysis of Data on a Taxonomic Tree—◆Pixu Shi; Hongzhe Li, University of Pennsylvania

9:15 a.m. Microbial Dynamical Systems INference Engine (MDSINE)—◆Georg Gerber, Harvard Medical School; Vanni Bucci, University of Massachusetts-Dartmouth; Belinda Tzen, Harvard Medical School

9:35 a.m. MiCAM: A Powerful Microbial Association Test and Its Comprehensive Mapping Capability—◆Hyunwook Koh, New York University; Martin J. Blaser, New York University; Huilin Li, New York University Langone Medical Center

9:55 a.m. Learning the Structure of Biological Networks—◆Richard Bonneau, New York University; Christian Mueller, Simons Foundation

10:15 a.m. Floor Discussion

303 CC-W175a
■ Leveraging Large-Scale Biomarkers with a Mechanistic Focus: A Paradigm Shift—Topic-Contributed

Mental Health Statistics Section, International Chinese Statistical Association

Organizer(s): Christine Mauro, Columbia University

Chair(s): Christine Mauro, Columbia University

8:35 a.m. Edgewise and Subgraph Level Tests for Brain Networks—◆Huaihou Chen, University of Florida; Bingxin Zhao, University of Florida

8:55 a.m. Efficient Method to Optimally Identify Important Biomarkers for Disease Outcomes with High-Dimensional Data—◆Xiang Li, Columbia University; Shanghong Xie, Columbia University; Donglin Zeng, The University of North Carolina at Chapel Hill; Yuanjia Wang, Columbia University

9:15 a.m. Generating Treatment Effect Modifiers from Complex Data Modalities—◆Thaddeus Tarpey, Wright State University; Eva Petkova, New York University; Todd Ogden, Columbia University

9:35 a.m. Kernel Machine Statistical Approaches to Genetic Association Testing in Longitudinal Studies—◆Zuoheng Wang, Yale University; Zhong Wang, Cornell University

9:55 a.m. Biosignatures for Treatment Response: Statistical Methods for Developing Depression Treatment Response Index (DTRI)—◆Eva Petkova, New York University; Thaddeus Tarpey, Wright State University; Robert Todd Ogden, Columbia University; Adam Ciarleglio; Hyung G. Park, Columbia University

10:15 a.m. Floor Discussion

304 CC-W195
■ Innovative Bayesian Applications in Drug Development—Topic-Contributed

Biopharmaceutical Section, International Society for Bayesian Analysis (ISBA), Section on Bayesian Statistical Science, International Chinese Statistical Association, Committee on Applied Statisticians

Organizer(s): Fanni Natanegara, Eli Lilly and Company

Chair(s): JonDavid Sparks, Eli Lilly and Company

8:35 a.m. Bayesian Framework in Small Sample Trials—◆Freda Cooner, FDA/CDER/OTS/OB/DB2

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 8:55 a.m. Innovative Bayesian Applications in Clinical Trials—◆Soumi Lahiri, GlaxoSmithKline; Satrajit Roychoudhury, Novartis
- 9:15 a.m. Bayesian Predictive Approach to Concurrent Tailoring of Phase 3 Clinical Trials Intended for Registration—◆Ming-Dauh Wang, Eli Lilly and Company; Aijun Gao, inVentiv Health; Jinghui Liu, inVentiv Health; Karen Price, Eli Lilly and Company; MaryAnn Morgan-Cox, Eli Lilly and Company; Lei Shen, Eli Lilly and Company
- 9:35 a.m. Bayesian Assurance and Sample-Size Determination in the Process Validation Lifecycle—◆Paul Faya, Baylor University; John W. Seaman, Jr., Baylor University; James D. Stamey, Baylor University
- 9:55 a.m. Disc: Fanni Natanegara, Eli Lilly and Company
- 10:15 a.m. Floor Discussion

Topic-Contributed Panels 8:30 a.m. – 10:20 a.m.

305 CC-W183a

■● A Roadmap for Promoting Statistical Collaboration—Topic-Contributed

Section on Statistical Consulting, Quality and Productivity Section, Section on Physical and Engineering Sciences, Committee on Applied Statisticians

Organizer(s): Erin Tanenbaum, NORC at the University of Chicago

Chair(s): Eric Vance, Laboratory for Interdisciplinary Statistical Analysis

Panelists: ◆Robin Mogg, Merck Research Laboratories
◆Chuck Kincaid, Experis
◆Holly Shulman, CDC
◆Mark Otto, Fish and Wildlife Service

10:15 a.m. Floor Discussion

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

306 CC-W181a
SPEED: Advances in Biopharmaceutical Research—Contributed

Biopharmaceutical Section

Chair(s): Madan Gopal Kundu, Novartis Oncology

The Poster portions will take place during Session 380 and Session 383.

8:35 a.m. Generalizing Results from Randomized Trials to Target Population via Weighting Methods Using

Propensity Score—◆Ziyue Chen, The Ohio State University; Eloise Kaizar, The Ohio State University

8:40 a.m. Bone Marrow Stromal Cell Therapy for Ischemic Stroke: A Meta-Analysis of Randomized Control Animal Trials—◆Qing Wu, Nevada Institute of Personalized Medicine; Yuexiang Wang, Mayo Clinic; Bart Demaerschalk, Mayo Clinic; Saruna Ghimire, Nevada Institute of Personalized Medicine; Kay Wellik, Mayo Clinic; Wenchun Qu, Mayo Clinic

8:45 a.m. Application and Practical Consideration of Rank-Preserving Structural Failure Time (RPSFT) Model for Correcting Overall Survival in 'Treatment Crossover' Studies—◆Jie Gao, Gilead Sciences; Oksana Gurtovaya, Gilead Sciences; Julie Huang, Gilead Sciences; Guan Xing, Gilead Sciences

8:50 a.m. Stepped Wedge Cluster Randomized Controlled Trials with Two Layers of Clustering: Designs and Comparisons of Power—◆Ranran Dong, The Ohio State University; Abigail Shoben, The Ohio State University

8:55 a.m. On the Use of Nonparametric Tests for Comparing Immunological Reverse Cumulative Distribution Curves (RCDCs)—◆Lihan Yan, FDA; Bob Small, Sanofi Pasteur; Ayca Ozol-Godfrey, Sunovion Pharmaceuticals

9:00 a.m. Selecting Cutoffs for Profile-Based Propensity Score Stratified Randomization—◆Andrew Magyar, Allergan; Jihao Zhou, Allergan

9:05 a.m. Impact of Mis-Specified Prior on the Bayesian Dose-Finding Method in Phase I Cancer Trials—◆Lixia Pei, Janssen R&D; Kevin Liu, Janssen R&D; Hong Tian, Janssen R&D

9:10 a.m. Covariate Adjustment for Logistic Regression Analysis of Binary Clinical Trial Data—◆Honghua Jiang; Pandurang Kulkarni, Eli Lilly and Company; Craig Mallinckrodt, Eli Lilly and Company; Linda Shurzinske, Eli Lilly and Company; Geert Molenberghs, Universiteit Hasselt; Ilya Lipkovich, Quintiles

9:15 a.m. Improving Vaccine Inventory Utilization Using R-Based Statistical Heuristic Algorithm—◆Hesham Fahmy, Merck

9:20 a.m. Value-Driven Decision Making at Late Stage of Drug Development: Statistical Simulation Approach—◆Masanori Ito, Astellas Pharma; Hideki Hirooka, Astellas Pharma

9:30 a.m. D-Optimal Designs for Multinomial Logistic Models—◆Xianwei Bu, UIC; Jie Yang, University of Illinois at Chicago

9:35 a.m. Multiple Comparison Techniques in Dose-Response and Toxicity Studies—◆Lucy Kerns, Youngstown State University; Flora Opoku Asantewaa, Youngstown State University

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 9:40 a.m. Nonparametric Sensitivity Analysis of Longitudinal Clinical Trials with Missing Data and Its Application to Ruxulti NDA Approval—◆Peter Zhang, Otsuka Pharmaceutical Development & Commercialization; Xiaoshu Feng, Otsuka Pharmaceutical Development & Commercialization
- 9:45 a.m. Comparisons of Statistical Approaches and Procedures in Building Predicting Models to Drug Response from SNPs Through Simulation—◆Wencan Zhang, Takeda Development Center; Pingye Zhang, University of Southern California; Feng Gao, Takeda
- 9:50 a.m. Finding the ‘Missing Heritability’ in Combined Phase 2 and Subset Phase 3 Analyses—◆Knut Wittkowski, Rockefeller University; Benedetta Bigio, Rockefeller University
- 9:55 a.m. The Analysis of Impact of Difference in Duration of Treatment—◆Jiejun Du, Merck
- 10:00 a.m. Progression-Free Survival: How Often You Look Matters—◆Jingyi Liu, Eli Lilly and Company; Yong Lin, Eli Lilly and Company; Shuang He, Eli Lilly and Company
- 10:05 a.m. How Do We Interpret Restricted Mean Survival Time Difference in Clinical Trials?—◆Xizotian Zhu, AbbVie; Rick Chappell, University of Wisconsin-Madison
- 10:10 a.m. Multiple Testing Procedures Under Group Sequential Design—◆Aiyong Chen, Temple University
- 10:15 a.m. Use of the Treatment-Free Interval in Driving Decision Making in Cancer Care: A Late-Phase Example—◆Suddhasatta Acharyya, Novartis; Ashok Panneerselvam, Novartis Oncology; Sofia Paul, Novartis

307 **CC-W181b**
SPEED: Epidemiological Research—Contributed

Section on Statistics in Epidemiology

Chair(s): Arni Rao, Augusta University

The Poster portions will take place during Session 381 and Session 384.

- 8:35 a.m. Confidence Intervals Construction of Difference of Proportions Based on Correlated Bilateral Data—◆Zhengyu Yang, SUNY Buffalo; Xiaobin Liu, SUNY Buffalo; Chang-Xing Ma, SUNY Buffalo
- 8:40 a.m. Validation of Sudden Cardiac Death Algorithm—◆Zoe Bider-Canfield, Kaiser Permanente Southern California; Shuhua Liang, Kaiser Permanente Southern California; T. Craig Cheetham, Kaiser Permanente Southern California
- 8:45 a.m. Trends in Cardiovascular Disease Risk Factors by Obesity Level in Adults in the U.S.—◆Reena Gitanjali Singh, York University

- 8:50 a.m. Effect of Birth Weight on Childhood Allergy with Repeatedly Measured Confounder Using Joint and Marginal Modeling—◆Ayano Takeuchi, Keio University; Mari Oba, Toho University; Ikuko Funatogawa, The Institute of Statistical Mathematics
- 8:55 a.m. Adaptive Distributed Lag Models—◆Alastair Rushworth, University of Strathclyde
- 9:00 a.m. Two-Level Joint Model for Imputing Subject-Level Variables of Mixed Type—◆David Kline, The Ohio State University; Rebecca Andridge, The Ohio State University; Eloise Kaizar, The Ohio State University
- 9:05 a.m. Mediation Analysis for Longitudinal Data Using Regression Calibration When the Mediator Is Measured with Error—◆John M. Ssenkusu, University of Minnesota; David Vock, University of Minnesota School of Public Health
- 9:10 a.m. Optimal Point Estimates and Credible Intervals for Ranking County Health Indices—◆Ronald Gangnon, University of Wisconsin; Patricia Jewett, University of Wisconsin-Madison
- 9:15 a.m. An Extension to Bayesian Generalized Linear Mixed Effects Models for Household Tuberculosis Transmission—◆Avery McIntosh
- 9:20 a.m. Childhood Obesity Modeling with a Semi-Markov Process—◆Richard Seymour, U.S. Air Force
- 9:30 a.m. Multiple-Step Approach to Analyze Missing Data Under Missing-Not-at-Random Assumptions—◆Lin Tian, CDC; Stuart K. Shapira, CDC; Laura A. Schieve, CDC
- 9:35 a.m. Association Tests Using Common and Rare Variants—◆Renfang Jiang, Michigan Technological University; Jianping Dong, Michigan Technological University; Yilin Dai, Michigan Technological University
- 9:40 a.m. An Approach to Combining Stratification and Covariate Adjustment Methods—◆Zhibao Mi, VA CSPCC; Joseph Collins, VA CSPCC
- 9:45 a.m. Multi-Locus Test and Correction for Confounding Effects in Genome-Wide Association Studies—◆Donglai Chen, Purdue University; Jun Xie, Purdue University; Chuanhai Liu, Purdue University
- 9:50 a.m. Comparing Intensive Care Unit (ICU) Telemedicine in the Veterans Health Administration (VHA)—◆Amy O’Shea, University of Iowa Carver College of Medicine; Mary Vaughan Sarrazin, University of Iowa Carver College of Medicine; Heather Schacht Reisinger, University of Iowa Carver College of Medicine
- 9:55 a.m. Estimating Associations by the Reconstructed Population Method—◆Diana Lam, University of Maryland Baltimore County; William Blackwelder, University of Maryland Baltimore County

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 10:00 a.m. Postoperative Neonatal Mortality Prediction Using Superlearning—◆Jennifer N. Cooper, Nationwide Children's Hospital Research Institute; Katherine J. Deans, Nationwide Children's Hospital Research Institute; Peter C. Minneci, Nationwide Children's Hospital Research Institute
- 10:05 a.m. Adjusting for Noncompliance in Randomized Clinical Trials When Noncompliance Must Be Estimated from a Biomarker—◆Jeffrey Boatman; David Vock, University of Minnesota School of Public Health; Joseph S. Koopmeiners, University of Minnesota
- 10:10 a.m. Estimating the Risk of West Nile Virus Transmission Through Tissue Transplantation—◆Ryan Hicks, Colorado State University
- 10:15 a.m. The Effect of World Trade Center Exposure on the Timing of Aerodigestive Diagnoses in New York City Firefighters: 2001–2011—◆Charles Hall, Albert Einstein College of Medicine; Xiaoxue Liu, Montefiore Medical Center; Rachel Zeig-Owens, Montefiore Medical Center; Jessica Weakley, Montefiore Medical Center; Mayris P. Webber, Montefiore Medical Center; Theresa Schwartz, Montefiore Medical Center; David J. Prezant, Fire Department of the City of New York

308 CC-W183b
SPEED: Statistics for Health and Health Policy—Contributed

Health Policy Statistics Section, Section on Statistics in Imaging, Scientific and Public Affairs Advisory Committee

Chair(s): Steven Cohen, RTI International

The Poster portions will take place during Session 382 and Session 385.

- 8:35 a.m. Multiple Imputation for Meta-Analysis: A Comparison of Existing Methods—◆Deborah Kunkel, The Ohio State University; Eloise Kaizar, The Ohio State University
- 8:40 a.m. Prediction of Lung Cancer Risk in the CT Arm of the National Lung Screening Trial—◆Menghan Hu, Brown University; Fenghai Duan, Brown University
- 8:45 a.m. Matching Estimators for Causal Effects with Multiple Treatments—◆Anthony Scotina; Roe Gutman, Brown University
- 8:50 a.m. Skewed Variable Selection for Revealing Novel Sleep Phenotypes—◆Meredith Wallace, University of Pittsburgh; Daniel J. Buysse, University of Pittsburgh; Anne Germain, University of Pittsburgh; Satish Iyengar, University of Pittsburgh
- 8:55 a.m. Integrative Analysis of Multi-Platform Genomics Data—◆Shisi He, Georgetown University; Ao Yuan, Georgetown University
- 9:00 a.m. Depicting Activity Profiles via Multilevel Functional Principal Component Analysis: Association and

- Prediction—◆Jiarui Lu, University of Pennsylvania; Lihong Cui, National Institute of Mental Health; Kathleen R. Merikangas, National Institute of Mental Health; Haochang Shou, University of Pennsylvania
- 9:05 a.m. Tumor Response in Patients Receiving No Anti-Cancer Therapy: A Meta-Analysis with Incomplete Multinomial Regression—◆Charity Morgan, University of Alabama at Birmingham; Pooja Ghatalia, University of Alabama at Birmingham; Guru Sonpavde, University of Alabama at Birmingham
- 9:10 a.m. Sensitivity Analysis for an Unobserved Moderator in RCT-to-Target-Population Generalization of Treatment Effect—Cyrus Ebnesaajjad, Johns Hopkins Bloomberg School of Public Health; ◆Ben Ackerman, Johns Hopkins Bloomberg School of Public Health; Trang Q. Nguyen, Johns Hopkins Bloomberg School of Public Health; Elizabeth Stuart, Johns Hopkins Bloomberg School of Public Health
- 9:15 a.m. Ranking Hospitals by Direct Standardization to Prioritize Prevention Efforts in Hospital-Associated Infections—◆Minn Soe
- 9:20 a.m. Basic Versus Advanced Life Support Ambulances for Out-of-Hospital Medical Emergencies—◆Prachi Sanghavi, The University of Chicago; Anupam B. Jena, Harvard Medical School; Joseph P. Newhouse, Harvard; Alan M. Zaslavsky, Harvard Medical School
- 9:30 a.m. Asymptotic Properties of Hazard Rate Estimator in Censored Linear Regression—◆Fuxia Cheng, Illinois State University
- 9:35 a.m. Matching and Regression to the Mean in the Difference-in-Differences Design—◆Jamie R. Daw, Harvard; Laura Anne Hatfield, Harvard Medical School
- 9:40 a.m. Social Network Analysis of Health Care Cost: Local Variations Among Medicaid Providers Seeing Diabetic Medicaid Patients in Major U.S. Cities—◆Shun Zhang, NORC at the University of Chicago; George Rust, Morehouse School of Medicine; Zhongyuan Yu, Stevens Institute of Technology; William Rouse, Stevens Institute of Technology
- 9:45 a.m. Applications of Multidimensional Time Model for Probability Cumulative Function for Parameter Evaluation and Risk Reduction—◆Michael Fundator
- 9:50 a.m. Real-Time Modeling of Variation in Longitudinal Momentary Self-Report Data—◆Trent L. Lalonde, University of Northern Colorado; Elysia Clemens, University of Northern Colorado
- 9:55 a.m. Minimum Predictive Risk Subspace Selection in Misspecified Quantile Regressions—◆Alexander Giessing, University of Michigan; Xuming He, University of Michigan

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 10:00 a.m. Assessment of Meals on Wheels Program Efficacy via Record Linkage with Medicare Claim Files—◆Mingyang Shan, Brown University; Roeel Gutman, Brown University
- 10:05 a.m. Predicting Class Membership Using Imputation Methods for Clinical Variable for Hepatocellular Carcinoma (HCC)—◆Amrina Ferdous, Washington State University; Nairanjana Dasgupta, Washington State University
- 10:10 a.m. Analysis of Interval Data—◆Muzi Zhang, Penn State University
- 10:15 a.m. Methods for Outlier Detection Using Relative Abundance in Targeted RNASeq Applications—◆Bonnie LaFleur; Shripad Sinari, University of Arizona; Dominic laRoche, HTG Molecular Diagnostics; Kurt Michels, HTG Molecular Diagnostics; Dean Billheimer, University of Arizona

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

309 CC-W193b

■ ● Case-Control, Case-Cohort and Other Epidemiological Designs—Contributed

Biometrics Section, Biopharmaceutical Section
Chair(s): Y. Ann Chen, Moffitt Cancer Center

- 8:35 a.m. Shrinkage in Reduced-Rank Case-Control Regression: An Application in Non-Hodgkin's Lymphoma—◆Ananda Sen, University of Michigan; Jaya M. Satagopan, Memorial Sloan Kettering Cancer Center
- 8:50 a.m. Re-Use of Nested Case-Control Studies for Semi-Competing Risks Analysis—◆Ina Jazic, Harvard T.H. Chan School of Public Health; Sebastien Haneuse, Harvard T.H. Chan School of Public Health
- 9:05 a.m. Discriminating Among Correlated Aspects of Exposure—◆Robert Hirsch, Stat-Aid Consulting
- 9:20 a.m. Logistic Analysis of Epidemiologic Studies with Augmentation Sampling Involving Re-Stratification and Population Expansion—◆Barry Graubard, National Cancer Institute; Yan Li, Joint Program in Survey Methodology; Mahboobeh Safaeian, National Cancer Institute; Hilary Robbins, The Johns Hopkins University
- 9:35 a.m. Enhancing Power of Case-Control Studies by Using Prevalent Cases—◆Marlena Maziarz, National Cancer Institute; Jing Qin, National Institute of Allergy and Infectious Diseases; Ruth Pfeiffer, National Cancer Institute
- 9:50 a.m. Using Whole-Cohort Information in Case-Control Studies—◆Alastair Scott, University of Auckland;

Christopher Wild, University of Auckland; Gustavo Amorim, Ghent University

- 10:05 a.m. Measurement Error Models in the Case-Cohort Design—◆Klaus Holst

310 CC-W184a

■ Improvements in Quality Assurance and Statistical Process Control—Contributed

Quality and Productivity Section, Committee on Applied Statisticians
Chair(s): Erin Tanenbaum, NORC at the University of Chicago

- 8:35 a.m. Sample Size Study for Measurement Systems Analysis Models—◆Laura Lancaster, SAS Institute; Chris Gotwalt, SAS Institute
- 8:50 a.m. Control Chart Based on Quasi-Likelihood Estimation for Monitoring Profiles—◆Chung-I Li
- 9:05 a.m. Effects of Standard Deviation Estimation on the X-Bar Control Chart and Adjustments for a Guaranteed In-Control Performance—◆Felipe Jardim, Pontífice Universidade Católica Rio de Janeiro; Subhabrata Chakraborti, University of Alabama; Eugenio Epprecht, Pontífice Universidade Católica Rio de Janeiro
- 9:20 a.m. Operating Characteristic Curves for K-Factors of Normal Tolerance Intervals—◆Derek Young, University of Kentucky
- 9:35 a.m. The Power of Statistics to Reduce Manufacturing Costs: Optimal Inspection Interval for a Finite Population—◆Elizabeth Kelly, Los Alamos National Laboratory
- 9:50 a.m. Comparing Binomial and Scan Statistics Methods in QC—◆Chunrong Cheng, FDA; Boguang Zhen, FDA
- 10:05 a.m. An Improved Method for Constructing an Upper Confidence Limit for Proportion of Nonconformance in Normal Processes—◆Yanling Zuo, Minitab

311 CC-W194a

■ All About Binary and Binomial Data—Contributed

Biometrics Section, Biopharmaceutical Section
Chair(s): Iryna Lobach, University of California at San Francisco

- 8:35 a.m. Comparative GQL and GMM Bootstrap Methods for Hierarchical Data—◆Bei Wang, Arizona State University
- 8:50 a.m. A Finite Mixture Model for Clustered Bivariate Binary Data: Application to Ophthalmologic Data Structures—◆John Kwagyan, Howard University College of Medicine

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 9:05 a.m. **Modeling Clustered Bivariate Binary Outcome**—◆ Edmund Ameyaw, Howard University; Paul Bezandry, Howard University; Victor Apprey, Howard University; John Kwagyan, Howard University College of Medicine
- 9:20 a.m. **Joint Modeling for Logistic Regression Models with Generalized Method of Moments Estimators**—◆ Katherine Cai, Arizona State University; Jeffrey Wilson, Arizona State University
- 9:35 a.m. **Multiple Intraclass Correlations for Higher-Level Nested Logistic Regression**—◆ Kyle Irimata, Arizona State University; Jeffrey Wilson, Arizona State University
- 9:50 a.m. **Surrogate Aided Unsupervised Recovery of Sparse Signals in Single Index Models for Binary Outcomes Using Extreme Sampling**—◆ Abhishek Chakraborty, Harvard; Tianxi Cai, Harvard
- 10:05 a.m. **Mean-Minimum Exact Confidence Intervals for a Binomial Probability**—◆ Joseph Lang, University of Iowa

312 CC-W175b Who Is a Statistics Educator? Attitudes, Preparation, and Practice—Contributed

Section on Statistical Education, International Chinese Statistical Association

Chair(s): Benjamin Frisch, Friends Seminary

- 8:35 a.m. **Interviews with Statistics Educators**—◆ Allan Rossman, Cal Poly
- 8:50 a.m. **If You Build It, They Will Come: Wisdom Gained and Lessons Learned from a Five-Year NSF Training Grant**—◆ Rebecca Nugent, Carnegie Mellon University; Chad Schafer, Carnegie Mellon University
- 9:05 a.m. **Addressing Challenges to Implementing Active Learning for All Sections of Introductory Statistics at a Large University**—◆ Ginger Rowell, Middle Tennessee State University; Lisa Holmes Green, Middle Tennessee State University; Nancy Holmes McCormick, Middle Tennessee State University; Scott Holmes McDaniel, Middle Tennessee State University; Jeremy Holmes Strayer, Middle Tennessee State University
- 9:20 a.m. **Mathematics Teachers' Attitudes Toward Statistics and Their Attitudes Toward the Teaching Practices of College-Level Introductory Statistics**—◆ Angelica Castillo; Xiaohui Wang, The University of Texas Rio Grande Valley; Hyung Kim
- 9:35 a.m. **Introductory Statistics: Preparing In-Service Middle-Level Mathematics Teachers for Classroom Research**—◆ Jennifer Green, Montana State University; April T. Kerby, Winona State University; Erin E. Blankenship, University of Nebraska-Lincoln; Kendra K. Schmid, University

of Nebraska Medical Center; Wendy M. Smith, University of Nebraska-Lincoln

- 9:50 a.m. **The Development of Exemplary Advanced Placement Statistics Teachers**—◆ Douglas Whitaker, University of Florida

- 10:05 a.m. **Investigating the Teaching of High-School Statistics with Technology Through the Use of Annotated Lesson Plans**—◆ Elizabeth Arnold, Montana State University

313 CC-W192b Missing Data Methods for Epidemiologic Studies—Contributed

Section on Statistics in Epidemiology

Chair(s): Deborah Dawson, University of Iowa

- 8:35 a.m. **Imputing Data That Are Missing at High Rates Using a Boosting Algorithm**—◆ Katherine Cauten, Sandia National Laboratories; Gregory Lambert, Sandia National Laboratories; Jaideep Ray, Sandia National Laboratories; Sophia Lefantzi, Sandia National Laboratories

- 8:50 a.m. **Regression Analysis of Incomplete Data from Event History Studies with the Proportional Rates Model**—◆ Guanglei Yu, University of Missouri-Columbia; Liang Zhu, St. Jude Children's Research Hospital; Jianguo Sun, University of Missouri; Leslie L. Robison, St. Jude Children's Research Hospital

- 9:05 a.m. **Multilevel Multiple Imputation: Tipping Point Sensitivity Analysis Using the JOMO Package in R with Longitudinal Olympic Regeneration in East London (ORiEL) Data**—◆ Melanie Smuk, Queen Mary University of London; Matteo Quartagno, London School of Hygiene and Tropical Medicine; Charlotte Clark, Queen Mary University of London; Stephen Stansfeld, Queen Mary University of London; Steven Cummins, London School of Hygiene and Tropical Medicine

- 9:20 a.m. **Statistical Modeling of Subject and Proxy Observations Using Weighted GEE**—◆ Mina Hosseini; Nagaraj K. Neerchal, University of Maryland Baltimore County; Ann L. Gruber-Baldini, UMB

- 9:35 a.m. **Comparing Methods of Multiple Imputation for a Score-Variable Measured Repeatedly Over Time**—◆ Elizabeth L. McCabe, Boston University; Joseph M. Massaro, Boston University; Kathryn L. Lunetta, Boston University; Susan Cheng, Framingham Heart Study; Joanne M. Murabito, Framingham Heart Study; Martin G. Larson, Boston University

- 9:50 a.m. **On Double Robustness in Estimating a Causal Effect When a Confounder Is Missing at Random**—◆ Katherine Evans, Harvard; Eric Tchetgen, Harvard

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

10:05 a.m. Network Meta-Analysis of Multiple Factors—
◆ Lifeng Lin, University of Minnesota; Haitao
Chu, University of Minnesota

314 **CC-W187a**
**Regularization Methods for Sparsity and
Smoothness—Contributed**

Section on Statistical Learning and Data Science
Chair(s): Jie Yang, University of Illinois at Chicago

8:35 a.m. Scaled Concave Penalized Regression—◆ Long
Feng; Cun-Hui Zhang, Rutgers University

8:50 a.m. Hierarchical Sparse Modeling: A Choice of Two
Regularizers—◆ Xiaohan Yan, Cornell University;
Jacob Bien, Cornell University

9:05 a.m. Pathway Lasso: Estimate and Select Sparse
Mediation Pathways with High-Dimensional
Mediators—◆ Yi Zhao, Brown University; Xi Luo,
Brown University

9:20 a.m. Stagewise Generalized Estimating Equations—
◆ Gregory Vaughan, University of Connecticut;
Robert Aseltine, University of Connecticut Health
Center; Kun Chen, University of Connecticut; Jun
Yan, University of Connecticut

9:35 a.m. CoCoLasso for High-Dimensional Error-in-
Variables Regression—◆ Abhirup Datta, University
of Minnesota; Hui Zou, University of Minnesota

9:50 a.m. Risk Estimation for High-Dimensional Lasso
Regression—◆ Daniel McDonald, Indiana
University; Darren Homrighausen, Colorado
State University

10:05 a.m. Nonparametric Regression with Adaptive
Smoothness via a Convex Hierarchical Penalty—
◆ Asad Haris, University of Washington; Ali
Shojaie, University of Washington; Noah Simon,
University of Washington

315 **CC-W186b**
**Complex and Multiscale Network Models—
Contributed**

Section on Statistical Learning and Data Science
Chair(s): Yan Zhang, North Carolina State University

8:35 a.m. Hypothesis Testing for Detecting Changes Within
a Barab'si-Albert Network—◆ Fairul Mohd-Zaid,
Air Force Research Lab; Christine Schubert
Kabban, Air Force Institute of Technology;
Edward White, Air Force Institute of Technology;
Richard Deckro, Air Force Institute of Technology

ASA President's Address and Founders and Fellows Recognition



Jessica Utts, 2016 ASA President,
"Appreciating Statistics"

Followed by the honoring
of 2016 ASA Fellows and Founders

Hilton International Ballroom, Tuesday, 8:00 p.m.

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 8:50 a.m. Multiscale Network Analysis Using an Adaptive Haar-Like Transformation—◆Xinyu Kang, Boston University; Piotr Fryzlewicz, London School of Economics; Eric D. Kolaczyk, Boston University
- 9:05 a.m. Network Degree Distribution Inference Under Sampling—◆Aleksandrina Goeva, Boston University; Richard Lehoucq, Sandia National Laboratories; Eric D. Kolaczyk, Boston University
- 9:20 a.m. A Blockmodel for Node Popularity in Networks with Community Structure—◆Srijan Sengupta, University of Illinois at Urbana-Champaign; Yuguo Chen, University of Illinois at Urbana-Champaign
- 9:35 a.m. A Point Process Model with Latent Positions for Network Modeling—◆Bomin Kim
- 9:50 a.m. Network Cross-Validation by Edge Sampling—◆Tianxi Li, University of Michigan; Elizaveta Levina, University of Michigan; Ji Zhu, University of Michigan
- 10:05 a.m. Uncertainty Assessment for Source Estimation of Spreading Processes on Complex Networks—◆Juliane Manitz, Boston University; Jun Li, Boston University; Eric D. Kolaczyk, Boston University

316 CC-W186a

■● Modern Statistics and Policy in Defense—Contributed

Section on Statistics in Defense and National Security, Section on Physical and Engineering Sciences, Scientific and Public Affairs Advisory Committee

Chair(s): David Marchette, Naval Surface Warfare Center

- 8:35 a.m. How Modern Statistical Techniques Have Influenced DoD Policy and Guidance—◆Kelly McGinnity, Institute for Defense Analyses
- 8:50 a.m. Probabilistic Graphical Model for Cyber Defensive Policy Assessment and Facilitation of Intuitive Optimal Policy Selection—◆Pranab Banerjee, Boston Fusion Corp.; Thomas Allen, Boston Fusion Corp.
- 9:05 a.m. Crime Linkage with Self-Exciting Point Process Models—◆Michael D. Porter, University of Alabama
- 9:20 a.m. Improving Operational Reliability Estimates in the Department of Defense with Bayesian Statistics (Part 1)—◆Rebecca Dickinson, Institute for Defense Analyses; Kassie Fronczyk, IDA
- 9:35 a.m. Improving Operational Reliability Estimates in the Department of Defense with Bayesian Statistics (Part 2)—◆Kassie Fronczyk; Rebecca Dickinson, Institute for Defense Analyses
- 9:50 a.m. Applications of Modern Statistical Techniques to Operational Testing—◆Matthew Avery

- 10:05 a.m. The U.S. Marine Corps' Ground Combat Element Integrated Task Force: Experimental Design, Analysis, and Selected Results—◆Yevgeniya Pinelis; Paul Johnson, Marine Corps Operational Test and Evaluation Activity

317 CC-W194b

Multiplicity Issues and Solutions—Contributed

Biopharmaceutical Section

Chair(s): Krishan Singh, GlaxoSmithKline

- 8:35 a.m. The Covering Principle: A New Approach to Address Multiplicity in Hypothesis Testing—◆Huajiang Li, Allergan; Jihao Zhou, Allergan
- 8:50 a.m. FDR-Controlling Procedures for Testing a Priori-Ordered Hypotheses—◆Anjana Grandhi, Merck; Wenge Guo, New Jersey Institute of Technology; Gavin Lynch, New Jersey Institute of Technology
- 9:05 a.m. Logical Inference of Efficacy in Subgroups and Their Combinations—◆Jason C. Hsu, Eli Lilly and Company/The Ohio State University
- 9:20 a.m. Adjustment for Categorization in Predictor Variables—◆Saptarshi Chatterjee, Northern Illinois University; Sanjib Basu, Northern Illinois University
- 9:35 a.m. Exact Multiple Testing Procedures for Categorical Data—◆Li He, Merck Research Laboratories; Joseph Heyse, Merck Research Laboratories
- 9:50 a.m. Multiplicity Adjustment Strategy for Oncology Biomarker Trials—◆Shu-Chih Su, Merck; Jing Zhao, Merck
- 10:05 a.m. Multiple Error Rate Concepts in Assessing Efficacy in Subgroups and Their Mixtures—◆Haiyan Xu, Johnson & Johnson; Jason Hsu, The Ohio State University

318 CC-W196a

■● Novel Approaches for Metagenomic, Phylogenetic, and Epigenetic Analysis—Contributed

Section on Statistics in Genomics and Genetics, Biopharmaceutical Section

Chair(s): Michael Sohn, University of Pennsylvania

- 8:35 a.m. Estimating Cell-Type-Specific Associations from Whole Blood Methylation—◆Richard Barfield; Xihong Lin, Harvard T.H. Chan School of Public Health
- 8:50 a.m. A Robust Approach for Identifying Differentially Abundant Features in Metagenomic Samples—◆Lingling An, University of Arizona; Michael Sohn, University of Pennsylvania; Ruofei Du, University of Arizona

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 9:05 a.m. **Metabolomic Data Analysis: Data Preprocessing**—◆Lauren McIntyre, University of Florida; Rainey Patterson, University of Florida; Timothy Garrett, University of Florida; Alison Morse, University of Florida; Alexander Kirpich, University of Florida; Justin Fear, National Institutes of Health; Miguel Ibarra, University of Florida; Oleksandr Moskalenko, University of Florida; Jeremy Koelmel, University of Florida
- 9:20 a.m. **Ultra-High-Dimensional Variable Selection with Application to Normative Aging Study: DNA Methylation and Metabolic Syndrome**—◆Grace Yoon; Yanan Zheng, Northwestern University; Zhou Zhang, Northwestern University; Haixiang Zhang, Tianjin University; Brian Joyce, Northwestern University; Wei Zhang, Northwestern University; Wenxin Jiang, Northwestern University; Lifang Hou, Northwestern University; Lei Liu, Northwestern University; Tao Gao, Northwestern University; Andrea Baccarelli, Harvard; Joel Schwartz, Harvard; Pantel S. Vokonas, Boston University
- 9:35 a.m. **Statistical Issues in the Forensic Analysis of DNA Data**—◆Alan Izenman, Temple University
- 9:50 a.m. **Statistical Models for Proteomic Screening and Analysis of Active Enzymes**—◆William Forrest, Genentech
- 10:05 a.m. **Quantifying and Mitigating the Effect of Preferential Sampling on Phylodynamic Inference**—◆Michael Karcher, Julia Palacios, Harvard; Trevor Bedford, Fred Hutchinson Cancer Research Center; Marc Adam Suchard, University of California at Los Angeles; Vladimir Minin, University of Washington

319 **CC-W191**
Statistical Analysis of Complex Imaging Data—Contributed

Section on Statistics in Imaging
 Chair(s): Zhuxuan Jin, Emory University

- 8:35 a.m. **Landmark-Constrained Elastic Shape Analysis of Planar Curves**—◆Justin Strait, The Ohio State University; Sebastian A. Kurtek, The Ohio State University; Emily Bartha, The Ohio State University; Steven N. MacEachern, The Ohio State University
- 8:50 a.m. **Coordinate-Based Meta-Analysis Techniques: Assessing Publication Bias**—◆Freya Acar, Ghent University; Ruth Seurinck, Ghent University; Simone Kuehn, MPI for Human Development; Beatrijs Moerkerke, Ghent University
- 9:05 a.m. **Inferring Brain Signals Synchronicity from a Sample of EEG Readings**—◆Qian Li, University of California at Los Angeles; Donatello Telesca, University of California at Los Angeles; Damla Senturk, University of California at Los Angeles

- 9:20 a.m. **Measurement Error Correction Through Shrinkage Estimation in Imaging Analysis**—◆Haochang Shou, University of Pennsylvania; Vadim Zipunnikov, Johns Hopkins Bloomberg School of Public Health; Ciprian Crainiceanu, The Johns Hopkins University; James Pekar, Kennedy Krieger Institute; Stewart Mostofsky, Kennedy Krieger Institute
- 9:35 a.m. **Applying Kernel Density Estimation of Directional Data to Analyze Head Flatness and Asymmetry**—◆Lasse Holmstrom, University of Oulu; Ville Vuollo, University of Oulu; Henri Aarnivala, University of Oulu; Virpi Harila, University of Oulu; Tuomo Heikkinen, University of Oulu; Pertti Pirttiniemi, University of Oulu; Arja Marita Valkama, University of Oulu
- 9:50 a.m. **Investigating Volcano Behavior with Novel Statistical and Technological Approaches**—◆Igor Barahona, CONACYT-UNAM; Luis Javier Alvarez, Unidad Cuernavaca, Universidad Nacional; Antonio Sarmiento, Unidad Cuernavaca, Universidad Nacional; Octavio Barahona, Unidad Cuernavaca, Universidad Nacional
- 10:05 a.m. **Fast Translation Invariant Multiscale Image Denoising**—◆Meng Li, Duke University; Subhashis Ghosal, North Carolina State University

320 **CC-W176a**
Statistical Methods for Complex Survey Data—Contributed
 Survey Research Methods Section
 Chair(s): Bhatta Dilli, University of South Carolina

- 8:35 a.m. **Testing for No Effect in Nonparametric Regression with Survey Data**—◆Yan Lu, University of New Mexico
- 8:50 a.m. **A Propensity Score Approach in a Study of WIC Families**—◆Shankang Qu, PepsiCo; Alissa Wilson, PepsiCo
- 9:05 a.m. **Approaches for Improved Power with Generalized Estimating Equations in Small-Sample Longitudinal Study Settings**—◆Philip Westgate, University of Kentucky; Woodrow Burchett, University of Kentucky
- 9:20 a.m. **Model-Assisted Estimation Using Time-to-Event Models**—◆Benjamin Reist, U.S. Census Bureau
- 9:35 a.m. **Constructing Generalized Variance Functions with Linear Regression Trees**—◆Greg Erkens, Bureau of Labor Statistics
- 9:50 a.m. **Empirical Likelihood Inference for Regression Parameters When Modeling Hierarchical Complex Survey Data**—◆Melike Oguz Alper, Statistics Norway; Yves G. Berger, University of Southampton
- 10:05 a.m. **Confidentiality Approaches for Real-Time Systems Generating Aggregated Results**—◆Jianzhu Li, Westat; Tom Krenzke, Westat

321 CC-W177**High-Dimensional Statistics—Contributed**

IMS

Chair(s): Matey Neykov, Princeton

- 8:35 a.m. On the Optimality of Sliced Inverse Regression in High Dimensions—◆Qian Lin, Harvard; Xinran Li, Harvard; Jun S. Liu, Harvard
- 8:50 a.m. A General Theory of Hypothesis Tests and Confidence Regions for Sparse High-Dimensional Models—◆Yang Ning; Han Liu, Princeton
- 9:05 a.m. Accuracy Assessment for High-Dimensional Linear Regression—Tony Cai, University of Pennsylvania; ◆Zijian Guo, University of Pennsylvania
- 9:20 a.m. High-Dimensional Gaussian Copula Regression: Adaptive Estimation and Statistical Inference—◆Linjun Zhang, University of Pennsylvania; Tony Cai, University of Pennsylvania
- 9:35 a.m. Extreme Eigenvalues of Large-Dimensional Spiked Fisher Matrices with Application—◆Qinwen Wang; Jianfeng Yao, The University of Hong Kong
- 9:50 a.m. Packing Inference of Correlation for an Arbitrarily Large Number of Variables—◆Kai Zhang, The University of North Carolina at Chapel Hill
- 10:05 a.m. Communication Over a Noisy Channel Using High-Dimensional Linear Regression with Gaussian Design—◆Cynthia Rush, Yale University; Adam Greig, University of Cambridge; Ramji Venkataramanan, University of Cambridge

322 CC-W182**Bayesian Modeling in Life Sciences and Medicine II—Contributed**

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

Chair(s): Anjishnu Banerjee, Medical College of Wisconsin

- 8:35 a.m. Biomarker Detection and Categorization in RNA-Seq Meta-Analysis Using Bayesian Hierarchical Model—◆Tianzhou Ma, University of Pittsburgh; Faming Liang, University of Florida; George Tseng, University of Pittsburgh
- 8:50 a.m. What's in That Ecology? A Latent Factor Dirichlet-Multinomial Model for Metagenomic Count Data—◆John O'Brien, Bowdoin College
- 9:05 a.m. Bayesian Implementation of Integrated Population Models—◆Robert Richardson, Brigham Young University
- 9:20 a.m. Analysis of RNA-Seq Data Using a Family of Negative Binomial Models—◆Lili Zhao,

University of Michigan; Weisheng Wu, University of Michigan; Dai Feng, Merck; Hui Jiang, University of Michigan; XuanLong Nguyen, University of Michigan

- 9:35 a.m. Allele-Specific RNA Expression Analysis Using Bayesian Hierarchical Models—◆Ignacio Alvarez, Iowa State University; Jarad Niemi, Iowa State University; Dan Nettleton, Iowa State University
- 9:50 a.m. A Semiparametric Bayesian Survival Analysis Using Covariate-Dependent Clustering, with Application to Pediatric Kidney Transplantation Data—◆Hang J. Kim, University of Cincinnati; Mi-Ok Kim, Cincinnati Children's Hospital Medical Center
- 10:05 a.m. Using Hierarchical Models to Understand P300-Wave-Based Brain-Computer Interface Performance Among Disabled Adults—◆Maryclare Griffin; Peter Hoff, University of Washington

323 CC-W175c**Bayesian and Advanced Analytic Methods in Health Policy—Contributed**

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

Chair(s): Wei Shen, Eli Lilly and Company

- 8:35 a.m. Least Squares Regression Methods for Clustered ROC Data with Discrete Covariates—◆Liansheng Tang, George Mason University/National Institutes of Health; Wei Zhang, Chinese Academy of Sciences; Qizhai Li, Chinese Academy of Sciences; Xuan Ye, George Mason University/FDA; Leighton Chan, National Institutes of Health
- 8:50 a.m. A Bayesian Selection Model for Weight Loss in a Program with Not-at-Random Drop Out—◆Deborah Rolka, CDC; Hui Xie, CDC; Elizabeth Ely, CDC
- 9:05 a.m. Bayesian Covariance Analysis of Geographical Variation in Medicare Service Use—◆Alan M. Zaslavsky, Harvard Medical School; James O'Malley, Geisel School of Medicine at Dartmouth; Bruce E. Landon, Harvard Medical School
- 9:20 a.m. Bayesian Estimation of the Three Key Parameters in CT for the National Lung Screening Trial Data—◆Ruiqi Liu, University of Louisville; Beth Levitt, Information Management Services; Tom Riley, Information Management Services; Dongfeng Wu, University of Louisville
- 9:35 a.m. Using Bayesian Quantile Regression Model with Group LASSO to Identify Key Health Risk Assessment Variables and Evaluate Their Predictive Power in the Patient's Future Medical

Costs—◆Hsiu-Ching Chang, BlueCross BlueShield of MI; Hyokyung (Grace) Hong, Michigan State University; Yu Yue, Baruch College; Min Tao, BlueCross BlueShield of MI; Darline El Reda, Michigan State University

- 9:50 a.m. Predictive Modeling of Inpatient Falling of Stroke Patients Using Ensemble Algorithm—◆Yin Liu, Princeton Pharmatech; Cindy Jin, Lawrenceville School; Jeffrey Yangang Zhang, Princeton Pharmatech
- 10:05 a.m. Tobacco Consumption in Thailand: Statistical Modeling and Data Mining Technique—◆Pannapa Changpetch, Bentley University; Dominique Haughton, Bentley University

324 CC-W176b

● **Nonparametric Methods for High-Dimensional Data—Contributed**

Section on Nonparametric Statistics, International Chinese Statistical Association

Chair(s): Su Chen, University of Memphis

- 8:35 a.m. Optimal Estimation and Variable Selection for Multivariate Varying Coefficient Model with Functional Response—◆Simeng Qu, Purdue University; Xiao Wang, Purdue University
- 8:50 a.m. Fisher Discrimination Matrix and Dimension Reduction—◆Debmalya Nandy, Penn State University; Weixin Yao, University of California at Riverside; Bruce George Lindsay, Penn State University; Francesca George Chiaromonte, Penn State University
- 9:05 a.m. Depth Functions and Medians on the Minimal Spanning Tree—◆Reza Modarres, The George Washington University
- 9:20 a.m. Depth Functions and Classification Using Beta-Skeleton Graphs—◆Yu Song, The George Washington University
- 9:35 a.m. Conditional Variable Screening with Trace Pursuit—◆Lei Huo, Missouri University of Science and Technology; Xuerong Wen, Missouri University of Science and Technology; Zhou Yu, East China Normal University; Lu Lin, Shandong University
- 9:50 a.m. Total Variation Depth for Functional Data: Properties and Applications—◆Huang Huang, KAUST; Ying Sun, King Abdullah University of Science and Technology
- 10:05 a.m. On a General Halfspace Depth Trimmed Scatter Matrix—◆Jin Wang, Northern Arizona University

Special Presentation 10:30 a.m. – 12:20 p.m.

325 CC-W375b

Late-Breaking Session II: Data Journalism and Statistical Expertise: An Urgent Need for Writers, Bloggers, and Journalists to Be Statistically Savvy—Invited

ASA, ENAR, WNAR, SSC, IMS, International Chinese Statistical Association, International Indian Statistical Association, Korean International Statistical Society, International Society for Bayesian Analysis (ISBA), Royal Statistical Society, International Statistical Institute

Organizer(s): Rebecca Goldin, George Mason University

Chair(s): Rebecca Goldin, George Mason University

Panelists: Data Journalism and Statistical Expertise: An Urgent Need for Writers, Bloggers, and Journalists to Be Statistically Savvy—◆Regina Nuzzo, Gallaudet University; ◆Alberto Cairo, University of Miami; ◆Mark Hansen, David and Helen Gurley Brown Institute for Media Innovation/Columbia University; ◆Carl Bialik, *FiveThirtyEight.com*; ◆Katherine Hobson

12:10 p.m. Floor Discussion

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

326 CC-W186c

■ ● **Controversies: Past, Present, and Future—Statistical Issues in Reproducibility—Invited**

Council of Chapters, Scientific and Public Affairs Advisory Committee
Organizer(s): Kristofer Jennings, The University of Texas Medical Branch

Chair(s): Kristofer Jennings, The University of Texas Medical Branch

- 10:35 a.m. Replication and the Manufacture of Scientific Inferences: A Formal Approach—◆Fernando Martel Garcia, Cambridge Social Science Decision Lab
- 11:00 a.m. Statistical Issues in Studying Reproducibility—◆Courtney Karin Soderberg, Center for Open Science; Brian Nosek, Center for Open Science
- 11:25 a.m. Significance Testing Harms Replicability Only if Misused—◆Yoav Benjamini, Tel Aviv University
- 11:50 a.m. Improving and Assessing the Reproducibility of Empirical Research—◆Eric-Jan Wagenmakers, University of Amsterdam
- 12:15 p.m. Floor Discussion

327

CC-W196c

● **Statistics in Personalized Medicine—Invited**

Biometrics Section, International Chinese Statistical Association

Organizer(s): Tyler J. VanderWeele, Harvard

Chair(s): Linda Valeri, Harvard

- 10:35 a.m. **Statistics in Personalized Medicine**—◆Mark van der Laan, University of California at Berkeley; Alexander Luedtke, University of California at Berkeley
- 11:00 a.m. **Individualized Treatment of Depression in the Military**—◆Ronald C. Kessler, Harvard Medical School
- 11:25 a.m. **Selecting Optimal Subgroups for Treatment Using Many Covariates**—◆Tyler J. VanderWeele, Harvard
- 11:50 a.m. **Disc:** James Robins, Harvard
- 12:10 p.m. **Floor Discussion**

328

CC-W187c

■ **Manifold-Valued Data Analysis for High-Dimensional Biomedical Data Sets—Invited**

Korean International Statistical Society, Section on Statistics in Imaging, International Chinese Statistical Association

Organizer(s): Sebastian A. Kurtek, The Ohio State University

Chair(s): Karthik Bharath, University of Nottingham

- 10:35 a.m. **Principal Nested Shape Space Analysis of Molecular Dynamics Data**—◆Ian Dryden, University of Nottingham; Kwang-Rae Kim, University of Nottingham; Huiling Le, University of Nottingham
- 11:00 a.m. **Scaling-Rotation Framework of Symmetric Positive-Definite Matrices and Applications to Diffusion Tensor Imaging**—◆Sungkyu Jung, University of Pittsburgh; Armin Schwartzman, University of California at San Diego; David Groisser, University of Florida
- 11:25 a.m. **Functional CAR Models for Large Spatially Correlated Functional Data Sets**—◆Lin Zhang, University of Minnesota; Veera Baladandayuthapani, MD Anderson Cancer Center; Hongxiao Zhu, Virginia Tech; Keith A. Baggerly, MD Anderson Cancer Center; Tadeusz Majewski, MD Anderson Cancer Center; Bogdan A. Czerniak, MD Anderson Cancer Center; Jeffrey S. Morris, MD Anderson Cancer Center
- 11:50 a.m. **Statistical Shape Analysis of 3D Objects in the Presence of Hard and Soft Landmark Constraints**—◆Sebastian A. Kurtek, The Ohio State University; Jiaqi Zaetz, The Ohio State University; Hamid Laga, University of South Australia; Eric Klassen, Florida State University; Anuj Srivastava, Florida State University
- 12:15 p.m. **Floor Discussion**

329

CC-W175a

■● **Recent Advances in Inference for Measurement Error Regression Models—Invited**

Section on Nonparametric Statistics, International Chinese Statistical Association

Organizer(s): Hira L. Koul, Michigan State University

Chair(s): Hira L. Koul, Michigan State University

- 10:35 a.m. **Nonparametric Covariate-Adjusted Regression**—◆Aurore Delaigle, University of Melbourne; Wenxin Zhou, Princeton; Peter Hall, University of Melbourne
- 11:00 a.m. **Post Model Selection Corrected Least Squares for High-Dimensional Linear Models with Noisy or Missing Covariates**—◆Abhishek Kaul, National Institute of Environmental Health Sciences
- 11:25 a.m. **Nonlinear Regression with Laplace Measurement Error**—◆Weixing Song, Kansas State University
- 11:50 a.m. **An Adaptive-to-Model Test for Parametric Single-Index Errors-in-Covariates Models**—◆Lixing Zhu, Hong Kong Baptist University; Hira L. Koul, Michigan State University; Chuan-Long Xie, Hong Kong Baptist University
- 12:15 p.m. **Floor Discussion**

330

CC-W187b

● **JCGS Highlights: Advances in Bayesian and MCMC Methodologies—Invited**

JCGS-Journal of Computational and Graphical Statistics, International Society for Bayesian Analysis (ISBA), Section on Bayesian Statistical Science

Organizer(s): Thomas Lee, University of California at Davis

Chair(s): Thomas Lee, University of California at Davis

- 10:35 a.m. **Using Surrogate Target Distributions to Improve Gibbs-Type Samplers**—◆David A. van Dyk, Imperial College London; Xiyun Jiao, Imperial College London
- 11:05 a.m. **Bayesian Latent Variable Modeling of Genetic Pleiotropy Data**—◆Lei Sun, University of Toronto; Lizhen Xu, University of Toronto; Radu V. Craiu, University of Toronto; Andrew Paterson, Hospital for Sick Children
- 11:35 a.m. **Toward Automatic Bayesian Model Comparison: A Sequential Monte Carlo Approach**—Yan Zhou, National University of Singapore; ◆Adam Michael Johansen, University of Warwick; John Aston, University of Cambridge
- 12:05 p.m. **Floor Discussion**

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

331 CC-W183a
● Robust Variable Selection Approaches in a Large Model Space—Invited

Section on Statistical Computing, Royal Statistical Society
 Organizer(s): Terrance Savitsky, Bureau of Labor Statistics
 Chair(s): Terrance Savitsky, Bureau of Labor Statistics

- 10:35 a.m. Particle EM for Variable Selection—◆Veronika Rockova, The Wharton School
- 11:05 a.m. Hypothesis Testing in High Dimensions with the Lasso—◆Ali Shojaie, University of Washington; Sen Zhao, University of Washington
- 11:35 a.m. Robust Variable Selection with Two-Piece Distributions—◆David Rossell, University of Warwick; Francisco Javier Rubio, University of Warwick
- 12:05 p.m. Floor Discussion

332 CC-W184bc
■ ● Doing More with Data in and Outside the Undergraduate Classroom—Invited

Section on Statistical Education
 Organizer(s): Mine Cetinkaya-Rundel, Duke University
 Chair(s): Mine Cetinkaya-Rundel, Duke University

- 10:35 a.m. Computational Thinking and Statistical Thinking: Foundations of Data Science—◆Ani Adhikari, University of California at Berkeley; Michael I. Jordan, University of California at Berkeley
- 11:00 a.m. Statistical Computing as an Introduction to Data Science—◆Colin Rundel, Duke University
- 11:25 a.m. The ASA DataFest: Learning by Doing—◆Robert Gould, University of California at Los Angeles
- 11:50 a.m. Learning Communities: An Emerging Platform for Research in Statistics—◆Mark Daniel Ward, Purdue University
- 12:15 p.m. Floor Discussion

333 CC-W180
■ ● Quality of Alternative Sources for Social, Economic, and Health Data—Invited

Government Statistics Section, Section on Statistics in Defense and National Security, Scientific and Public Affairs Advisory Committee
 Organizer(s): John Eltinge, Bureau of Labor Statistics
 Chair(s): John Eltinge, Bureau of Labor Statistics

- 10:35 a.m. Quality of Alternative Sources for Social, Economic, and Health Data—◆Rachel Harter, RTI International
- 11:00 a.m. On the Quality and Utility of Alternative Auxiliary Data Sources Used in the National

Survey of Family Growth—◆Brady West, University of Michigan

- 11:25 a.m. Progressive Data Modeling—◆Zahoor Ahmad, University of Southampton; Li-Chun Zhang, University of Southampton
- 11:50 a.m. Interpreting Administrative Data from Intuit Business Services—◆Susan Woodward, Sand Hill Econometrics
- 12:15 p.m. Floor Discussion

334 CC-W185bc
● Extraordinary Possibilities for Mobile Health to Impact Precision Medicine—Invited

Health Policy Statistics Section
 Organizer(s): Chaeryon Kang, University of Pittsburgh
 Chair(s): Chaeryon Kang, University of Pittsburgh

- 10:35 a.m. Data-Driven Dynamical Systems Models for the Management of Diabetes Through Mobile Interventions—◆Daniel J. Lockett, The University of North Carolina at Chapel Hill; Eric Laber, North Carolina State University; Michael R. Kosorok, The University of North Carolina at Chapel Hill
- 11:00 a.m. Assessing Time-Varying Causal Effect Moderation in Mobile Health—◆Daniel Almirall, University of Michigan Survey Research Center; Audrey Boruvka, University of Michigan; Katie Witkiewitz, University of New Mexico; Susan A. Murphy, University of Michigan
- 11:25 a.m. Making Sense of Sensors—◆Vadim Zipunnikov, Johns Hopkins Bloomberg School of Public Health; Debangana Dey, Indian Statistical Institute; Andrew Leroux, Johns Hopkins Bloomberg School of Public Health; Jacek Urbanek, Johns Hopkins Bloomberg School of Public Health; Junrui Di, Johns Hopkins Bloomberg School of Public Health
- 11:50 a.m. Disc: Michael R. Kosorok, The University of North Carolina at Chapel Hill
- 12:10 p.m. Floor Discussion

335 CC-W190b
■ ● Statistics: The Secret Weapon of Web Giants—Invited

Section on Statistics in Marketing
 Organizer(s): Madeleine Cule, Google Life Sciences
 Chair(s): Marianna Dizik, Google

- 10:35 a.m. Creating Listener Segments at Pandora—◆Sam Lendle, Pandora
- 11:00 a.m. Dealing with Credit Data: The Challenges and Statistical Solutions—◆Giuliana Perrotti dos Reis, Credit Sesame

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

11:25 a.m. Upvote Dynamics on the Quora Network—
◆Shankar Iyer, Quora; Paula Griffin, Quora;
Olivia Angiuli, Quora

11:50 a.m. Predictive Analytics in Internet Development—
Alex Gilgur, Google/Alphabet; ◆Fred Xue,
Google/Alphabet

12:15 p.m. Floor Discussion

336 CC-W187a

■ ● **Collecting Data on Gun Violence: Why Is It
so Hard, and What Are We Missing?—Invited**

Committee on Scientific Freedom and Human Rights, Scientific
and Public Affairs Advisory Committee

Organizer(s): Megan Price, Human Rights Data
Analysis Group

Chair(s): Megan Price, Human Rights Data
Analysis Group

10:35 a.m. Collecting Data on Gun Violence: Why Is It
So Hard and What Are We Missing?—◆David
Hemenway, Harvard T.H. Chan School of
Public Health

10:55 a.m. Assessing the Health of Gun Violence
Prevention Research—and Filling the Gap—
◆Ted Alcorn, Everytown for Gun Safety

11:15 a.m. Who Watches the Watchers? What We
Can't Know About Police Violence—◆Laurel
Eckhouse, University of California at Berkeley

11:35 a.m. Disc: David McDowall, SUNY Albany

11:55 a.m. Disc: Kathleen Bachynski, Columbia University

12:15 p.m. Floor Discussion

337 CC-W196b

■ ● **Fusion Learning and Combining Inference
from Diverse Complex Data Sources—Invited**

ENAR, IMS, International Chinese Statistical Association

Organizer(s): Regina Liu, Rutgers University

Chair(s): Brad Efron, Stanford University

10:35 a.m. Model Calibration Utilizing Summary-Level
Information from External Big Data—
◆Nilanjan Chatterjee, The Johns Hopkins
University; Yi-Hau Chen, Academia Sinica;
Paige Maas, National Cancer Institute;
Raymond Carroll, Texas A&M University

11:00 a.m. Efficient Bayesian Inference on Genetic
Association—◆Helene Ruffieux, Ecole
Polytechnique Federale de Lausanne; Anthony
C. Davison, Ecole Polytechnique Federale
de Lausanne; Irina Irincheeva, Nestlé Institute
of Health Sciences SA; Joerg Hager, Nestlé
Institute of Health Sciences SA

11:25 a.m. Generalized Fiducial Inference for Massive
Heterogeneous Data—◆Jan Hannig, The
University of North Carolina at Chapel Hill

11:50 a.m. Fusion Learning from Complex Data Sets
to Efficient Goal-Directed Individualized
Inference—◆Regina Liu, Rutgers University;
Minge Xie, Rutgers University

12:15 p.m. Floor Discussion

Invited Panels 10:30 a.m. – 12:20 p.m.

338 CC-W190a

■ ● **Harnessing the Extraordinary Power of
Statistics in Sports—Invited**

Section on Statistics in Sports, Section on Statistical Education

Organizer(s): Michael J. Lopez, Skidmore College

Chair(s): Michael Schuckers, St. Lawrence University

Panelists: ◆Luke Bornn, Simon Fraser University

◆Ben Baumer, Smith College

◆Dennis Lock, Miami Dolphins

◆Brian Macdonald, Florida Panthers

12:15 p.m. Floor Discussion

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

339 CC-W195

■ ● **Big Data Challenges and Statistical Advances
in Functional Genomics—Topic-Contributed**

WNAR, Biopharmaceutical Section, International Chinese
Statistical Association

Organizer(s): Jingyi (Jessica) Li, University of California at
Los Angeles

Chair(s): Hongkai Ji, Johns Hopkins Bloomberg School of
Public Health

10:35 a.m. Assessing Reproducibility of Hi-C Data—
◆Qunhua Li, Penn State University; Tao Yang,
Penn State University

10:55 a.m. Determination of Phased Genotypes and Allele-
Specific Expression at Isoform Level by Hybrid
Sequencing—◆Kin Fai Au, University of Iowa;
Benjamin Deonovic, University of Iowa; Jason
Weirather, University of Iowa; Yunhao Wang,
University of Iowa

11:15 a.m. A Novel 2D Genome Segmentation Method for
Modeling Epigenetic Landscapes in Multiple
Cell Lines—◆Yu Zhang, Penn State University

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 11:35 a.m. Integrated DNA Mutation, Copy Number, and Gene Expression Analysis Reveals a Highly Reproducible Prognostics Marker in Lung Adenocarcinomas—◆Hao Ho, University of California at Los Angeles
- 11:55 a.m. Testing-Based Measures for Finding Correspondence of Genomic Samples—◆Jingyi (Jessica) Li, University of California at Los Angeles
- 12:15 p.m. Floor Discussion

340 CC-W179a

■ ● **Statistical Issues in Large-Scale Quality Control Systems—Topic-Contributed**

Quality and Productivity Section
 Organizer(s): Emmanuel Yashchin, IBM Research
 Chair(s): Emmanuel Yashchin, IBM Research

- 10:35 a.m. Sequential Detection of Cyber-Physical Attacks on Industrial Systems—◆Igor Nikiforov, ICD/LM2S, Université de Technologie de Troyes; Van Long Do, ICD/LM2S, Université de Technologie de Troyes; Lionel Fillatre, I3S, Université de Nice Sophia Antipolis
- 10:55 a.m. Quality Engineering Faces the Challenges of Big Data and Little Data—◆Fugee Tsung, The Hong Kong University of Science and Technology
- 11:15 a.m. Mixture of Forecasting Models with an Application on Solar Energy Forecasting—◆YoungDeok Hwang, IBM T. J. Watson Research Center; Siyuan Lu, IBM T. J. Watson Research Center; Eric Wang, Duke University
- 11:35 a.m. Pipeline Analytics for Demand Forecasting—◆Ta-Hsin Li, IBM T. J. Watson Research Center
- 11:55 a.m. Wafer Tomography: Study of Defects and Prediction of Integrated-Circuit Yield—◆Michael Baron, American University; Emmanuel Yashchin, IBM Research
- 12:15 p.m. Floor Discussion

341 CC-W193a

■ ● **Functional and Longitudinal Data Analysis Methods—Topic-Contributed**

Biometrics Section, Biopharmaceutical Section
 Organizer(s): Andrada E. Ivanescu, Montclair State University
 Chair(s): Ciprian Crainiceanu, The Johns Hopkins University

- 10:35 a.m. Variable Selection in the Concurrent Functional Linear Model—◆Jeff Goldsmith, Columbia Mailman School of Public Health
- 10:55 a.m. Functional Nearest Neighbor Ensembles with Application to Water Quality Monitoring—◆Jan

Gertheiss, Clausthal University of Technology; Karen Fuchs, Siemens AG

- 11:15 a.m. Dynamic Child Growth Prediction: A Comparative Methods Approach—◆Andrada E. Ivanescu, Montclair State University; Ciprian Crainiceanu, The Johns Hopkins University; William Checkley, The Johns Hopkins University
- 11:35 a.m. Joint Modeling of Noncommensurate Sparse Functional Predictors with an Application to Ecological Momentary Assessment (EMA) Data—◆Jaroslaw Harezlak, Indiana University Fairbanks School of Public Health; Fei He, Indiana University Fairbanks School of Public Health; Armando Teixeira-Pinto, University of Sydney
- 11:55 a.m. Dynamic Prediction of Alzheimer's Disease Risk Based on Longitudinal Biomarkers and Functional Data—◆Sheng Luo, The University of Texas at Houston; Kan Li, The University of Texas at Houston
- 12:15 p.m. Floor Discussion

342 CC-W185d

■ ● **Algorithms for Detecting Defense and Intelligence Threats—Topic-Contributed**

Section on Statistics in Defense and National Security, Section on Risk Analysis
 Organizer(s): Nicole Mendoza, University of California at Santa Cruz
 Chair(s): Abel Rodriguez, University of California at Santa Cruz

- 10:35 a.m. Bayesian Spatial Model Selection Using Mixtures of G-Priors and Markov Random Field Priors for Identifying Gas Plumes in Hyperspectral Data—◆Nicole Mendoza, University of California at Santa Cruz; Abel Rodriguez, University of California at Santa Cruz
- 10:55 a.m. Hyperspectral Video Analysis Using Graph-Clustering Methods—◆Zhaoyi Meng
- 11:15 a.m. Quantifying Quality and Uncertainty in Forensic Pattern Matching—◆Lucas Mentch, North Carolina State University; Duy Thai, Statistical and Applied Mathematical Sciences Institute
- 11:35 a.m. Information Criteria Approximations to the Value of Evidence for Forensic Identification of Source Problems—◆Danica Ommen, South Dakota State University; Christopher Saunders, MITRE/South Dakota State University
- 11:55 a.m. A Kernel-Based Method for the Forensic Inference of the Source of Small Particles Characterized Using Compositional Data—◆Douglas Armstrong, San Diego State University; Cedric Neumann, San Diego State University; Christopher Saunders, MITRE/South Dakota State University; David Stoney, Stoney Forensic
- 12:15 p.m. Floor Discussion

343 CC-W194b **■ Novel Missing Data Imputation Methods— Topic-Contributed**

Biopharmaceutical Section, International Chinese Statistical Association, Committee on Applied Statisticians
 Organizer(s): Freda Cooner, FDA/CDER/OTS/OB/DB2
 Chair(s): John Scott, FDA

- 10:35 a.m. Two Approaches for Conducting Control-Based Imputation in Handling Missing Data—
 ◆Guanghan Liu, Merck Research Laboratories
- 10:55 a.m. Making Use of the Predictive Distribution for Missing Data—◆Gerry Gray, FDA/CDRH
- 11:15 a.m. Novel Missing Data Imputation Methods—◆Peter Mesenbrink, Novartis Pharma
- 11:35 a.m. Novel Imputation Methods for Binary, Time-to-Event, and Recurrent-Event Outcomes—
 ◆Michael O'Kelly, Quintiles
- 11:55 a.m. Disc: Feng Li, FDA/CDER/OTS/OB/DB2
- 12:15 p.m. Floor Discussion

344 CC-W183c **■ ● SLDS 2016 Student Paper Awards Session— Topic-Contributed**

Section on Statistical Learning and Data Science, International Chinese Statistical Association
 Organizer(s): Tian Zheng, Columbia University
 Chair(s): Tian Zheng, Columbia University

- 10:35 a.m. A Group-Specific Recommender System—◆Xuan Bi; Annie Qu, University of Illinois at Urbana-Champaign; Junhui Wang, City University of Hong Kong; Xiaotong Shen, University of Minnesota
- 10:55 a.m. Scalable Bayesian Rule Lists—◆Hongyu Yang, MIT EECS; Cynthia Rudin, Duke University; Margo Seltzer, Harvard
- 11:15 a.m. Model-Based Clustering for Large-Scale Dynamic Networks—◆Kevin Lee, Penn State University; Lingzhou Xue, Penn State University; David Hunter, Penn State University
- 11:35 a.m. Sparse Multidimensional Graphical Models: A Unified Bayesian Framework—◆Yang Ni; Francesco Stingo, MD Anderson Cancer Center; Veera Baladandayuthapani, MD Anderson Cancer Center
- 11:55 a.m. Another Look at Distance-Weighted Discrimination—◆Boxiang Wang, University of Minnesota; Hui Zou, University of Minnesota
- 12:15 p.m. Floor Discussion

345 CC-W176b **■ Time Series Seasonal Adjustment: Weekly Valued and Weather Adjustments—Topic-Contributed**

Business and Economic Statistics Section
 Organizer(s): James A. Livsey, U.S. Census Bureau
 Chair(s): James D. Wilson, University of San Francisco

- 10:35 a.m. The Use of Weather Data in the Analysis of Official Statistics Time Series—◆Jennifer Davies, Office for National Statistics
- 10:55 a.m. Accommodating Weather Effects in Seasonal Adjustment—◆Osbert Pang, U.S. Census Bureau; Brian Monsell, U.S. Census Bureau; William Bell, U.S. Census Bureau; James A. Livsey, U.S. Census Bureau
- 11:15 a.m. An Examination of Weekly Seasonal Adjustment—
 ◆Brian Monsell, U.S. Census Bureau; Tucker McElroy, U.S. Census Bureau
- 11:35 a.m. Variance Estimation for Weekly Seasonally Adjusted National UI Claims Series—◆Thomas Evans, Bureau of Labor Statistics; Michael Sverchkov, Bureau of Labor Statistics
- 11:55 a.m. A New Set of Asymmetric Filters for Real-Time Trend-Cycle Estimation—◆Estella Dagum, University of Bologna; Silvia Bianconcini, University of Bologna
- 12:15 p.m. Floor Discussion

346 CC-W196a **■ Summarizing Case Studies to Learn from and Improve Adaptive Trial Design and Implementation—Topic-Contributed**

Biopharmaceutical Section, Committee on Applied Statisticians
 Organizer(s): Weili He, Merck
 Chair(s): Weili He, Merck

- 10:35 a.m. Highpoints of What We Learned from Case Studies of Less Well-Understood Adaptively Designed Trials—◆Eva Miller, InVentiv Health Clinical
- 10:55 a.m. Case Study: How Promising Is the VALOR Trial for the Future of Adaptive Designs?—◆Yannis Jemici, Cytel
- 11:15 a.m. Regulatory and Practical Considerations for an Adaptive Trial in the Context of Evaluating a Combination Product: An Example Using Two Human MAbs to Prevent Recurrence of CDI—
 ◆Kenneth Koury, Merck Research Laboratories; Robert Tipping, Merck Research Laboratories
- 11:35 a.m. Disc: Jerry Schindler, Merck
- 11:55 a.m. Disc: Gregory Levin, FDA
- 12:15 p.m. Floor Discussion

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

347 CC-W192b
■ ● Advances in Statistical Methods for Systems Biology—Topic-Contributed

Section on Statistics in Genomics and Genetics, Biopharmaceutical Section, Committee on Applied Statisticians

Organizer(s): Li Ma, Duke University

Chair(s): Barbara E. Engelhardt, Princeton

- 10:35 a.m. A Big Table for Gene Regulatory Analysis—
◆Wing Hung Wong, Stanford University
- 10:55 a.m. Statistical Models for Single Cell RNA RNA Analysis—◆Nancy Zhang, University of Pennsylvania; Cheng Jia, University of Pennsylvania; Yuchao Jiang, University of Pennsylvania; Mingyao Li, University of Pennsylvania
- 11:15 a.m. A Bayesian Nonparametric Analysis of Heterogeneous Data on Microbial Communities—
◆Sergio Bacallado
- 11:35 a.m. Analysis of Distributional Variation: A Multi-Resolution Scanning Approach with Applications to DNase-Seq Analysis—◆Li Ma, Duke University
- 11:55 a.m. Bayesian Nonparametric Multiple Testing for the Analysis of Microbiome Data—◆Michele Guindani
- 12:15 p.m. Floor Discussion

348 CC-W192a
■ ● Statistical Methodology to Address Challenges in Medical Diagnostic Devices—Topic-Contributed

Section on Medical Devices and Diagnostics, Biopharmaceutical Section, International Chinese Statistical Association, Committee on Applied Statisticians

Organizer(s): Jeng Mah, Beckman Coulter Inc.

Chair(s): Alvin Van Orden, FDA

- 10:35 a.m. A Bayesian Adaptive Clinical Trial Design: Diagnostic Accuracy of an Olfactory Diagnostic Test for Traumatic Brain Injury in Combat Soldiers—◆Benjamin Saville, Berry Consultants
- 10:55 a.m. The Effects on Diagnostic Accuracy of Repeated Testing and Decision Rule Design—◆Jeng Mah, Beckman Coulter Inc.
- 11:15 a.m. Group Sequential Method for Correlated ROC Curves—◆Xuan Ye, FDA; Larry Tang, George Mason University
- 11:35 a.m. Method Comparison Study for Diagnostic Devices with Dichotomous Output—◆Bipasa Biswas, FDA/CDRH
- 11:55 a.m. Correcting for Over-Optimism in Metrics of Prognostic Model Improvement—◆Megan Neely, Duke University; Michael Pencina, Duke University

12:15 p.m. Floor Discussion

349 CC-W184a
■ ● Applications of Regression Trees on Sample Data—Topic-Contributed

Survey Research Methods Section

Organizer(s): Daniell Toth, Bureau of Labor Statistics

Chair(s): Katherine Jenny Thompson, U.S. Census Bureau

- 10:35 a.m. Using Regression Trees to Model Characteristics of Nonresponse and Measurement Error in a Longitudinal Survey—◆Morgan Earp, Bureau of Labor Statistics; Daniell Toth, Bureau of Labor Statistics; Polly Phipps, Bureau of Labor Statistics; Charlotte Oslund, Bureau of Labor Statistics
- 10:55 a.m. Modeling Survey Data with Regression Trees—
◆Daniell Toth, Bureau of Labor Statistics
- 11:15 a.m. Using Machine Learning to Correct for Survey Nonresponse Bias—◆Curtis Signorino, University of Rochester; Antje Kirchner, University of Nebraska-Lincoln
- 11:35 a.m. Matchmaker, Data Scientist, or Both? Using Unsupervised Learning Methods for Matching Nonprobability Samples to Probability Sample—
◆Trent Buskirk, Marketing Systems Group; David Dutwin, SSRS
- 11:55 a.m. A Case Study in Machine Learning Approaches to Survey Nonresponse Adjustments—◆Minsun Riddles, Westat; Bob Fay, Westat; David McGrath, Defense Manpower Data Center; Eric Falk, Defense Manpower Data Center

12:15 p.m. Floor Discussion

350 CC-W176c
■ ● Machine Learning for Dependent Data—Topic-Contributed

IMS, International Chinese Statistical Association

Organizer(s): Anand N. Vidyashankar, George Mason University

Chair(s): TN Sriram, University of Georgia

- 10:35 a.m. Variable Reduction in High-Dimensional Vector Time Series—◆Tucker McElroy, U.S. Census Bureau
- 10:55 a.m. Machine Learning Methods in High-Dimensional Branching Processes—◆Anand N. Vidyashankar, George Mason University
- 11:15 a.m. Functional Divergence-Based Classification for Single-Cell Data—◆Ollivier Hyrien, University of Rochester
- 11:35 a.m. Advances of Bayesian Nonparametrics in Population Genetics of Infectious Diseases—
◆Vladimir Minin, University of Washington

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

11:55 a.m. Supervised Implicit Network Construction and Analysis of Related Network-Wide Metrics—◆Brandon Park; Anand N. Vidyashankar, George Mason University; Tucker McElroy, U.S. Census Bureau; Jie Xu, George Mason University

12:15 p.m. Floor Discussion

351 CC-W178a SBSS Student Travel Award Session 2—Topic-Contributed

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

Organizer(s): Tanzy Love, University of Rochester

Chair(s): David Dahl, Brigham Young University

10:35 a.m. Geometrically Tempered Hamiltonian Monte Carlo—◆Akihiko Nishimura, Duke University; David Dunson, Duke University

10:55 a.m. Probabilistic Integration: A Role for Statisticians in Numerical Analysis?—◆Francois-Xavier Briol, University of Warwick; Chris J. Oates, University of Technology Sydney; Mark Girolami, University of Warwick/The Alan Turing Institute for Data Science; Michael A. Osborne, University of Oxford; Dino Sejdinovic, University of Oxford

11:15 a.m. Designing Test Information and Test Information in Design—◆David Jones, Harvard; Xiao-Li Meng, Harvard

11:35 a.m. Establishing Consistency and Improving Uncertainty Estimates of Variational Inference Through M-Estimation—◆Theodore Westling, University of Washington; Tyler McCormick, University of Washington

11:55 a.m. Truncated Completely Random Measures—◆Trevor Campbell, MIT; Jonathan Huggins, MIT; Tamara Broderick, MIT; Jonathan How, MIT

12:15 p.m. Floor Discussion

Contributed Sessions 10:30 a.m. – 12:20 p.m.

352 CC-W183b SPEED: Advances in Biometrics—Contributed

Biometrics Section

Chair(s): Debashree Ray, University of Michigan

The Poster portions will take place during Session 448 and Session 451.

10:35 a.m. An Approach for Estimating Adjusted Probabilities When Only Marginal Covariate Distributions Are Observed—◆Yifei Wang, University of California at Davis

10:40 a.m. Learning Parameter Heterogeneity in Data Integration—◆Lu Tang, University of Michigan; Peter X. K. Song, University of Michigan

10:45 a.m. A Bayesian Approach for Missing Data Problems in Growth Curve Model by Gibbs Sampling Method—◆Tian Feng, McMaster University; Joseph Beyene, McMaster University; Jemila S. Hamid, McMaster University/St. Michael's Hospital

10:50 a.m. A Conceptual Framework for Initial Data Analysis—◆Marianne Huebner, Michigan State University; Saskia le Cessie, Leiden University Medical Center; Werner Vach, University of Freiburg Medical Center

10:55 a.m. Modeling Heterogeneity in Motor Learning Using Heteroskedastic Functional Principal Components—◆Daniel Backenroth, Columbia Mailman School of Public Health; Jeff Goldsmith, Columbia Mailman School of Public Health; Tomoko Kitago, Columbia University Medical Center; John Krakauer, Johns Hopkins School of Medicine

11:00 a.m. Comparing Models for the Heaping Mechanism with Cigarette Count Data—◆Chelsea McCarty Allen, Southern Methodist University; Daniel F. Heitjan, Southern Methodist University

11:05 a.m. Statistical Learning Methods for Record Linkage: A Pioneer Mortality Example—◆Kristina Murri, Brigham Young University

11:10 a.m. Supervised Integrated Principal Component Analysis—◆Gen Li, Columbia University; Sungkyu Jung, University of Pittsburgh

11:15 a.m. Increasing Awareness of Careers and an Education in Biostatistics Among Quantitatively Talented Under-Represented High-School Students—◆Mallorie Fiero, University of Arizona; Kevin Doubleday, University of Arizona; Grant Schissler, University of Arizona; Joseph Watkins, University of Arizona; Melanie L. Bell, University of Arizona

11:20 a.m. Improved Phylogenetic Ordinations for Microbiome Data—◆Julia Fukuyama, Stanford University

11:30 a.m. Non-Gaussian Penalized PARAFAC Analysis of fMRI Data—◆Jingsai Liang; Don Hong, Middle Tennessee State University

11:35 a.m. Adjusting Published Estimates for Exploratory Biases Using the Truncated Normal Distribution—◆Travis Loux, Saint Louis University; Orlando Davy, Saint Louis University

11:40 a.m. Modeling Variation in Diversity—◆Michael Anderson, The University of Texas at San Antonio

11:45 a.m. Fish Cliques: Evidence of Social Groups from Sparse Observations in Time and Space—◆Jean Adams, USGS Great Lakes Science Center;

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- Stephen Riley, USGS Great Lakes Science Center; Charles Krueger, Michigan State University; Tom Binder, USGS Great Lakes Science Center; Taaaja Tucker, USGS Great Lakes Science Center
- 11:50 a.m. **Statistics and Biology: Stories with Heart**—◆Elizabeth Ribble, Metropolitan State University of Denver
- 11:55 a.m. **Efficient Mean Structure Estimation Using Matrix Variate Data**—◆Michael Hornstein, University of Michigan; Kerby Shedden, University of Michigan; Shuheng Zhou, University of Michigan
- 12:00 p.m. **Zero-Truncated Multiple-Inflation Count (ZTMIC) Models**—◆Arvind Tripathi, Takeda; Kui Zhang, Michigan Technological University; Xiaogang Su, The University of Texas at El Paso
- 12:05 p.m. **Validity of Tests Under Constrained Randomization**—◆Chi-Hong Tseng, University of California at Los Angeles
- 12:10 p.m. **Controlling for Confounders in a Parkinson's Disease Study**—◆Ruosha Li, The University of Texas Health Science Center at Houston
- 12:15 p.m. **The Impact of Misspecification on the Homogeneity Tests for Zero-Inflated Models**—◆Nadeesha R. Mawella, Kansas State University; Siyu Gao, Kansas State University; Wei-Wen Hsu, Kansas State University; David Todem, Michigan State University

353 **CC-W181a**
SPEED: Statistical Learning and Data Science—Contributed

Section on Statistical Learning and Data Science

Chair(s): Michael Weylandt, Rice University

The Poster portions will take place during Session 449 and Session 452.

- 10:35 a.m. **A Random Forest of Modified Interaction Trees for Treatment Decision Rules**—◆Zhen Zeng, Merck; Zheng Wei, Sanofi US; Yuefeng Lu, Sanofi US
- 10:40 a.m. **Modern Projection Pursuit Ellipse for High-Dimensional Data**—◆Jang Ik Cho, Case Western Reserve University; Xiaoyan Wei, Case Western Reserve University; Jiayang Sun, Case Western Reserve University
- 10:45 a.m. **Model-Free Estimation of Task-Based Dynamic Functional Connectivity and Its Confidence Intervals**—◆Maria Kudela, Indiana University; Mario Dzemidzic, Indiana University School of Medicine; Brandon G. Oberlin, Indiana University School of Medicine; Joaquin Goñi, Purdue University; David A. Kareken, Indiana University School of Medicine; Jaroslaw Harezlak, Indiana University Fairbanks School of Public Health

- 10:50 a.m. **Topological Statistical Inference for Location Parameters via Frechet Functions**—◆Ruite Guo, Florida State University
- 10:55 a.m. **An R Package Enabling Likelihood-Based Inference for Generalized Linear Mixed Models**—◆Christina Knudson
- 11:00 a.m. **Community Extraction for Networks with Node Covariates via Pseudo-Likelihood Method**—◆Chengan Du, George Mason University; Qing Pan, The George Washington University; Yunpeng Zhao, George Mason University
- 11:05 a.m. **Predicting Job Application Success by Modeling Structured and Unstructured Features of Candidate-Role Pairs**—◆Jon Krohn, untapt; Gabe Rives-Corbett, untapt; Ed Donner, untapt
- 11:10 a.m. **Likelihood Methods for Non-Negative Matrix Factorization**—◆Frank Shen, Penn State University
- 11:15 a.m. **A Sequential Learning Algorithm Using Gaussian Processes for Probabilistic Hazard Mapping**—◆Regis Rutarindwa
- 11:20 a.m. **Models for Understanding and Predicting Consumer Perception of Radiance**—◆Supriya A. K. Satwah, Unilever; Anthony Cece, Unilever; Robert Velthuis, Unilever
- 11:30 a.m. **High-Dimensional Inference for Partial Linear Models**—◆Zhuqing Yu
- 11:35 a.m. **Penalized Principal Logistic Regression for Sparse Sufficient Dimension Reduction**—◆Seung Jun Shin, Korea University; Andreas Artemiou, Cardiff University
- 11:40 a.m. **Dimension-Reduction Techniques for Predictive Modeling**—◆Zhen Zhang, C Spire; Lei Zhang, Mississippi State Department of Health; Kendell Churchwell, C Spire; James Veillette, C Spire
- 11:45 a.m. **Robust Categorical Principal Components Analysis: An Application to Population Stratification**—◆Asuman Turkmen, The Ohio State University; Yuan Yuan, Auburn University; Nedret Billor, Auburn University
- 11:50 a.m. **Publication Genie: P-Value Minimization via Variable Selection and Exclusion Factors**—◆Stephen Stanhope, Spectrum Health
- 11:55 a.m. **The Knockoff Filter for FDR Control in Group-Sparse and Multitask Regression**—◆Ran Dai, The University of Chicago; Rina Foygel Barber, The University of Chicago
- 12:00 p.m. **Maximizing Text Mining Performance: The Impact of Pre-Processing**—◆Dario Gregori, University of Padova; Paola Berchialla, University of Torino; Nicola Soriani, University of Padova; Ileana Baldi, University of Padova; Corrado Lanera, University of Padova
- 12:05 p.m. **Graphical Model Extension to GLM fMRI Model**—◆David Sinclair, Cornell University
- 12:10 p.m. **Floor Discussion**

354 **CC-W181b**
SPEED: Business, Finance, and Economic Statistics—Contributed

Business and Economic Statistics Section

Chair(s): David Matteson, Cornell University

The Poster portions will take place during Session 450 and Session 453.

- 10:35 a.m. Improving the Measure of Correlation in Time Series Goodness-of-Fit Testing—◆Thomas Fisher, Miami University; Michael Robbins, RAND Corporation
- 10:40 a.m. Retrospective Social Discount Rates—◆James P. Howard, II, University of Maryland University College
- 10:45 a.m. A New Approach to Dimensional Reduction for Volatility of a Stationary Multivariate Time Series—◆Chung Eun Lee, University of Illinois at Urbana-Champaign; Xiaofeng Shao, University of Illinois at Urbana-Champaign
- 10:50 a.m. Estimating Discrete Nonlinear Effects with a Single Instrumental Variable—◆Leonard Goff, Columbia University
- 10:55 a.m. Comparison of Financial Cycles to Other Economic Cycles: Old Methods and New Dimension—◆Joselito Basilio, Bangko Sentral ng Pilipinas
- 11:00 a.m. Fitting Data with Generalized Lambda Distribution—◆Yu Tao; Keying Ye, The University of Texas at San Antonio; Donald Lien, The University of Texas at San Antonio
- 11:05 a.m. Linear Double Autoregressive Time Series Model and Its Conditional Quantile Inference—◆Qianqian Zhu, The University of Hong Kong; Yao Zheng, The University of Hong Kong; Guodong Li, The University of Hong Kong
- 11:10 a.m. Economic Impact of Presidents and War: Did FDR or WW2 End the Great Depression?—◆Spencer Graves; Jouni Helske, University of Jyväskylä
- 11:15 a.m. Modeling Temperature-Based Financial Derivatives Through Dynamic Linear Models—◆David Engler, Brigham Young University; Robert Erhardt, Wake Forest University
- 11:20 a.m. Forecasting Daily Electricity Load Profile Using Functional Principals Components and Transfer Function Models—V.A. Samaranyake, Missouri University of Science and Technology; ◆Abdulmunem Jornaz, Missouri University of Science and Technology
- 11:30 a.m. A Two-Stage Model for Estimating End Uses of Electricity and Natural Gas in U.S. Homes—Edgardo Cureg, U.S. Energy Information Administration; ◆Shaofen Deng, U.S. Energy Information Administration

- 11:35 a.m. A Spatial Statistical Model to Identify Factors Affecting the Lending Process—◆Karen Liseth Gonzalez Fernandez, Universidad Nacional de Colombia; Juan Carlos Salazar Uribe, Universidad Nacional de Colombia
- 11:40 a.m. Partial Identification and Estimation of Differentiable Misclassification Errors with Application in Self-Misreporting—◆Linchun Chen, University of Michigan
- 11:45 a.m. Bias Correction in Average Treatment Effect Estimation After Model Selection—◆Jingshen Wang, University of Michigan; Xuming He, University of Michigan
- 11:50 a.m. Measuring Mobile Financial Services: Surveying an Emerging Field—◆Ellen Merry, Federal Reserve Board
- 11:55 a.m. Identifiability and Estimation in Non-Gaussian Mixed Frequency Structural VAR Models—◆Alex Tank; Emily Fox, University of Washington; Ali Shojaie, University of Washington
- 12:00 p.m. Optimal Stratification of Univariate Populations via StratifyR Package—◆Karuna Garan Reddy, University of the South Pacific; Mohammed G. M. Khan, University of the South Pacific
- 12:05 p.m. A Generalized Ordered Response Model—◆Kramer Quist, Brigham Young University; James McDonald, Brigham Young University; Carla Johnston, University of California at Berkeley

Contributed Sessions 10:30 a.m. – 12:20 p.m.

355 **CC-W177**
◆● Efficient Designing of Experiments—Contributed

Section on Physical and Engineering Sciences, Quality and Productivity Section

Chair(s): Laura Lancaster, SAS Institute

- 10:35 a.m. Analysis of Split-Plot Designs with Whole-Plot and Split-Plot Measurements—◆Jonathan Stallings, North Carolina State University
- 10:50 a.m. Box-Behnken-Type Experimental Designs for Multiple Responses with Different Models—◆Wilmina Marget, John Carroll University; Max D. Morris, Iowa State University
- 11:05 a.m. Assessing the Consequences After an Incorrect Multiple-Component Constraint Was Used to Develop a Constrained Mixture Experiment Design—◆Greg Piepel, Pacific Northwest National Laboratory; Scott Cooley, Pacific Northwest National Laboratory

Tuesday

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 11:20 a.m. Run Order Considerations for Plackett and Burman Designs—◆Kevin Quinlan; Dennis K. J. Lin, Penn State University
- 11:35 a.m. A Meta-Analysis of Response Surface Studies—◆Byran Smucker, Miami University; Rebecca Ockuly, Miami University; Maria Weese, Miami University; David Edwards, Virginia Commonwealth University; Le Chang, Miami University
- 11:50 a.m. Two-Level Screening Designs Derived from Binary Nonlinear Codes—◆Tena Ipsilantis Katsaounis, The Ohio State University; Manohar Lal Aggarwal, University of Memphis
- 12:05 p.m. Innovative and Efficient Definitive Screening Designs with an Asymptotic Method for Defining the End of Primary Drying Time to Optimize the Freeze-Drying Process—◆Oksoun Yee, Bristol-Myers Squibb; Johnathan Goldman, Bristol-Myers Squibb; Haresh More, Bristol-Myers Squibb

356 **CC-W193b**
■ Methods for Next-Generation Sequencing Data—Contributed

Biometrics Section, Biopharmaceutical Section
 Chair(s): Jen-hwa Chu, Yale University

- 10:35 a.m. Excess False Positives in Negative-Binomial-Based Analysis of Data from RNA-Seq Experiments—◆David Rocke, University of California at Davis; Yilun Zhang, University of California at Davis
- 10:50 a.m. Power Analysis for RNA-Seq Differential Expression Studies—◆Lianbo Yu, The Ohio State University; Soledad Fernandez, The Ohio State University; Guy N. Brock, The Ohio State University
- 11:05 a.m. A Bayesian Hypothesis-Testing Framework for Detecting Differentially Expressed Genes—◆Claudio Fuentes, Oregon State University; Luis Leon Novelo, The University of Texas Health Science Center at Houston; Sarah Emerson, Oregon State University
- 11:20 a.m. Splicing Profile of Clinical RNA Sequencing (RNA-Seq) Data—◆Shihao Shen, University of California at Los Angeles
- 11:35 a.m. Moving Beyond the Single Gene: Integrative Pathway Analysis for RNA-Seq—◆Andrew Aschenbrenner, The University of Texas Health Science Center at Houston; Yun-Xin Fu, The University of Texas Health Science Center at Houston; David Loose, The University of Texas Health Science Center at Houston
- 11:50 a.m. Improving the Power of the Benjamini-Hochberg Procedure for Discrete Data—◆Sebastian Doehler, Darmstadt University of Applied Sciences

- 12:05 p.m. Analysis Pipeline to Investigate Diversity and Dynamics of Next-Generation Sequencing-Based T Cell Repertoire Data—◆Li Zhang, University of California at San Francisco; Jason Cham, University of California at San Francisco; Nadeem Sheikh, Dendreon Corporation; Lawrence Fong, University of California at San Francisco

357 **CC-W194a**
■ Advances in Statistical Genetics and Genomics—Contributed

Biometrics Section, Biopharmaceutical Section
 Chair(s): Chao Xing, The University of Texas Southwestern Medical Center

- 10:35 a.m. Integrative Analysis of Omics Data Across Multiple Conditions Using Tensor Decomposition and Regularization—◆Eun Jeong Min, Emory University; Yijuan Hu, Emory University; Qi Long, Emory University
- 10:50 a.m. Detecting Low Allele Fraction Variants Using Targeted DNA Sequencing with Molecular Barcodes—◆Chang Xu, Qiagen Sciences; Mohammad R. Nezami Ranjbar, Qiagen Sciences; John Dicarolo, Qiagen Sciences; Yexun Wang, Qiagen Sciences
- 11:05 a.m. Inferring Spatial Organizations of Chromosomes from Hi-C Data via Poly-Helix Model—◆Rongrong Zhang, Purdue University; Ming Hu, New York University; Yu Zhu, Purdue University
- 11:20 a.m. Analysis of Variance Components for Genetic Markers with Unphased Genotypes—◆Tao Wang, Medical College of Wisconsin
- 11:35 a.m. Powerful Test Based on Multivariate Joint Effect for Genome-Wide Screening—◆Yaowu Liu, Purdue University; Jun Xie, Purdue University
- 11:50 a.m. Robust Approaches for the Analysis of High-Throughput Proteomic Data—◆Naim Rashid
- 12:05 p.m. Genomic Prediction Models on Wheat Doubled Haploid Population—◆Xiaowei Hu, Oklahoma State University; Lan Zhu, Oklahoma State University; Charles Chen, Oklahoma State University

358 **CC-W186a**
■ ● Applications of Statistical Computing—Contributed

Section on Statistical Computing, Section for Statistical Programmers and Analysts
 Chair(s): Milan Bimali, University of Kansas School of Medicine

- 10:35 a.m. Statistical Analysis of Land Cover of South Dakota—◆Mitra Devkota, Shawnee State University; Gary Hatfield, South Dakota State

- University; Saroj Thapa, South Dakota State University
- 10:50 a.m. **Computationally Efficient Question Selection in Adaptive Questionnaires**—◆John Riddles, George Mason University; James E. Gentle, George Mason University
- 11:05 a.m. **A More Practical Approach for the Benjamini-Hochberg FDR Controlling Procedure for Huge-Scale Testing Problems**—◆Vered Madar, Statistical and Applied Mathematical Sciences Institute
- 11:20 a.m. **Semi-Supervised Bootstrap Methods**—◆Bradley Ferguson, Quintiles; Eric Laber, North Carolina State University; Leonard Stefanski, North Carolina State University
- 11:35 a.m. **Reach and Frequency Prediction Using Synthetic Data**—◆Ekaterina Sotiris, Nielsen; Neung Ha, Nielsen; William Waldron, Nielsen; Etienne Josserand, Nielsen
- 11:50 a.m. **A Comparison Study of Modeling Wind Energy in Turkey**—◆Gultekin Atalik, Anadolu University; Ozer Ozdemir, Anadolu University; Sevil Senturk, Anadolu University
- 12:05 p.m. **Adapting Heterogeneous Tissue Expression Analysis Method to RNA-Seq Data**—◆Megan Stefanski, University of Missouri-Kansas City; David Spade, University of Missouri-Kansas City

359 CC-W182 Nonstationary Models for Spatial Data— Contributed

Section on Statistics and the Environment

Chair(s): Dan Cooley, Colorado State University

- 10:35 a.m. **Clustering Multiscale Spatial Functional Data with Application to Precipitation Regimes Identification**—◆Haozhe Zhang, Iowa State University; Zhengyuan Zhu, Iowa State University; Shuiqing Yin, Beijing Normal University
- 10:50 a.m. **Cluster Detection of Spatial Regression Coefficients**—◆Junho Lee, University of Wisconsin; Ronald Gangnon, University of Wisconsin; Jun Zhu, University of Wisconsin-Madison
- 11:05 a.m. **Quantifying and Mapping Spatial Variability in Forest Stands**—◆Gavin Corral, USDA/NASS
- 11:20 a.m. **Spatial Basis Function Approach to Accommodate Teleconnection Patterns in Climate Data**—◆Whitney Huang, Purdue University; Hao Zhang, Purdue University
- 11:35 a.m. **Covariance Quantification of Prior Spatial Process to Improve Posterior Green House Gas Emission Estimates**—◆Subhomoy Ghosh
- 11:50 a.m. **Modeling Nonstationarity in Space and Time with Dimension Expansion**—◆Lyndsay Shand; Bo Li, University of Illinois at Urbana-Champaign

- 12:05 p.m. **Modeling Nonstationary and Anisotropic Geostatistical Data Processes**—◆Claude Hill, University of Oklahoma Health Sciences Center; David M. Thompson, University of Oklahoma Health Sciences Center

360 CC-W179b ■● Consulting, Collaboration, Communication, and Impact—Contributed

Section on Statistical Consulting, Committee on Applied Statisticians

Chair(s): James Grady, University of Connecticut Health Center

- 10:35 a.m. **Initiating the Uninitiated to Remote Statistical Collaboration: How Can Statistical Consultants Help Clients to Become Effective Remote Collaborators?**—◆Linda A. Landon, Research Communiqué
- 10:50 a.m. **Characteristics of Biostatistics, Epidemiology, and Research Design Programs in Institutions with Clinical and Translational Science Awards**—◆Mohammad H. Rahbar, The University of Texas Health Science Center at Houston; Aisha S. Dickerson, The University of Texas Health Science Center at Houston; Chul Ahn, The University of Southwestern Medical Center at Dallas; Rickey E. Carter, Mayo Clinic; Manouchehr Hessabi, The University of Texas Health Science Center at Houston; Christopher J. Lindsell, University of Cincinnati; Paul J. Nietert, Medical University of South Carolina; Robert A. Oster, University of Alabama at Birmingham; Brad H. Pollock, University of California at Davis; Leah J. Welty, Northwestern University
- 11:05 a.m. **LISA 2020: Improving Agricultural Research in Tanzania Through Statistical Collaboration**—◆Richard Ngaya, Virginia Tech; Eric Vance, Laboratory for Interdisciplinary Statistical Analysis
- 11:20 a.m. **The Importance of Problem Definition in Statistical Consulting: An Illustration Using Academic Undermatching**—◆Jillian Downey, Iowa State University; Ulrike Genschel, Iowa State University; Ann Gansemer-Topf, Iowa State University; Mark Kaiser, Iowa State University
- 11:35 a.m. **Ethical Considerations in Pro Bono Statistics**—◆Nilupa Gunaratna, Harvard T.H. Chan School of Public Health
- 11:50 a.m. **Effective Collaboration Between Biostatisticians with Clinicians in Conducting Medical Research: Results Reporting**—◆Yahya Daoud, Baylor Scott & White Health; Sophie Lopes, Baylor Scott & White Health
- 12:05 p.m. **When Is 'Wrong' Really Right and Other Consulting Adventures**—◆Katherine Monti, Rho

361 CC-W186b

Applications of Ensemble and Tree-Based Methods—Contributed

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

Chair(s): Dirk Moore, Rutgers School of Public Health

- 10:35 a.m. Decoding Brain States from fMRI Data with a Machine Learning Method—◆Elizabeth Chou
- 10:50 a.m. Classification and Regression Tree Modeling of Correlated Binary Outcomes—◆Jaime Speiser, Medical University of South Carolina; Valerie Durkalski-Mauldin, Medical University of South Carolina; Dongjun Chung, Medical University of South Carolina; Bethany Wolf, Medical University of South Carolina
- 11:05 a.m. Ranking Homologous Proteins Using an Ensemble of Logistic Regression Models Based on Subsets of Feature Variables—◆Jabed Tomal, University of Toronto; William J. Welch, The University of British Columbia; Ruben H. Zamar, The University of British Columbia
- 11:20 a.m. An Approach to the Multivariate Two-Sample Problem Using Classification and Regression Trees and Minimum-Weight Spanning Subgraphs—◆David Ruth; Samuel Buttrey, Naval Postgraduate School; Lyn Whitaker, Naval Postgraduate School
- 11:35 a.m. Methodological Strategies to Define a Generalizable Model for Machine Learning Ensemble Techniques—◆Joel Correa da Rosa, Rockefeller University; Lewis Tomalin, Icahn School of Medicine at Mount Sinai; Mayte Suárez-Fariñas, Icahn School of Medicine at Mount Sinai
- 11:50 a.m. Selecting Decision Rules from Tree Ensembles—◆Damir Spisic, IBM; Jing Xu, IBM
- 12:05 p.m. Floor Discussion

362 CC-W192c

■ ● Biomarkers and Endpoint Validation—Contributed

Biopharmaceutical Section, Section on Statistics in Imaging, International Chinese Statistical Association

Chair(s): Geng Chen, GlaxoSmithKline

- 10:35 a.m. Biomarker Analyses in Phase II Dose-Ranging Study—◆Xiwen Ma, Sanofi US; Yuefeng Lu, Sanofi US; Zheng Wei, Sanofi US
- 10:50 a.m. Evaluation of Magnetic Resonance Imaging (MRI) Parameters as Biomarkers in Alzheimer's Disease—◆Leacky Muchene, Hasselt University; Ziv Shkedy, Hasselt University; Luc Kamau Bijmens, Janssen; Nikolay Manyakov, Janssen; Tom Van De Kasteel, Janssen; Tom Jacobs, Janssen;

Marleen Kamau Verhoye, Antwerp University; Jelle Praet, Antwerp University; Annemie Van der Linden, Antwerp University; Astrid Bottelbergs, Janssen; Mark Schmidt, Janssen; Darrel Pemberton, Janssen

- 11:05 a.m. Link-Free Identification of Simple Index Variables for the Prediction of Differential Treatment Response—◆Hongjie Zhu, Sanofi
- 11:20 a.m. Searching for Correlates of Protection for Ebola Vaccine—◆Jin Xu, Merck; Kenneth Liu, Merck; Ivan S. F. Chan, Merck
- 11:35 a.m. Development of a Resistant Associated Variant (RAV) Detection Procedure for the Next Generation Sequencing HCV Study—◆John Kang
- 11:50 a.m. Bias Correction for Biomarker Threshold Studies—◆Li Liu, Sanofi; Glen Laird, Sanofi
- 12:05 p.m. Floor Discussion

363 CC-W191

■ Statistical Methods with Applications in Pharmacology, Toxicology, and Pharmacovigilance—Contributed

Biopharmaceutical Section, Section on Risk Analysis

Chair(s): John A. Wass, Quantum Cat Consultants

- 10:35 a.m. On the Perils and Pitfalls of PRR Analysis as Applied to Social Media Safety Surveillance—◆Jeffery Painter, GlaxoSmithKline
- 10:50 a.m. Robust Ridge Regression Estimators for Nonlinear Models with Applications to High-Throughput Screening Assay Data—◆Changwon Lim
- 11:05 a.m. The Estimation of Comparable IC₅₀ in Drug Screening Study—◆Qin Liu, The Wistar Institute; Xiangfan Yin, The Wistar Institute; Quentin McAfee, University of Pennsylvania; Ravi Amaravadi, University of Pennsylvania; Jeffery Winkler, University of Pennsylvania; Meenhard Herlyn, The Wistar Institute
- 11:20 a.m. Alternatives to Nonproportional Hazards—◆Ramin Arani, AstraZeneca; Yifan Huang, AstraZeneca; Andrew Stone, AstraZeneca
- 11:35 a.m. An Exposition to Integrated System Modeling of Patients' Safety Risk—◆D. Purkayastha; Sadhvi Khanna, Novartis
- 11:50 a.m. Performance Improvement of Parameter Estimation by Two-Step Analysis Incorporating Generalized Log-Rank Statistics—◆Junji Moriya, Kyowa Kirin Pharmaceutical Development; June Li, Kyowa Kirin Pharmaceutical Development
- 12:05 p.m. Evaluating In Vivo-In Vitro Correlation Using a Bayesian Approach—◆Junshan Qiu, FDA; Marilyn Martinez, FDA; Ram Tiwari, FDA/CDER/OT/OB

- 364** **CC-W184d**
Nonprobability/Web Sampling and Data Analysis—Contributed
 Survey Research Methods Section
 Chair(s): Daniel Oberski, Tilburg University
- 10:35 a.m. Inferences from Internet Panel Studies and Comparisons with Probability Samples—◆Ronaldo Iachan, ICF International; John Boyle, ICF; Richard Harding, ICF
- 10:50 a.m. An Empirical Method to Establish Usability of Nonprobability Surveys for Inference—◆Robert Tortora; Ronaldo Iachan, ICF International
- 11:05 a.m. The Efficacy of Nonprobability Online Samples—◆Alan Roshwalb, Ipsos; Zachary Lewis, Ipsos; Robert Petrin, Ipsos Public Affairs
- 11:20 a.m. Design of Sample Surveys That Complement Observational Data to Achieve Population Coverage—◆Eric Slud, U.S. Census Bureau; Robert Ashmead, U.S. Census Bureau
- 11:35 a.m. Explicit vs. Implicit Data: Comparing Responses from a Web Survey to Behavioral Data from Smartphones—◆Noble Kuriakose, Survey/Monkey
- 11:50 a.m. Vector Length as an Indicator of Sample Representativeness—◆Hee-Choon Shin, CDC/NCHS
- 12:05 p.m. Exploration of Methods for Blending Unconventional Samples with Traditional Probability Samples—◆Jonathan Gellar, Mathematica Policy Research; Hanzhi Zhou, Mathematica Policy Research; Michael Sinclair, Mathematica Policy Research
- 365** **CC-W178b**
Time Series Regression Modeling—Contributed
 Business and Economic Statistics Section
 Chair(s): Steven Paben, Bureau of Labor Statistics
- 10:35 a.m. Modeling Durations in High-Frequency Data Using Estimating Functions—◆Yaohua Zhang, University of Connecticut; Jian Zou, Worcester Polytechnic Institute; Nalini Ravishanker, University of Connecticut; Aerambamoorthy Thavaneswaran, University of Manitoba
- 10:50 a.m. ATM: Autoregressive Tail-Index Model for Financial Time Series—◆Zifeng Zhao, University of Wisconsin-Madison; Zhengjun Zhang, University of Wisconsin-Madison; Rong Chen, Rutgers University
- 11:05 a.m. Asymptotics for Estimators Dating the Origination and Termination of Explosive Behavior in a Time Series—◆Mohitosh Kejriwal, Purdue University; Pierre Perron, Boston University
- 11:20 a.m. Testing Separability of Functional Time Series—◆Panayiotis Constantinou, Penn State University; Piotr Kokoszka, Colorado State University; Matthew Reimherr, Penn State University
- 11:35 a.m. LM Cointegration Tests Allowing for an Unknown Number of Breaks: Implications for the Forward Rate Unbiasedness Hypothesis—Dong-Yop Oh, The University of Texas Rio Grande Valley; ◆Hyejin Lee, The University of Texas Rio Grande Valley
- 11:50 a.m. Parameter Estimation of Capital Asset Pricing Model (CAPM) Through Quantile Regression (QR): An Application on Import Sector for Karachi Stock Exchange (KSE)—◆Shahid Kamal, University of Punjab, Q.A. Campus; Deebea Akhtar, Punjab University; Mutahir Rasool, Punjab University; Amna Riaz, Punjab University; Rehan Ahmad Khan, Punjab University
- 12:05 p.m. An Advanced Regression Model for Both Symmetric and/or Asymmetric Explained Variable—◆Hadeel Alrusayni, Ball State University; Mian Adnan, Ball State University
- 366** **CC-W185a**
Statistics for Public Health and Health Services—Contributed
 Social Statistics Section
 Chair(s): Gerald Arnold, American Board of Internal Medicine
- 10:35 a.m. Monitoring Newly Diagnosed HIV-Positive Persons from 61 CDC-Funded Health Department Jurisdictions in the United States, 2014: Measurement Issues and Possible Solutions—◆Guoshen Wang, CDC; Puja Seth, CDC; Argelia Figueroa, CDC; Samuel Dooley, CDC; Lisa Belcher, CDC
- 10:50 a.m. The Structure of Activity-Based Online Personal Networks—◆Zack Almquist, University of Minnesota; Emma Spiro, University of Washington
- 11:05 a.m. Adding Complexity to an Already Difficult Task: The Affordable Care Act (ACA) and the Quality of Public Coverage Estimates from the American Community Survey—◆Michel Boudreaux, University of Maryland; Brett Fried, State Health Access Data Assistance Center; Kathleen Call, State Health Access Data Assistance Center; Elizabeth Lukanen, State Health Access Data Assistance Center; Giovann Alarcon, State Health Access Data Assistance Center
- 11:20 a.m. Effects of the Great Recession on Income Poverty and Material Hardships of Working-Age Adults with Disabilities—◆Subhrangshu Nandi, University of Wisconsin-Madison; Subharati Ghosh, Tata Institute of Social Sciences; Susan Parish, Brandeis University

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 11:35 a.m. Statistical Modeling of Outcomes for Children of Parents with Disabilities—◆Jesse Canchola, StatCon; Jean Jacob, Through the Looking Glass; Paul Preston, Through the Looking Glass
- 11:50 a.m. Weeding Out Under-Reporting: A Study of Trends in Reporting of Marijuana Consumption in the U.S.—◆Maria Cuellar, Carnegie Mellon University
- 12:05 p.m. Model-Based Differential Private Data Synthesis—◆Fang Liu, University of Notre Dame

367 **CC-W175c**
Bayesian Model Selection—Contributed

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

Chair(s): Paul Kidwell, Roofstock

- 10:35 a.m. Bayesian Model Selection for Hierarchical Copulas and Vines—◆Arkady Shemyakin, University of St. Thomas; Alexander Kniazev, Astrakhan State University; Oleg Lepekhin, Astrakhan State University
- 10:50 a.m. Locally Adaptive Shrinkage for Regression on Posets of Predictors—◆Andrew Womack, Indiana University
- 11:05 a.m. A Unified Approach to Information-Theoretic and Bayesian Model-Selection Criteria—◆Hamparsum Bozdogan, University of Tennessee; Maomi Ueno, Chiba University
- 11:20 a.m. Bayesian Variable Selection by Cross Validation, DIC, and Marginal Likelihood: A Comparative Study—◆Arnab Maity, Northern Illinois University; Sanjib Basu, Northern Illinois University; Santu Ghosh, Georgia Regents University
- 11:35 a.m. Bayesian Model Selection in Generalized Linear Model—◆Guiling Shi
- 11:50 a.m. Bayesian Model Selection of Shape Constraints for Nonparametric Regression—◆Peter Lenk, University of Michigan; Taeryon Choi, Korea University
- 12:05 p.m. Detecting Hidden Additivity in Unreplicated Studies Using Bayesian Model Selection—◆Christopher T. Franck, Virginia Tech; Thomas Anthony Metzger, Virginia Tech

368 **CC-W176a**
Bayesian Spatial Modeling—Contributed

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

Chair(s): Margaret Short, University of Alaska Fairbanks

- 10:35 a.m. Bayesian Cure Rate Survival Model with Spatially Structured Censoring—◆Georgiana Onicescu; Andrew B. Lawson, Medical University of South Carolina

- 10:50 a.m. Alternative Approach to Modeling Areal-Level Spatial Data Using Basis Functions—◆Ghadeer Mahdi, University of Arkansas; Avishek Chakraborty, University of Arkansas; Mark Arnold, University of Arkansas
- 11:05 a.m. A Spatial Shrinkage Prior for Sparse Signal Detection—◆An-Ting Jhuang, North Carolina State University; Brian J. Reich, North Carolina State University; Montse Fuentes, North Carolina State University
- 11:20 a.m. Objective Bayesian Analysis for Gaussian Improper CAR Models—◆Matthew James Keefe, Virginia Tech; Marco A. R. Ferreira, Virginia Tech; Christopher T. Franck, Virginia Tech
- 11:35 a.m. Spatial Mixture Multiscale Modeling for Aggregated Health Data—◆Mehreteab Aregay, Medical University of South Carolina; Andrew B. Lawson, Medical University of South Carolina
- 11:50 a.m. Bayesian Spatial Models for Predicting the Location of Head Impacts—◆Michael Lawson, The University of North Carolina at Chapel Hill; Daniel Hernandez-Stumpfhauser, The University of North Carolina at Chapel Hill; Amy Herring, The University of North Carolina at Chapel Hill; Gunter Siegmund, MEA Forensic; Jason Mihalik, The University of North Carolina at Chapel Hill; Steve Marshall, The University of North Carolina at Chapel Hill; Kevin Guskiewicz, The University of North Carolina at Chapel Hill
- 12:05 p.m. Bayesian Inversion of a Large Spatial Field Using Predictive Process—◆Anirban Mondal, Case Western Reserve University

369 **CC-W175b**
● Nonstandard Errors: Heteroskedasticity and Errors-in-Variables—Contributed

Section on Nonparametric Statistics

Chair(s): Esther Lu, Washington University School of Medicine

- 10:35 a.m. A Continuously Weighted Kernel Method for Heteroskedastic Data—◆Luella Fu, University of Southern California; Gareth James, University of Southern California; Wenguang Sun, University of Southern California
- 10:50 a.m. Semiparametric Efficient Estimators in Heteroscedastic Error Models—◆Mijeong Kim, Ewha Womans University; Yanyuan Ma, University of South Carolina
- 11:05 a.m. Lag Selection and Model Validation in Nonparametric Autoregressive Conditional Heteroscedastic Models—◆Seonjin Kim, Miami University; Adriano Zambom, Loyola University Chicago

- 11:20 a.m. Testing Low-Dimensional Coefficients in High-Dimensional Heteroscedastic Linear Models—◆Honglang Wang, Indiana University Purdue University Indianapolis; Ping-Shou Zhong, Michigan State University; Yuehua Cui, Michigan State University
- 11:35 a.m. Multivariate Smoothing Regression of Vector Valued Functions with Error in Variables Using a Bayesian Approach—◆Eduardo Trujillo Rivera
- 11:50 a.m. Model Checking in Errors-in-Variable Tobit Regression Using Validation Data—◆Pei Geng
- 12:05 p.m. Accelerated Nonparametric Maximum Likelihood Density Deconvolution Using Bernstein Polynomial—◆Zhong Guan, Indiana University South Bend

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

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**Contributed Poster Presentations:
ENAR—Contributed**

ENAR

Chair(s): Genevera Allen, Rice University

- 1 Variable Selection for Multistate Models in the Presence of Missing Data—◆Lauren J. Beesley, University of Michigan; Jeremy M. G. Taylor, University of Michigan
- 2 Selecting Covariates in Differential Expression Analysis of RNA-Seq Data—◆Yet Nguyen, Iowa State University; Dan Nettleton, Iowa State University
- 3 Causal Inference with Partial Interference and Right-Censored Outcomes—◆Sujatro Chakladar; Michael Hudgens, The University of North Carolina at Chapel Hill
- 4 Patient-Derived Model Systems: Design Considerations for Pre-Clinical Study—◆Laila M. Poisson, Henry Ford Health System; Hoon Kim, MD Anderson Cancer Center; Mary Winn, Van Andel Research Institute; David Cherba, Van Andel Research Institute; Claudius Mueller, George Mason University; Emmanuel F. Petricoin, George Mason University; Roeland Verhaak, MD Anderson Cancer Center; Tom Mikkelsen, Henry Ford Health System; Ana deCarvalho, Henry Ford Health System
- 5 A Comparison of the Parametric Models of Expenditure Distribution for West Bengal Households—◆Arkopal Choudhury

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**Contributed Poster Presentations: Government
Statistics Section—Contributed**

Government Statistics Section

Chair(s): Genevera Allen, Rice University

- 6 Informing Maintenance to the U.S. Census Bureau's Master Address File with Statistical Decision Theory—◆Andrew Raim, U.S. Census Bureau
- 7 Confidence Interval Estimation of Prevalence When the Event Is Rare—◆Clinton Alverson, CDC/NCBDDD/DBDDD/BDB
- 8 Bioequivalence Test of AUC for Sparse Crossover Design—◆Guoying Sun, FDA/CDER; Huaixiang Li, FDA/CDER; Fairouz Makhoul, FDA/CDER; Donald Schuurmann, FDA/CDER; Stella Grosser, FDA/CDER
- 9 Effects of Clustered Random Data Swapping for Statistical Data Limitation on Selected NHIS Estimates of Health Characteristics—◆Joe Fred Gonzalez, CDC/NCHS; Guangyu Zhang, CDC/NCHS; Anna Oganian, CDC/NCHS

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**Contributed Poster Presentations: Health Policy
Statistics Section—Contributed**

Health Policy Statistics Section

Chair(s): Genevera Allen, Rice University

- 10 Health Utilities Index in the Health and Retirement Study: Data, Imputations, and Validity—◆Duncan Ermini Leaf, University of Southern California
- 11 Improved Disease Burden Modeling from Administrative Health Care Data—◆Ralph (PhD Student) Ward, Medical University of South Carolina; Mulugeta Gebregziabher, Medical University of South Carolina; Leonard Egede, Health Equity and Rural Outreach Innovation Center; Lewis Frey, Medical University of South Carolina; Viswanathan Ramakrishnan, Medical University of South Carolina; Robert Axon, Medical University of South Carolina
- 12 Impact of Medicaid Prior Authorization Policies on the Use of ADHD Medication Among Preschool-Aged Children—◆Melissa Danielson, CDC; Susanna Visser, CDC; Scott Grosse, CDC
- 13 Propensity Score Methods for Multiple and Multi-Valued Treatments and Their Interactions—◆Zirui Gu, Virginia Commonwealth University; Bassam A. Dahman, Virginia Commonwealth University

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Contributed Poster Presentations: IMS—
Contributed
 IMS

Chair(s): Genevera Allen, Rice University

- 14 The Application of Random Projection in Two-Sample Test in High Dimensions—◆Jingjing Wang
- 15 Efficient Methods in Generalized Mean-Reverting Processes with Change-Point—◆Severien Nkurunziza, University of Windsor; Pei Patrick Zhang, University of Windsor

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Contributed Poster Presentations: Mental Health
Statistics Section—Contributed

Mental Health Statistics Section, International Chinese Statistical Association

Chair(s): Genevera Allen, Rice University

- 16 Modeling Correlated Longitudinal Processes, with One Process Partially Observed—◆Shuyang Li, University of California at Davis; Laurel A. Beckett, University of California at Davis
- 17 Identify a Subset of Items That Predict the Total Score of a Psychological Assessment Measure—◆Tzu-Cheg Kao, Uniformed Services University of the Health Sciences; James A. Naifeh, Uniformed Services University of the Health Sciences; Carol Fullerton, Uniformed Services University of the Health Sciences; Robert Ursano, Uniformed Services University of the Health Sciences
- 18 Variability of Inter-Region Connectivity Measures in Resting-State fMRI—◆Alejandro Hernandez, University of Tulsa; Maria Puhl, University of Tulsa; Kyle Simmons, Laureate Institute for Brain Research; William Coberly, University of Tulsa
- 19 On Choosing Optimal Diagnostic Short-Form Scales from Unidimensional Criteria Sets: Application to Alcohol Use Disorder Diagnosis—◆Cheryl Raffo, Columbia University; Melanie Wall, Columbia University

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Contributed Poster Presentations: Section on
Statistics in Epidemiology—Contributed

Section on Statistics in Epidemiology

Chair(s): Genevera Allen, Rice University

- 20 Estimation and Modeling of Partnership Transition Probabilities and Concurrency Patterns: Recasting Duration Data in a Markov Chain and Logistic Regression Framework—◆Yared Gurmu; Nuala McGrath, University of Southampton; Victor De Gruttola, Harvard

- 21 Physical Inactivity Displays a Mediator Role in the Association of Diabetes and Poverty in the Presence of Spatial Heterogeneity—◆Xiao Li, The University of Texas Health Science Center at Houston; Lung-Chang Chien, The University of Texas School of Public Health at San Antonio; Amanda Staudt, The University of Texas School of Public Health at San Antonio; Xuehan Ren, The University of Texas Health Science Center at Houston
- 22 Effect of Physically Demanding Jobs on Arthritis Among Older U.S. Workers: A Propensity Score Matching Approach—◆Jia Li, CDC/NIOSH; Walter Alarcon, CDC/NIOSH; Toni Alterman, CDC/NIOSH; Sharon Silver, CDC/NIOSH; Marie Sweeney, CDC/NIOSH
- 23 Implication of Missing Data in the Study of Association Between Immigrant Status and MRSA/MSSA Recurrence—◆Paola Martins, UFF; Nancy Piper Jenks, Clinical Directors Network; Caroline Jiang, Rockefeller University; Brianna D’Orazio, Clinical Directors Network; Jonathan N. Tobin, Clinical Directors Network; Joel Correa da Rosa, Rockefeller University
- 24 Combining Statistics from Two National Complex Surveys to Estimate Injury Rates Per Hour Exposed and Variance by Activity in the U.S.—◆Tinchi Lin, Liberty Mutual Research Institute for Safety; Helen Wellman, Liberty Mutual Research Institute for Safety; Joanna Willetts, Liberty Mutual Research Institute for Safety; Santosh Verma, Liberty Mutual Research Institute for Safety
- 25 Correlating a Right-Censored Risk Factor with a Neuropathology Finding Subject to Missing Values—◆Richard Kryscio, University of Kentucky; Erin L. Abner, University of Kentucky; Peter T. Nelson, University of Kentucky; David Fardo, University of Kentucky; Frederick A. Schmitt, University of Kentucky
- 26 Teen Birth Rates in the U.S., 2007-2012—◆Diba Khan, CDC/NCHS; Lauren Rossen, CDC/NCHS; Brady Hamilton, CDC/NCHS; Yulei He, CDC; Rong Wei, CDC/NCHS
- 27 Seasonal Statistical Analysis of Valley Fever in Kern County, California—◆Bilin Zeng, California State University at Bakersfield; Jessica Struck, California State University at Bakersfield; Samantha Alaniz, California State University at Bakersfield; Alondra Valenzuela, California State University at Bakersfield; Carlos Romero, California State University at Bakersfield
- 28 Actigraphy-Based Sleep Parameters: The Methodology for Data Scoring and Derivation—◆Desta Fekedulegn, CDC/NIOSH; Cecil Burchfiel, CDC/NIOSH; Claudia Ma, CDC/NIOSH; Tara Hartley, CDC/NIOSH; Luenda Charles, CDC/NIOSH; Michael Andrew, CDC/NIOSH; John Violanti, SUNY Buffalo
- 29 Estimating the Causal Effect of Lowering Particulate Matter Levels Below the National Ambient Air Quality Standards on Health Outcomes—◆Maggie Makar, MIT; Joseph Antonelli, Harvard T.H. Chan School of

- Public Health; Qian Di, Harvard T.H. Chan School of Public Health; Joel Schwartz, Harvard T.H. Chan School of Public Health; David Cutler, Harvard; Francesca Dominici, Harvard T.H. Chan School of Public Health
- 30 **Maximum Likelihood or Generalized Estimating Equations: A Comparison in the Context of Proportional Odds Model for Ordinal Response**—◆Xinkai Zhou, Statistics Core@UCLA
- 31 **Generalized Latent Trait Models for Multiple Correlated Health Endpoints**—◆Chris Liu, University of Michigan
- 32 **A Sequential Testing Procedure to Find the Time-to-Population Cure**—◆Yueh Wang; Hung Hung, National Taiwan University
- 33 **Annual Raking and Weighting of the Traumatic Brain Injury Model Systems Database**—◆Jessica McKinney Ketchum, Craig Hospital; Jeffrey Cuthbert, Sky Ridge Medical Center; Gale Whiteneck, Craig Hospital; C.B. Eagye, Craig Hospital; Cindy Harrison-Felix, Craig Hospital
- 34 **Compartmental Model Diagrams as Causal Representations in Relation to DAGs**—◆Sarah Ackley
- 35 **Nonparametric Prediction of Infectious Disease Incidence with Kernel Conditional Density Estimation**—FEvan Ray, University of Massachusetts; Krzysztof Sakrejda, University of Massachusetts-Amherst; Stephen A. Lauer, University of Massachusetts-Amherst; Nicholas G. Reich, University of Massachusetts-Amherst
- 36 **A Stochastic Search Algorithm to Find Multi-SNP Effects Using Nuclear Families**—◆David M. Umbach, National Institute of Environmental Health Sciences; Min Shi, National Institute of Environmental Health Sciences; Alison Wise, National Institute of Environmental Health Sciences; Clare Weinberg, National Institute of Environmental Health Sciences; Leping Li, National Institute of Environmental Health Sciences
- 37 **Phylogenetic Individual-Level Models: Strategies for Simulation and Inference**—◆Justin Angevaere, University of Guelph; Zeny Feng, University of Guelph; Rob Deardon, University of Calgary
- 38 **Conditions of Non-Unique Identifiers in Record Linkage Using Japanese Cohort Data Set**—◆Michikazu Nakai, National Cerebral and Cardiovascular Center; Kunihiro Nishimura, National Cerebral and Cardiovascular Center; Fumiaki Nakamura, National Cerebral and Cardiovascular Center; Yoshihiro Miyamoto, National Cerebral and Cardiovascular Center
- 39 **Detecting Change Points in Cancer Mortality Data with a Covariate**—◆Georgia Susannah Mueller-Luckey, Southern Illinois University/SLU; Steven E. Rigdon, Saint Louis University
- 40 **Quantifying Power and Bias in Cluster-Randomized Trials Using Mixed Models Versus Cluster-Level Analysis in the Presence of Missing Data: A Simulation Study**—◆Brenda Vincent, University of Arizona; Melanie L. Bell, University of Arizona
- 41 **GLiDeR: Doubly Robust Estimation of Causal Treatment Effects with the Group Lasso**—◆Brandon Koch, University of Minnesota School of Public Health; David Vock, University of Minnesota School of Public Health; Julian Wolfson, University of Minnesota
- 42 **Bayesian Tukey's Two-Dimensional Distributed Lag Model: Applications in Environmental Epidemiology**—◆Yin-Hsiu Chen, University of Michigan
- 43 **Semiparametric Mixture Models for Left-Censored and Irregularly Interval-Censored Data: Application to a Cohort Assembled from Electronic Health Records**—◆Noorie Hyun, National Cancer Institute; Li Cheung, The George Washington University; Qing Pan, The George Washington University; Mark Schiffman, National Cancer Institute; Hormuzd Katki, National Cancer Institute
- 376** **Contributed Poster Presentations: Section on Statistics in Genomics and Genetics—Contributed** **CC-Hall F1 West**
Section on Statistics in Genomics and Genetics
Chair(s): Genevera Allen, Rice University
- 44 **Whole-Genome Regression Using Data from Heterogeneous Populations by Modeling Interactions**—◆Yogasudha Veturi, University of Alabama at Birmingham; Gustavo de los Campos, Michigan State University
- 45 **High-Dimensional Cox Regression for Genome-Wide Assessment of the Prognostic Benefit of Somatic Mutations in Ovarian Cancer**—◆Brandon Butcher, University of Iowa; Patrick Breheny, University of Iowa; Donghai Dai, University of Iowa
- 46 **Application of Kappa Agreement Statistic as a Diagnostic Tool in Genetic Data Modeling**—◆Kelly Cho, MAVERIC/BWH/HMS; Hongsheng Wu, MAVERIC/WIT; Robert Lew, MAVERIC/BU
- 47 **A Model-Free Method for Detecting Disease Association Signals with Multiple Genetic Variants and Covariates**—◆Jen-Yu Lee, Feng Chia University
- 48 **A Stability Analysis of Sparse K-Means**—◆Abraham Apfel, University of Pittsburgh; Stewart J. Anderson, University of Pittsburgh
- 49 **Clustering of Omics Data in Biological Systems**—◆Min Wang, Mathematical Biosciences Institute

- 50 Optimal Burden Test for Association Between Quantitative Traits and Genotype Data with Bidirectional Correlations—◆Ting Guan; Xiaowei Wu, Virginia Polytechnic Institute and State University
- 51 BANFF: An R Package for Bayesian Network Feature Finder—◆Zhou Lan, North Carolina State University; Yize Zhao, Statistical and Applied Mathematical Sciences Institute; Jian Kang, University of Michigan; Tianwei Yu, Emory University
- 52 A Classification Model for Detecting De Novo Mutation in Primary Amenorrhea Probands—◆Fuchen Liu, Carnegie Mellon University; Kathryn Roeder, Carnegie Mellon University; Bernie Devlin, University of Pittsburgh School of Medicine; Aleksandar Rajkovic, University of Pittsburgh
- 53 For the Microbiome, Zeroes Are Definitely of Non-Zero Importance—◆Pippa Simpson, Medical College of Wisconsin; Yumei Cao, Medical College of Wisconsin; Bevan Emma Huang, Janssen R&D; Jethro Johnson, Jackson Labs; Jeffrey B. Schimmer, University of California at San Diego; Mary Holtz, Medical College of Wisconsin; George Weinstock, The Jackson Laboratory for Genomic Medicine; Erica Weinstock, The Jackson Laboratory for Genomic Medicine; Nita Salzman, Medical College of Wisconsin
- 54 Using Estimates of Population-Level Relatedness to Improve Pedigree-Based Linkage Analysis—◆Fiona Grimson, University of Washington
- 55 A Conditional Autoregressive Model for Genetic Association Analysis of Sequencing Data—◆Xiaoxi Shen; Qing Lu, Michigan State University
- 56 A MAD-Bayes Algorithm for State-Space Inference and Clustering with Application to Querying Large Collections of ChIP-Seq Data Sets—◆Kailei Chen
- 57 Challenges of Predicting Individual Risk in Genome-Wide Association Studies—◆Agnes Martine Nielsen, Technical University of Denmark; Helle Krogh Pedersen, Technical University of Denmark; Ramneek Gupta, Technical University of Denmark; Line Harder Clemmensen, Technical University of Denmark
- 58 Multicategory Classification Using High-Dimensional Predictors with Applications to Studying Effects of Rice Genome—◆Arkaprava Roy, North Carolina State University; Subhashis Ghoshal, North Carolina State University
- 59 Characterizing the Vaginal Microbiome Based on a Large Cross-Sectional Study—◆Victoria Pokhilko
- 60 The Estimation of the Association of Rare Variants and Disease in Random Effect Model—◆Jin-Hua Chen
- 61 Mathematical Modeling of Population Bottlenecks in Next-Generation Sequencing—◆Rebecca Rothwell; Sebastian Zoellner, University of Michigan; Narisu Narisu, National Institutes of Health; Mike Erdos, National Institutes of Health; Maria Eriksson, Karolinska Institutet
- 62 A Score Statistic for Testing Variance Components in the Shared Random Effects Setting with Applications to a Complex Mouse Study—◆James Xenakis, The University of North Carolina at Chapel Hill; Fei Zou, University of Florida
- 63 Regularized Efficient Score Estimation and Testing Approach in Low-Dimensional and High-Dimensional GLM—◆Lixi Yu, University of Iowa; Jian Huang, University of Iowa
- 377** **CC-Hall F1 West**
Contributed Poster Presentations: Section on Statistics in Imaging—Contributed
Section on Statistics in Imaging, International Chinese Statistical Association
Chair(s): Genevera Allen, Rice University
- 64 A Two-Step Approach to Analyze Longitudinal Structural Neuroimaging Data—◆Li Xing, Indiana University; Shanshan Li, Indiana University Fairbanks School of Public Health; Jaroslaw Harezlak, Indiana University Fairbanks School of Public Health
- 65 An Efficient and Reliable Statistical Method for Estimating Functional Connectivity in Large-Scale Brain Networks Using Partial Correlation—◆Yikai Wang, Emory University
- 66 A Bayesian Zero-Inflated Poisson Graphical Model for Identifying Functional Coactivation Patterns—◆Caprichia Jeffers, Emory University; Jian Kang, University of Michigan
- 67 Topological Tools for the Classification of Breast Cancer from Histology Images—◆Patrick Medina, Purdue University; Rebecca W. Doerge, Purdue University
- 378** **CC-Hall F1 West**
Contributed Poster Presentations: SSC—Contributed
SSC
Chair(s): Genevera Allen, Rice University
- 68 Analysis of Clustered and Biased Survival Data with Incomplete Covariates—◆Hua Shen, University of Calgary

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Contributed Poster Presentations: WNAR—
Contributed

WNAR

Chair(s): Genevera Allen, Rice University

- 69 Addressing Subject-Level Heterogeneity in Sieve Analysis of Differential Vaccine Efficacy—◆Jason Shao; Paul T. Edlefsen, Fred Hutchinson Cancer Research Center

380 CC-Hall F1 West
SPEED: Advances in Biopharmaceutical Research,
Part 2A—Contributed

Biopharmaceutical Section

Chair(s): Genevera Allen, Rice University

- 1 Generalizing Results from Randomized Trials to Target Population via Weighting Methods Using Propensity Score—◆Ziyue Chen, The Ohio State University; Eloise Kaizar, The Ohio State University
- 2 Bone Marrow Stromal Cell Therapy for Ischemic Stroke: A Meta-Analysis of Randomized Control Animal Trials—◆Qing Wu, Nevada Institute of Personalized Medicine; Yuexiang Wang, Mayo Clinic; Bart Demaerschalk, Mayo Clinic; Saruna Ghimire, Nevada Institute of Personalized Medicine; Kay Wellik, Mayo Clinic; Wenchun Qu, Mayo Clinic
- 3 Application and Practical Consideration of Rank-Preserving Structural Failure Time (RPSFT) Model for Correcting Overall Survival in ‘Treatment Crossover’ Studies—◆Jie Gao, Gilead Sciences; Oksana Gurtovaya, Gilead Sciences; Julie Huang, Gilead Sciences; Guan Xing, Gilead Sciences
- 4 Stepped Wedge Cluster Randomized Controlled Trials with Two Layers of Clustering: Designs and Comparisons of Power—◆Ranran Dong, The Ohio State University; Abigail Shoben, The Ohio State University
- 5 On the Use of Nonparametric Tests for Comparing Immunological Reverse Cumulative Distribution Curves (RCDCs)—◆Lihan Yan, FDA; Bob Small, Sanofi Pasteur; Ayca Ozol-Godfrey, Sunovion Pharmaceuticals
- 6 Selecting Cutoffs for Profile-Based Propensity Score Stratified Randomization—◆Andrew Magyar, Allergan; Jihao Zhou, Allergan
- 7 Impact of Mis-Specified Prior on the Bayesian Dose-Finding Method in Phase I Cancer Trials—◆Lixia Pei, Janssen R&D; Kevin Liu, Janssen R&D; Hong Tian, Janssen R&D
- 8 Covariate Adjustment for Logistic Regression Analysis of Binary Clinical Trial Data—◆Honghua Jiang; Pandurang Kulkarni, Eli Lilly and Company; Craig

Mallinckrodt, Eli Lilly and Company; Linda Shurzinske, Eli Lilly and Company; Geert Molenberghs, Universiteit Hasselt; Ilya Lipkovich, Quintiles

- 9 Improving Vaccine Inventory Utilization Using R-Based Statistical Heuristic Algorithm—◆Hesham Fahmy, Merck
- 10 Value-Driven Decision Making at Late Stage of Drug Development: Statistical Simulation Approach—◆Masanori Ito, Astellas Pharma; Hideki Hirooka, Astellas Pharma

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SPEED: Epidemiological Research, Part 2A—
Contributed

Section on Statistics in Epidemiology

Chair(s): Genevera Allen, Rice University

- 11 Confidence Intervals Construction of Difference of Proportions Based on Correlated Bilateral Data—◆Zhengyu Yang, SUNY Buffalo; Xiaobin Liu, SUNY Buffalo; Chang-Xing Ma, SUNY Buffalo
- 12 Validation of Sudden Cardiac Death Algorithm—◆Zoe Bider-Canfield, Kaiser Permanente Southern California; Shuhua Liang, Kaiser Permanente Southern California; T. Craig Cheetham, Kaiser Permanente Southern California
- 13 Trends in Cardiovascular Disease Risk Factors by Obesity Level in Adults in the U.S.—◆Reena Gitanjali Singh, York University
- 14 Effect of Birth Weight on Childhood Allergy with Repeatedly Measured Confounder Using Joint and Marginal Modeling—◆Ayano Takeuchi, Keio University; Mari Oba, Toho University; Ikuko Funatogawa, The Institute of Statistical Mathematics
- 15 Adaptive Distributed Lag Models—◆Alastair Rushworth, University of Strathclyde
- 16 Two-Level Joint Model for Imputing Subject-Level Variables of Mixed Type—◆David Kline, The Ohio State University; Rebecca Andridge, The Ohio State University; Eloise Kaizar, The Ohio State University
- 17 Mediation Analysis for Longitudinal Data Using Regression Calibration When the Mediator Is Measured with Error—◆John M. Ssenkusu, University of Minnesota; David Vock, University of Minnesota School of Public Health
- 18 Optimal Point Estimates and Credible Intervals for Ranking County Health Indices—◆Ronald Gangnon, University of Wisconsin; Patricia Jewett, University of Wisconsin-Madison
- 19 An Extension to Bayesian Generalized Linear Mixed Effects Models for Household Tuberculosis Transmission—◆Avery McIntosh

20 Childhood Obesity Modeling with a Semi-Markov Process—◆Richard Seymour, U.S. Air Force

382 **SPEED: Statistics for Health and Health Policy, Part 2A—Contributed** CC-Hall F1 West

Health Policy Statistics Section

Chair(s): Genevera Allen, Rice University

- 21 Multiple Imputation for Meta-Analysis: A Comparison of Existing Methods—◆Deborah Kunkel, The Ohio State University; Eloise Kaizar, The Ohio State University
- 22 Prediction of Lung Cancer Risk in the CT Arm of the National Lung Screening Trial—◆Menghan Hu, Brown University; Fenghai Duan, Brown University
- 23 Matching Estimators for Causal Effects with Multiple Treatments—◆Anthony Scotina; Roeer Gutman, Brown University
- 24 Skewed Variable Selection for Revealing Novel Sleep Phenotypes—◆Meredith Wallace, University of Pittsburgh; Daniel J. Buysse, University of Pittsburgh; Anne Germain, University of Pittsburgh; Satish Iyengar, University of Pittsburgh
- 25 Integrative Analysis of Multi-Platform Genomics Data—◆Shisi He, Georgetown University; Ao Yuan, Georgetown University
- 26 Depicting Activity Profiles via Multilevel Functional Principal Component Analysis: Association and Prediction—◆Jiarui Lu, University of Pennsylvania; Lihong Cui, National Institute of Mental Health; Kathleen R. Merikangas, National Institute of Mental Health; Haochang Shou, University of Pennsylvania
- 27 Tumor Response in Patients Receiving No Anti-Cancer Therapy: A Meta-Analysis with Incomplete Multinomial Regression—◆Charity Morgan, University of Alabama at Birmingham; Pooja Ghatalia, University of Alabama at Birmingham; Guru Sonpavde, University of Alabama at Birmingham
- 28 Sensitivity Analysis for an Unobserved Moderator in RCT-to-Target-Population Generalization of Treatment Effect—Cyrus Ebnesaajjad, Johns Hopkins Bloomberg School of Public Health; ◆Ben Ackerman, Johns Hopkins Bloomberg School of Public Health; Trang Q. Nguyen, Johns Hopkins Bloomberg School of Public Health; Elizabeth Stuart, Johns Hopkins Bloomberg School of Public Health
- 29 Ranking Hospitals by Direct Standardization to Prioritize Prevention Efforts in Hospital-Associated Infections—◆Minn Soe
- 30 Basic Versus Advanced Life Support Ambulances for Out-of-Hospital Medical Emergencies—◆Prachi

Sanghavi, The University of Chicago; Anupam B. Jena, Harvard Medical School; Joseph P. Newhouse, Harvard; Alan M. Zaslavsky, Harvard Medical School

Contributed Poster Presentations 11:35 a.m. – 12:20 p.m.

383 **SPEED: Advances in Biopharmaceutical Research, Part 2B—Contributed** CC-Hall F1 West

Biopharmaceutical Section

Chair(s): Genevera Allen, Rice University

- 1 D-Optimal Designs for Multinomial Logistic Models—◆Xianwei Bu, UIC; Jie Yang, University of Illinois at Chicago
- 2 Multiple Comparison Techniques in Dose-Response and Toxicity Studies—◆Lucy Kerns, Youngstown State University; Flora Opoku Asantewaa, Youngstown State University
- 3 Nonparametric Sensitivity Analysis of Longitudinal Clinical Trials with Missing Data and Its Application to Rexulti NDA Approval—◆Peter Zhang, Otsuka Pharmaceutical Development & Commercialization; Xiaoshu Feng, Otsuka Pharmaceutical Development & Commercialization
- 4 Comparisons of Statistical Approaches and Procedures in Building Predicting Models to Drug Response from SNPs Through Simulation—◆Wencan Zhang, Takeda Development Center; Pingye Zhang, University of Southern California; Feng Gao, Takeda
- 5 Finding the ‘Missing Heritability’ in Combined Phase 2 and Subset Phase 3 Analyses—◆Knut Wittkowski, Rockefeller University; Benedetta Bigio, Rockefeller University
- 6 The Analysis of Impact of Difference in Duration of Treatment—◆Jiejun Du, Merck
- 7 Progression-Free Survival: How Often You Look Matters—◆Jingyi Liu, Eli Lilly and Company; Yong Lin, Eli Lilly and Company; Shuang He, Eli Lilly and Company
- 8 How Do We Interpret Restricted Mean Survival Time Difference in Clinical Trials?—◆Xizotian Zhu, AbbVie; Rick Chappell, University of Wisconsin-Madison
- 9 Multiple Testing Procedures Under Group Sequential Design—◆Aiying Chen, Temple University
- 10 Use of the Treatment-Free Interval in Driving Decision Making in Cancer Care: A Late-Phase Example—◆Suddhasatta Acharyya, Novartis; Ashok Panneerselvam, Novartis Oncology; Sofia Paul, Novartis

384 CC-Hall F1 West
SPEED: Epidemiological Research, Part 2B—Contributed

Section on Statistics in Epidemiology

Chair(s): Genevera Allen, Rice University

- 11 **Multiple-Step Approach to Analyze Missing Data Under Missing-Not-at-Random Assumptions**—◆Lin Tian, CDC; Stuart K. Shapira, CDC; Laura A. Schieve, CDC
- 12 **Association Tests Using Common and Rare Variants**—◆Renfang Jiang, Michigan Technological University; Jianping Dong, Michigan Technological University; Yilin Dai, Michigan Technological University
- 13 **An Approach to Combining Stratification and Covariate Adjustment Methods**—◆Zhibao Mi, VA CSPCC; Joseph Collins, VA CSPCC
- 14 **Multi-Locus Test and Correction for Confounding Effects in Genome-Wide Association Studies**—◆Donglai Chen, Purdue University; Jun Xie, Purdue University; Chuanhai Liu, Purdue University
- 15 **Comparing Intensive Care Unit (ICU) Telemedicine in the Veterans Health Administration (VHA)**—◆Amy O'Shea, University of Iowa Carver College of Medicine; Mary Vaughan Sarrazin, University of Iowa Carver College of Medicine; Heather Schacht Reisinger, University of Iowa Carver College of Medicine
- 16 **Estimating Associations by the Reconstructed Population Method**—◆Diana Lam, University of Maryland Baltimore County; William Blackwelder, University of Maryland Baltimore County
- 17 **Postoperative Neonatal Mortality Prediction Using Superlearning**—◆Jennifer N. Cooper, Nationwide Children's Hospital Research Institute; Katherine J. Deans, Nationwide Children's Hospital Research Institute; Peter C. Minneci, Nationwide Children's Hospital Research Institute
- 18 **Adjusting for Noncompliance in Randomized Clinical Trials When Noncompliance Must Be Estimated from a Biomarker**—◆Jeffrey Boatman; David Vock, University of Minnesota School of Public Health; Joseph S. Koopmeiners, University of Minnesota
- 19 **Estimating the Risk of West Nile Virus Transmission Through Tissue Transplantation**—◆Ryan Hicks, Colorado State University
- 20 **The Effect of World Trade Center Exposure on the Timing of Aerodigestive Diagnoses in New York City Firefighters: 2001–2011**—◆Charles Hall, Albert Einstein College of Medicine; Xiaoxue Liu, Montefiore Medical Center; Rachel Zeig-Owens, Montefiore Medical Center; Jessica Weakley, Montefiore Medical Center; Mayris P. Webber, Montefiore Medical Center; Theresa Schwartz, Montefiore Medical Center; David J. Prezant, Fire Department of the City of New York

385 CC-Hall F1 West
SPEED: Statistics for Health and Health Policy, Part 2B—Contributed

Health Policy Statistics Section

Chair(s): Genevera Allen, Rice University

- 21 **Asymptotic Properties of Hazard Rate Estimator in Censored Linear Regression**—◆Fuxia Cheng, Illinois State University
- 22 **Matching and Regression to the Mean in the Difference-in-Differences Design**—◆Jamie R. Daw, Harvard; Laura Anne Hatfield, Harvard Medical School
- 23 **Social Network Analysis of Health Care Cost: Local Variations Among Medicaid Providers Seeing Diabetic Medicaid Patients in Major U.S. Cities**—◆Shun Zhang, NORC at the University of Chicago; George Rust, Morehouse School of Medicine; Zhongyuan Yu, Stevens Institute of Technology; William Rouse, Stevens Institute of Technology
- 24 **Applications of Multidimensional Time Model for Probability Cumulative Function for Parameter Evaluation and Risk Reduction**—◆Michael Fundator
- 25 **Real-Time Modeling of Variation in Longitudinal Momentary Self-Report Data**—◆Trent L. Lalonde, University of Northern Colorado; Elysia Clemens, University of Northern Colorado
- 26 **Minimum Predictive Risk Subspace Selection in Misspecified Quantile Regressions**—◆Alexander Giessing, University of Michigan; Xuming He, University of Michigan
- 27 **Assessment of Meals on Wheels Program Efficacy via Record Linkage with Medicare Claim Files**—◆Mingyang Shan, Brown University; Roee Gutman, Brown University
- 28 **Predicting Class Membership Using Imputation Methods for Clinical Variable for Hepatocellular Carcinoma (HCC)**—◆Amrina Ferdous, Washington State University; Nairanjana Dasgupta, Washington State University
- 29 **Analysis of Interval Data**—◆Muzi Zhang, Penn State University
- 30 **Methods for Outlier Detection Using Relative Abundance in Targeted RNASeq Applications**—◆Bonnie LaFleur; Shripad Sinari, University of Arizona; Dominic LaRoche, HTG Molecular Diagnostics; Kurt Michels, HTG Molecular Diagnostics; Dean Billheimer, University of Arizona

Speaker with Lunch 12:30 p.m. – 1:50 p.m.

386 CC-W476
**Economic Outlook Luncheon (Added Fee)—
 Speaker with Lunch**
 Business and Economic Statistics Section
 Organizer(s): Ana Aizcorbe
 TL10 Implications of Slowing U.S. Growth for the
 Near-Term Outlook—◆Robert Gordon,
 Northwestern University

Roundtables with Lunch 12:30 p.m. – 1:50 p.m.

387 CC-W375a
**Section on Bayesian Statistical Science P.M.
 Roundtable Discussion (Added Fee)**
 Section on Bayesian Statistical Science
 Organizer(s): Tanzy Love, University of Rochester
 TL11 Why Popular Bayesian Nonparametric Methods
 Fail for High-Dimensional Clustering Tasks—
 ◆Rebecca Steorts, Duke University

388 CC-W375a
**Biopharmaceutical Section P.M. Roundtable
 Discussion (Added Fee)**
 Biopharmaceutical Section
 Organizer(s): Jennifer Gauvin, Novartis
 TL12 Statistical Issues in the Design and Analysis of
 Rheumatology Trials—◆Yongman Kim, FDA
 TL13 Unmet Medical Needs: Can We Accelerate Drug
 Approval and Marketing Through Expansion
 Cohort Trials?—◆Soumi Lahiri, GlaxoSmithKline;
 Teri Ashton, GlaxoSmithKline; Ohad Amit,
 GlaxoSmithKline
 TL14 Challenges in Designing Comparative Clinical
 Studies for Biosimilar Product—◆Yun Wang,
 FDA; Lei Nie, FDA; Thomas Gwise, FDA;
 Rajeshwari Sirdhara, FDA
 TL15 The Impact of Emerging Science and Technology
 on Biopharma Statisticians—◆Satrajit
 Roychoudhury, Novartis

389 CC-W375a
**Section on Statistical Computing P.M. Roundtable
 Discussion (Added Fee)**
 Section on Statistical Computing
 Organizer(s): Eric Laber, North Carolina State University
 TL16 Recent Developments in Machine Learning
 and Biomedicine—◆Michael R. Kosorok, The
 University of North Carolina at Chapel Hill

TL17 Big Data, Computing, and Statistics—Lexin Li,
 University of California at Berkeley

390 CC-W375a
**Section on Statistical Education P.M. Roundtable
 Discussion (Added Fee)**
 Section on Statistical Education
 Organizer(s): Dalene K. Stangl, Duke University

TL18 Making a Powerful First-Day Impression—
 ◆André Michelle Lubecke, Lander University
 TL19 Introductory Statistics in Two-Year and
 Four-Year Colleges: More Similar (and More
 Different) Than Many People Realize—◆Brian
 Kotz, Montgomery College

TL20 Do We Need a Journal for Undergraduate
 Statistical Research?—Katherine St. Clair,
 Carleton College; ◆Miles Ott,
 Augsburg College

TL21 Practical Considerations for Teaching Statistics
 in a Hybrid, Flipped, or Online Format—◆Jane
 Monaco, The University of North Carolina
 Gillings School of Global Public Health; Todd
 Schwartz, The University of North Carolina
 at Chapel Hill

391 CC-W375a
**Section on Statistics in Epidemiology P.M.
 Roundtable Discussion (Added Fee)**
 Section on Statistics in Epidemiology
 Organizer(s): Scarlett Bellamy, University of Pennsylvania

TL22 Adaptive Randomized Trial Designs: New
 Methods and Software—◆Michael Rosenblum,
 Johns Hopkins Bloomberg School
 of Public Health

392 CC-W375a
**Section on Statistical Graphics P.M. Roundtable
 Discussion (Added Fee)**
 Section on Statistical Graphics
 Organizer(s): Kenneth E. Shirley, AT&T Labs Research

TL23 The Use of Color in Statistical Graphics—◆Kevin
 Keen, University of Northern British Columbia

393 CC-W375a
**Health Policy Statistics Section P.M. Roundtable
 Discussion (Added Fee)**
 Health Policy Statistics Section
 Organizer(s): Ruth Etzioni, Fred Hutchinson Cancer Research
 Center
 TL24 Calling All Statisticians to Consider Becoming
 Hospital Board of Director: An Impactful Way to

Transform Health Care—◆Madhu Mazumdar, Icahn School of Medicine at Mount Sinai

- TL25 Should Quality Ratings Be Adjusted for Effects of Patient Socioeconomic Characteristics?—◆Alan M. Zaslavsky, Harvard Medical School

394 CC-W375a
Mental Health Statistics Section P.M. Roundtable Discussion (Added Fee)

Mental Health Statistics Section

Organizer(s): Booil Jo, Stanford University

- TL26 Machine Learning for Exploratory Analyses of Psychological Data—◆Gitta Lubke

- TL27 Learning About Mechanisms: Causal Mediation Analysis Using R—◆Tepppei Yamamoto, MIT

395 CC-W375a
Quality and Productivity Section P.M. Roundtable Discussion (Added Fee)

Quality and Productivity Section

Organizer(s): Anne Hansen, Intel Corporation

- TL28 Break the Chicken and Egg Cycle: Increasing an Organization's Analytic Maturity—◆Sarah Kalicin, Intel Corporation

396 CC-W375a
Survey Research Methods Section P.M. Roundtable Discussion (Added Fee)

Survey Research Methods Section

Organizer(s): Tom Krenzke, Westat

- TL29 Machine Learning Applications for Survey Design, Collection, and Adjustment: Going Beyond the Trees to See Clusters, Forests, and Neighbors—◆Trent Buskirk, Marketing Systems Group

Invited Sessions 2:00 p.m. – 3:50 p.m.

397 CC-W196b
■ Innovative Trial Designs and Data Analysis Models in Rare Diseases—Invited

Biopharmaceutical Section, International Chinese Statistical Association

Organizer(s): Freda Cooner, FDA/CDER/OTS/OB/DB2

Chair(s): Freda Cooner, FDA/CDER/OTS/OB/DB2

- 2:05 p.m. Efficient Use of Deficient (Limited) Information: A Rare Disease Perspective—◆Sandeep M. Menon, Pfizer

- 2:20 p.m. The Statisticians Role as a Strategic Drug Developer in Rare Disease Indications—◆Jeff Palmer, Pfizer

- 2:35 p.m. Case Studies for Biologics Trials in Very Rare Diseases—◆John Scott, FDA

- 2:50 p.m. Issues and Solutions Encountered in the Design of Trials for Rare Diseases—◆Brenda Gaydos, Eli Lilly and Company; Karen Price, Eli Lilly and Company; Bill Prucka, Eli Lilly and Company

- 3:05 p.m. Hierarchical Bayesian Approaches for Clinical Trials in Orphan and Pediatric Diseases—◆Cynthia Basu, University of Minnesota; Freda Cooner, FDA/CDER/OTS/OB/DB2; Ram Tiwari, FDA/CDER/OT/OB; Bradley Carlin, University of Minnesota

- 3:20 p.m. Disc: Amy Xia, Amgen

- 3:35 p.m. Floor Discussion

398 CC-W183b
Recent Developments in Survey Sampling: Session in Honor of Graham Kalton's 80th Birthday—Invited

Survey Research Methods Section

Organizer(s): Keith F. Rust, Westat/Joint Program in Survey Methodology

Chair(s): Keith F. Rust, Westat/Joint Program in Survey Methodology

- 2:05 p.m. Practical Issues Related to Model-Based Small Area Estimation—◆J.N.K. Rao, Carleton University

- 2:30 p.m. Recent Developments in Survey Design for Rare and Hard-to-Survey Populations—◆Steven G. Heeringa, University of Michigan

- 2:55 p.m. Recent Developments in Fractional Imputation—◆Wayne Fuller, Iowa State University

- 3:20 p.m. Disc: Graham Kalton, Westat

- 3:40 p.m. Floor Discussion

399 CC-W187a
● Estimation and Inference for Massive Data Sets—Invited

IMS, Royal Statistical Society, International Chinese Statistical Association

Organizer(s): Moulinath Banerjee, University of Michigan

Chair(s): George Michailidis, University of Florida

- 2:05 p.m. Learning High-Dimensional Discrete Multivariate Auto-Regressive Models—◆Garvesh Raskutti, University of Wisconsin-Madison

- 2:30 p.m. Sample Splitting in Non-Standard Problems—◆Bodhisattva Sen, Columbia University; Moulinath Banerjee, University of Michigan; Cecile Durot, University Paris Ouest Nanterre Defense

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 2:55 p.m. How Many Processors Do We Really Need in Parallel Computing?—◆Guang Cheng, Purdue University; Zuofeng Shang, Binghamton University
- 3:20 p.m. Disc: Moulinath Banerjee, University of Michigan
- 3:40 p.m. Floor Discussion

400 CC-W190b

■ **Assessing Instrumental Variables Assumptions in Causal Inference—Invited**

Section on Statistics in Epidemiology, Royal Statistical Society, International Chinese Statistical Association

Organizer(s): Hyunseung Kang, Stanford University

Chair(s): Hyunseung Kang, Stanford University

- 2:05 p.m. Graphical Tools to Detect and Adjust for Invalid Instruments in Mendelian Randomization—◆Jack Bowden, University of Bristol
- 2:30 p.m. Nonparametric Instrumental Variable Models for Categorical Data—◆Thomas Richardson, University of Washington; James Robins, Harvard
- 2:55 p.m. Instrumental Variable Estimation in Observational Studies—◆Miguel Hernan, Harvard
- 3:20 p.m. Disc: Dylan Small, University of Pennsylvania
- 3:40 p.m. Floor Discussion

401 CC-W181a

■ ● **The 3D Genome: How Statistics Can Help Shape It—Invited**

Committee of Representatives to AAAS

Organizer(s): Shili Lin, The Ohio State University

Chair(s): Shili Lin, The Ohio State University

- 2:05 p.m. Finding Functional Hotspots Utilizing 3D Genomes—◆Mark Segal, University of California at San Francisco
- 2:30 p.m. Chromosomal Interaction Patterns Across Multiple Human Cell Types—◆Zhaohui S. Qin, Emory University; Li Li, Emory University; Victor Corces, Emory University
- 2:55 p.m. Detecting Dynamic Long-Range Chromatin Interactions from Multiple Cell Types Hi-C Data Using a Bayesian Hierarchical Hidden Markov Random Field Model—Zheng Xu, The University of North Carolina at Chapel Hill; Guosheng Zhang, The University of North Carolina at Chapel Hill; Anthony Schmidt, University of California at San Diego; Bing Ren, University of California at San Diego; Ming Hu, New York University; ◆Yun Li, The University of North Carolina at Chapel Hill
- 3:20 p.m. TAD-Penalized 3D Modeling of Chromosomal Structure Reconstruction—Deepak Nag Ayyala,

The Jackson Laboratory for Genomic Medicine; ◆Fangyuan Zhang, Texas Tech University; Han Zhang, The Ohio State University; Shili Lin, The Ohio State University

- 3:45 p.m. Floor Discussion

402 CC-W176a

■ ● **Journal Clubs as a Teaching Venue for Health Sciences Students—Invited**

Section on Teaching of Statistics in the Health Sciences, Section on Statistical Education

Organizer(s): Judy-Anne W. Chapman, National Cancer Institute (Retired)

Chair(s): Amy Nowacki, Cleveland Clinic

- 2:05 p.m. Formal Programs Teaching Critical Appraisal in Evidence-Based Medicine—◆Stephen David Simon, University of Missouri-Kansas City
- 2:20 p.m. Transdisciplinary Fellowship Level Journal Club—◆Judy-Anne W. Chapman, National Cancer Institute (Retired)
- 2:35 p.m. Using a Journal Club to Review and Reinforce Concepts for Medical Researchers—◆Brian Healy, Massachusetts General Hospital; Amy Shui, Massachusetts General Hospital
- 2:50 p.m. Journalism in a Journal Club: The Art of Writing About Science—◆Nancy Pfenning, University of Pittsburgh
- 3:05 p.m. The Professional Melting Pot: Statisticians, Data Scientists, and Health Researchers Talk Shop to Improve Public Well-Being—◆Nicholas Beyler, Mathematica Policy Research; Fei Xing, Mathematica Policy Research
- 3:20 p.m. Disc: Peter B. Imrey, Cleveland Clinic
- 3:35 p.m. Floor Discussion

403 CC-W196a

■ ● **New Methods for Detecting Sparse and Weak Effects in Genetic/Genomic Data—Invited**

ENAR

Organizer(s): Zheng Ke, The University of Chicago

Chair(s): Jiashun Jin, Carnegie Mellon University

- 2:05 p.m. Goodness-of-Fit Statistics and Testing Sparse Normal Means Revisited—◆Jon A. Wellner, University of Washington
- 2:30 p.m. A Geometric Comparison of the Rejection Regions of Popular Tests in Genetic Epidemiology—Ian Barnett, Harvard; Xihong Lin, Harvard T.H. Chan School of Public Health; ◆Zhonghua Liu, Harvard
- 2:55 p.m. Adaptive Surrogate Confounding Adjustment in Genomic Mediation Analysis and an Application

to GTE_x Data—◆Lin Chen, The University of Chicago; Fan Yang, The University of Chicago; Brandon Pierce, The University of Chicago

3:20 p.m. Detecting Rare and Weak Spikes in Large Covariance Matrices—◆Zheng Ke, The University of Chicago

3:45 p.m. Floor Discussion

404 CC-W185d ■ ● Recent Developments in the Study of Social Networks—Invited

International Indian Statistical Association

Organizer(s): Sanjay Chaudhuri, National University of Singapore

Chair(s): Sanjay Chaudhuri, National University of Singapore

2:05 p.m. Some Applications of Graph Mixtures for Social Network Analysis—◆Carter Tribble Butts, University of California at Irvine

2:35 p.m. Alternatives to Exponential-Family Models for Social Networks—◆Mark Stephen Handcock, University of California at Los Angeles

3:05 p.m. Nonparametric Network Summaries—◆Sofia Olhede, University College London

3:35 p.m. Floor Discussion

405 CC-W196c ■ ● Statistical Challenges in the Analysis of Single-Cell RNA-Seq Data—Invited

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

Organizer(s): Rafael A. Irizarry, Dana-Farber Cancer Institute

Chair(s): Rafael A. Irizarry, Dana-Farber Cancer Institute

2:05 p.m. MAST: A Novel Statistical Framework for Assessing Transcriptional Changes and Characterizing Heterogeneity in Single-Cell RNA-Seq Data—◆Raphael Gottardo, Fred Hutchinson Cancer Research Center

2:30 p.m. Using Single-Cell Genomics to Study Early Development—◆John Marioni, EMBL-European Bioinformatics Institute

2:55 p.m. Learning the 'Metadata' of the Cell: Inferring Cellular Phenotypes with Single-Cell Genomics—◆Rahul Satija, New York Genome Center

3:20 p.m. On the Widespread and Critical Impact of Systematic Bias and Batch Effects in Single-Cell RNA-Seq Data—◆Stephanie C. Hicks, Dana-Farber Cancer Institute/Harvard T.H. Chan School of Public Health; Mingxiang Teng, Dana-Farber Cancer Institute/Harvard T.H. Chan School of Public Health; Rafael A. Irizarry, Dana-Farber Cancer Institute

3:45 p.m. Floor Discussion

406 CC-W180 ■ ● Recent Advances in High-Dimensional Statistics and Computational Methods—Invited

Section on Statistical Learning and Data Science, Section on Statistics in Imaging

Organizer(s): Dan Yang, Rutgers University

Chair(s): Po-Ling Loh, University of Pennsylvania

2:05 p.m. Oracle Inequalities for Network Models and Sparse Graphon Estimation—Alexandre Tsybakov, ENSAE; ◆Olga Klopp, University Paris 10/CREST; Nicolas Verzelen, INRA

2:25 p.m. Bilinear Regression with Matrix Covariates in High Dimensions—◆Dan Yang, Rutgers University; Dong Wang; Hongtu Zhu, The University of North Carolina at Chapel Hill; Haipeng Shen, The University of Hong Kong

2:45 p.m. Convex Regularization for High-Dimensional Tensor Regression—◆Ming Yuan, University of Wisconsin; Garvesh Raskutti, University of Wisconsin-Madison

3:05 p.m. Why Do Statisticians Treat Predictors as Fixed? A Conspiracy Theory—◆Andreas Buja, The Wharton School; Richard Berk, The Wharton School; Lawrence D. Brown, University of Pennsylvania; Edward I. George, The Wharton School; Emil Pitkin, The Wharton School; Mikhail Traskin, Amazon.com; Linda Zhao, The Wharton School; Kai Zhang, The University of North Carolina at Chapel Hill

3:25 p.m. Sum of Squares Lower Bounds for Hidden Clique and Hidden Submatrix Problems—◆Yash Deshpande, Stanford University

3:45 p.m. Floor Discussion

407 CC-W179a ■ Interactive Visualizations and Web Applications for Analytics—Invited

Section on Statistical Graphics, Section on Statistics in Imaging, Committee on Applied Statisticians

Organizer(s): Ramnath Vaidyanathan, Alteryx

Chair(s): Heike Hofmann, Iowa State University

2:05 p.m. Radiant: A Platform-Independent Browser-Based Interface for Business Analytics in R—◆Vincent Nijs, Rady School of Management

2:20 p.m. Rbokeh: An R Interface to the Bokeh Plotting Library—◆Ryan Hafen, Hafen Consulting

2:35 p.m. Composable Linked Interactive Visualizations in R with Htmlwidgets and Shiny—◆Joseph Cheng, RStudio

2:50 p.m. Papayar: A Better Interactive Neuroimage Plotter in R—◆John Muschelli, The Johns Hopkins University

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 3:05 p.m. Interactive and Dynamic Web-Based Graphics for Data Analysis—◆Carson Sievert, Iowa State University
- 3:20 p.m. HTML Widgets: Interactive Visualizations from R Made Easy!—◆Yihui Xie, RStudio; Ramnath Vaidyanathan, Alteryx
- 3:35 p.m. Floor Discussion

408 CC-W185bc

Recent Developments in Factor Models and Stochastic Regressions of Multivariate Time Series—Invited

International Chinese Statistical Association

Organizer(s): Hsin-Cheng Huang, Institute of Statistical Science, Academia Sinica

Chair(s): Zhiliang Ying, Columbia University

- 2:05 p.m. Common Seasonality in Multivariate Time Series—◆Daniel Peña, Universidad Carlos III de Madrid; Fabio H. Nieto, Universidad Nacional de Colombia; Dagoberto Saboyá, Universidad Nacional de Colombia
- 2:30 p.m. Multivariate Stochastic Regression Models with Dynamic Factors and Their Applications to Macroeconomic Time Series—◆Tze Leung Lai, Stanford University; Ka Wai Tsang, The Chinese University of Hong Kong; Hongsong Yuan, Shanghai University of Finance and Economics
- 2:55 p.m. Threshold Dynamic Factor Models—◆Rong Chen, Rutgers University
- 3:20 p.m. Disc: Ruey S. Tsay, The University of Chicago
- 3:40 p.m. Floor Discussion

409 CC-W375b

■ ● Bridging BFF (Bayesian/Frequentist/Fiducial) Inferences in the Era of Data Science (No. 2)—Invited

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

Organizer(s): Minge Xie, Rutgers University

Chair(s): Regina Liu, Rutgers University

- 2:05 p.m. Objective Bayes, Confidence Distributions, and Fiducial Inference—◆Brad Efron, Stanford University
- 2:30 p.m. Confidence Distribution for Bridging Posterior Probabilistic Inferences—◆Minge Xie, Rutgers University
- 2:55 p.m. Being Bayesian in a Big Data World—◆David Banks, Duke University

- 3:20 p.m. Fiducial Inference: Fisher's Big Blunder or Big Bang?—Keli Liu, Stanford University; ◆Xiao-Li Meng, Harvard
- 3:45 p.m. Floor Discussion

Invited Panels 2:00 p.m. – 3:50 p.m.

410 CC-W183a

Teaching a Statistical Consulting Course—Invited

Section on Statistical Consulting

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

Chair(s): Murray Clayton, University of Wisconsin-Madison

- Panelists:
- ◆Bruce A. Craig, Purdue University
 - ◆Michelle Wiest, University of Idaho
 - ◆Paul D. Sampson, University of Washington
 - ◆Heather S. Smith, Cal Poly
 - ◆Shelley Hurwitz, Brigham and Women's Hospital

- 3:45 p.m. Floor Discussion

Topic-Contributed Sessions 2:00 p.m. – 3:50 p.m.

411 CC-W186c

■ ● Large-Scale Variational Bayesian Inference—Topic-Contributed

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

Organizer(s): Patrick Flaherty, University of Massachusetts-Amherst

Chair(s): Patrick Flaherty, University of Massachusetts-Amherst

- 2:05 p.m. Robust Inference with Variational Bayes—◆Tamara Broderick, MIT
- 2:25 p.m. Moment-Matching Variational Inference—◆Matthew Hoffman, Adobe
- 2:45 p.m. Automatic Variational Inference in Stan—◆Alp Kucukelbir; Dustin Tran; Rajesh Ranganath, Princeton; Andrew Gelman, Columbia University; David Blei, Columbia University
- 3:05 p.m. Streaming Variational Inference for Normalized Random Measure Mixture Models—◆Nicholas Foti, University of Washington
- 3:25 p.m. Disc: Eric Xing, Carnegie Mellon University
- 3:45 p.m. Floor Discussion

412 CC-W185a**■ ● New Developments in Lifetime Data Analysis—Topic-Contributed**

SSC, International Chinese Statistical Association

Organizer(s): Yichuan Zhao, Georgia State University

Chair(s): Huayun Chen, University of Illinois at Chicago

- 2:05 p.m. Partially Linear Single-Index Regression for Accelerated Failure Time Models—◆Wenqing He, University of Western Ontario; Grace Yi, University of Waterloo
- 2:25 p.m. Recent Developments in Residual Life Inference—◆Jong-Hyeon Jeong, University of Pittsburgh
- 2:45 p.m. Challenges in the Analysis of Data from Alzheimer's Disease Studies Subject to Censoring—◆Zhezhen Jin, Columbia University
- 3:05 p.m. Some Methods for the Analysis of Informatively Censored Failure Time Data—◆Jianguo Sun, University of Missouri
- 3:25 p.m. Empirical Likelihood Inference for the Odds Ratio of Two Survival Functions Under Right Censoring—◆Yichuan Zhao, Georgia State University; Meng Zhao, Home Depot; Ian McKeague, Columbia University
- 3:45 p.m. Floor Discussion

413 CC-W178a**■ ● Bayesian Approaches to Modeling Complex Phenomena in Health Applications—Topic-Contributed**

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

Organizer(s): Mark Glickman, Harvard

Chair(s): Yang Chen, Harvard

- 2:05 p.m. Measuring the Effects of Time-Varying Medication Adherence on Health Outcomes Through Latent States—◆Mark Glickman, Harvard
- 2:25 p.m. Bayesian Modeling of Between- and Within-Subject Variances Using Mixed Effects Location Scale Models for Intensive Longitudinal Data—◆Donald Hedeker, The University of Chicago; Robin J. Mermelstein, University of Illinois at Chicago; Xiaolei Lin, The University of Chicago
- 2:45 p.m. Bayesian Approaches to Modeling Complex Phenomena in Health Applications—◆Jennifer L. Hill, New York University; Vincent Dorie, New York University; Nicole Carnegie, University of Wisconsin-Milwaukee; Masataka Harada, National Graduate Institute for Policy Studies

3:05 p.m. Estimating Number of Founder Lineages and Infection Duration of Multivariant HIV-1 Transmissions—◆Tanzy Love, University of Rochester; Sung Yong Park, University of Southern California; Elena E. Giorgi, Los Alamos National Laboratory; Wendy Mack, University of Southern California; Alan S. Perelson, Los Alamos National Laboratory; Ha Youn Lee, University of Southern California

3:25 p.m. A Novel Bayesian Multiple Imputation Framework for Massive Multivariate Data with Mixed Types of Marginals—◆Hakan Demirtas, University of Illinois at Chicago

3:45 p.m. Floor Discussion

414 CC-W176b**Assessing Effectiveness of Teaching Statistics with Simulation-Based Inference—Topic-Contributed**

Section on Statistical Education

Organizer(s): Allan Rossman, Cal Poly

Chair(s): Allan Rossman, Cal Poly

- 2:05 p.m. Traditional vs. Simulation-Based: Curricula Comparison in a Small-Scale Educational Experiment—◆Karsten Maurer, Miami University; Dennis Lock, Miami Dolphins
- 2:25 p.m. Student Gains in Conceptual Understanding in Introductory Statistics with and Without a Curriculum Focused on Simulation-Based Inference—◆Beth Chance, Cal Poly
- 2:45 p.m. Assessing the Association Between Quantitative Maturity and Student Performance in Simulation-Based and Traditional Introductory Statistics—◆Nathan Tintle, Dordt College
- 3:05 p.m. Evaluating the Statistical Thinking of Students Enrolled in a Randomization-Based Curriculum—◆Bob delMas, University of Minnesota
Disc: Webster West, North Carolina State University
- 3:45 p.m. Floor Discussion

415 CC-W175c**■ Methods and Theory for Integrative Data Analyses—Topic-Contributed**

Korean International Statistical Society, IMS

Organizer(s): Hyonho Chun, Purdue University

Chair(s): Lingsong Zhang, Purdue University

2:05 p.m. Mediation Analysis of GWAS with High-Dimensional Data-Driven Prior Information—◆Sunduz Keles, University of Wisconsin-Madison; Qi Zhang, University of

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- Nebraska-Lincoln; Constanza Rojo, University of Wisconsin-Madison
- 2:25 p.m. Integrative Analysis of Incompatible Data Sets with Different Resolutions Reveals Consistent Genetic Effects—◆Yuan Jiang, Oregon State University
- 2:45 p.m. Modified LARS Algorithm for Interaction with Heredity—◆Yongdai Kim, Seoul National University
- 3:05 p.m. Statistical Analysis of Genomics Data for Disease Susceptibility and Drug Response—◆Jun Xie, Purdue University
- 3:25 p.m. Floor Discussion

416 **CC-W184bc**
■ ● Data Challenge 2016 II—Topic-Contributed
 Government Statistics Section
 Organizer(s): Wendy Martinez, Bureau of Labor Statistics
 Chair(s): Morgan Earp, Bureau of Labor Statistics

- 2:05 p.m. Considerations That Decrease Bicycle Fatalities—◆Aaron Mehlhaff, Robert Collins, Colorado State University
- 2:25 p.m. Interactive Visualizations and Modeling of Spatio-Temporal Trends in GES and FARS Accident Data—◆Dooti Roy, University of Connecticut; Ved Deshpande, University of Connecticut; Matthew Henry Linder, University of Connecticut
- 2:45 p.m. Survey-Weighted ROC Analysis of Drowsy Driving Accidents in the General Estimates System (GES)—◆Nooreen Dabbish; Chen Chen, Prosoft Clinical; Patrick Coyle, Temple University Fox School of Business
- 3:05 p.m. Assessing the Association Between Accident Injury Severity and NCAP Car Safety Ratings—◆Ryan Jarrett, Vanderbilt University; Lucy D'Agostino McGowan
- 3:25 p.m. Disc: Roya Amjadi, Federal Highway Administration
- 3:45 p.m. Floor Discussion

417 **CC-W181b**
■ Methods and Measures: Including People with Disabilities in Surveys—Topic-Contributed
 Committee on Statistics and Disability, Scientific and Public Affairs Advisory Committee
 Organizer(s): Debra Wright, Mathematica Policy Research
 Chair(s): Debra Wright, Mathematica Policy Research

- 2:05 p.m. Comparing Prevalence Estimates for People with Disabilities in National Surveys: 2009–2014—

- Andrew Houtenville, University of New Hampshire; ◆Eric A. Lauer, University of New Hampshire
- 2:25 p.m. Toward Better Disability Items on National Surveys—◆Kimberly Phillips, UNH Institute on Disability; Andrew Houtenville, University of New Hampshire; Vidya Sundar, University of New Hampshire
- 2:45 p.m. When Every Dollar Counts: Comparing Reported Earnings of Social Security Disability Program Beneficiaries in Survey and Administrative Records—◆Holly Matulewicz, Mathematica Policy Research; David Wittenburg, Mathematica Policy Research; Jeffrey Hemmeter, Social Security Administration; Lindsay Glassman, Mathematica Policy Research; Lisa Schwartz, Mathematica Policy Research
- 3:05 p.m. A Feasibility Study of Recruiting and Maintaining a Web Panel of People with Disabilities—◆Jesse Chandler, Mathematica Policy Research
- 3:25 p.m. Disc: Matthew Brault, Harvard
- 3:45 p.m. Floor Discussion

418 **CC-W193a**
■ ● Biometrics Section Student Paper Award
Session 2—Topic-Contributed
 Biometrics Section, Biopharmaceutical Section, International Chinese Statistical Association
 Organizer(s): Dipankar Bandyopadhyay, Virginia Commonwealth University
 Chair(s): Ronald Gangnon, University of Wisconsin

- 2:05 p.m. A Class of Semiparametric Tests of Treatment Effect Robust to Measurement Error of a Confounder—◆Caleb Miles, University of California at Berkeley; Eric Tchetgen, Harvard
- 2:25 p.m. Adaptive False Negative Control Under Dependence with Genomic Applications—◆Teng Zhang, North Carolina State University; X. Jessie Jeng, North Carolina State University; Jung-Ying Tzeng, North Carolina State University
- 2:45 p.m. Sure Screening for Transelliptical Graphical Models—◆Yuxiang Xie, University of Washington; Chengchun Shi, North Carolina State University; Rui Song, North Carolina State University; Daniela Witten, University of Washington
- 3:05 p.m. Nonparametric Bayesian Learning of Heterogeneous Dynamic Transcription Factor Networks—◆Xiangyu Luo, The Chinese University of Hong Kong; Yingying Wei, The Chinese University of Hong Kong
- 3:25 p.m. ScDD: A Statistical Approach for Identifying Differential Distributions in Single-Cell RNA-Seq Experiments—◆Keegan Korthauer, Dana-Farber

Cancer Institute; Michael Newton, University of Wisconsin-Madison; Christina Kendzioriski, University of Wisconsin

3:45 p.m. Floor Discussion

419 CC-W175a

■ ● Statistical Methods for Remote Sensing—

Topic-Contributed

Section on Physical and Engineering Sciences, Quality and Productivity Section

Organizer(s): Amy Braverman, Jet Propulsion Laboratory

Chair(s): Amy Braverman, Jet Propulsion Laboratory

2:05 p.m. Remote Sensing Retrievals for Atmospheric Carbon Dioxide: Quantifying Uncertainty in the Presence of Nonlinearity and Nuisance Parameters—◆Jonathan Hobbs, Jet Propulsion Laboratory; Amy Braverman, Jet Propulsion Laboratory; Jenny Brynjarsdottir, Case Western Reserve University; Noel Cressie, University of Wollongong; Dejian Fu, Jet Propulsion Laboratory; Robert Granat, Jet Propulsion Laboratory; Michael Gunson, Jet Propulsion Laboratory; Joaquim Teixeira, University of California at Los Angeles

2:25 p.m. Statistical Downscaling for Large Spatial Data and Its Applications—◆Emily Lei Kang, University of Cincinnati; Pulong Ma, University of Cincinnati; Amy Braverman, Jet Propulsion Laboratory; Hai Nguyen, Jet Propulsion Laboratory; Noel Cressie, University of Wollongong

2:45 p.m. Spatial Data Compression via Adaptive Dispersion Clustering—◆Yuliya Marchetti, Jet Propulsion Laboratory; Hai Nguyen, Jet Propulsion Laboratory; Amy Braverman, Jet Propulsion Laboratory

3:05 p.m. Applications of Remote Sensing in Precision Agriculture at the Climate Corporation—◆Gardar Johannesson, The Climate Corporation

3:25 p.m. Disc: Bertrand Clarke, University of Nebraska

3:45 p.m. Floor Discussion

420 CC-W192c

Statistics in Imaging Section Student Paper Awards—Topic-Contributed

Section on Statistics in Imaging

Organizer(s): Ying Guo, Emory University

Chair(s): Ying Guo, Emory University

2:05 p.m. Spatial Large-Margin Angle-Based Classifier for Multi-Category Neuroimaging Data—◆Leo Yu-Feng Liu, The University of North Carolina at Chapel Hill; Yufeng Liu, The University of

North Carolina at Chapel Hill; Hongtu Zhu, The University of North Carolina at Chapel Hill

2:25 p.m. Optimal Correlation Detection with Application to Colocalization Analysis in Dual-Channel Fluorescence Microscopic Imaging—◆Shulei Wang, University of Wisconsin-Madison; Jianqing Fan, Princeton; Ming Yuan, University of Wisconsin

2:45 p.m. Spatiotemporal Mixed Modeling of Multi-Subject fMRI via Method of Moments—◆Benjamin Risk, Statistical and Applied Mathematical Sciences Institute; David Matteson, Cornell University; R. Nathan Spreng, Cornell University; David Ruppert, Cornell University

3:05 p.m. Prediction of Brain Functional Connectivity in Resting-State fMRI Data Using a Bayesian Hierarchical Model—◆Tian Dai, Emory University; Ying Guo, Emory University

3:25 p.m. Automatic Matching of Bullet Lands—◆Eric Hare, Iowa State University; Heike Hofmann, Iowa State University; Alicia Carriquiry, Iowa State University

3:45 p.m. Floor Discussion

421 CC-W187c

■ ● Nonparametric Methods for Longitudinal Data to Promote Healthy Birth, Growth, and Development—Topic-Contributed

Section on Nonparametric Statistics, International Chinese Statistical Association

Organizer(s): Hans-Georg Mueller, University of California at Davis

Chair(s): Jayson Wilbur, Metrum Research Group

2:05 p.m. Characterizing Child Growth Trajectories—◆Louise Ryan, University of Technology Sydney; Team Members, Healthy Birth, Growth and Development knowledge integration (HBGDki) Community

2:25 p.m. Curve-Matching for Child Growth and Development: A Delicate Interplay of Smart Data Processing and Statistical Principles—◆Stef van Buuren, Healthy Birth, Growth and Development knowledge integration (HBGDki) Community

2:45 p.m. Estimation of Interpretable Growth Curves—◆Jianhui Zhou, Healthy Birth, Growth and Development knowledge integration (HBGDki) Community; Yin Zhang, University of Virginia; Rashidul Haque, International Centre for Diarrhoeal Diseases Research; William A. Petri, University of Virginia; Jennie Z. Ma, University of Virginia

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 3:05 p.m. Optimal Designs for Longitudinal Studies via Functional Data Analysis—◆Hao Ji, University of California at Davis; Hans-Georg Mueller, University of California at Davis
- 3:25 p.m. Functional Data Analysis for Sparse and Irregular Longitudinal MRI Measurements in the Developing Brain—◆Xiongtao Dai, Healthy Birth, Growth and Development knowledge integration (HBGDki) Community; Hans-Georg Mueller, University of California at Davis; Jane-Ling Wang, University of California at Davis
- 3:45 p.m. Floor Discussion

422 CC-W194b

■ ● Methodological and Practical Aspects of Adaptive Model-Based Design of Clinical Trials—Topic-Contributed

Biopharmaceutical Section, International Chinese Statistical Association, Committee on Applied Statisticians

Organizer(s): Sergei Leonov, ICON Clinical Research Chair(s): Sergei Leonov, ICON Clinical Research

- 2:05 p.m. Practical Experiences with Adaptive Dose-Escalation Designs in Early-Phase Oncology Trials—◆Inna Perevozskaya, Pfizer
- 2:25 p.m. Application of Adaptive Designs to Optimize a Compound Development Program—◆Yevgen Tymofyeyev, J & J PRD
- 2:45 p.m. Interim Timing in Adaptive Two-Stage Dose-Finding Studies: What Happens to the Expected Benefit?—◆Tobias Mielke, ICON PLC
- 3:05 p.m. Disc: William Rosenberger, George Mason University
- 3:25 p.m. Disc: Cristiana Mayer, Janssen R&D
- 3:45 p.m. Floor Discussion

423 CC-W187b

■ ● Bayesian Methods for Complex Spatial Data—Topic-Contributed

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

Organizer(s): Candace Berrett, Brigham Young University

Chair(s): Candace Berrett, Brigham Young University

- 2:05 p.m. Urban Heat Risk Mapping of Houston, Texas, Using Multiple Point Patterns—◆Jacob Mortensen, Brigham Young University; Matthew J. Heaton, Brigham Young University; Olga Wilhelmi, National Center for Atmospheric Research
- 2:25 p.m. Bayesian Uncertainty Quantification for CO2 Retrieval—◆Jenny Brynjarsdottir, Case Western Reserve University; Jonathan Hobbs,

Jet Propulsion Laboratory; Amy Braverman, Jet Propulsion Laboratory

- 2:45 p.m. Spatial-Temporal Pareto Modeling of Extreme Value Data—◆Gabriel Huerta, University of New Mexico; Luis Enrique Nieto Barajas, Instituto Tecnológico Autónomo de México
- 3:05 p.m. Point Pattern Analysis of Geological Surface Features on Io—◆E. Neeley Tass, Brigham Young University; Jani Radebaugh, Brigham Young University
- 3:25 p.m. Estimating Impacts on Mortality from Multiple Pollutants—◆Kimberly Kaufeld; Montse Fuentes, North Carolina State University
- 3:45 p.m. Floor Discussion

Topic-Contributed Panels 2:00 p.m. – 3:50 p.m.

424 CC-W190a

■ ● Developing PRO Instruments in Clinical Trials: Issues, Considerations, and Solutions—Topic-Contributed

ENAR

Organizer(s): Marian M. Strazzeri, FDA

Chair(s): Laura Lee Johnson, FDA

- Panelists:
- ◆Cheryl Coon, Outcometrix
 - ◆Dennis Revicki, Evidera
 - ◆Scott Komo, FDA/CDER
 - ◆Kendra DeBusk, Genentech
 - ◆Lisa Kammerman, AstraZeneca
 - ◆Stacie Hudgens, Clinical Outcome Solutions

3:45 p.m. Floor Discussion

425 CC-W192b

■ ● Data Visualization and Power of Evidence-Driven Approaches to Addressing Social Issues in Countries in Transition—Topic-Contributed

Social Statistics Section, International Chinese Statistical Association, Scientific and Public Affairs Advisory Committee

Organizer(s): Asaph Young Chun, U.S. Census Bureau

Chair(s): Asaph Young Chun, U.S. Census Bureau

- Panelists:
- ◆Giang Nguyen, University of Iowa
 - ◆Ariel Lee, ISR Center for Science Diplomacy
 - ◆Igor Barahona, Mathematics Institute of the UNAM
 - ◆Star Ying, U.S. Department of Commerce
 - ◆Hannah Cho, ISR Center for Interdisciplinary Research

3:45 p.m. Floor Discussion

Contributed Sessions 2:00 p.m. – 3:50 p.m.426 CC-W177**■ Financial Risk Analysis—Contributed**

Section on Risk Analysis

Chair(s): Mary Louie, Verisk Analytics

- 2:05 p.m. Alternative Methods to Estimate Major Banks' Residential and Commercial Mortgage Loan Delinquency Rates for CCAR (Stress Testing) 'Baseline' Scenario—◆Vadim Melnitchouk, Metropolitan State University; Andrey Vashurin, University of Telecommunications
- 2:20 p.m. Trading Strategy Using Stock Moves Prediction and Sentiment Analysis—◆Brahim Brahim, Big Data Visualizations Inc.; Sun Makosso-Kallyth, McMaster University
- 2:35 p.m. A Two-Dimensional Poisson Autoregression with Application to Association Study of Two Financial Markets—◆Ke Wang; Haipeng Xing, SUNY Stony Brook
- 2:50 p.m. Sparse Graphical Vector Autoregression: A Bayesian Approach—◆Daniel Felix Ahelegbey, Boston University; Monica Billio, University of Venice; Roberto Casarin, University of Venice
- 3:05 p.m. Strictly Archimedean Copula with Complete Association for Multivariate Dependence Based on the Clayton Family—◆Kahadawala Cooray, Central Michigan University
- 3:20 p.m. Factors Associated with Systemic Risk: A CoVaR Approach—◆Zhiruo Liu
- 3:35 p.m. Pricing Variance Swap by Estimating Risk Neutral Density—◆Liyuan Jiang; Keren Li, University of Illinois at Chicago; Fangfang Wang, University of Illinois at Chicago; Jie Yang, University of Illinois at Chicago

427 CC-W179b**● Markov Chain Monte Carlo Approaches in Statistical Computing—Contributed**

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

Chair(s): Michael Jadoo, Bureau of Labor Statistics

- 2:05 p.m. MCMC Diagnostics Based on Kullback Leibler Divergence and Smoothing Methods—◆Anand Dixit, Iowa State University; Vivekananda Roy, Iowa State University

- 2:20 p.m. An Adaptive Exchange Algorithm for Sampling from Distribution with Doubly Intractable Normalizing Constants—◆Ick Hoon Jin, University of Notre Dame; Faming Liang, University of Florida; Qifan Song, Purdue University; Jun S. Liu, Harvard
- 2:35 p.m. Efficient Formation of Auxiliary Markov Chains for Computing the Distribution of the Number of Structured Motifs—◆Donald Martin, North Carolina State University
- 2:50 p.m. A Repulsive-Attractive Metropolis Algorithm for Multimodality—◆Hyungsuk Tak, Harvard; Xiao-Li Meng, Harvard; David A. van Dyk, Imperial College London
- 3:05 p.m. The Self-Multiset Sampler—◆Weihong Huang; Yuguo Chen, University of Illinois at Urbana-Champaign; Juan Shen, Fudan University
- 3:20 p.m. Automatic Estimation of Sobol' Indices Based on Quasi-Monte Carlo Methods—◆Lluís Antoni Jiménez Rugama, Illinois Institute of Technology; Laurent Gilquin, Université de Grenoble Alpes; Clémentine Prieur, Université de Grenoble Alpes; Elise Arnaud, Université de Grenoble Alpes; Hervé Monod, Institut National de la Recherche Agronomique; Fred Hickernell, Illinois Institute of Technology
- 3:35 p.m. MCMC Algorithms for Bayesian Inference with Stochastic Differential Equations—◆Harish S. Bhat, University of California at Merced; R. W. M. A. Madushani, University of California at Merced; Shagun Rawat, University of California at Merced

428 CC-W193b**■ Recent Challenges in -Omics Sciences—Contributed**

Biometrics Section, Biopharmaceutical Section

Chair(s): Sheng Luo, The University of Texas at Houston

- 2:05 p.m. Robust Heritability and Predictive Accuracy Estimation in Plant Breeding—◆Vanda Lourenco, Universidade Nova de Lisboa; Hans-Peter Piepho, University of Hohenheim; Joseph Ochieng Ogutu, University of Hohenheim
- 2:20 p.m. Using IMRE and Dual KS to Select MicroRNAs for Predicting Prostate Cancer—◆Yarong Yang, North Dakota State University
- 2:35 p.m. Module-Based Reconstruction of Gene Regulatory Network into Predictive Modeling for High-Dimensional Genomic Data—◆Rui Zhong, AbbVie; Xin Huang, AbbVie; Viswanath Devanarayan, AbbVie
- 2:50 p.m. PROMISE-ME: A Robust Method for Integrated Analysis of DNA Methylation, Gene Expression, and Multiple Biologically Related Clinical and Pharmacological Outcomes—

- ◆Stanley Pounds, St. Jude Children's Research Hospital; Xueyuan Cao, St. Jude Children's Research Hospital; Tong Lin, St. Jude Children's Research Hospital
- 3:05 p.m. **Relative Quantification of mRNA Expression Based on Dynamics of QRT-PCR Efficiency—**◆Inna Chervoneva, Thomas Jefferson University
- 3:20 p.m. **Detecting Genetic Interactions in Family-Based Studies—**◆Jing Huang, MD Anderson Cancer Center; Yang Ning, Princeton; Paul Scheet, MD Anderson Cancer Center; Yong Chen, University of Pennsylvania Perelman School of Medicine
- 3:35 p.m. **Evaluating Imputation Methods for Integrating Proteomics Data Sets—**Yian Chen, Moffitt Cancer Center; ◆Kate Fisher, Parexel; Eric A. Welsh, Moffitt Cancer Center; Steven Eschrich, Moffitt Cancer Center

429 **CC-W184d**
■ Statistical Analysis of Air Pollution Data—Contributed

Section on Statistics and the Environment, Section on Risk Analysis
 Chair(s): Joshua French, University of Colorado Denver

- 2:05 p.m. **Spatial Prediction of Naturally Occurring Indoor Gamma Radiation Dose Rates in Great Britain—**◆Mark Peter Little, National Cancer Institute; Pavel Chernyavskiy, National Cancer Institute; Gerald M. Kendall, University of Oxford; Philip S. Rosenberg, National Cancer Institute; Richard Wakeford, University of Manchester
- 2:20 p.m. **Assessing Regional PM_{2.5} Concentration Around Beijing—**◆Shuyi Zhang, Peking University; Song Xi Chen, Peking University/Iowa State University
- 2:35 p.m. **Bayesian Spatial Multivariate Receptor Modeling for Multisite Multipollutant Data—**◆Eun Sug Park, Texas A&M Transportation Institute; Inyoung Kim, Virginia Tech; Shuman Tan, Texas A&M Transportation Institute; Clifford Spiegelman, Texas A&M University
- 2:50 p.m. **The Positive Effects of Population-Based Preferential Sampling in Environmental Epidemiology—**◆Joseph Antonelli, Harvard T.H. Chan School of Public Health; Matthew Cefalu, RAND Corporation; Luke Bornn, Simon Fraser University
- 3:05 p.m. **Analysis of Methane Data Collected by Google Street View Vehicles—**◆Zachary Weller; Jennifer Hoeting, Colorado State University; Adam Gaylord, Colorado State University; Joe von Fischer, Colorado State University
- 3:20 p.m. **Dynamic PCA: Identifying the Relationship Between Multiple Air Pollutants—**◆Oleg

- Melnikov, Rice University; Katherine B. Ensor, Rice University; Loren Raun, Rice University
- 3:35 p.m. **A Comparison of Spatial Prediction Models for Traffic-Related Air Pollution Data—**◆Zheng Zhu; Roman Jandarov, University of Cincinnati

430 **CC-W191**
■ Longitudinal Data Analysis—Contributed
 Biometrics Section, Biopharmaceutical Section
 Chair(s): Charles Smith, North Carolina State University

- 2:05 p.m. **Detecting Treatment Differences in Group Sequential Longitudinal Studies with Covariate Adjustment—**◆Neal Jeffries, National Heart, Lung, and Blood Institute; James Troendle, National Institutes of Health; Nancy L. Geller, National Heart, Lung, and Blood Institute
- 2:20 p.m. **Inference for Nonlinear Panel/Longitudinal Data—**◆Carles Breto, University of Michigan; Edward L. Ionides, University of Michigan; Aaron A. King, University of Michigan
- 2:35 p.m. **Estimating Onset Time from Longitudinal Data with Application to Estimating Gestational Age from Maternal Anthropometry During Pregnancy—**◆Paul Albert, Eunice Kennedy Shriver National Institute of Child Health and Human Development; Ana Maria Ortega-Villa, Eunice Kennedy Shriver National Institute of Child Health and Human Development
- 2:50 p.m. **Power Analysis for Longitudinal Data—**◆Niloofer Ramezani, University of Northern Colorado
- 3:05 p.m. **Multivariate Copula-Based Regression Models for Longitudinal Data—**◆Xin Tian, National Heart, Lung, and Blood Institute; Colin O. Wu, National Heart, Lung, and Blood Institute
- 3:20 p.m. **Generalized Semiparametric Varying-Coefficient Models for Longitudinal Data—**◆Li Qi, Sanofi US; Yanqing Sun, The University of North Carolina at Charlotte; Peter Gilbert, Fred Hutchinson Cancer Research Center
- 3:35 p.m. **Model Estimation and Dynamic Prediction for Subject-Specific Event Probability in Joint Modeling Using Longitudinal Quantile Regression—**◆Ming Yang, The University of Texas Health Science Center at Houston; Sheng Luo, The University of Texas at Houston; Stacia DeSantis, The University of Texas Health Science Center at Houston

431 CC-W192a Survival Analysis Methods for Observational Studies—Contributed

Section on Statistics in Epidemiology, International Chinese Statistical Association

Chair(s): Ron Gagnon, University of Wisconsin-Madison

- 2:05 p.m. Estimating Equation Approaches for Semiparametric Transformation Cure Models with Prevalent Survival Data—◆Yu-Jen Cheng, National Tsing Hua University
- 2:20 p.m. Competing Risks Model of Cancer Screening and Symptomatic Diagnosis—◆Sheng Qiu; Alex Tsodikov, University of Michigan
- 2:35 p.m. Erroneous Hormetic Effect Identification in Cox Models Due to Polynomial Splines—◆Dustin Long, West Virginia University; Matthew Wheeler, CDC/NIOSH; Robert Park, CDC/NIOSH/EID; John Bailer, Miami University; Randall Smith, CDC/NIOSH/EID
- 2:50 p.m. Confidence Intervals for Adjusted Kaplan-Meier Survival Curves with Time-Dependent Confounding—◆Jing Guo, University of Kentucky; Richard Charnigo, University of Kentucky
- 3:05 p.m. Adjusting for Time-Varying Confounding in Survival Analysis Using Structural Nested Cumulative Survivals Models—◆Oliver Dukes, Ghent University; Stijn Vansteelandt, Ghent University; Shaun Seaman, University of Cambridge; Torben Martinussen, University of Copenhagen
- 3:20 p.m. Two-Stage Estimation of Structural Instrumental Variable Models with Coarsened Data—◆Byeong Yeob Choi, The University of North Carolina at Chapel Hill; Jason Fine, The University of North Carolina at Chapel Hill; Maurice Alan Brookhart, The University of North Carolina at Chapel Hill
- 3:35 p.m. Statistical Applications for Ethnic Disparities in Breast Cancer Survival Data—◆Hafiz Khan, Texas Tech University Health Sciences Center El Paso; Rachel N. Smith, Texas Tech University Health Sciences Center El Paso

432 CC-W178b New Approaches in Classification Methods—Contributed

Section on Statistical Learning and Data Science

Chair(s): Jason Gillikin, Priority Health

- 2:05 p.m. L-CC Classification and Variable Selection for Multi-Label Data Sets—◆Monika Stupalova du Toit, Stellenbosch University; Sarel Steel, Stellenbosch University
- 2:20 p.m. Multi-Class ROC Tree and Random Forest for Imbalanced Data Classification—◆Jiaju Yan,

SUNY Stony Brook; Wei Zhu, SUNY Stony Brook; Bowen Song, Ocean University of China

- 2:35 p.m. Efficient Sampling Strategy for SVM Through Semi-Supervised Active Learning—◆Yaru Shi, University of Illinois at Chicago; Yoonsang Kim, University of Illinois at Chicago; Ganna Kostygina, University of Illinois at Chicago; Sherry Emery, University of Illinois at Chicago
- 2:50 p.m. Feature Selection for Class-Imbalanced Data Using Binormal Precision-Recall Curves—◆Zhongkai Liu, North Carolina State University; Howard Bondell, North Carolina State University
- 3:05 p.m. Nonparametric Classification Using a Forest Dependency Structure—◆Mary Frances Dorn, Texas A&M University; Clifford Spiegelman, Texas A&M University; Amit Moscovich, Weizmann Institute of Science; Boaz Nadler, Weizmann Institute of Science
- 3:20 p.m. Statistical Learning Toolbox for Prediction—◆Umashanger Thayasivam, Rowan University
- 3:35 p.m. Big Data Methods for Scraping Government Tax Revenue from the Web—◆Brian Dumbacher, U.S. Census Bureau; Cavan Capps, U.S. Census Bureau

433 CC-W182 Random Graph and Network Models—Contributed

Section on Statistical Learning and Data Science

Chair(s): Barbara J. Robles, Federal Reserve Board

- 2:05 p.m. Exponential Random Graph Models with Stable (Nonparametric) Statistics—◆Goeran Kauermann, Ludwig-Maximilians-University Munich
- 2:20 p.m. Generalized Exponential Random Graph Models: Statistical Inference for Weighted Graphs—◆James D. Wilson, University of San Francisco; Shankar Bhamidi, The University of North Carolina at Chapel Hill
- 2:35 p.m. Reconstruction of Directed Acyclic Graphs Networks Based on Prior Causal Ordering Information with Applications to Gene Regulatory Networks—◆Pei-Li Wang, University of Florida; George Michailidis, University of Florida
- 2:50 p.m. Link Prediction via Matrix Decomposition by Solving Lyapunov Equations—◆Yunpeng Zhao, George Mason University
- 3:05 p.m. Risk, Value, and Popularity: A Network-Based Approach to Stock Portfolio Diversification—◆Natallia Katenka, University of Rhode Island; Gregory Breard, University of Rhode Island

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

3:20 p.m. Lasso-Type Network Community Detection Within Latent Space—◆Shiwen Shen; Edsel Aldea Pena, University of South Carolina

3:35 p.m. Floor Discussion

434 CC-W194a

■ ● **Statistical Modeling of RNA-Seq Data—Contributed**

Section on Statistics in Genomics and Genetics, Biopharmaceutical Section

Chair(s): Yuchao Jiang, University of Pennsylvania

2:05 p.m. Detection of Differential Gene Expressions from Tumor RNA-Seq and Copy Number Data in the Presence of Tumor Heterogeneity—◆Jaeil Ahn, Georgetown University; Wenyi Wang, MD Anderson Cancer Center; Ying Yuan, MD Anderson Cancer Center

2:20 p.m. TSCAN: Pseudo-Time Reconstruction and Evaluation in Single-Cell RNA-Seq Analysis—◆Zhicheng Ji, Johns Hopkins Bloomberg School of Public Health; Hongkai Ji, Johns Hopkins Bloomberg School of Public Health

2:35 p.m. NMFP: A Non-Negative Matrix Factorization-Based Preselection Method to Increase Accuracy of Identifying mRNA Isoforms from RNA-Seq Data—◆Yuting Ye, University of California at Berkeley; Jingyi (Jessica) Li, University of California at Los Angeles

2:50 p.m. A Statistical Method for Cross-Species Analysis of RNA-Seq Data—◆Yered Pita-Juarez, Harvard; Rafael A. Irizarry, Dana-Farber Cancer Institute; Michael I. Love, Harvard T.H. Chan School of Public Health

3:05 p.m. Model-Based Clustering and Visualization of RNA-Seq Data—◆Kushal Dey, The University of Chicago; Matthew Stephens, The University of Chicago

3:20 p.m. Modeling the Ordering of Cell-Cycle Phase in Single-Cell RNA-Seq Data—◆Chiaowen Joyce Hsiao, The University of Chicago; Kushal Dey, The University of Chicago; PoYuan Tung, The University of Chicago; Yoav Gilad, The University of Chicago; Matthew Stephens, The University of Chicago

3:35 p.m. Nonparametric Hypothesis Testing of the Human Microbiome Using Evolutionary Trees—◆Martina Mincheva, Temple University; Hongzhe Li, University of Pennsylvania; Jun Chen, Mayo Clinic

435 CC-W195

■ **Power, Sample Size, and Practical Considerations in Clinical Trials—Contributed**

Biopharmaceutical Section, International Chinese Statistical Association

Chair(s): Daniel He Li, Juno Therapeutics

2:05 p.m. Exact Unconditional Test for the Comparison of Two Proportions Under Negative Binomial Sampling—◆Shiva Dibaj, SUNY Buffalo; Gregory Wilding, SUNY Buffalo; Alan Hutson, SUNY Buffalo

2:20 p.m. Sample Size Estimation Using a Hybrid Classical and Bayesian Procedure—◆Maria Ciarleglio, Yale University; Christopher Arendt, Air Force Office of Scientific Research

2:35 p.m. Using Power Contours to Assess the Sensitivity of Clinical Trial Design Assumptions—◆Richard C. Zink, JMP Life Sciences, SAS Institute; Xiaotong Jiang, The University of North Carolina at Chapel Hill

2:50 p.m. On Power and Sample Size of the ANOVA-Type Rank Test—◆Chunpeng Fan, Sanofi US; Donghui Zhang, Sanofi US

3:05 p.m. Identifying Main Effects in Multi-Factor Clinical Trials—◆Abhishek Bhattacharjee, University of Florida; Samuel S. Wu, University of Florida

3:20 p.m. Two-Stage Procedure for Fixed-Width Confidence Intervals of the Risk Ratio—◆Hokwon Cho, University of Nevada, Las Vegas

3:35 p.m. Practical Considerations in Clinical Trial Design—◆Kerry Go, Sanofi Pasteur

436 CC-W183c

■ **Adaptive/Innovative Survey Design and Survey Cost—Contributed**

Survey Research Methods Section

Chair(s): Jason Hsia, CDC

2:05 p.m. Responsive Design: Side Effect Reduction of Prior Information on Survey Design—◆Abdellatif Demnati, Retired

2:20 p.m. Adapting Responsive Design Strategies in a Recurring Adult Literacy Assessment—Minsun Riddles, Westat; ◆Tom Krenzke, Westat

2:35 p.m. Toward an Adaptive Design for the Survey of Doctorate Recipients—◆Michael Yang, NORC at the University of Chicago; Wan-Yinig Chang, National Science Foundation; Karen Grigorian, NORC at the University of Chicago

2:50 p.m. Implementing Adaptive Design on a Longitudinal Survey of At-Risk Youth:

Empirical Evidence Based on a Deep-Dive Analysis—Hanzhi Zhou, Mathematica Policy Research; ◆Jillian Stein, Mathematica Policy Research

3:05 p.m. Selecting a Sample from a Changing Frame—◆Eric Grau, Mathematica Policy Research; Elaine Gilby, Social Security Administration; Paul O'Leary, Social Security Administration

3:20 p.m. New Perspectives on Sampling Rare Populations—◆Emanuela Furfaro, University of Milano-Bicocca

3:35 p.m. Sample Design for Longitudinal Multiphase Samples with Misclassification—◆Andrea Piesse, Westat; Sharon Lohr, Westat

437 CC-W175b Inflation, Price Indexes, and Labor Statistics—Contributed

Business and Economic Statistics Section, Scientific and Public Affairs Advisory Committee

Chair(s): Jesse Bricker, Board of Governors of the Federal Reserve System

2:05 p.m. Review of the 2018 Consumer Price Index Geographic Revision—◆Steven Paben, Bureau of Labor Statistics

2:20 p.m. Sample Size Optimization of the Consumer Price Index: An Implementation Using R—◆Harold Gomes, Bureau of Labor Statistics; William Johnson, Bureau of Labor Statistics

2:35 p.m. Breaking Down the Differences Between the CPI-U and C-CPI-U: Weights vs. Formula and by Items and Areas—◆Gregory Kurtzon, Bureau of Labor Statistics

2:50 p.m. Measuring Inflation for Seasonal Items with High Product Turnover and Sticky-Upward Prices—◆Anya Stockburger, Bureau of Labor Statistics

3:05 p.m. An Alternative Approach to USDA NASS Subcomponent Price Indexes—◆Kuan Chen, USDA/NASS; Mark Gorsak, USDA/NASS

3:20 p.m. Inputs to Industry Price Indexes Constructed from U.S. PPI and IPP Data—◆Jonathan Weinhagen, Bureau of Labor Statistics

3:35 p.m. Predicting Industry Output with Statistical Learning Methods—◆Peter Meyer, Bureau of Labor Statistics; Wendy Martinez, Bureau of Labor Statistics

438 CC-W186a Functional Data and Dimension Reduction—Contributed

IMS

Chair(s): Xiaoke Zhang, University of Delaware

2:05 p.m. Optimal Detection of Weak Principal Components in High-Dimensional Data—◆Edgar Dobriban

2:20 p.m. Sufficient Dimension Reduction with Missing Data—◆Qi Xia, Temple University; Yuexiao Dong, Temple University; Chengyong Tang, Temple University

2:35 p.m. On Two-Sample Tests in Functional Data Analysis with Dependent Errors—Jan Beran, University of Konstanz; ◆Haiyan Liu, University of Konstanz; Klaus Telkmann, University of Konstanz

2:50 p.m. Functional Mixed-Effects Modeling Meets Spectral Analysis of Replicated Time Series—◆Joris Chau, Université Catholique de Louvain

3:05 p.m. Extraction of Multiscale Shape Information from Multivariate Data with Application to Classification—◆Wolfgang Polonik, University of California at Davis; Gabriel Chandler, Pomona College

3:20 p.m. On Estimating Open and Closed Line Segments in Noisy Data—◆Klaus Telkmann, University of Konstanz; Jan Beran, University of Konstanz

3:35 p.m. Floor Discussion

439 CC-W186b Bayesian Modeling in Social Sciences—Contributed

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

Chair(s): Yahya Daoud, Baylor Scott & White Health

2:05 p.m. Empirical Reference Distributions for Networks of Different Size—◆Anna Smith, The Ohio State University; Catherine Calder, The Ohio State University; Christopher Browning, The Ohio State University

2:20 p.m. Sparse Motifs: Discovering Structure in Massive Graphs—◆Zehang Li, University of Washington; Tyler McCormick, University of Washington; Joshua Blumenstock, University of Washington

2:35 p.m. A Two-Stage Approach to Differentiating Normal and Aberrant Behavior in Computer-Based Testing—◆Zhuoran Shang

2:50 p.m. Convergence and Mixed Effects: Using Bayesian Models to Better Understand Linguistic Data—◆Joseph Roy, University of Illinois at Urbana-Champaign; Christopher Eger, University of Illinois at Urbana-Champaign; Kailen Shantz, University of Illinois at Urbana-Champaign; Amelia Kimball, University of Illinois at Urbana-Champaign

- 3:05 p.m. Bayesian Predictive Inference for Consumption Data from Small Areas—◆Binod Manandhar, Worcester Polytechnic Institute
- 3:20 p.m. Multilevel Bayesian Latent Class Growth Mixture Model for Longitudinal Zero-Inflated Poisson Data—◆Kejia Wang, University of Southern California; Kiros Berhane, University of Southern California
- 3:35 p.m. Bayesian Estimation with Flexible Prior for the Instrumental Variables Models—◆John Hsu, University of California at Santa Barbara; Julianne Swenson, University of California at Santa Barbara

440 **CC-W184a**
Missing Data, Imputation, and Calibration—Contributed

Government Statistics Section, Survey Research Methods Section
 Chair(s): Donsig Jang, Mathematica Policy Research

- 2:05 p.m. Imputation Process Used in the Occupational Requirements Survey—◆Leland Righter, Bureau of Labor Statistics; Brad Rhein, Bureau of Labor Statistics
- 2:20 p.m. An Evaluation of Backwards Imputation for the Annual Survey of Public Employment and Payroll—◆Junilsa Toribio, U.S. Census Bureau
- 2:35 p.m. A Prediction Approach to Missing Data from the Exponential Family—◆Valbona Bejleri, USDA/NASS; Darcy Miller, USDA/NASS; Kay Turner, USDA/NASS
- 2:50 p.m. Multiple Imputation Methods to Enhance the NHANES-CMS Medicaid Linked Data-Demonstrated by Examining Cotinine as a Biomarker for Second-Hand Smoke Among Children Ages 3-17—◆Jennifer Rammon, CDC
- 3:05 p.m. Effects of Number of Imputations on Fraction of Missing Information in 2012 NAMCS Physician Workflow Mail Survey Data—◆Qiyuan Pan, CDC/NCHS; Rong Wei, CDC/NCHS
- 3:20 p.m. Do Imputed Earnings Earn Their Keep? Evaluating SIPP Earnings and Nonresponse with Administrative Records—◆Mark Klee, U.S. Census Bureau; Rebecca Chenevert, U.S. Census Bureau; Kelly Wilkin, U.S. Census Bureau
- 3:35 p.m. Introducing a New Calibration Procedure for the Census of Agriculture—◆Kelly Toppin, USDA/NASS; Luca Sartore, National Institute of Statistical Sciences; Clifford Spiegelman, Texas A&M University

Contributed Poster Presentations 2:00 p.m. – 3:50 p.m.

441 **CC-Hall F1 West**

Contributed Poster Presentations: Section on Bayesian Statistical Science—Contributed

Section on Bayesian Statistical Science

Chair(s): Genevera Allen, Rice University

- 1 Bayesian Propensity Score Analysis for Observational Multilevel Studies—◆Qi Zhou; Joon Jin Song, Baylor University; Catherine J. McNeal, Baylor Scott & White Health; Laurel A. Copeland, Baylor Scott & White Health; Justin Philip Zachariah, Texas Children’s Hospital/Baylor College of Medicine
- 2 Modeling HIV Seroconversion Using a Joint Model with Spatiotemporal Latent Variables—◆Martiniano Jose Emanuel Flores, University of California at Los Angeles; Robert Erin Weiss, University of California at Los Angeles; Matthew Beymer, Los Angeles LGBT Center
- 3 Bayesian Causal Inference Analyses with Unmeasured Confounders—◆Negar Jaberansari, University of Cincinnati; Bin Huang, Cincinnati Children’s Hospital Medical Center
- 4 Posterior Consistency for a Nonparametric Markov Model—◆Minwoo Chae, The University of Texas at Austin; Stephen G. Walker, The University of Texas at Austin
- 5 A Bayesian Spatial Clustering Method—◆Yin Xi, The University of Southwestern Medical Center at Dallas
- 6 Combining Multivariate Stochastic Process Models with Filter Methods for Constrained Optimization—◆Tony Pourmohamad, University of California at Santa Cruz; Herbie Lee, University of California at Santa Cruz
- 7 An Informative Prior Approach to a Bivariate Zero-Inflated Poisson Regression Model—◆Madeline Drevets, Baylor University
- 8 Computationally Tractable Approximate and Smoothed Polya Trees—◆William Cipolli, Colgate University; Timothy Hanson, University of South Carolina
- 9 An Application of the Adaptive Bayesian Design for the Delayed Outcomes in a Phase II Clinical Trial—◆Lei Feng, MD Anderson Cancer Center; Steven H. Lin, MD Anderson Cancer Center; Suyu Liu, MD Anderson Cancer Center
- 10 Bayesian Nonparametric Feature Selection Over Large-Scale Gene Networks with Missing Values—◆Zhuxuan Jin, Emory University; Zhou Lan, North Carolina State University; Jian Kang, University of Michigan; Tianwei Yu, Emory University
- 11 Bayesian Approach to Sample Size Determination for Multilevel Logistic Regression Models with Misclassified Outcomes—◆Tyler Nelson, Baylor University

442 CC-Hall F1 West

Contributed Poster Presentations: Section on Statistics in Marketing—Contributed

Section on Statistics in Marketing

Chair(s): Genevera Allen, Rice University

- 12 Bayesian Method for Causal Inference in High-Dimensional Time Series with Applications to Sales Data—◆BO NING

443 CC-Hall F1 West

Contributed Poster Presentations: Section on Risk Analysis—Contributed

Section on Risk Analysis

Chair(s): Genevera Allen, Rice University

- 13 An Investigation of the Effect of the Covariates on Survival Time of Breast Cancer Patients in Saudi Arabia—◆Refah Alotaibi, Princess Nourah Bint Abdulrahman University
- 14 An Approximation for a Collective Risk Model—◆Ranee Thiagarajah, Illinois State University
- 15 An Exploratory Study on Customer Adherence from Customer Behavior Sequence Data—◆Mingfei Li, Bentley University
- 16 The ABCs of Risk Score Calibration—◆Sitaram Vangala, University of California at Los Angeles Health System
- 17 GARCH Modeling for Five Popular Commodities—◆Stephen Chan, University of Manchester
- 18 Using Density Ratio Model for Estimating Binormal Receiver Operating Characteristic Curves—◆Wencan He, University of Toledo; Suohong Wang, Meredith College; Biao Zhang, University of Toledo
- 19 Small Noise Asymptotics in High-Frequency Financial Econometrics—◆Daisuke Kurisu, University of Tokyo
- 20 Application of Data Mining Techniques to Pesticide Risk Assessment—◆Ayona Chatterjee, California State University at East Bay; Arjun Panda, California State University at East Bay; Jacob Holmab, California State University at East Bay; Eric Suess, California State University at East Bay
- 21 A Particle Swarm Optimization Algorithm to Allocate U.S. Regional Blood Transfers in Simulated Earthquakes—◆Arianna Simonetti, FDA/CBER; Hussein Ezzeldin, FDA/CBER; Richard Forshee, FDA/CBER
- 22 Applying Statistics in Auto Insurance—◆Philip Wong, CSAA IG; Lavinia Museteanu, CSAA IG

444 CC-Hall F1 West

Contributed Poster Presentations: Section on Statistical Graphics—Contributed

Section on Statistical Graphics

Chair(s): Genevera Allen, Rice University

- 23 Analyzing Dependence in Stochastic Networks via Graphical Models—◆Nana Wang, University of California at Davis; Wolfgang Polonik, University of California at Davis
- 24 Variations of Q-Q Plots: The Power of Our Eyes!—◆Adam Loy, Lawrence University; Lendie Follett, Iowa State University; Heike Hofmann, Iowa State University
- 25 Estimating Time-Varying Graphical Models Through a Local Group-Lasso-Type Penalty—◆Jilei Yang, University of California at Davis; Jie Peng, University of California at Davis
- 26 Visualizing the Classification Model Produced by a Projection Pursuit Random Forest—◆Natalia Da Silva, Iowa State University; Dianne Cook, Monash University
- 27 A Visual Approach to Estimating Model Parameters for SAS[®] NLIN Procedure Using a High-School Geometry Principle to Model Satiety Data with a Weibull Curve—◆Janis Dugle, Abbott Nutrition/Abbott Labs

445 CC-Hall F1 West

Contributed Poster Presentations: Section on Statistical Learning and Data Science—Contributed

Section on Statistical Learning and Data Science, Section on Statistics in Imaging, International Chinese Statistical Association

Chair(s): Genevera Allen, Rice University

- 28 Variable Screening in Multicategory Classification—◆Yue Zeng, University of Arizona
- 29 Angle-Based Distance-Weighted Support Vector Machine in Multicategory Classification—◆Hui Sun, Purdue University; Bruce A. Craig, Purdue University; Lingsong Zhang, Purdue University
- 30 A New Distribution to Describe Big Data—◆Yuanyuan Zhang, University of Manchester
- 31 Sensitivity Analysis in Classification Using Bayesian Smoothing Spline ANOVA Probit Regression—◆Chunzhe Zhang, University of California at Davis; Curtis Storlie, Mayo Clinic; Thomas Lee, University of California at Davis
- 32 Identification of Solids in Hyperspectral Images Using Spectral Features from Gaussian Basis Functions—◆Cory Lanker, Lawrence Livermore National Laboratory; Milton O. Smith, Lawrence Livermore National Laboratory
- 33 ZIP Codes and Neural Networks: Machine Learning for Handwritten Number Recognition—◆Cuixian

- Chen, The University of North Carolina at Wilmington; Taylor Harbold, The University of North Carolina at Wilmington; Courtney Rasmussen, The University of North Carolina at Wilmington; Michelle Page, The University of North Carolina at Wilmington
- 34 **Constrained Canonical Covariance Analysis by Using Tucker2 Model**—◆Jun Tsuchida, Doshisha University; Hiroshi Yadohisa, Doshisha University
- 35 **Sparse Predictive Modeling for Bank Telemarketing Success Using Smooth-Threshold Estimating Equations**—◆Yoshinori Kawasaki, Institute of Statistical Mathematics; Masao Ueki, Kurume University
- 36 **Modeling the Survival of Passengers on the Titanic Using Supervised, Unsupervised Learning and Other Statistical Methods**—◆Kritika Gangnani
- 37 **Predicting Binary Outcome with Unequal Misclassification Cost**—◆Shuchismita Sarkar, University of Alabama; Michael D. Porter, University of Alabama
- 38 **Digit Recognition Using MNIST Data Using Classification and Regression Tree**—◆SAIKAT PALIT, Indian Statistical Institute
- 39 **Empirical Evaluation of Bayesian Network Classifiers**—◆Wei-hua Shi, SAS Institute
- 40 **Employing Machine Learning Approaches in Social Scientific Analyses**—◆Arne Bethmann, Institute for Employment Research
- 41 **A Multilocus Genetic Score for Physical Activity**—◆Lingyao Yang, Stanford University; Haley Hedlin, Stanford University
- 42 **Anomaly Detection in Time Series of Dependent Stochastic Block Model Graphs**—Heng Wang, Machine Zone; ◆Albert Liu, Ward Melville High School; Youngser Park, The Johns Hopkins University; Carey Priebe, The Johns Hopkins University
- 43 **Clustering for Personalized Preference Prediction**—◆Fan Yang, University of Minnesota-Twin Cities; Xiaotong Shen, University of Minnesota
- 44 **SILFM: Single Index Latent Factor Model Based on High-Dimensional Features**—◆Hojin Yang, MD Anderson Cancer Center
- 45 **Comparing Mobile Health Treatment Policies**—◆Peng Liao, University of Michigan; Predrag Klasnja, University of Michigan; Susan A. Murphy, University of Michigan
- 46 **Divide and Recombine (DandR) with Tessera: High-Performance Computing for the Analysis of Big Data and High-Complexity Analytics**—◆Yuying Song, Purdue University; Bowei Xi, Purdue University; Ryan Hafen, Hafen Consulting; William S. Cleveland, Purdue University
- 47 **Automatic Constrained Tree: An Approach to Accommodate Nested/Dependent Data**—◆Rebecca Carter, Case Western School of Medicine; Jiayang Sun, Case Western Reserve University
- 48 **Understanding Grand Strategy: Text and Topic Analysis of Presidential Speeches**—◆Reagan Rose
- 49 **AMON: An Open Source Architecture for Online Monitoring, Statistical Analysis, and Forensics of Multi-Gigabit Streams**—◆Shrijita Bhattacharya, University of Michigan; Michael Khallitsis, Merit
- 50 **Estimating Coefficients of Direction in Single Index Model for Large \mathbb{P} Small \mathbb{N} Problem**—◆Jin Xie
- 51 **C.Logic: An Algorithm to Classify Dichotomous Disease Outcomes Using Interactions Between Dichotomous and Continuous Predictors**—◆Sybil Prince Nelson
- 52 **Hypothesis Testing and Prediction of the Self-Triggering Cox Model for Recurrent Event Data**—◆Jung In Kim; Jason Fine, The University of North Carolina at Chapel Hill; Feng-Chang Lin, The University of North Carolina at Chapel Hill
- 53 **Regret Bounds for a Thompson Sampling Algorithm with Application to Emerging Infectious Disease**—◆Tao Hu, North Carolina State University; Eric Laber, North Carolina State University
- 54 **Group Discrimination Using Sparse Network Modeling of Resting-State fMRI**—◆Maria Puhl, University of Tulsa; William Coberly, University of Tulsa; Alejandro Hernandez, University of Tulsa; Kyle Simmons, Laureate Institute for Brain Research
- 446** **CC-Hall F1 West**
Contributed Poster Presentations: Section on Statistics and the Environment—Contributed
 Section on Statistics and the Environment
 Chair(s): Genevera Allen, Rice University
- 55 **Statistical Emulator for NARCCAP Surface Precipitation and Temperature Using Spatially Varying Bayesian Model Averaging**—◆Marcela Alfaro Cordoba, North Carolina State University; Montse Fuentes, North Carolina State University; Joseph Guinness, North Carolina State University; Dorit Hammerling, National Center for Atmospheric Research; Doug Nychka, National Center for Atmospheric Research
- 56 **A Statistical-Dynamical Approach to Probabilistic Decadal Climate Predictions**—◆Francisco Beltran, Lawrence Livermore National Laboratory
- 57 **Automated Selection of R for the R-Largest Order Statistics Approach with Adjustment for Sequential Testing**—◆Brian Bader, University of Connecticut; Jun Yan, University of Connecticut; Xuebin Zhang, Environment and Climate Change Canada

- 58 Local Warming: A Tale of Two Cities—◆Lewis VanBrackle, Kennesaw State University
- 59 Negative Dependence in Markov Random Field Models—◆Kenneth Wakeland, Iowa State University; Mark Kaiser, Iowa State University; Daniel Nordman, Iowa State University
- 60 Simultaneous Analysis of Microbial Densities and Detection Errors—◆Yu-Ting Hsu, Penn State University
- 61 An Estimation of the Variogram of Temperature Anomalies on the Earth—◆Jacob Shields; Chunfeng Huang, Indiana University; Scott Robeson, Indiana University
- 62 Calculation of the Steam Electric Power Plant Effluent Limits Using the Modified Delta-Lognormal (MDL) Distribution—◆Yan Zhuang, Westat; John Rogers, Westat; David A. Marker, Westat
- 63 An Image Compression Algorithm for Large Spatio-Temporal Data Sets—◆Indranil Sahoo, North Carolina State University; Brian J. Reich, North Carolina State University; Joseph Guinness, North Carolina State University
- 64 Robust Statistical Methods for the Ensemble Kalman Filter—◆Colette Smirniotis, San Diego State University; Barbara Ann Bailey, San Diego State University
- 65 A Bayesian Hierarchical Data Fusion Approach Leveraging Lidar and Hyperspectral Remote Sensing Information to Improve Aboveground Forest Carbon Estimation for Interior Alaska, USA—◆Chad Babcock, University of Washington
- 66 Spatio-Temporal Analysis of Daily Precipitation via a Sufficient Dimension Reduction—◆Sai Kumar Popuri, University of Maryland Baltimore County; Nagaraj K. Neerchal, University of Maryland Baltimore County; Kofi Adragani, University of Maryland Baltimore County; Amita Mehta, Joint Center for Earth Systems Technology

447 CC-Hall F1 West

Contributed Poster Presentations: Uncertainty Quantification for Complex Systems Interest Group—Contributed

Uncertainty Quantification for Complex Systems Interest Group
Chair(s): Genevera Allen, Rice University

- 67 Velocity Estimation Using Multilevel Monte Carlo Bayesian Inversion—◆Weihua Yang, The University of Texas at Dallas; Susan Minkoff, The University of Texas at Dallas; Luis Felipe Pereira, The University of Texas at Dallas; Georgia Stuart, The University of Texas at Dallas

448 CC-Hall F1 West

SPEED: Advances in Biometrics, Part 2A—Contributed

Biometrics Section

Chair(s): Genevera Allen, Rice University

- 1 An Approach for Estimating Adjusted Probabilities When Only Marginal Covariate Distributions Are Observed—◆Yifei Wang, University of California at Davis
- 2 Learning Parameter Heterogeneity in Data Integration—◆Lu Tang, University of Michigan; Peter X. K. Song, University of Michigan
- 3 A Bayesian Approach for Missing Data Problems in Growth Curve Model by Gibbs Sampling Method—◆Tian Feng, McMaster University; Joseph Beyene, McMaster University; Jemila S. Hamid, McMaster University/St. Michael's Hospital
- 4 A Conceptual Framework for Initial Data Analysis—◆Marianne Huebner, Michigan State University; Saskia le Cessie, Leiden University Medical Center; Werner Vach, University of Freiburg Medical Center
- 5 Modeling Heterogeneity in Motor Learning Using Heteroskedastic Functional Principal Components—◆Daniel Backenroth, Columbia Mailman School of Public Health; Jeff Goldsmith, Columbia Mailman School of Public Health; Tomoko Kitago, Columbia University Medical Center; John Krakauer, Johns Hopkins School of Medicine
- 6 Comparing Models for the Heaping Mechanism with Cigarette Count Data—◆Chelsea McCarty Allen, Southern Methodist University; Daniel F. Heitjan, Southern Methodist University
- 7 Statistical Learning Methods for Record Linkage: A Pioneer Mortality Example—◆Kristina Murri, Brigham Young University
- 8 Supervised Integrated Principal Component Analysis—◆Gen Li, Columbia University; Sungkyu Jung, University of Pittsburgh
- 9 Increasing Awareness of Careers and an Education in Biostatistics Among Quantitatively Talented Under-Represented High-School Students—◆Mallorie Fiero, University of Arizona; Kevin Doubleday, University of Arizona; Grant Schissler, University of Arizona; Joseph Watkins, University of Arizona; Melanie L. Bell, University of Arizona
- 10 Improved Phylogenetic Ordinations for Microbiome Data—◆Julia Fukuyama, Stanford University

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

449 CC-Hall F1 West
SPEED: Statistical Learning and Data Science, Part 2A—Contributed

Section on Statistical Learning and Data Science

Chair(s): Genevera Allen, Rice University

- 11 A Random Forest of Modified Interaction Trees for Treatment Decision Rules—◆Zhen Zeng, Merck; Zheng Wei, Sanofi US; Yuefeng Lu, Sanofi US
- 12 Modern Projection Pursuit Ellipse for High-Dimensional Data—◆Jang Ik Cho, Case Western Reserve University; Xiaoyan Wei, Case Western Reserve University; Jiayang Sun, Case Western Reserve University
- 13 Model-Free Estimation of Task-Based Dynamic Functional Connectivity and Its Confidence Intervals—◆Maria Kudela, Indiana University; Mario Dzemidzic,

Indiana University School of Medicine; Brandon G. Oberlin, Indiana University School of Medicine; Joaquin Goñi, Purdue University; David A. Kareken, Indiana University School of Medicine; Jaroslaw Harezlak, Indiana University Fairbanks School of Public Health

- 14 Topological Statistical Inference for Location Parameters via Frechet Functions—◆Ruite Guo, Florida State University
- 15 An R Package Enabling Likelihood-Based Inference for Generalized Linear Mixed Models—◆Christina Knudson
- 16 Community Extraction for Networks with Node Covariates via Pseudo-Likelihood Method—◆Chengan Du, George Mason University; Qing Pan, The George Washington University; Yunpeng Zhao, George Mason University

**DANCE!
 DANCE!
 DANCE!**



JSM Dance Party

Tuesday, 9:30 p.m. – Midnight | Hilton Grand Ballroom

- 17 Predicting Job Application Success by Modeling Structured and Unstructured Features of Candidate-Role Pairs—◆Jon Krohn, untapt; Gabe Rives-Corbett, untapt; Ed Donner, untapt
- 18 Likelihood Methods for Non-Negative Matrix Factorization—◆Frank Shen, Penn State University
- 19 A Sequential Learning Algorithm Using Gaussian Processes for Probabilistic Hazard Mapping—◆Regis Rutarindwa
- 20 Models for Understanding and Predicting Consumer Perception of Radiance—◆Supriya A. K. Satwah, Unilever; Anthony Cece, Unilever; Robert Velthuizen, Unilever

450 **CC-Hall F1 West**
SPEED: Business, Finance, and Economic Statistics, Part 2A—Contributed

Business and Economic Statistics Section

Chair(s): Genevera Allen, Rice University

- 21 Improving the Measure of Correlation in Time Series Goodness-of-Fit Testing—◆Thomas Fisher, Miami University; Michael Robbins, RAND Corporation
- 22 Retrospective Social Discount Rates—◆James P. Howard, II, University of Maryland University College
- 23 A New Approach to Dimensional Reduction for Volatility of a Stationary Multivariate Time Series—◆Chung Eun Lee, University of Illinois at Urbana-Champaign; Xiaofeng Shao, University of Illinois at Urbana-Champaign
- 24 Estimating Discrete Nonlinear Effects with a Single Instrumental Variable—◆Leonard Goff, Columbia University
- 25 Comparison of Financial Cycles to Other Economic Cycles: Old Methods and New Dimension—◆Joselito Basilio, Bangko Sentral ng Pilipinas
- 26 Fitting Data with Generalized Lambda Distribution—◆Yu Tao; Keying Ye, The University of Texas at San Antonio; Donald Lien, The University of Texas at San Antonio
- 27 Linear Double Autoregressive Time Series Model and Its Conditional Quantile Inference—◆Qianqian Zhu, The University of Hong Kong; Yao Zheng, The University of Hong Kong; Guodong Li, The University of Hong Kong
- 28 Economic Impact of Presidents and War: Did FDR or WW2 End the Great Depression?—◆Spencer Graves; Jouni Helske, University of Jyväskylä
- 29 Modeling Temperature-Based Financial Derivatives Through Dynamic Linear Models—◆David Engler, Brigham Young University; Robert Erhardt, Wake Forest University

- 30 Forecasting Daily Electricity Load Profile Using Functional Principals Components and Transfer Function Models—V.A. Samaranyake, Missouri University of Science and Technology; ◆Abdulmunem Jornaz, Missouri University of Science and Technology

Contributed Poster Presentations 3:05 p.m. – 3:50 p.m.

451 **CC-Hall F1 West**
SPEED: Advances in Biometrics, Part 2B—Contributed

Biometrics Section

Chair(s): Genevera Allen, Rice University

- 1 Non-Gaussian Penalized PARAFAC Analysis of fMRI Data—◆Jingsai Liang; Don Hong, Middle Tennessee State University
- 2 Adjusting Published Estimates for Exploratory Biases Using the Truncated Normal Distribution—◆Travis Loux, Saint Louis University; Orlando Davy, Saint Louis University
- 3 Modeling Variation in Diversity—◆Michael Anderson, The University of Texas at San Antonio
- 4 Fish Cliques: Evidence of Social Groups from Sparse Observations in Time and Space—◆Jean Adams, USGS Great Lakes Science Center; Stephen Riley, USGS Great Lakes Science Center; Charles Krueger, Michigan State University; Tom Binder, USGS Great Lakes Science Center; Taaja Tucker, USGS Great Lakes Science Center
- 5 Statistics and Biology: Stories with Heart—◆Elizabeth Ribble, Metropolitan State University of Denver
- 6 Efficient Mean Structure Estimation Using Matrix Variate Data—◆Michael Hornstein, University of Michigan; Kerby Shedden, University of Michigan; Shuheng Zhou, University of Michigan
- 7 Zero-Truncated Multiple-Inflation Count (ZTMIC) Models—◆Arvind Tripathi, Takeda; Kui Zhang, Michigan Technological University; Xiaogang Su, The University of Texas at El Paso
- 8 Validity of Tests Under Constrained Randomization—◆Chi-Hong Tseng, University of California at Los Angeles
- 9 Controlling for Confounders in a Parkinson's Disease Study—◆Ruosha Li, The University of Texas Health Science Center at Houston
- 10 The Impact of Misspecification on the Homogeneity Tests for Zero-Inflated Models—◆Nadeesha R. Mawella, Kansas State University; Siyu Gao, Kansas State University; Wei-Wen Hsu, Kansas State University; David Todem, Michigan State University

452 CC-Hall F1 West
SPEED: Statistical Learning and Data Science, Part 2B—Contributed

Section on Statistical Learning and Data Science

Chair(s): Genevera Allen, Rice University

- 11 High-Dimensional Inference for Partial Linear Models—◆Zhuqing Yu
- 12 Penalized Principal Logistic Regression for Sparse Sufficient Dimension Reduction—◆Seung Jun Shin, Korea University; Andreas Artemiou, Cardiff University
- 13 Dimension-Reduction Techniques for Predictive Modeling—◆Zhen Zhang, C Spire; Lei Zhang, Mississippi State Department of Health; Kendell Churchwell, C Spire; James Veillette, C Spire
- 14 Robust Categorical Principal Components Analysis: An Application to Population Stratification—◆Asuman Turkmen, The Ohio State University; Yuan Yuan, Auburn University; Nedret Billor, Auburn University
- 15 Publication Genie: P-Value Minimization via Variable Selection and Exclusion Factors—◆Stephen Stanhope, Spectrum Health
- 16 The Knockoff Filter for FDR Control in Group-Sparse and Multitask Regression—◆Ran Dai, The University of Chicago; Rina Foygel Barber, The University of Chicago
- 17 Maximizing Text Mining Performance: The Impact of Pre-Processing—◆Dario Gregori, University of Padova; Paola Berchiolla, University of Torino; Nicola Soriani, University of Padova; Ileana Baldi, University of Padova; Corrado Lanera, University of Padova
- 18 Graphical Model Extension to GLM fMRI Model—◆David Sinclair, Cornell University

453 CC-Hall F1 West
SPEED: Business, Finance, and Economic Statistics, Part 2B—Contributed

Business and Economic Statistics Section

Chair(s): Genevera Allen, Rice University

- 21 A Two-Stage Model for Estimating End Uses of Electricity and Natural Gas in U.S. Homes—Edgardo Cureg, U.S. Energy Information Administration; ◆Shaofen Deng, U.S. Energy Information Administration
- 22 A Spatial Statistical Model to Identify Factors Affecting the Lending Process—◆Karen Liseth Gonzalez Fernandez, Universidad Nacional de Colombia; Juan Carlos Salazar Uribe, Universidad Nacional de Colombia

- 23 Partial Identification and Estimation of Differentiable Misclassification Errors with Application in Self-Misreporting—◆Linchun Chen, University of Michigan
- 24 Bias Correction in Average Treatment Effect Estimation After Model Selection—◆Jingshen Wang, University of Michigan; Xuming He, University of Michigan
- 25 Measuring Mobile Financial Services: Surveying an Emerging Field—◆Ellen Merry, Federal Reserve Board
- 26 Identifiability and Estimation in Non-Gaussian Mixed Frequency Structural VAR Models—◆Alex Tank; Emily Fox, University of Washington; Ali Shojaie, University of Washington
- 27 Optimal Stratification of Univariate Populations via StratifyR Package—◆Karuna Garan Reddy, University of the South Pacific; Mohammed G. M. Khan, University of the South Pacific
- 28 A Generalized Ordered Response Model—◆Kramer Quist, Brigham Young University; James McDonald, Brigham Young University; Carla Johnston, University of California at Berkeley

Invited Sessions 4:45 p.m. – 6:15 p.m.

454 H-International Ballroom
Deming Lecture—Invited

Deming Lectureship Committee, ASA, International Chinese Statistical Association

Chair(s): Nancy Gordon

4:50 p.m. Profound Knowledge from a Knowledge Use Perspective—◆Vincent P. Barabba, Market Insight Corporation

6:00 p.m. Floor Discussion

Invited Sessions 8:00 p.m. – 9:30 p.m.

455 H-International Ballroom
ASA President's Address and Founders and Fellows Recognition—Invited

ASA, International Chinese Statistical Association

Organizer(s): Jessica Utts, University of California at Irvine

8:05 p.m. Appreciating Statistics—◆Jessica Utts, University of California at Irvine

WEDNESDAY AUGUST 3

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 2016 theme, "The Extraordinary Power of Statistics." 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.

JSM Hours

7:00 a.m. – 4:30 p.m. CC-W181c
Speaker Management Room

7:30 a.m. – 4:30 p.m. CC-Hall F1 West Central Concourse
ASA Membership/Help Desk/Press Desk

7:30 a.m. – 4:30 p.m. CC-Hall F1 West Central Concourse
JSM Main Registration

7:30 a.m. – 5:30 p.m. CC-Hall F1 West Central Concourse
Cyber Center

8:00 a.m. – 2:30 p.m. CC-Hall F1 West
Exhibitor Lounge

8:00 a.m. – 2:30 p.m. CC-Hall F1 West
JSM Career Service

8:00 a.m. – 4:30 p.m. CC-West Coatroom
JSM Luggage Storage

9:00 a.m. – 2:30 p.m. CC-Hall F1 West
EXPO 2016

9:00 a.m. – 2:30 p.m. CC-Hall F1 West
ASA Store

9:00 a.m. – 2:30 p.m. CC-Hall F1 West
American Statistical Association Booth #504

9:00 a.m. – 5:00 p.m. CC-Hall F1 West Central Concourse
Restaurant Reservations/Chicago Concierge Service

2:30 p.m. – 9:00 p.m. CC-Hall F1 West
Exhibitor Move Out

Committee/Business Meetings & Other Activities

7:00 a.m. – 8:00 a.m. H-PDR5
Committee on ASA Archives and Historical Materials
Business Meeting
Chair(s): John D. McKenzie, Jr., Babson College

7:00 a.m. – 8:30 a.m. H-PDR6
Scientific and Public Affairs Advisory Committee
Business Meeting
Chair(s): Jerome Reiter, Duke University

8:00 a.m. – 12:00 p.m. H-Astoria
2016 NISS/ASA/IMS/ENAR/ICSA Writing Workshop for
Junior Researchers (Closed)
Organizer(s): Keith Crank, Retired

8:00 a.m. – 4:00 p.m. UC-Loop & River Room
Beyond AP Statistics (BAPS) Workshop
Chair(s): Roxy Peck, Cal Poly

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

8:00 a.m. - 4:00 p.m. UC-Lake Room
Meeting Within a Meeting (MWM) Statistics Workshop for Math and Science Teachers: Grades 5–12 Day 2
 Chair(s): Katherine T. Halvorsen, Smith College

8:30 a.m. - 10:30 a.m. H-PDR3
Diversity Mentoring Program (Closed)
 Chair(s): Jesse Chittams, University of Pennsylvania

10:00 a.m. - 11:30 a.m. CC-N126
Advisory Committee on Continuing Education Debriefing (Closed)
 Chair(s): Maya Sternberg, CDC

10:00 a.m. - 11:30 a.m. CC-N131
Stat Careers for AP Statistics and Other K–12 Classrooms Workgroup Meeting (Closed)
 Chair(s): Anna Nevius

10:30 a.m. - 12:00 p.m. CC-N227a
Implementing Successful Chapter and Section Mentoring Programs
 Organizer(s): Amarjot Kaur, Merck; Mark Otto, Fish and Wildlife Service

10:30 a.m. - 12:00 p.m. CC-N228
Navigations USAJOBS/Find and Apply to Jobs at the FDA
 Organizer(s): Kim Scarborough, U.S. Food and Drug Administration

11:00 a.m. - 12:30 p.m. CC-N231
JSM Docent Reception (Closed)
 Chair(s): Donna LaLonde, ASA

12:00 p.m. - 2:30 p.m. CC-N128
ENAR 2017 Spring Planning Lunch Meeting (Closed)
 Organizer(s): Jianwen Cai, ENAR; Scarlett Bellamy, ENAR

12:30 p.m. - 2:00 p.m. CC-N129
Committee on Meetings Business Meeting (Closed)
 Chair(s): Xuming He, University of Michigan

12:30 p.m. - 2:00 p.m. H-PDR2
2016 NISS/ASA/IMS/ENAR/ICSA Writing Workshop for Junior Researchers (Closed)
 Organizer(s): Keith Crank, Retired

2:00 p.m. - 3:30 p.m. CC-N228
Navigations USAJOBS/Find and Apply to Jobs at the FDA
 Chair(s): Kim Scarborough, U.S. Food and Drug Administration

4:00 p.m. - 5:30 p.m. CC-N134
Statistics and Pharmacometrics Interest Group (SxP)
 Chair(s): Alan Hartford, AbbVie

5:00 p.m. - 6:00 p.m. H-PDR4
ASA LGBT Concerns Committee Business Meeting
 Chair(s): Diane Herz, Mathematica Policy Research

6:00 p.m. - 7:30 p.m. H-Boulevard B
2016 JSM Program Committee/Committee on Meetings Appreciation Reception (by Invitation Only)
 Chair(s): Jeffrey S. Morris, MD Anderson Cancer Center

6:00 p.m. - 7:30 p.m. H-Boulevard A
PSTAT and GSTAT Reception (Closed)
 Chair(s): Donna LaLonde, ASA

6:00 p.m. - 7:30 p.m. H-Williford A
Section on Statistical Education Business Meeting
 Chair(s): Nicholas Jon Horton, Amherst College

6:00 p.m. - 8:00 p.m. H-Williford B
Survey Research Methods Section Business Meeting
 Chair(s): Michael Larsen, The George Washington University

6:00 p.m. - 9:00 p.m. H-Waldorf
ICSA General Member Meeting
 Organizer(s): Zhezhen Jin, Columbia University

Professional Development

CE_31T
Joint Modeling of Longitudinal and Survival-Time Data in Stata (ADDED FEE)
 8:00 a.m. - 9:45 a.m. CC-W475b
 ASA
 Instructor(s): Yulia Marchenko, StataCorp LP

CE_32T
Advanced ODS Graphics Examples in SAS (ADDED FEE)
 8:00 a.m. - 9:45 a.m. CC-W474
 ASA
 Instructor(s): Warren F. Kuhfeld, SAS Institute

CE_33T
Introduction to Data Mining with CART Classification and Regression Trees (ADDED FEE)
 8:00 a.m. - 9:45 a.m. CC-W475a
 ASA
 Instructor(s): Dan Steinberg, Salford Systems; Mikhail Golovnya, Salford Systems

CE_34T

Bayesian Analysis Using Stata (ADDED FEE)

10:00 a.m. – 11:45 a.m.

CC-W475b

ASA

Instructor(s): Yulia Marchenko, StataCorp LP

CE_35T

Small Area Estimation Using SAS Software (ADDED FEE)

10:00 a.m. – 11:45 a.m.

CC-W474

ASA

Instructor(s): Pushpal Mukhopadhyay, SAS Institute

CE_36T

Applied Data Mining Analysis: A Step-by-Step Introduction Using Real-World Data Sets (ADDED FEE)

10:00 a.m. – 11:45 a.m.

CC-W475a

ASA

Instructor(s): Dan Steinberg, Salford Systems; Mikhail Golovnya, Salford Systems

CE_37T

Design Multi-Arm, Multi-Stage Trials with Treatment Selection and Sample Size Re-Estimation in East (ADDED FEE)

1:00 p.m. – 2:45 p.m.

CC-W475b

ASA

Instructor(s): Cyrus Mehta, Cytel; Lingyun Liu, Cytel

CE_38T

Weighted GEE Analysis Using SAS/STAT Software (ADDED FEE)

1:00 p.m. – 2:45 p.m.

CC-W474

ASA

Instructor(s): Michael Lamm, SAS Institute

CE_39T

Evolution of Classification: From Logistic Regression and Decision Trees to Bagging/Boosting and Netlift Modeling (ADDED FEE)

1:00 p.m. – 2:45 p.m.

CC-W475a

ASA

Instructor(s): Mikhail Golovnya, Salford Systems; Dan Steinberg, Salford Systems

CE_40T

Software for Designing Dual-Agent Phase 1 Trials (ADDED FEE)

3:00 p.m. – 4:45 p.m.

CC-W475b

ASA

Instructor(s): Charles Liu, Cytel; Hrishikesh Kulkarni, Cytel

CE_41T

Current Methods in Survival Analysis Using SAS/STAT Software (ADDED FEE)

3:00 p.m. – 4:45 p.m.

CC-W474

ASA

Instructor(s): Changbin Guo, SAS Institute

CE_42T

Improve Your Regression with Modern Regression Analysis Techniques: Linear, Logistic, Nonlinear, Regularized, GPS, LARS, LASSO, Elastic Net, MARS, TreeNet Gradient Boosting, Random Forests (ADDED FEE)

3:00 p.m. – 4:45 p.m.

CC-W475a

ASA

Instructor(s): Mikhail Golovnya, Salford Systems; Dan Steinberg, Salford Systems

Roundtables with Coffee 7:00 a.m. – 8:15 a.m.

456

CC-W375a

Biopharmaceutical Section A.M. Roundtable Discussion (Added Fee)

Biopharmaceutical Section

Organizer(s): Jennifer Gauvin, Novartis

WL01 Assessing Safety of Rare Events for Sparse, Limited, or Extreme Data—◆Mike Wright Colopy, UCB Bioscience

457

CC-W375a

Section on Statistical Education A.M. Roundtable Discussion (Added Fee)

Section on Statistical Education

Organizer(s): Dalene K. Stangl, Duke University

WL02 Teaching Bayesian Statistics to Undergraduates—◆Jeffrey Witmer, Oberlin College

458

CC-W375a

Section on Statistical Graphics A.M. Roundtable Discussion (Added Fee)

Section on Statistical Graphics

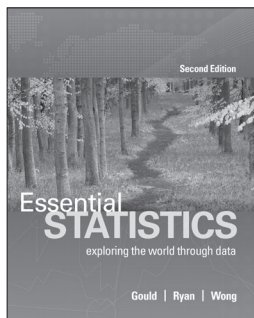
Organizer(s): Kenneth E. Shirley, AT&T Labs Research

WL03 Statistical Graphical Deception—◆Brian Hochrein, Truven Health Analytics

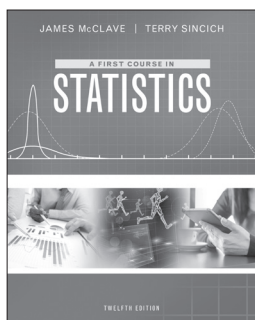
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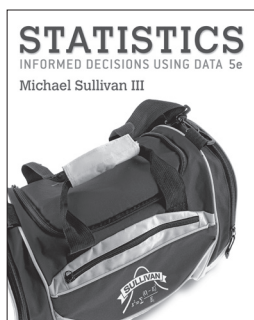
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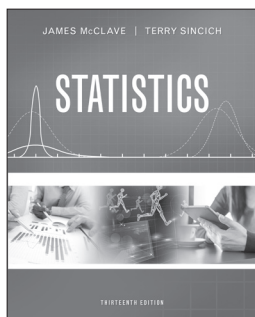
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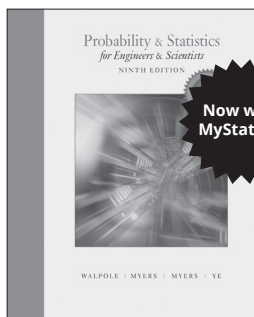
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Featuring Chris Franklin, University of Georgia and ASA K-12 Statistical Ambassador

3:30 – 4:00 PM

Demo: Web-based Applets: Incorporating more simulation and randomization in your course

► TUESDAY, AUGUST 2

Featuring Webster West, North Carolina State University

10:00 – 10:30 AM

Demo: StatCrunch for Solving Problems from Business and Industry

3:30 – 4:00 PM & 4:00 – 4:30 PM

Demo: StatCrunch for Teaching Statistics

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459 CC-W375a
Health Policy Statistics Section A.M. Roundtable Discussion (Added Fee)

Health Policy Statistics Section

Organizer(s): Ruth Etzioni, Fred Hutchinson Cancer Research Center

WL04 Statistical Careers in Health Policy—◆Layla Parast, RAND Corporation

WL05 Navigating the Long and Winding Road to Validly Interpreting Patient-Reported Outcomes—◆Joseph Cappelleri, Pfizer

460 CC-W375a
Section on Statistics in Imaging A.M. Roundtable Discussion (Added Fee)

Section on Statistics in Imaging

Organizer(s): Ying Guo, Emory University

WL06 The Key Role of Statistics in Neuroimaging: Challenges and Opportunities—◆DuBois Bowman, Columbia University

461 CC-W375a
Section on Statistical Learning and Data Science A.M. Roundtable Discussion (Added Fee)

Section on Statistical Learning and Data Science

Organizer(s): Genevera Allen, Rice University

WL07 Members Choice: Hot Topics in Statistical Learning and Data Mining—◆Glen Wright Colopy, University of Oxford

462 CC-W375a
Section on Teaching of Statistics in the Health Sciences A.M. Roundtable Discussion (Added Fee)

Section on Teaching of Statistics in the Health Sciences

Organizer(s): Wenyaw Chan, The University of Texas Health Science Center at Houston

WL08 Learning Bayesian Update via Shiny: Understanding Bayesian Methods Through Visualization—◆J. Jack Lee, MD Anderson Cancer Center

463 CC-W375a
Section on Teaching of Statistics in the Health Sciences A.M. Roundtable Discussion (Added Fee)

Section on Teaching of Statistics in the Health Sciences

Organizer(s): Wenyaw Chan, The University of Texas Health Science Center at Houston

WL09 Online Teaching of Advanced Statistics Courses—◆Usha Govindarajulu, SUNY Downstate

Special Presentation 8:30 a.m. – 10:20 a.m.

464 CC-W375b
Introductory Overview Lecture: Adaptive Clinical Trial Design—Invited

ASA, ENAR, WNAR, IMS, SSC, International Chinese Statistical Association, International Indian Statistical Association, Korean International Statistical Society, International Society for Bayesian Analysis (ISBA), Royal Statistical Society, International Statistical Institute

Organizer(s): Scott Berry, Berry Consultants

Chair(s): Brian Hobbs, MD Anderson Cancer Center

8:35 a.m. Bayesian Adaptive Designs—◆Scott Berry, Berry Consultants

10:05 a.m. Floor Discussion

Invited Sessions 8:30 a.m. – 10:20 a.m.

465 CC-W192a
■● Data Science for Health Policy: A Broad Tent—Invited

Health Policy Statistics Section, Scientific and Public Affairs Advisory Committee, Committee on Applied Statisticians

Organizer(s): Sherri Rose, Harvard Medical School

Chair(s): Sherri Rose, Harvard Medical School

8:35 a.m. What Works in Boston May Not Work in Los Angeles: A Double Robust Transportability Estimator for Understanding Site Differences in Policy Interventions—◆Kara Rudolph, University of California at Berkeley; Mark van der Laan, University of California at Berkeley

9:00 a.m. Identifying the Most Harmful Sources of Ambient Air Pollution to Better Protect Public Health—◆Jenna Krall, Emory University

9:25 a.m. Generating Policy-Relevant Statistical Evidence in Sequentially Monitored Vaccine and Drug Safety Evaluations Using Electronic Health Record Data—◆Jennifer Clark Nelson, Group Health Research Institute; Andrea J. Cook, Group Health Research Institute; Robert Wellman, Group Health Research Institute; Ram Tiwari, FDA/CDER/OT/OB; Michael Nguyen, FDA; Estelle Russek-Cohen, FDA; Tracey Marsh, University of Washington; Azadeh Shoaibi, FDA; Denise Boudreau, Group Health Research Institute

9:50 a.m. Assessing Causal Impacts of Policy in the HIV Care Cascade—◆Joseph Hogan, Brown University

10:15 a.m. Floor Discussion

466 CC-W185bc
Model Selection—Invited

IMS, Royal Statistical Society, Section for Statistical Programmers and Analysts

Organizer(s): Gerda Claeskens, KU Leuven

Chair(s): Gerda Claeskens, KU Leuven

- 8:35 a.m. An Optimality of the L₀ Penalty and Dual Achievability of Model Selection—◆Yuhong Yang, University of Minnesota
- 9:00 a.m. Sparse Variable Selection Aiming at Minimum Prediction Error—◆Maarten Jansen, Université libre de Bruxelles
- 9:25 a.m. Goodness-of-Fit Tests for High-Dimensional Linear Regression—◆Rajen Dinesh Shah, University of Cambridge; Peter Buhlmann, ETH Zurich
- 9:50 a.m. Comparison of State Structures in Models of Disease Progression—◆Howard Thom, University of Bristol; Chris Jackson, Medical Research Council Biostatistics Unit; Linda Sharples, Leeds Institute of Clinical Trials Research; Daniel Commenges, Institut National de la Santé et de la Recherche Médicale; Nicky Welton, University of Bristol
- 10:15 a.m. Floor Discussion

467 CC-W175a

■ ● **Using the Extraordinary Power of Statistics for Transportation Safety Research at the Federal Highway Administration—Invited**

Transportation Statistics Interest Group, Section on Statistics in Defense and National Security, Scientific and Public Affairs Advisory Committee, Section on Risk Analysis

Organizer(s): Matthew J. Heaton, Brigham Young University

Chair(s): David Banks, Duke University

- 8:35 a.m. The Naturalistic Driving Study and Statistical Modeling Challenges—◆Feng Guo, Virginia Tech
- 9:00 a.m. Spatial Modeling of Highway Crash Risk—◆Matthew J. Heaton, Brigham Young University
- 9:25 a.m. Causal Inference Methods in Traffic Safety Research—◆Fan Li, Duke University
- 9:50 a.m. Disc: Carol Tan, Federal Highway Administration
- 10:10 a.m. Floor Discussion

468 CC-W196b
 ● **Uncertainty Estimation for Massive Data Sets—Invited**

Section on Statistical Computing, IMS, Royal Statistical Society

Organizer(s): Wendy Martinez, Bureau of Labor Statistics

Chair(s): David A. van Dyk, Imperial College London

- 8:35 a.m. How to Ask Questions of Huge Data with Few Samples—◆David Dunson, Duke University
- 9:05 a.m. Divide-and-Conquer and Statistical Inference—◆Michael I. Jordan, University of California at Berkeley
- 9:35 a.m. A Variational Bayesian Analysis of Stochastic Gradient Methods—◆Matt D. Hoffman, Princeton
- 10:05 a.m. Floor Discussion

469 CC-W179b

■ ● **Current Trends and Innovations in Bioinformatics: A SAMSI Program—Invited**

Section on Statistics in Genomics and Genetics

Organizer(s): Sujit K. Ghosh, Statistical and Applied Mathematical Sciences Institute

Chair(s): Sujit K. Ghosh, North Carolina State University

- 8:35 a.m. Statistical Methods for Genomic Data Integration—◆Veera Baladandayuthapani, MD Anderson Cancer Center
- 9:00 a.m. Statistical Inference for Chromatin 3D Structure—◆Shili Lin, The Ohio State University
- 9:25 a.m. State Space Models for the NGS Pipeline—◆Karin S. Dorman, Iowa State University; Xin Yin, Iowa State University; Vahid Noroozi, Iowa State University; Aditya Ramamoorthy, Iowa State University
- 9:50 a.m. Effects of Filtering and Normalization on Ordination Methods for Vaginal Microbiome Data—◆Snehalata Huzurbazar, University of Wyoming; Ekaterina Smirnova, University of Wyoming
- 10:15 a.m. Floor Discussion

470 CC-W183c

■ ● **Design and Analysis Issues with Modern Population Telephone Surveys—Invited**

Survey Research Methods Section

Organizer(s): Bo Lu, The Ohio State University

Chair(s): Rebecca Andridge, The Ohio State University

- 8:35 a.m. Estimating Interviewer Effects in the Absence of Interpenetration—◆Michael Elliott, University of Michigan; Brady West, University of Michigan

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 9:00 a.m. Causal Inference with Unequal Sampling Weights: Investigating Policy Effect Using Population Health Surveys—◆Bo Lu, The Ohio State University; Robert Ashmead, U.S. Census Bureau
- 9:25 a.m. Methods for Allocating and Targeting Small Areas in a Large Dual-Frame Telephone Survey—◆Marcus Berzofsky, RTI International
- 9:50 a.m. Disc: Marc N. Elliott, RAND Corporation
- 10:10 a.m. Floor Discussion

471 CC-W191

■ ● New Statistical Methods for the Analysis of High-Dimensional Biomarkers—Invited

Mental Health Statistics Section, International Chinese Statistical Association

Organizer(s): Damla Senturk, University of California at Los Angeles

Chair(s): Donatello Telesca, University of California at Los Angeles

- 8:35 a.m. A Multidimensional Functional Principal Components Analysis of EEG Data—◆Damla Senturk, University of California at Los Angeles; Kyle Hasenstab, University of California at Los Angeles; Aaron Scheffler, University of California at Los Angeles; Donatello Telesca, University of California at Los Angeles; Catherine Sugar, University of California at Los Angeles; Shafali Jeste, University of California at Los Angeles
- 9:00 a.m. Covariates Modulated False Discovery Rate in Hidden Markov Random Field Model—Richard Levine, San Diego State University; Wesley Thompson, University of California at San Diego; Carrie Bearden, University of California at Los Angeles; Dorothy Parker, University of California at San Diego; ◆Rong Zablocki, University of California at San Diego
- 9:25 a.m. Tensor Canonical Correlation Analysis—◆Hua Zhou, University of California at Los Angeles
- 9:50 a.m. Disc: Catherine Sugar, University of California at Los Angeles
- 10:10 a.m. Floor Discussion

472 CC-W184bc

■ ● Basis Function Approaches to Modeling Dependence in Environmental and Ecological Data—Invited

Section on Statistics and the Environment

Organizer(s): Mevin Hooten, Colorado State University

Chair(s): Dorit Hammerling, National Center for Atmospheric Research

- 8:35 a.m. Historical Perspective on Basis Functions and Process Convolutions in Spatial Statistics—◆Dave Higdon, Virginia Tech
- 8:55 a.m. Using Moving Averages and Basis Functions to Create Spatial Models for Stream Networks—◆Jay Ver Hoef, NOAA/NMFS National Marine Mammal Lab
- 9:15 a.m. Rank Reduction and Basis Coefficient Interaction in Dynamic Spatio-Temporal Models—◆Christopher Wikle, University of Missouri
- 9:35 a.m. Basis Function Approaches for Continuous-Time Lagrangian Movement Modeling—◆Mevin Hooten, Colorado State University
- 9:55 a.m. Multi-Resolution Approaches for Big Spatial Data—◆Matthias Katzfuss, Texas A&M University
- 10:15 a.m. Floor Discussion

473 CC-W178a

■ ● Subgroups Analyses: Planned Versus Ad-Hoc: How Many Are Too Many?—Invited

Biopharmaceutical Section, International Chinese Statistical Association, Committee on Applied Statisticians

Organizer(s): Vipin Arora, Eli Lilly and Company

Chair(s): Lisa LaVange, Office of Biostatistics Organization

- 8:35 a.m. Subgroup Analyses in Early-Phase Clinical Trials: Challenges and Opportunities—◆Bjorn Bornkamp, Novartis; Marius Thomas, Novartis
- 8:55 a.m. Visualizing the Limitations of Subgroup Analyses—◆Kevin Andrew Buhr, University of Wisconsin-Madison
- 9:15 a.m. Subgroup Analysis in Regulatory Decision Making—◆Lilly Yue, FDA/CDRH/OSB
- 9:35 a.m. Subgroups Analyses: Planned Versus Ad-Hoc-How Many Are Too Many?—◆Vipin Arora, Eli Lilly and Company
- 9:55 a.m. Disc: Judith D. Goldberg, New York University School of Medicine
- 10:15 a.m. Floor Discussion

474 CC-W180

■ ● **Enrichment Strategies in Clinical Development—Invited**

Section on Medical Devices and Diagnostics, ENAR

Organizer(s): Hong Tian, Janssen R&D

Chair(s): Sudhakar Rao, Janssen R&D

- 8:35 a.m. Estimation After Adaptive Population Enrichment Design—◆Vlad Dragalin, Janssen
- 9:00 a.m. Adaptive Multi-Arm Multi-Stage Group Sequential Designs—◆Cyrus Mehta, Cytel; Pranab Ghosh, Cytel
- 9:25 a.m. Adaptive Enrichment Trials for Biomarker-Guided Treatments—◆Noah Simon, University of Washington; Richard Macey Simon, National Cancer Institute
- 9:50 a.m. Disc: Richard Macey Simon, National Cancer Institute
- 10:10 a.m. Floor Discussion

475 CC-W196c

■ ● **Reproducibility in Statistics and Data Science—Invited**

Section on Statistics in Defense and National Security, Section on Statistical Computing, Caucus for Women in Statistics, Scientific and Public Affairs Advisory Committee

Organizer(s): Ben Baumer, Smith College

Chair(s): Ben Baumer, Smith College

- 8:35 a.m. Reproducibility for All and Our Love/Hate Relationship with Spreadsheets—◆Jennifer Bryan, University of British Columbia
- 8:55 a.m. Steps Toward Reproducible Research—◆Karl W. Broman, University of Wisconsin-Madison
- 9:15 a.m. Enough with Trickle-Down Reproducibility: Scientists, Open This Gate! Scientists, Tear Down This Wall!—◆Karthik Ram, University of California at Berkeley
- 9:35 a.m. Integrating Reproducibility into the Undergraduate Statistics Curriculum—◆Mine Cetinkaya-Rundel, Duke University
- 9:55 a.m. Disc: Yihui Xie, RStudio
- 10:15 a.m. Floor Discussion

Invited Panels 8:30 a.m. – 10:20 a.m.

476 CC-W183a

■ ● **‘With Great Power Comes Great Responsibility’: Harnessing the Extraordinary Power of Statistics—Invited**

Section on Statistical Consulting, Committee on Applied Statisticians

Organizer(s): Michiko I. Wolcott, Msight Analytics

Chair(s): Michiko I. Wolcott, Msight Analytics

- Panelists:
- ◆Susan E. Spruill, Applied Statistics and Consulting
 - ◆Daniel H. Mowrey, Eli Lilly and Company/Elanco
 - ◆Walter Stroup, University of Nebraska-Lincoln
 - ◆Jonathan Potts, Scoring Solutions

10:15 a.m. Floor Discussion

477 CC-W176c

■ ● **Extraordinary Power of Remote Collaboration and Team Science—Invited**

WNAR, Royal Statistical Society, International Chinese Statistical Association, Caucus for Women in Statistics, Committee on Applied Statisticians

Organizer(s): Motomi Mori, Oregon Health & Science University; Amanda Golbeck, University of Montana

Chair(s): Amanda Golbeck, University of Montana

- Panelists:
- ◆Motomi Mori, Oregon Health & Science University
 - ◆Mimi Kim, Albert Einstein College of Medicine
 - ◆Antje Hoering, Cancer Research and Biostatistics
 - ◆William Sollecito, The University of North Carolina at Chapel Hill
 - ◆Brisa N. Sanchez, University of Michigan

10:15 a.m. Floor Discussion

Topic-Contributed Sessions 8:30 a.m. – 10:20 a.m.

478 CC-W190b

■ ● **Effective Research-Oriented Internships: Fostering the Next Generation of Statisticians—Topic-Contributed**

SPAIG Committee

Organizer(s): Kelly Zou, Pfizer

Chair(s): Kelly Zou, Pfizer

- 8:35 a.m. The Summer Internship Partnership of ASA and Novartis Oncology: A Multi-Win Endeavor—

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- ◆William Mielowski, Novartis; Rebecca Nichols, ASA; Linda Finelli, Novartis
- 8:55 a.m. Internships as Training for MS-Level Statisticians—◆John E. Kolassa, Rutgers University
- 9:15 a.m. Capturing Carryover Effects in Crossover Designs in the Absence of Noncrossover Sequences—◆Vladimir Geneus, Florida State University; Ed P. Whalen, Pfizer; Ching-Ray Yu, Pfizer; Samaradasa Weerahandi, Pfizer; Chunming (Mark) Li, Pfizer
- 9:35 a.m. Inference on Ratios of Correlated Variables with Applications to Dietary Quality Assessment—◆Aiyi Liu, Eunice Kennedy Shriver National Institute of Child Health and Human Development; Xiaoyu Cai, The George Washington University; Zhaohai Li, The George Washington University
- 9:55 a.m. Disc: Wei Shen, Eli Lilly and Company
- 10:15 a.m. Floor Discussion

479 CC-W190a

■ ● **Assessing Player-Level Contributions in the NBA—Topic-Contributed**

Section on Statistics in Sports

Organizer(s): Michael Crotty, SAS Institute

Chair(s): Michael Crotty, SAS Institute

- 8:35 a.m. The Rise and Fall of ‘The Black Mamba’: Looking Back at Kobe Bryant’s Career—◆Clayton Barker, SAS Institute
- 8:55 a.m. Meta-Analytics: Evaluating Player Metrics in the NBA—◆Alexander Franks, University of Washington
- 9:15 a.m. NBA Court Real Estate: The Value of Positioning and Spacing—◆Daniel Cervone
- 9:35 a.m. Don’t Believe What You See: Prediction Paradoxes in Sports—◆Alexander D’Amour, Harvard
- 9:55 a.m. Floor Discussion

480 CC-W185d

● **Robust Bayesian Model Inference and Model Evaluation with Potential Misspecification—Topic-Contributed**

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

Organizer(s): Xinyi Xu, The Ohio State University

Chair(s): Andrew Bean, The Ohio State University

- 8:35 a.m. Modeling Non-Gaussian Time Series with Nonparametric Bayesian Model—◆Xinyi Xu,

- The Ohio State University; Zhiguang Xu, Chase; Steven N. MacEachern, The Ohio State University
- 8:55 a.m. Robust Bayesian Inference via Coarsening—◆Jeffrey Miller, Duke University; David Dunson, Duke University
- 9:15 a.m. Bayesian Restricted Likelihood Methods—◆Steven N. MacEachern, The Ohio State University; John Lewis, The Ohio State University; Yoonkyung Lee, The Ohio State University
- 9:35 a.m. On the Inherently Bayesian Evaluation of Forecast Quantities—◆Catherine Forbes, Monash University
- 9:55 a.m. Disc: Feng Liang, University of Illinois at Urbana-Champaign
- 10:15 a.m. Floor Discussion

481 CC-W179a

■ ● **Small Clinical Trials: Challenging Traditional Thinking—Topic-Contributed**

Biopharmaceutical Section, International Chinese Statistical Association, Committee on Applied Statisticians

Organizer(s): Satrajit Roychoudhury, Novartis

Chair(s): Satrajit Roychoudhury, Novartis

- 8:35 a.m. Impact of Adaptive Design on Optimization of Pharmaceutical Portfolios—◆Zoran Antonijevic
- 8:55 a.m. Maximizing the Efficiency of Proof-of-Concept Studies and of Arrays of Proof-of-Concept Studies for Multiple Drugs or Indications—◆Robert Beckman, Georgetown University Medical Center
- 9:15 a.m. Challenges and Experience in Designing Small Clinical Trials—◆Christopher Coffey, University of Iowa
- 9:35 a.m. An Extrapolation Framework to Specify Requirements for Drug Development in Children—◆Gerald Hlavin, Medical University of Vienna; Franz Koenig, Medical University of Vienna; Christoph Male, Medical University of Vienna; Martin Posch, Medical University of Vienna; Peter Bauer, Medical University of Vienna
- 9:55 a.m. Disc: Pandurang Kulkarni, Eli Lilly and Company
- 10:15 a.m. Floor Discussion

482 CC-W184d

■ ● **Time Series Modeling: Seasonality, Multivariate, and Testing—Topic-Contributed**

Business and Economic Statistics Section, IMS

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

Chair(s): Robert Lund, Clemson University

- 8:35 a.m. Identification, Estimation, and Applications of a Bivariate Long-Range Dependent Time

- Series Model with General Phase—◆Stefanos Kechagias, SAS Institute; Vladas Pipiras, The University of North Carolina at Chapel Hill
- 8:55 a.m. Sparse Seasonal and Periodic Vector Autoregressive Modeling—◆Vladas Pipiras, The University of North Carolina at Chapel Hill; Changryong Baek, Sungkyunkwan University; Richard A. Davis, Columbia University
- 9:15 a.m. The Effects of Seasonal Heteroskedasticity on Trend Estimation and Seasonal Adjustment for Time Series—◆Thomas Trimbur, U.S. Census Bureau; William Bell, U.S. Census Bureau
- 9:35 a.m. Residual Diagnostics for Automated Model Selection—◆James A. Livsey, U.S. Census Bureau; Tucker McElroy, U.S. Census Bureau; Anindya Roy, U.S. Census Bureau
- 9:55 a.m. Test Based on Frobenius Norm Distance of Spectral Matrices for Presence of Structural Components—◆Anindya Roy, U.S. Census Bureau; Tucker McElroy, U.S. Census Bureau
- 10:15 a.m. Floor Discussion

483 CC-W187b

GSS/SSS/SRMS Student Paper Award Presentations—Topic-Contributed

Survey Research Methods Section

Organizer(s): Tom Krenzke, Westat

Chair(s): Michael Hawes, U.S. Department of Education

- 8:35 a.m. General and Specific Utility Measures for Synthetic Data—◆Joshua Snoko, Penn State University; Beata Nowok, University of Edinburgh; Gillian Raab, University of Edinburgh; Aleksandra Slavkovic, Penn State University; Chris Dibben, University of Edinburgh
- 8:55 a.m. Analyzing Heterogeneous Causal Mediation Effects in Multi-Site Trials—◆Xu Qin, The University of Chicago; Guanglei Hong, The University of Chicago
- 9:15 a.m. Approximate Median Regression for Complex Survey Data—◆Raphael Fraser, Medical College of Wisconsin
- 9:35 a.m. Response Propensity and Motivated Under-Reporting: Do Persons Likely to Respond Give Better Answers to Filter and Eligibility Questions?—◆Jessica Wengrzik, GESIS; Stephanie Eckman, RTI International; Ruben Bach, Institute for Employment Research
- 9:55 a.m. Modeling Preferential Recruitment for Respondent-Driven Sampling—◆Katherine McLaughlin, University of California at Los Angeles
- 10:15 a.m. Floor Discussion

484 CC-W176a

Recent Advances in Computer-Intensive Methods for Analyzing Oral Health Data—Topic-Contributed

Biometrics Section, Biopharmaceutical Section

Organizer(s): Elizabeth G. Hill, Medical University of South Carolina

Chair(s): Tanujit Dey, Cleveland Clinic

- 8:35 a.m. Nonparametric Spatial Models for Clustered Ordered Periodontal Data—◆Dipankar Bandyopadhyay, Virginia Commonwealth University; Antonio Canale, University of Turin/Collegio Carlo Alberto
- 8:55 a.m. A Bayesian Multiscale Ordinal Latent Class Model for Dysphagia Severity—◆Elizabeth G. Hill, Medical University of South Carolina; Kent Armeson, Medical University of South Carolina; Elizabeth Slate, Florida State University; Bonnie Martin-Harris, Medical University of South Carolina
- 9:15 a.m. Cluster-Adjusted Regression for Displaced Subject Data (CARDS): Marginal Inference Under Potentially Informative Temporal Cluster Size Profiles—◆Somnath Datta, University of Florida; Joe Bible, National Institutes of Health; James Beck, The University of North Carolina at Chapel Hill
- 9:35 a.m. Continuous Time Causal Mediation Analysis with Application to Longitudinal Dental Caries Data—◆Jeffrey Albert, Case Western Reserve University; Yiyang Liu, Case Western Reserve University; Suchitra Nelson, Case Western Reserve University
- 9:55 a.m. Marginal Mean Models for Zero-Inflated Count Data with Spline-Based Semiparametric Estimation—◆David Todem, Michigan State University; Yifan Yang, Michigan State University
- 10:15 a.m. Floor Discussion

485 CC-W194b

Recent Advances in Functional Data Analysis—Topic-Contributed

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

Organizer(s): Xiaoke Zhang, University of Delaware

Chair(s): Raymond Wong, Iowa State University

- 8:35 a.m. Single-Index Models for Function-on-Function Regression—◆Guanqun Cao, Auburn University; Li Wang, Iowa State University
- 8:55 a.m. Weighing Schemes for Functional Data—◆Xiaoke Zhang, University of Delaware; Jane-Ling Wang, University of California at Davis

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 9:15 a.m. Historical Functional Cox Regression, with an Application to Prediction of Multiple Sclerosis Lesions—◆Philip Reiss, New York University; Elizabeth M. Sweeney, Johns Hopkins Bloomberg School of Public Health; Jonathan Gellar, Mathematica Policy Research
- 9:35 a.m. Nonparametric Estimation of Stationary Covariance Functions—◆Li Wang, Iowa State University; Jiangyan Wang, Soochow University; Guanqun Cao, Auburn University
- 9:55 a.m. Functional Data Methods for Child Growth Data—◆Luo Xiao, North Carolina State University; Andrew Leroux, Johns Hopkins Bloomberg School of Public Health; William Checkley, The Johns Hopkins University; Ciprian Crainiceanu, The Johns Hopkins University
- 10:15 a.m. Floor Discussion

486 CC-W185a

■ ● Estimating the Properties of Physical Time Series by Leveraging the Power of Spectral Analysis—Topic-Contributed

Section on Physical and Engineering Sciences, Quality and Productivity Section

Organizer(s): Aaron Springford, Queen's University at Kingston

Chair(s): David J. Thomson, Queen's University at Kingston

- 8:35 a.m. Phase as Lag: Synthetic Lag Models for Risk Estimation in Environmental Health—◆Wesley S. Burr, Health Canada; Glen Takahara, Queen's University
- 8:55 a.m. On Bandwidth Selection for Multitaper Spectrum Estimation—◆Charlotte Haley, Argonne National Lab; Mihai Anitescu, Argonne National Lab
- 9:15 a.m. Extraction of Atrial Signals from Electrocardiograms—◆Joshua Pohlkamp-Hartt, Queen's University
- 9:35 a.m. Incorporating Improper Correlation Structures Into Transfer Function Estimation—◆David Riegert, Queen's University
- 9:55 a.m. Rescuing 100 Years of Geomagnetic Records: Inferring Scales Using Spectral Properties—◆Aaron Springford, Queen's University at Kingston; David J. Thomson, Queen's University at Kingston; David Riegert, Queen's University
- 10:15 a.m. Floor Discussion

487

CC-W182

■ ● Novel Statistical Methodologies for Neuroimaging Data—Topic-Contributed

ENAR, Biopharmaceutical Section, Section on Statistics in Imaging, International Chinese Statistical Association

Organizer(s): Ranjan Maitra, Iowa State University

Chair(s): Robert Todd Ogden, Columbia University

- 8:35 a.m. An Assessment of Statistical Models of Complex-Valued fMRI Data—◆Daniel Adrian, Grand Valley State University; Ranjan Maitra, Iowa State University; Daniel Rowe, Marquette University
- 8:55 a.m. Quantifying Functional Connectivity with Data-Adaptive Covariance Matrices for Multivariate Functional Data—◆Alexander Petersen, University of California at Davis; Hans-Georg Mueller, University of California at Davis
- 9:15 a.m. A Joint Modeling Approach for Treatment Response and Baseline Imaging Data—◆Bei Jiang; Eva Petkova, New York University; Thaddeus Tarpey, Wright State University; Todd Ogden, Columbia University
- 9:35 a.m. HPRM: Hierarchical Principal Regression Model of Diffusion Tensor Bundle Statistics—◆Jingwen Zhang; Hongtu Zhu, The University of North Carolina at Chapel Hill; Joseph G. Ibrahim, The University of North Carolina at Chapel Hill
- 9:55 a.m. SENSE-Induced Correlation in Simultaneous Multi-Slice fMRI—◆Daniel Rowe, Marquette University

Topic-Contributed Panels 8:30 a.m. – 10:20 a.m.

488

CC-W192c

■ ● The Challenge of Keeping Introductory Biostatistics Interesting and Fun—Topic-Contributed

Section on Teaching of Statistics in the Health Sciences, Section on Statistical Education

Organizer(s): Harry Norton, Carolinas Medical Center

Chair(s): Robert A. Oster, University of Alabama at Birmingham

Panelists: ◆Harry Norton, Carolinas Medical Center
◆George W. Divine, Henry Ford Hospital
◆Sam Michalowski, College of Staten Island

8:55 a.m. Floor Discussion

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

489 CC-W192b
■ ● Evaluating Some Popular Introductory Applied Statistics Textbooks: What We Like About Them and What We Would Like Them to Do Differently—Topic-Contributed

Section on Statistical Education

Organizer(s): John D. McKenzie, Jr., Babson College

Chair(s): John D. McKenzie, Jr., Babson College

- Panelists: ◆ Katherine T. Halvorsen, Smith College
 ◆ Dexter C. Whittinghill, III, Rowan University
 ◆ Philip Yates, Saint Michael's College
 ◆ André Michelle Lubecke, Lander University

10:15 a.m. Floor Discussion

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

490 CC-W181a
SPEED: Statistical Methods for Clinical Trials and Longitudinal Analysis—Contributed

Biopharmaceutical Section, Biometrics Section

Chair(s): Kevin Lawson, PPD

The Poster portions will take place during Session 559 and Session 562.

- 8:35 a.m. Statistical Inference of Covariate-Adjusted Response-Adaptive Randomized Clinical Trials—◆ Wanying Zhao, The George Washington University
- 8:40 a.m. A Comparison of Methods for Confidence Intervals on the Location of a Quadratic Growth Curve—◆ Puyu San, Arizona State University; Mark Reiser, Arizona State University; Wanchunzi Yu, Arizona State University
- 8:45 a.m. Adaptive Estimation of Personalized Maximum Tolerated Doses in Cancer Phase I Clinical Trials According to All Toxicities and Individual Characteristics—◆ Zhengjia Chen, Emory University; Zheng Li, Penn State University; Ying Yuan, MD Anderson Cancer Center; Michael Kutner, Emory University; Taofeek Owonikoko, Emory University; Walter J. Curran, Emory University; Jeanne Kowalski, Emory University
- 8:50 a.m. Small Sample Inference in Imbalanced Cluster Randomized Clinical Trials with Binary Outcomes—◆ Dong Hyun Ahn, New York University; Judith D. Goldberg, New York University School of Medicine
- 8:55 a.m. Robust Generalized Multivariate Bioequivalence—◆ Srinand Ponnathapura Nandakumar, Quintiles
- 9:00 a.m. Explore Methodologies for Extrapolation of Efficacy from the Adult to the Specific Pediatric

Population—◆ Yao Li, AbbVie; Bidan Huang, AbbVie

- 9:05 a.m. A Clinical Trial Design Based on the Concept of Relative Time Using the Generalized Gamma Ratio Distribution—◆ Milind Phadnis, University of Kansas Medical Center
- 9:10 a.m. Improved Methods for the Marginal Analysis of Longitudinal Data in the Presence of Time-Dependent Covariates—◆ I-Chen Chen, University of Kentucky; Philip Westgate, University of Kentucky
- 9:15 a.m. Proportional Likelihood Ratio Mixed Model—◆ Hongqian Wu, University of Iowa; Michael Jones, University of Iowa
- 9:20 a.m. Simultaneous Confidence Intervals for Assessing SNP Effects on Treatment Efficacy—◆ Yushi Liu; Jason C. Hsu, Eli Lilly and Company/The Ohio State University
- 9:30 a.m. Dangers of Misusing Ordinal Data—◆ Ivy Liu, Victoria University of Wellington; Daniel Fernandez Martinez, New York University; Peter Yongqi Gu, Victoria University of Wellington
- 9:35 a.m. A Simulation-Based Method for Detecting the Best Treatment in Clinical Trials—◆ Yan Zhao, University of Oklahoma Health Sciences Center; Roy Tamura, University of South Florida; Michael Brown, Oklahoma Medical Research Foundation
- 9:40 a.m. Efficient Estimation Method for the Extended Hazards Model—◆ Yinding Wang; Jiajia Zhang, University of South Carolina
- 9:45 a.m. A Small N Sequential Multiple Assignment Randomized Trial for Use in Rare Disease Research—◆ Roy Tamura, University of South Florida
- 9:50 a.m. The Impact of Model Misspecification on Repeated Measures Analysis—◆ Yingmei Xi, Vertex Pharmaceuticals; John Jiang, Vertex Pharmaceuticals
- 9:55 a.m. Correlates of Time to Sexual Debut in 15-19-Year-Olds in the Jamaica Youth Risk and Resiliency Survey 2006: A Survival Analysis—◆ Tamika Royal-Thomas, University of the West Indies; Novie Younger-Coleman, University of the West Indies; Jan Van den Broeck, University of Bergen; Debajyoti Sinha, Florida State University; Daniel McGee, Florida State University; Shelly McFarlane, University of the West Indies; Damian Francis, University of the West Indies; Rainford Wilks, University of the West Indies
- 10:00 a.m. Using Endpoints to Analyze Patients Rather Than Patients to Analyze Endpoints: A Pre-Trial Substudy to Develop a Global Outcome for Clinical Trials—◆ Natalia Gouskova, Harvard T.H. Chan School of Public Health; Thomas Holland, Duke University; Sarah Doernberg, University of California at San Francisco;

Hongyu Jeanne Jiang, Harvard; Sara Patillo, Duke University; Ralph Corey, Duke University; Helen Boucher, Tufts University; Vance G. Fowler, Duke University; Sara E. Cosgrove, The Johns Hopkins University; Henry F. Chambers, University of California at San Francisco; Scott Evans, Harvard

- 10:05 a.m. **Applying Statistical Design to Improve Target Selection: An Example from Whole-Genome SiRNA Screens**—◆Mandy Bergquist; Katja Remlinger, GlaxoSmithKline
- 10:10 a.m. **Good Practices and Implementation Methods for Optimally Stratified Randomization**—◆Jonathan Chipman, Vanderbilt University; Cole Beck, Vanderbilt University; Robert Greevy, Vanderbilt University
- 10:15 a.m. **When Do Auxiliary Variables Not Work in Multiple Imputation?**—◆Jiaqi Zhang, University of Cincinnati; Christopher Swoboda, University of Cincinnati; Kyle Cox, University of Cincinnati; Zuchao Shen, University of Cincinnati; Ryan Joseph Hart, University of Cincinnati

491 CC-W181b

SPEED: Advances in Statistical Genetics—Contributed

Section on Statistics in Genomics and Genetics

Chair(s): Marianne Huebner, Michigan State University

The Poster portions will take place during Session 560 and Session 563.

- 8:35 a.m. **Variable Selection in Untargeted Metabolomics Data Analysis**—◆Alexander Kirpich, University of Florida; Matthew Merritt, University of Florida; George Michailidis, University of Florida; Lauren McIntyre, University of Florida
- 8:40 a.m. **Predicting Human and Animal Protein Subcellular Locations**—◆Sepideh Khavari; James Munyon, Bowling Green State University; Xiangjia Min, Youngstown State University; Guang-Hwa Chang, Youngstown State University
- 8:45 a.m. **ASAFE: Ancestry-Specific Allele Frequency Estimation**—◆Qian Zhang, University of Washington; Brian Browning, University of Washington; Sharon Browning, University of Washington
- 8:50 a.m. **Robust Modeling of EQTL Effect Sizes**—◆John Palowitch; Andrey Shabalín, Virginia Collegiate University; Fred Wright, North Carolina State University; Andrew Nobel, The University of North Carolina at Chapel Hill; Yihui Zhou, North Carolina State University
- 8:55 a.m. **Pathway-Structured Predictive Model for Cancer Survival Prediction**—◆Xinyan Zhang, University of Alabama at Birmingham; Yan Li, University

of Alabama at Birmingham; Omotomilayo F. Akinyemiju, University of Alabama at Birmingham; Akinyemi I. Ojesina, University of Alabama at Birmingham; Phillip Buckhaults, University of South Carolina; Bo Xu, Southern Research Institute; Nengjun Yi, University of Alabama at Birmingham

- 9:00 a.m. **A New Method to Construct Large Gene Regulatory Networks Using Genetical Genomics Data**—◆Chen Chen, Purdue University; Min Zhang, Purdue University; Dabao Zhang, Purdue University
- 9:05 a.m. **A Pseudotime-Series-Based Analysis for Single-Cell Sequencing Data Reveals Directed Associations Between Gene Expression Data**—◆Alicia Taylor Specht, University of Notre Dame; Jun Li, University of Notre Dame
- 9:10 a.m. **Stochastic Network Models with Applications to 'Omics Data**—◆Thomas Bartlett
- 9:15 a.m. **Multiple Imputation for Non-Detects in QPCR**—◆Valeriia Sherina, University of Rochester; Matthew Nicholson McCall, University of Rochester
- 9:30 a.m. **SCDC: A Statistical Approach for Reducing Nuisance Variability Due to Oscillating Genes in Unsynchronized Single-Cell RNA-Seq Experiments**—◆Jeeha Choi, University of Wisconsin-Madison; Christina Kendzioriski, University of Wisconsin; Ning Leng, Thomson Lab at the Morgridge Institute for Research; Li-Fang Chu, Thomson Lab at the Morgridge Institute for Research; Ron Stewart, Thomson Lab at the Morgridge Institute for Research; James Thomson, Morgridge Institute for Research
- 9:35 a.m. **Spectral Analysis for DNA Barcoding**—◆Zhijian Li, Ohio University; Wei Lin, Ohio University
- 9:40 a.m. **Accounting for Correlations in Genetic Enrichment Analysis for Improved Interpretation of Genome-Scale Data**—◆Duo Jiang, Oregon State University; Bin Zhuo, Oregon State University
- 9:45 a.m. **Hybrid-Network: A Bayesian Approach**—◆Demba Fofana; Ebenezer Olusegun George, University of Memphis; Dale Bowman, University of Memphis
- 9:50 a.m. **Clustering Functional Data from High-Throughput Sequencing Assays**—◆Emery Goossens; Heejung Shim, Purdue University
- 9:55 a.m. **Sparse, Efficient Phylogenetic Factor Analysis**—◆Max Tolkoff; Marc Adam Suchard, University of California at Los Angeles
- 10:00 a.m. **Comparison of the Bayesian and Frequentist Estimation of the Inbreeding Coefficient**—◆Zhenyi Xue, Becton, Dickinson, and Company
- 10:05 a.m. **Floor Discussion**

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

492 CC-W183b
SPEED: Advances in Survey Research
Methodology—Contributed

Survey Research Methods Section

Chair(s): Kennon Copeland, NORC at the University of Chicago

The Poster portions will take place during Session 561 and Session 564.

- 8:35 a.m. Pilot Surveys of Shore Fishing on Oahu, Hawaii—
 ◆Hongguang Ma, Pacific Islands Fisheries Science Center; Tom Ogawa, Hawaii Department of Land and Natural Resources; Jay Breidt, Colorado State University; Virginia Lesser, Oregon State University; Jean Opsomer, Colorado State University; Tom Sminkey, NOAA Fisheries; Christopher Hawkins, Western Pacific Regional Fishery Management Council; April Bagwill, NOAA Fisheries/ECS Federal; David Van Voorhees, NOAA Fisheries
- 8:40 a.m. How Can a Clothing Price Index Be Enhanced? Statistics Canada's Recent Experience—◆Krista MacIsaac, Statistics Canada; Jean-Sébastien Provençal, Statistics Canada
- 8:45 a.m. Accuracy in Effect Size Estimation for IID Observations—◆Francis Bilson Darku, The University of Texas at Dallas; Ken Kelly, Mendoza College of Business; Bhargab Chattopadhyay, The University of Texas at Dallas
- 8:50 a.m. Spatio-Temporal Balanced Sampling Design for Longitudinal Area Survey—◆Zhonglei Wang, Iowa State University; Zhengyuan Zhu, Iowa State University
- 8:55 a.m. Sampling with Minimal Strata Sample Size Requirements—◆Stanislav Kolenikov, Abt SRBI; Igor Griva, George Mason University
- 9:00 a.m. Predicting and Preventing Break-Offs in Web Surveys—◆Felicita Mittereder, University of Michigan
- 9:05 a.m. Assessing the Reliability of Conversational Interviewing—◆William Mockovak, Bureau of Labor Statistics
- 9:10 a.m. Using Instrumental Variables for Bias Correction of Estimates of General Population Parameters from Nonrandomized Web Panel Data—◆Vladislav Beresovsky, CDC/NCHS; Alan Dorfman, CDC/NCHS; Pavlina Rumcheva, CDC/NCHS
- 9:15 a.m. Calibration of Design Weights Using a Power Transformation—◆Sarjinder Singh, Texas A&M University-Kingsville; Veronica Salinas, Texas A&M University-Kingsville; Stephen Sedory, Texas A&M University-Kingsville
- 9:20 a.m. Calibration Weighting for Nonresponse with Proxy Frame Information—◆Phil Kott, RTI International
- 9:30 a.m. Alternate Methods for Constructing BRR Weights with National Health and Nutrition Examination

Survey (NHANES) Single-Year Samples—◆Te-Ching Chen, CDC/NCHS; Jennifer Parker, CDC/NCHS

- 9:35 a.m. Generating Correlated Synthetic Binary Indicators of Radio Listening Behavior for Long-Term Projections—◆Yanna Yan, University of Michigan; Michael Elliott, University of Michigan; Brady West, University of Michigan; William Waldron, Nielsen
- 9:40 a.m. Access and Explore NCES Survey and Administrative Data Through Self-Guided Online Training Modules—◆Andrew A. White, National Center for Education Statistics
- 9:45 a.m. A Composite Likelihood Approach in Testing for Hardy Weinberg Equilibrium Using Family-Based Genetic Survey Data—◆Lingxiao Wang, Joint Program in Survey Methodology; Barry Graubard, National Cancer Institute; Yan Li, Joint Program in Survey Methodology
- 9:50 a.m. Extension of the Peters-Belson Method to Estimate Health Disparities Among Multiple Groups Using Logistic Regression with Survey Data—◆Yan Li, Joint Program in Survey Methodology; Barry Graubard, National Cancer Institute; Pengyu Huang, Fors Marsh Group; Joseph L. Gastwirth, The George Washington University
- 9:55 a.m. Regression Models and Tests for Recruitment Dynamics in Respondent-Driven Sampling—◆Li Zeng, Yale University; Forrest Crawford, Yale University; Jianghong Li, Yale University
- 10:00 a.m. A Comparison Between Standard Regression and Multilevel Modeling Techniques to Analyze Complex Survey Data Based on the Monte Carlo Simulation Study—◆Alomgir Hossain, University of Ottawa Heart Institute; George Wells, University of Ottawa Heart Institute; Punam Pahwa, University of Saskatchewan
- 10:05 a.m. Ranking Question Design and Data Analysis—◆Chia-Ling Kuo, University of Connecticut Health Center; Jessica Hoag, University of Connecticut Health Center
- 10:10 a.m. Floor Discussion

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

493 CC-W193a
Risk Prediction and Risk Assessment Models—Contributed

Section on Risk Analysis

Chair(s): Mark Burch, The Ohio State University

- 8:35 a.m. Modeling Survival and Growth Outcomes in a Toxicology Study—◆Jing Zhang; A. John

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- Bailer, Miami University; James T. Oris, Miami University; Scott E. Belangerz, Procter & Gamble
- 8:50 a.m. Bayesian Prospective Detection of Small-Area Health Anomalies Using Kullback-Leibler Divergence—◆Chawarat Rotejanaprasert, Medical University of South Carolina
- 9:05 a.m. Augmented Estimation for T-Year Survival with Censored Regression Models—◆Yu Zheng, Harvard; Tianxi Cai, Harvard
- 9:20 a.m. Improvements in Estimation of Measures of Prediction Increment—◆Danielle Enserro; Ralph D'Agostino, Boston University; Michael Pencina, Duke University; Martin G. Larson, Boston University
- 9:35 a.m. Design and Analyses of Two-Phase Studies for Predicting Binary Outcomes—◆Xinglei Chai, University of Pennsylvania; Jinbo Chen, University of Pennsylvania
- 9:50 a.m. Asymptotic Distribution of Delta AUC, NRI, and IDI Based on U-Statistics Theory—◆Olga Demler, Harvard Medical School; Michael Pencina, Duke University; Ralph D'Agostino, Boston University
- 10:05 a.m. Quantifying the Risk of Extreme Aviation Accidents—◆Kumer Das, Lamar University; Asim Dey, The University of Texas at Dallas

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CC-W195

● Optimization Problems in Statistical Computing—Contributed

Section on Statistical Computing

Chair(s): Catherine Durso, University of Denver

- 8:35 a.m. Statistical Learning Guided by Managerial Decision Making—◆Bo Li, Tsinghua University
- 8:50 a.m. Pseudo-Proximal Map-Iterated Filtering—◆Dao Nguyen, University of Michigan
- 9:05 a.m. Minimizing Sum of Truncated Convex Functions and Its Applications—◆Tzu-Ying Liu, University of Michigan; Hui Jiang, University of Michigan
- 9:20 a.m. Accelerated Schemes for a Class of Variational Inequalities—◆Yuyuan Ouyang; Yunmei Chen, University of Florida; Guanghui Lan, University of Florida
- 9:35 a.m. On Optimal Quantile Regression—◆Mei Ling Huang, Brock University; Christine Nguyen, Brock University
- 9:50 a.m. Role of the Tuning Parameter in Model Selection Based on the Relative Quadratic Risk—◆Rositsa Dimova, FDA; Marianthi Markatou, SUNY Buffalo; Georgios Afendras, SUNY Buffalo
- 10:05 a.m. Java as a Platform for Statistical Computing—◆Philip Steitz

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CC-W176b

■ Random Effects and Mixed Models—Contributed

Biometrics Section, Biopharmaceutical Section

Chair(s): Yifei Sun, The Johns Hopkins University

- 8:35 a.m. A Computationally Efficient Algorithm for Random Effects Selection in Linear Mixed Models—◆Mihye Ahn, University of Nevada, Reno; Helen Zhang, University of Arizona; Wenbin Lu, North Carolina State University
- 8:50 a.m. Random-Effects Models in Genetics: Theoretical and Computational Tools for Modern Applications—◆Lee Dicker, Rutgers University
- 9:05 a.m. Restricted Maximum Likelihood Approaches for Linear Mixed Models: AREML and BREML—◆Erning Li, University of Iowa; Dale Zimmerman, University of Iowa
- 9:20 a.m. Confidence Intervals for Variance Components in Mixed-Effects Models: A Likelihood-Based Approach—◆Gaurav Sharma, The EMMES Corporation; Lihan Yan, FDA
- 9:35 a.m. Analysis of Drug Combination Experiments with Repeated Measurements—◆Shouhao Zhou, MD Anderson Cancer Center
- 9:50 a.m. Multidimensional Latent Trait Linear Mixed Model with an Application in Clinical Trials—◆Jue Wang, The University of Texas Health Science Center at Houston; Sheng Luo, The University of Texas at Houston
- 10:05 a.m. Floor Discussion

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CC-W177

■ New Methods for Competing Risks and Multistate Models—Contributed

Biometrics Section, Biopharmaceutical Section, International Chinese Statistical Association

Chair(s): Chiung-Yu Huang, The Johns Hopkins University

- 8:35 a.m. A Bivariate Lehmann Model for Semi-Competing Risks Data—◆David Oakes, University of Rochester Medical Center
- 8:50 a.m. Semiparametric Models of Bivariate Times-to-Event Data with a Semi-Competing Risk—◆Ran Liao, Indiana University; Sujuan Gao, Indiana University
- 9:05 a.m. Semiparametric Regression Analysis of Recurrent Gap Times in the Presence of Competing Risks—◆Chia-Hui Huang, National Taipei University; Yi-Hau Chen, Academia Sinica
- 9:20 a.m. Instrumental Variable with Competing Risk Model—◆Cheng Zheng, University of Wisconsin-Milwaukee; Ran Dai, The University of Chicago; Parameswaran Hari, Medical College

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- of Wisconsin; Mei-jie Zhang, Medical College of Wisconsin
- 9:35 a.m. **Doubly Robust Regression Trees Under Competing Risks**—◆Youngjoo Cho, University of Rochester Medical Center; Robert Strawderman, University of Rochester Medical Center
- 9:50 a.m. **On the Choice of Time Scales in Competing Risks Predictions**—◆Minjung Lee, Kangwon National University; Natalia A. Gouskova, The University of North Carolina at Chapel Hill; Eric J. Feuer, National Cancer Institute; Jason Fine, The University of North Carolina at Chapel Hill
- 10:05 a.m. **A Semiparametric Multi-State Survival Model for Correlated Interval-Censored Life History Data in Caries Research**—◆Daewoo Pak, Michigan State University; Chenxi Li, Michigan State University; David Todem, Michigan State University

497 **CC-W175b**
Novel Methods for Addressing Confounding Bias in Observational Studies—Contributed

Section on Statistics in Epidemiology, International Chinese Statistical Association
 Chair(s): Robert Hirsch, Stat-Aid Consulting

- 8:35 a.m. **Using Propensity Scores to Infer Causal Effects on Heart Health from Chemotherapy Treatment of Breast Cancer Patients**—◆John Craycroft, University of Louisville; Maiying Kong, University of Louisville; Carrie Lenneman, University of Louisville
- 8:50 a.m. **Propensity Scoring Methods for Ordinal Treatments**—◆Thomas Greene, The University of Texas Health Science Center at Houston; Stacia DeSantis, The University of Texas Health Science Center at Houston; Michael D. Swartz, The University of Texas Health Science Center at Houston
- 9:05 a.m. **False Discovery Rate Control for Effect Modification in Observational Studies**—◆Bikram Karmakar, University of Pennsylvania; Ruth Heller, Tel-Aviv University; Dylan Small, University of Pennsylvania
- 9:20 a.m. **Mediation Analysis with Multilevel Additive Models**—◆Qingzhao Yu, Louisiana State University Health Sciences Center; Bin Li, Louisiana State University; Richard Scribner, Louisiana State University Health Sciences Center
- 9:35 a.m. **Weighted Estimation in Confounded Binary Data Subject to Outcome Misclassification**—◆Christopher A. Gravel, McGill University; Robert W. Platt, McGill University
- 9:50 a.m. **Assessing Sensitivity to Unmeasured Confounding in Multilevel Models Using a Simulated Potential**

- Confounder**—◆Nicole Carnegie, University of Wisconsin-Milwaukee; Jennifer L. Hill, New York University; Vincent Dorie, New York University
- 10:05 a.m. **From Presence of Pathogens to Etiology of Disease: An Innovative Latent Class Model with Two Latent Variables**—◆Nong Shang, CDC

498 **CC-W194a**
Community, Social, and Anomaly Detection in Networks—Contributed

Section on Statistical Learning and Data Science, Royal Statistical Society
 Chair(s): Georgiy Bobashev, RTI International

- 8:35 a.m. **Self-Similarity Estimation for Cyber-Security**—◆Marina Evangelou, Imperial College London; Niall Adams, Imperial College London
- 8:50 a.m. **Analysis of Community Evolution in Networks**—◆Giuliana Pallotta, Lawrence Livermore National Laboratory; Goran Konjevod, Lawrence Livermore National Laboratory
- 9:05 a.m. **Anomaly Detection in Time-Evolving Networks Using Tensor Spectrum**—◆Ruikai Cao, The University of Texas at Dallas; Yulia R. Gel, The University of Texas at Dallas
- 9:20 a.m. **Structural Balance in Village Social Networks with Antagonistic Ties**—◆Derek Feng, Yale University
- 9:35 a.m. **Learning the Underlying Social Network from Continuous-Time Pairwise Interaction Data**—◆Wesley Lee, University of Washington; Bailey Fosdick, Colorado State University; Tyler McCormick, University of Washington
- 9:50 a.m. **An ROC Approach to Estimating Interpersonal Networks**—◆Deniz Yenigun, Istanbul Bilgi University; Gunes Ertan, Koc University; Michael Siciliano, University of Illinois at Chicago
- 10:05 a.m. **Floor Discussion**

499 **CC-W193b**
Statistical Learning Approaches to Biological Inference Problems—Contributed

Section on Statistical Learning and Data Science
 Chair(s): Nusrat Jahan, James Madison University

- 8:35 a.m. **Incorporating Biological Information in Sparse Principal Component Analysis with Application to Genomic Data**—◆Ziyi Li, Emory University; Qi Long, Emory University; Sandra Safo, Emory University
- 8:50 a.m. **Detecting Real-Time Substance Use from Wearable Biosensor Data Stream**—◆Chanpaul Jin Wang, University of Massachusetts Medical School; Hua Fang, University of Massachusetts Medical School;

- Stephanie Carreiro, University of Massachusetts Medical School; Honggang Wang, University of Massachusetts-Dartmouth; Edward Boyer, University of Massachusetts Medical School
- 9:05 a.m. **Statistics and Machine Learning in Pharmacovigilance for Signal Detection of Cardiovascular Risks**—◆James Chen, FDA/NCTR; Weizhong Zhao, FDA/NCTR; Wen Zou, FDA/NCTR
- 9:20 a.m. **Deep Spatial Learning for Forensic Geolocation with Microbiome Data**—◆Neal Grantham; Brian J. Reich, North Carolina State University; Eric Laber, North Carolina State University
- 9:35 a.m. **Human Detection from Images with Supervised Kernel PCA**—◆Yishi Wang, The University of North Carolina at Wilmington; Troy Kling, University of Florida
- 9:50 a.m. **Genome-Wide Association Studies Using a Penalized Moving-Window Regression**—◆Minli Bao, University of Iowa; Kai Wang, University of Iowa
- 10:05 a.m. **Data Normalization by Fisher-Yates Transformation**—◆Yayan Zhang, Merck

500 **CC-W175c**
■ ● Adaptive Designs: Interim Decision Making—Contributed

Biopharmaceutical Section

Chair(s): Darcy Hille, Merck

- 8:35 a.m. **Unblinded Sample Size Re-Estimation in Bioequivalence Trials with Small Sample Sizes**—◆Sam Hsiao, Cytel; Lingyun Liu, Cytel
- 8:50 a.m. **Multiple Testing Procedures for Adaptive Enrichment Designs: Combining Group Sequential and Reallocation Approaches**—◆Michael Rosenblum, Johns Hopkins Bloomberg School of Public Health; Tianchen Qian, Johns Hopkins Bloomberg School of Public Health; Yu Du, Johns Hopkins Bloomberg School of Public Health; Huitong Qiu, Johns Hopkins Bloomberg School of Public Health; Aaron Fisher, The Johns Hopkins University
- 9:05 a.m. **Blinded Sample Size Re-Estimation in Demonstrating Biosimilarity**—◆Lingyun Liu, Cytel; Emmanuelle Vincent, Cytel
- 9:20 a.m. **Sample Size Re-Estimation in a Two-Stage Cross-Over Trial for Testing for Average Bioequivalence**—◆Byron Jones, Novartis Pharma; Will Maurer, Novartis Pharma AG; Ying Chen, Shanghai University of Finance and Economics
- 9:35 a.m. **Adaptive Enrichment with Subpopulation Selection at Interim**—◆Xiang Ling, FDA/CDER; Sue-Jane Wang, FDA; Kun Jin, FDA/CDER; Hsien-Ming James Hung, FDA

- 9:50 a.m. **Improved Group Sequential Clinical Trial Designs with Multiple Co-Primary Endpoints**—◆Koko Asakura, National Cerebral and Cardiovascular Center; Toshimitsu Hamasaki, National Cerebral and Cardiovascular Center; Franz Koenig, Medical University of Vienna; Martin Posch, Medical University of Vienna
- 10:05 a.m. **Arm Dropping in Clinical Trials: An In-Depth Look at Statistical Considerations and Implications**—◆JonDavid Sparks, Eli Lilly and Company; Brian Millen, Eli Lilly and Company; Qi Zhang, Eli Lilly and Company

501 **CC-W178b**
■ ● Analysis of Gene Expression, Genomics, and Next-Generation Sequencing Data—Contributed

Section on Statistics in Genomics and Genetics, Biopharmaceutical Section

Chair(s): Cheng Jia, University of Pennsylvania

- 8:35 a.m. **Efficient Bayesian Model-Based Clustering Method for Identification of Transcription Factor-Binding Sites for ChIA-PET Data**—◆Ioannis Vardaxis, Norwegian University of Science and Technology; Bo Henry Lindqvist, Norwegian University of Science and Technology; Finn Drabløs, Norwegian University of Science and Technology; Morten Beck Rye, Norwegian University of Science and Technology
- 8:50 a.m. **Adaptive Models for Profiling Tumor Evolution and Drug Response in Cancer Cell Subpopulations**—◆Evan Johnson, Boston University
- 9:05 a.m. **Detecting EQTLs: A Fast Analysis Protocol Using High-Dimensional Sequencing Data**—◆Kai Kammers, Johns Hopkins Bloomberg School of Public Health; Ingo Ruczinski, Johns Hopkins Bloomberg School of Public Health; Margaret A. Taub, Johns Hopkins Bloomberg School of Public Health; Joshua Martin, The GeneSTAR Program; Lisa R. Yanek, The GeneSTAR Program; Lewis Becker, The GeneSTAR Program; Rasika A. Mathias, The GeneSTAR Program; Jeffrey Leek, Johns Hopkins Bloomberg School of Public Health
- 9:20 a.m. **Analysis of Paired Mitochondrial DNA Data Set by Using Bivariate Poisson Models**—◆Pei-Fang Su, National Cheng Kung University; Yan Guo, Vanderbilt University; John D. Boice, National Council on Radiation Protection and Measurements; Yu Shyr, Vanderbilt University
- 9:35 a.m. **BatchQC: Interactive Software Framework for Evaluating Sample and Batch Effects in Genomic Data**—◆Solaiappan Manimaran, Boston University; Evan Johnson, Boston University
- 9:50 a.m. **Dirichlet Process Mixture Model for High-Dimensional Gene Expression Data**—◆Eric

Mittman, Iowa State University; Jarad Niemi, Iowa State University
 10:05 a.m. **A Dirichlet Process Mixture Model for Clustering Longitudinal Gene Expression Data**—◆Jiehuan Sun, Yale University; Jose D. Herazo-Maya, Yale School of Medicine; Naftali Kaminski, Yale School of Medicine; Hongyu Zhao, Yale University; Joshua Warren, Yale University

502 **CC-W186c**
Innovative Statistical Methods for Complex Survey Data—Contributed

Survey Research Methods Section
 Chair(s): Christine Wells, University of California at Los Angeles

8:35 a.m. **Are Utility Subsidies Accurately Predicting Assisted Households' Actual Utility Expenditures? A Methodological Examination**—◆Davia Spado, ICF International; Lee Harding, ICF International; Ronaldo Iachan, ICF International
 8:50 a.m. **Statistical Inference Based on Judgment Post-Stratified Samples in Finite Population**—◆Omer Ozturk, The Ohio State University
 9:05 a.m. **A Bayesian Hierarchical Model for Combining Several Crop Yield Indications**—◆Nathan B. Cruze, USDA/NASS
 9:20 a.m. **Producing Labor Statistics by Detailed Geography and Occupation: Experiences from the New Canadian Job Vacancy and Wage Survey**—◆Etienne Rassart, Statistics Canada; Zdenek Patak, Statistics Canada
 9:35 a.m. **Inference from Complex Survey-Embedded Field Experiments**—◆Robert Ashmead, U.S. Census Bureau; Eric Slud, U.S. Census Bureau
 9:50 a.m. **Model-Based Evaluation of Local Alcohol Prevention Programs for Under-Age Drinking**—◆Richard Harding, ICF; Ronaldo Iachan, ICF International; Shelley Osborn, ICF
 10:05 a.m. **Alternative Variance Component Analyses for a Three-Stage Sample Design**—◆Daniel Guzman, University of Michigan; Sunghee Lee, University of Michigan; Richard Valliant, Joint Program in Survey Methodology; Paul Burton, University of Michigan; Frost Hubbard, University of Michigan

503 **CC-W187c**
Applications for Education and Schools Research—Contributed

Social Statistics Section
 Chair(s): Zhulin He, Iowa State University

8:35 a.m. **Statistical Models of Faculty Retention: Logistic Regression, COACHE, and Support**

Mechanisms—◆Mack Shelley, Iowa State University; Ilsa Larson, Iowa State University; Sandra Gahn, Iowa State University; Diane Rover, Iowa State University; Beate Schmittmann, Iowa State University; Megan Heitmann, Iowa State University
 8:50 a.m. **A Finite Mixture Model Approach on the First-Year University Drop-Out Probability**—◆Matilde Bini, Universita Europea di Roma; Lucio Masserini, University of Pisa
 9:05 a.m. **Person-Fit Analysis for Computerized Adaptive Testing Using Change-Point Detection Methods**—◆Sandip Sinharay, Pacific Metrics Corporation
 9:20 a.m. **Optimal Multilevel Matching Using Network Flows: An Application to a Summer Reading Intervention**—◆Luke Keele, Penn State University; Samuel D. Pimentel, University of Pennsylvania
 9:35 a.m. **Using Empirical Bayes Residual Estimates to Identify Effective Schools**—◆D. Betsy McCoach, University of Connecticut; Rashea Hamilton, University of Connecticut
 9:50 a.m. **Development of a Record Linkage System for Analysis of Education Data**—◆Mark Krzeminski, Statistics Canada; Kim Bornais, Statistics Canada; Dany Faucher, Statistics Canada; Carole Morin, Statistics Canada; Martin Pantel, Statistics Canada
 10:05 a.m. **Floor Discussion**

504 **CC-W184a**
Risk, Prediction, and Financial Econometrics—Contributed

Business and Economic Statistics Section, Section on Physical and Engineering Sciences, Section on Risk Analysis
 Chair(s): Lei Jin, Texas A&M University-Corpus Christi

8:35 a.m. **Confidence Intervals for Unknown Means of Both Skewed and Long-Range Dependent Populations**—◆Kyungduk Ko, Boise State University
 8:50 a.m. **Extracting Risk-Neutral Distributions Using CDS Spreads and Option Prices**—◆Mohammad Jahan-Parvar, Federal Reserve Board; Sirio Aramonte, Federal Reserve Board; Sam Rosen, The University of North Carolina at Chapel Hill; John Schindler, Federal Reserve Board
 9:05 a.m. **Dynamic Modeling of Asset Allocations and Factor Risks in Multi-Strategy Hedge Fund Investment Portfolios**—◆Weiren Chang, JP Morgan
 9:20 a.m. **Analysis of Leveraged Funds and an Alternative Approach to the Construction of the Leveraged Funds**—◆Valmira Hoxhaj, Oakland University; Ravindra Khattree, Oakland University

- 9:35 a.m. Asymptotic Expansion of the One-Factor Merton Models with Non-Gaussian and Serially Correlated Innovations—◆Takayuki Shiohama, Tokyo University of Science
- 9:50 a.m. Variable Selection for Corporate Bankruptcy Prediction: A Generalized Single-Index Approach—◆Shaobo Li, University of Cincinnati; Yan Yu, University of Cincinnati
- 10:05 a.m. Zero-Inflated Models vs. Hurdle Models in Modeling Auto Insurance Claims in an Emerging Market: A Case Study of Nigeria—◆Mary Akinyemi, University of Lagos; Bisola Adijat Rufai, University of Lagos

505 **CC-W196a**
Statistical Analysis of Complex Data—Contributed

International Chinese Statistical Association

Chair(s): Hai Liu, Gilead Sciences

- 8:35 a.m. New Progresses in Statistical Analysis of Network Tomography—◆Ke Deng; Yang Li, Harvard; Weiping Zhu, University of New South Wales; Jun S. Liu, Harvard
- 8:50 a.m. Robust Variable Selection Based on the Density Power Divergence Loss—◆Yang Li; Wenfu Xu, Renmin University of China; Yichen Qin, University of Cincinnati; Shuangge Ma, Yale University
- 9:05 a.m. On Bayesian Hierarchical Modeling in Cumulative Safety Data Meta-Analysis (CMA)—◆Hal Li, Merck Research Laboratories; William William Wang, Merck Research Laboratories
- 9:20 a.m. Time Delay Boolean Networks for Big Data—◆Henry Lu, National Chiao Tung University
- 9:35 a.m. A Gaussian-Probit Model for Bayesian Network with Mixed Variables—◆Qingyang Zhang, University of Arkansas; Ji-Ping Wang, Northwestern University
- 9:50 a.m. A Complete Downscaler—◆Yen-Ning Huang, North Carolina State University; Brian J. Reich, North Carolina State University; Montse Fuentes, North Carolina State University; Sankar Arumugam, North Carolina State University
- 10:05 a.m. An Evaluation of Processing Methods for HumanMethylation450 BeadChip Data—◆Jie Liu, University of Southern California; Kimberly Siegmund, University of Southern California

506 **CC-W186a**
Bayesian Modeling with Gaussian and Dirichlet Processes—Contributed

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

Chair(s): Tony Pourmohamad, University of California at Santa Cruz

- 8:35 a.m. Bayesian Approach for Interim Analysis with Failure Time Endpoint—◆Zailong Wang, Novartis Pharma; Chen Gao, University of Minnesota; Peter Mesenbrink, Novartis Pharma
- 8:50 a.m. An Affine-Invariant Bayesian Cluster Process with Split-Merge Gibbs Sampler—◆Hsin-Hsiung Huang, University of Central Florida; Jie Yang, University of Illinois at Chicago
- 9:05 a.m. Bayesian Computation in Dirichlet Process Mixture Models—◆Erina Paul; Sanjib Basu, Northern Illinois University
- 9:20 a.m. A New Class of Nonseparable Bayesian Hierarchical Spatial Modeling for Sparse Gaussian Processes—◆Bledar Konomi, University of Cincinnati
- 9:35 a.m. Bayesian Network-Response Regression—◆Lu Wang, Duke University; Daniele Durante, University of Padua; David Dunson, Duke University
- 9:50 a.m. Bayesian Registration of Functions with a Gaussian Process Prior—◆Yi Lu, The Ohio State University; Sebastian A. Kurttek, The Ohio State University; Radu Herbei, The Ohio State University
- 10:05 a.m. Free Lunches with Sparse Bayesian Nonparametric Learning: A Probabilistic Exploration of Lower Dimensional Structure Discovery with Sparse High-Dimensional Data—◆Anjishnu Banerjee, Medical College of Wisconsin

507 **CC-W187a**
Statistical Inference—Contributed

Government Statistics Section, Section for Statistical Programmers and Analysts

Chair(s): Ramzan Tahir

- 8:35 a.m. Shrimp Effort Estimation for the Gulf of Mexico Using Second-Order Linear Models (2007–2014)—◆Morteza Marzjarani, Saginaw
- 8:50 a.m. Sample Size Planning for Survival Endpoints in Cardiovascular Clinical Trials—◆Ququan Liu, FDA/CDER; John Lawrence, FDA/CDER; Hsien-Ming James Hung, FDA
- 9:05 a.m. On the Estimation of Poisson Parameter: An Alternative Approach—◆Tanweer Shapla, Eastern Michigan University; Khairul Islam, Texas A&M University-Kingsville

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 9:20 a.m. A Step-Wise Test for Identical Normal Distributions—◆Khairul Islam, Texas A&M University-Kingsville; Mian Adnan, Ball State University
- 9:35 a.m. A Joint Model for Multivariate Hierarchical Semicontinuous Data with Replications—◆Wondwosen Yimer, Eunice Kennedy Shriver National Institute of Child Health and Human Development
- 9:50 a.m. Noninferiority Tests in Evaluation of Irritation—◆Mengdie Yuan, FDA; Jingyu Luan, FDA
- 10:05 a.m. Tolerance Limits Under Zero-Inflated Models: Applications to the Evaluation of Health Care Expenditure and Body Armor Data—◆Zachary Zimmer

508 CC-W186b

● **Nonparametric Methods for Longitudinal Data—Contributed**

Section on Nonparametric Statistics, International Chinese Statistical Association

Chair(s): Bilin Zeng, California State University at Bakersfield

- 8:35 a.m. Longitudinal Principal Component Analysis—◆Christopher Kinson, University of Illinois at Urbana-Champaign; Xiwei Tang, University of Illinois at Urbana-Champaign; Annie Qu, University of Illinois at Urbana-Champaign
- 8:50 a.m. Semiparametric Estimation of Longitudinal Data with Nonignorable Attrition Using Refreshment Samples—◆Jianfei Zheng, Oregon State University; Lan Xue, Oregon State University
- 9:05 a.m. Semiparametric Stochastic Mixed Models for Bivariate Periodic Longitudinal Data—◆Kexin Ji, University of Waterloo; Joel Dubin, University of Waterloo
- 9:20 a.m. A Partial Likelihood Approach to Multivariate Multiscale Functional Data Analysis—◆Andrew Potter, University of Pittsburgh; Stewart J. Anderson, University of Pittsburgh
- 9:35 a.m. Analysis of Asynchronous Longitudinal Data with Partially Linear Model—◆Li Chen, University of Missouri
- 9:50 a.m. Unified Inference for Sparse and Dense Longitudinal Data in Time-Varying Coefficient Models—◆Yixin Chen, Sanofi; Weixin Yao, University of California at Riverside
- 10:05 a.m. Multiple Imputation Method Based on Weighted Quantile Regression Models for Longitudinal Censored Biomarker Data with Missing Early Visits—◆Minjae Lee, The University of Texas Health Science Center at Houston; Mohammad H. Rahbar, The University of Texas Health Science Center at Houston; John D. Reveille, The University of Texas Health Science Center

at Houston; Michael Weisman, Cedars-Sinai Medical Center; Michael M. Ward, National Institute of Arthritis and Musculoskeletal and Skin Diseases; Lianne Gensler, University of California at San Francisco; Matthew Brown, University of Queensland Diamantina Institute

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

509 CC-W195

■ ● **Social Networks as the Unit of Observation—Invited**

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

Organizer(s): Tracy Sweet, University of Maryland

Chair(s): Brian W. Junker, Carnegie Mellon University

- 10:35 a.m. Using Feature Vectors to Cluster Social Networks—◆Tracy Sweet, University of Maryland; David Sungjun Choi, Carnegie Mellon University; Gabrielle Flynt, Bucknell University
- 11:00 a.m. Modeling the Effects of Network Attributes on Subgroup Integration—◆Qiwen Zheng, University of Maryland
- 11:25 a.m. Longitudinal Latent Space Network Model with VAR Evolution—◆Samrachana Adhikari, Carnegie Mellon University; Brian W. Junker, Carnegie Mellon University
- 11:50 a.m. Causal Mediation Analysis of Social Networks—◆Adam Chaim Sales, The University of Texas at Austin; Tracy Sweet, University of Maryland; Brian W. Junker, Carnegie Mellon University
- 12:15 p.m. Floor Discussion

510 CC-W185d

■ ● **Multi-Platform Data Integration: Network and Prediction—Invited**

ENAR

Organizer(s): Gen Li, Columbia University

Chair(s): Eric F. Lock, University of Minnesota

- 10:35 a.m. Multi-Platform Integration: Pathway-Based IBAG and Gene-Specific Epigenetic Profiles—◆Jeffrey S. Morris, MD Anderson Cancer Center; Elizabeth McGuffey, U.S. Naval Academy; Yusha Liu, Rice University; Veera Baladandayuthapani, MD Anderson Cancer Center; Keith A. Baggerly, MD Anderson Cancer Center
- 11:00 a.m. Using Auxiliary Information to Enhance Prediction Models with Many Covariates—Jeremy M. G.

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

Taylor, University of Michigan; Philip Simon Boonstra, University of Michigan; ◆Bhramar Mukherjee, University of Michigan

- 11:25 a.m. **Integrated Kernel Learning for Genomic Data Mining and Prediction**—◆Xuefeng Wang, SUNY Stony Brook; Zhenyu Zhang, SUNY Stony Brook; Minqin Chen, SUNY Stony Brook
- 11:50 a.m. **Disc:** Sunduz Keles, University of Wisconsin-Madison
- 12:10 p.m. **Floor Discussion**

511 **CC-W185a**
■ Statistical Methods for Analyzing Microbiome Data—Invited

Biometrics Section, International Chinese Statistical Association
 Organizer(s): Sanjay Shete, MD Anderson Cancer Center
 Chair(s): Sanjay Shete, MD Anderson Cancer Center

- 10:35 a.m. **Bayesian Variable Selection Models for Microbiome Data Integration**—Marina Vannucci, Rice University; Michele Guindani; ◆Duncan Wadsworth, Rice University
- 11:00 a.m. **Statistical Methods for Integrating the Phylogenetic Tree in Microbiome Data Analysis**—◆Jun Chen, Mayo Clinic; Jian Xiao, Mayo Clinic
- 11:25 a.m. **Kernel Penalized Regression Models for Microbiome Data**—◆Timothy Randolph, Fred Hutchinson Cancer Research Center; Ali Shojaie, University of Washington; Sen Zhao, University of Washington
- 11:50 a.m. **Analysis of Composition of Microbiome with Structural Zeros (ANCOMSZ)**—Abhishek Kaul, National Institute of Environmental Health Sciences; Siddhartha Mandal, Public Health Foundation of India; ◆Shyamal Peddada, National Institute of Environmental Health Sciences
- 12:15 p.m. **Floor Discussion**

512 **CC-W175b**
● Solving Complex Statistical Problems in Network Meta-Analysis—Invited

SSC
 Organizer(s): Russell Steele, McGill University
 Chair(s): Russell Steele, McGill University

- 10:35 a.m. **Heterogeneity in Network Meta-Analysis from a Causal Inference Perspective**—◆Mireille Elisa Schnitzer, Université de Montréal; Russell Steele, McGill University; Ian Shrier, McGill University
- 10:55 a.m. **Combining Evidences for Multiple Treatments: A Confidence Distribution Framework and Its Application to Network Meta-Analysis**—Guang

Yang, Dun & Bradstreet; ◆Dungang Liu, University of Cincinnati; Minge Xie, Rutgers University

- 11:15 a.m. **Solving Complex Statistical Problems in Network Meta-Analysis**—◆Jing Zhang, University of Maryland; Lei Nie, FDA; Ram Tiwari, FDA/CDER/OT/OB; Angelo De Claro, FDA; Chia-Wen Ko, FDA
- 11:35 a.m. **Disc:** David Hoaglin, University of Massachusetts Medical School
- 11:55 a.m. **Floor Discussion**

513 **CC-W175a**
■● Recent Advances in Functional Data Analysis—Invited

IMS, Royal Statistical Society, International Chinese Statistical Association
 Organizer(s): Fang Yao, University of Toronto
 Chair(s): Fang Yao, University of Toronto

- 10:35 a.m. **The Statistical Analysis of Dead Bodies: Inverting Entomological Growth Curves Using FDA**—◆John Aston, University of Cambridge; Anjali Mazumder, University of Warwick; Frederic Ferraty, Toulouse Jean Jaures University; Davide Pigoli, University of Cambridge; Martin Hall, Natural History Museum
- 11:00 a.m. **An Estimating Equation Approach to Dimension Reduction in Longitudinal Data**—◆Liping Zhu, Renmin University of China; Li Jin, Fudan University; Kelin Xu, Fudan University; Wensheng Guo, University of Pennsylvania Perelman School of Medicine; Momiao Xiong, The University of Texas Health Science Center at Houston
- 11:25 a.m. **Frechet Regression for Random Objects**—◆Hans-Georg Mueller, University of California at Davis; Alexander Petersen, University of California at Davis
- 11:50 a.m. **Role of Functional Data Analysis in the Big Data Era: Applications to Precision Medicine**—◆Hulin Wu, The University of Texas Health Science Center at Houston
- 12:15 p.m. **Floor Discussion**

514 **CC-W375b**
Noether Award—Invited

Noether Award Committee, ASA, International Chinese Statistical Association
 Organizer(s): Edsel Aldea Pena, University of South Carolina
 Chair(s): Donglin Zeng, The University of North Carolina at Chapel Hill

- 10:35 a.m. **A Framework for Assumption-Free Predictive Regression Analysis**—◆Jing Lei, Carnegie Mellon University

515 CC-W187b
■ ● Recent Advancements in Spatio-Temporal Infectious Disease Modeling—Invited
 WNAR, International Chinese Statistical Association, Section on Risk Analysis
 Organizer(s): Aaron T. Porter, Colorado School of Mines
 Chair(s): Jacob J. Oleson, University of Iowa

- 10:35 a.m. Approximate Bayesian Computation for Compartmental Epidemic Models: Methods and Software—◆Grant Donald Brown, University of Iowa; Aaron T. Porter, Colorado School of Mines; Jacob J. Oleson, University of Iowa
- 10:55 a.m. Parameter Inference and Model Selection in Deterministic and Stochastic Dynamical Models—◆Jennifer Hoeting, Colorado State University; Libo Sun, Janssen R&D; Chihoon Lee, Stevens Institute of Technology
- 11:15 a.m. Gaussian Process Emulator-Based Inference for Spatial Models of Infectious Disease Systems—◆Rob Deardon, University of Calgary; Gyanendra Pokharel, University of Calgary
- 11:35 a.m. A Robust SEIR Model for Epidemics on Unobserved Graphs—◆Aaron T. Porter, Colorado School of Mines; Grant Donald Brown, University of Iowa
- 11:55 a.m. Integrating Independent Spatio-Temporal Models to Assess Population Trends—◆John VanBuren, University of Iowa; Jacob J. Oleson, University of Iowa
- 12:15 p.m. Floor Discussion

516 CC-W178a
■ Paper Highlights from Bayesian Analysis—Invited
 Section on Bayesian Statistical Science, IMS, International Society for Bayesian Analysis (ISBA)
 Organizer(s): Marina Vannucci, Rice University
 Chair(s): Bruno Sanso, University of California at Santa Cruz

- 10:35 a.m. Overall Objective Priors—◆James Berger, Duke University; Dongchu Sun, University of Missouri; Jose Miguel Bernardo, University of Valencia
- 11:00 a.m. Bayesian Model Selection Based on Proper Scoring Rules—◆Philip Dawid, University of Cambridge; Monica Musio, University of Cagliari
- 11:25 a.m. Optimal Design in Geostatistics Under Preferential Sampling—◆Gustavo da Silva Ferreira, National School of Statistical Sciences; Dani Gamerman, Federal University of Rio de Janeiro
- 11:50 a.m. Computational Enhancements to Bayesian Design of Experiments Using Gaussian Processes—◆Brian Phillip Weaver, Los Alamos National Laboratory
- 12:15 p.m. Floor Discussion

517 CC-W181a
■ ● Do Courts Appreciate the Power of Statistical Evidence?—Invited
 Royal Statistical Society, Scientific and Public Affairs Advisory Committee, Committee on Applied Statisticians
 Organizer(s): Joseph L. Gastwirth, The George Washington University
 Chair(s): Joseph L. Gastwirth, The George Washington University

- 10:35 a.m. Detecting and Correcting Publication Bias in Legal Cases—◆Edward K. Cheng, Vanderbilt University
- 11:00 a.m. Recent Statistical Issues in U.S. Courts—◆Qing Pan, The George Washington University; Joseph L. Gastwirth, The George Washington University
- 11:25 a.m. The Misuse of Statistical Evidence in Tort Law—◆Claire McIvor, University of Birmingham, UK
- 11:50 a.m. Expert Evidence for Civil Cases in Australia, England, Scotland, Northern Ireland, USA, and South Africa: Examples and Ethical Challenges—◆Jane Luise Hutton, University of Warwick
- 12:15 p.m. Floor Discussion

518 CC-W179a
● Getting High on Statistics: Powering Large-Scale Data Analysis—Invited
 Section on Statistical Learning and Data Science
 Organizer(s): Ananda Sen, University of Michigan
 Chair(s): Ananda Sen, University of Michigan

- 10:35 a.m. Mixed Graphical Model Selection with Applications to Integrative Genomics—◆Genevera Allen, Rice University; Yulia Baker, Rice University
- 11:05 a.m. A Hypothesis-Testing Framework for Modularity-Based Network Community Detection—◆Jingfei Zhang, University of Miami; Yuguo Chen, University of Illinois at Urbana-Champaign
- 11:35 a.m. Iterative Random Forests: Stable Identification of High-Order Interactions in Heterogeneous and High-Dimensional Data—◆Sumanta Basu, University of California at Berkeley; Bin Yu, University of California at Berkeley
- 12:05 p.m. Floor Discussion

519 CC-W192a

Synthesis of Information from Longitudinal Trajectories and Failure Data for Reliability Prediction—Invited

Section on Physical and Engineering Sciences, Quality and Productivity Section

Organizer(s): Sanjib Basu, Northern Illinois University

Chair(s): Arnab Maity, Northern Illinois University

10:35 a.m. Service Life Prediction of Field-Exposed Units Based on Laboratory Accelerated Degradation Test Data—◆William Q. Meeker, Iowa State University

11:00 a.m. Recurrent Competing Risks, Longitudinal Markers, and Terminal Events: Modeling and Analysis with Applications in the Physical and Engineering Sciences—◆Edsel Aldea Pena, University of South Carolina; Piaomu Liu, Bentley University

11:25 a.m. Efficient Large-Scale Variable Selection in Complex Lifetime Models—◆Sanjib Basu, Northern Illinois University; Arnab Maity, Northern Illinois University

11:50 a.m. Disc: Narayanaswamy Balakrishnan, McMaster University

12:10 p.m. Floor Discussion

520 CC-W184bc

Machine Learning in Econometrics—Invited

JBES-Journal of Business & Economic Statistics

Organizer(s): Todd Clark

Chair(s): Todd Clark

10:35 a.m. Machine Learning and Causality—◆Guido Imbens, Stanford University

11:05 a.m. Covariate Balancing Propensity Score via Tailored Loss Function—◆Qingyuan Zhao, Stanford University; Trevor Hastie, Stanford University

11:35 a.m. Disc: Dean Eckles, MIT Sloan School of Management

11:50 a.m. Disc: Matt Taddy, Chicago Booth

12:05 p.m. Disc: Jasjeet Sekhon, University of California at Berkeley

521 CC-W185bc

Sirken Award Session—Invited

Sirken Award

Organizer(s): Ronald Wasserstein, ASA

Chair(s): John L. Czajka, Mathematica Policy Research

10:35 a.m. Reflections on Social Surveys' Past and Future—◆Elanor Singer, University of Michigan

11:05 a.m. Floor Discussion

Invited Panels 10:30 a.m. – 12:20 p.m.

522 CC-W190a

● Data Science Education—Invited

Section on Statistical Education

Organizer(s): Michelle Schwalbe, National Academies

Chair(s): Montse Fuentes, North Carolina State University

Panelists: ◆Constantine Gatsonis, Brown University

◆Alfred Hero, University of Michigan

◆John Lafferty, The University of Chicago

◆Raghu Ramakrishnan, Microsoft

12:15 p.m. Floor Discussion

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

523 CC-W175c

Algebraic and Geometric Methods in Inference: Two Decades of Algebraic Statistics—Topic-Contributed

IMS, Royal Statistical Society

Organizer(s): Caroline Uhler, MIT

Chair(s): Sonja Petrovic, Illinois Institute of Technology

10:35 a.m. Fitting Convex Sets to Data via Matrix Factorization—◆Venkat Chandrasekaran

10:55 a.m. Statistical Inference for Networks Using Computational Algebraic Geometry—◆Elizabeth Gross

11:15 a.m. Non-Negative Rank and the EM Algorithm—◆Elina Robeva, University of California at Berkeley; Kaie Kubjas, Aalto University; Bernd Sturmfels, University of California at Berkeley

11:35 a.m. The LCM Filtration for the Cut Distribution of Networks and Its Dual—◆Henry Wynn, London School of Economics and Political Science

11:55 a.m. Disc: Steffen Lauritzen, University of Copenhagen

12:15 p.m. Floor Discussion

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

524 CC-W196c

■ ● **Recent Advances and Applications of Spatial and Spatio-Temporal Models for Official Statistics—Topic-Contributed**

Survey Research Methods Section, Government Statistics Section

Organizer(s): Scott H. Holan, University of Missouri

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

- 10:35 a.m. Spatiotemporal Modeling with Applications to Stroke Mortality and Data Privacy—◆Harrison Quick, CDC
- 10:55 a.m. Predicting Coverage Error on the Master Address File Using Spatial Modeling Methods at the Block Level—◆Krista Heim, U.S. Census Bureau; Andrew Raim, U.S. Census Bureau
- 11:15 a.m. Particle Swarm Optimization-Assisted Metropolis Hastings Algorithms—◆Matthew Simpson, University of Missouri; Christopher Wikle, University of Missouri; Scott H. Holan, University of Missouri
- 11:35 a.m. Small-Area Estimation for High-Dimensional Non-Gaussian Dependent Data—◆Jonathan R. Bradley, University of Missouri; Scott H. Holan, University of Missouri; Christopher Wikle, University of Missouri
- 11:55 a.m. A Multivariate Spatio-Temporal Model for U.S. Migration—◆Trevor Oswald, University of Missouri; Christopher Wikle, University of Missouri
- 12:15 p.m. Floor Discussion

525 CC-W193a

■ ● **ENVR Student Paper Award Winners—Topic-Contributed**

Section on Statistics and the Environment, International Chinese Statistical Association

Organizer(s): Elizabeth Mannshardt, EPA

Chair(s): Elizabeth Mannshardt, EPA

- 10:35 a.m. Dynamic Social Networks Based on Movement—◆Henry Scharf, Colorado State University; Mevin Hooten, Colorado State University; Bailey Fosdick, Colorado State University; Devin Johnson, Alaska Fisheries Science Center (NOAA); Josh London, Alaska Fisheries Science Center (NOAA); John Durban, Southwest Fisheries Science Center
- 10:55 a.m. A Space-Time Skew-T Model for Threshold Exceedances—◆Samuel Morris, North Carolina State University; Brian J. Reich, North Carolina State University; Emeric Thibaud, Colorado State University; Dan Cooley, Colorado State University
- 11:15 a.m. Temperatures in Transient Climates: Improved Methods for Simulations with Evolving

Temporal Covariances—◆Andrew Poppick, The University of Chicago; David McInerney, University of Adelaide; Elisabeth Moyer, The University of Chicago; Michael Stein, The University of Chicago

- 11:35 a.m. The Role of Regimes in Short-Term Wind Speed Forecasting at Multiple Wind Farms—◆Karen Kazor, Colorado School of Mines; Amanda Hering, Colorado School of Mines
- 11:55 a.m. Floor Discussion

526 CC-W180

■ ● **The 2016 Statistical Computing and Graphics Award Honors William S. Cleveland—Topic-Contributed**

Section on Statistical Computing, Section on Statistical Graphics

Organizer(s): David A. van Dyk, Imperial College London; Naomi B. Robbins, NBR

Chair(s): Naomi B. Robbins, NBR

- 10:35 a.m. Bill Cleveland: II Maestro of Statistical Graphics—◆Nicholas Fisher, University of Sydney
- 10:55 a.m. Modern Crowd-Sourcing Validates Cleveland's 1984 Hierarchy of Graphical Elements—◆Dianne Cook, Monash University
- 11:15 a.m. Some Reflections on Dynamic Graphics for Data Exploration—◆Luke-Jon Tierney, University of Iowa
- 11:35 a.m. Carpe Datum! Bill Cleveland's Contributions to Data Science and Big Data Analysis—◆Steve Scott, Google Analytics
- 11:55 a.m. Scaling Up Statistical Models to Hadoop Using Tessera—◆Jim Harner, West Virginia University
- 12:15 p.m. Floor Discussion

527 CC-W196b

■ ● **Innovations in Disclosure Avoidance at the U.S. Census Bureau—Topic-Contributed**

Government Statistics Section, Survey Research Methods Section

Organizer(s): Aref Dajani, U.S. Census Bureau

Chair(s): Aref Dajani, U.S. Census Bureau

- 10:35 a.m. Controlling Identification Disclosure Risk in Microdata Release Through Unbiased Post-Randomization—◆Cheng Zhang; Tapan Kumar Nayak, The George Washington University; Jiashen You, Department of Transportation
- 10:55 a.m. Data Synthesis and Perturbation for the American Community Survey at the U.S. Census Bureau—◆Amy Lauger, U.S. Census Bureau; Michael Freiman, U.S. Census Bureau; Jerome Reiter, Duke University

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 11:15 a.m. Estimating Regression Parameters from a Sensitive Variable with Noise Multiplication—◆Marlow Lemons, U.S. Census Bureau; Bimal Sinha, University of Maryland Baltimore County; Aref Dajani, U.S. Census Bureau
- 11:35 a.m. Challenges Facing the Disclosure Review Board at Census—◆William Wisniewski, U.S. Census Bureau; Holly Newman, U.S. Census Bureau
- 11:55 a.m. Floor Discussion

528 CC-W183b

■● The NSF/NIH/SAMSI Workshop on Interdisciplinary Approaches to Biomedical Data Science Challenges—Topic-Contributed

Section on Statistics in Epidemiology, Biopharmaceutical Section

Organizer(s): Richard L. Smith, Statistical and Applied Mathematical Sciences Institute

Chair(s): Daniel Gillen, University of California at Irvine

- 10:35 a.m. The Innovations Lab: A New Model for Research Collaborations—◆Richard Smith, The University of North Carolina at Chapel Hill
- 10:55 a.m. Interactive Ensemble Clustering for Mixed Data with Application to Mood Disorders—◆Ellen Eischen, University of Oregon; David Gotz, The University of North Carolina at Chapel Hill; Rachael Hageman Blair, University of Buffalo; Arianna Di Florio, The University of North Carolina at Chapel Hill; Mathews Jacob, University of Iowa; Brian Chapman, University of Utah
- 11:15 a.m. Statistical and Dynamical Systems Modeling of Real-Time Adaptive M-Intervention for Pain—◆Chaeryon Kang, University of Pittsburgh; Daniel M. Abrams, Northwestern University; Jingyi (Jessica) Li, University of California at Los Angeles; Qi Long, Emory University; Nirmish R. Shah, Duke University
- 11:35 a.m. Using Machine Learning Algorithms for Handling Missingness: Application to Predicting Drug-Disease and Drug-Drug Interactions—◆Ruoshui Zhai, Brown University; Roee Gutman, Brown University
- 11:55 a.m. Spatial-Nonspatial Multidimensional Adaptive Radiotherapy Treatment—◆David Vock, University of Minnesota School of Public Health; Guadalupe M. Canahuate, University of Iowa; G. Elisabeta Marai, University of Illinois at Chicago; C. David Fuller, MD Anderson Cancer Center
- 12:15 p.m. Floor Discussion

529 CC-W190b

■● Using Statistics to Understand Health Care Quality: New Methods and Applications—Topic-Contributed

Health Policy Statistics Section, Biopharmaceutical Section, Scientific and Public Affairs Advisory Committee, Committee on Applied Statisticians

Organizer(s): Amelia M. Haviland, Carnegie Mellon University

Chair(s): Maria Cuellar, Carnegie Mellon University

- 10:35 a.m. Varying Relationships Between Beneficiary Traits and Quality Measures Affect Comparisons in Medicare Advantage—◆Laura Anne Hatfield, Harvard Medical School; Alan M. Zaslavsky, Harvard Medical School
- 10:55 a.m. Insurance Premiums and Patient Experience: Do You Get What You Pay for in Medicare Advantage Plans?—◆Amelia M. Haviland, Carnegie Mellon University; Sai Ma, Centers for Medicare and Medicaid Services; Katrin Hambarsoomian, RAND Corporation; Marc N. Elliott, RAND Corporation
- 11:15 a.m. Extension to the Bayesian Improved Surname Geocoding (BISG) Method—◆Marc N. Elliott, RAND Corporation; Amelia M. Haviland, Carnegie Mellon University; Ann Haas, RAND Corporation; John Adams, Kaiser Permanente; Joshua Mallet, RAND Corporation; Jake Dembosky, RAND Corporation; Sarah Gaillot, Centers for Medicare and Medicaid Services; Samuel "Chris" Haffer, Centers for Medicare and Medicaid Services
- 11:35 a.m. Methodological Considerations When Adjusting Quality Measures for Socioeconomic Status—◆Susan M. Paddock, RAND Corporation; Melony E. Sorbero, RAND Corporation; Cheryl L. Damberg, RAND Corporation; Ann Haas, RAND Corporation; Marc N. Elliott, RAND Corporation
- 11:55 a.m. Disc: John Adams, Kaiser Permanente
- 12:15 p.m. Floor Discussion

530 CC-W187a

■● The Promise and Perils of External Patient-Level Data: Applications in Drug Development—Topic-Contributed

Biopharmaceutical Section, Committee on Applied Statisticians

Organizer(s): Greg Hather, Takeda

Chair(s): Ray Liu, Takeda

- 10:35 a.m. Leveraging Individual Patient Data Meta-Analysis to Support a Go or No-Go Decision—◆Alan Chiang, Eli Lilly and Company; Ann Cleverly, Eli Lilly and Company

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 10:55 a.m. Boosting the Power of Phase II and III Oncology Studies Using Project Data Sphere—◆Greg Hather, Takeda; Ray Liu, Takeda
- 11:15 a.m. Facilitating Clinical Trial Simulation in Alzheimer's Disease Using the CAMD IPD, Literature Summary Level Data, and the 'adsm' R Package—◆Daniel Polhamus, Metrum Research Group
- 11:35 a.m. Using External Patient Data in Clinical Trial Simulation—◆Forrest Williamson, Eli Lilly and Company
- 11:55 a.m. Disc: Jeffry Florian, FDA/CDER
- 12:15 p.m. Floor Discussion

531 CC-W186c

■ Time-to-Event Models for Studies with Informative Censoring, Truncation, or Drop-Out—Topic-Contributed

Biometrics Section, Biopharmaceutical Section, International Chinese Statistical Association

Organizer(s): Michael Pennell, The Ohio State University

Chair(s): Brittney Bailey, The Ohio State University

- 10:35 a.m. Bayesian Threshold Regression for Multivariate Current Status Data with Informative Censoring—◆Michael Pennell, The Ohio State University; Tao Xiao, Shenzhen University
- 10:55 a.m. Analyzing Semi-Competing Risks Data with Missing Cause of Informative Terminal Event—◆Hong Zhu, The University of Texas Southwestern Medical Center; Renke Zhou, Baylor College of Medicine; Melissa Bondy, Baylor College of Medicine; Jing Ning, MD Anderson Cancer Center
- 11:15 a.m. Model Diagnostics of a Class of Joint Dynamic Models of Recurrent Competing Risks and a Terminal Event—◆Piaomu Liu, Bentley University; Edsel Aldea Pena, University of South Carolina
- 11:35 a.m. Adjusting for Dependent Truncation with Inverse Probability Weighting—◆Jing Qian, University of Massachusetts-Amherst; Rebecca Betensky, Harvard
- 11:55 a.m. Joint Partially Linear Model for Longitudinal Data with Informative Drop-Outs—◆Sehee Kim, University of Michigan; Donglin Zeng, The University of North Carolina at Chapel Hill; Jeremy M. G. Taylor, University of Michigan
- 12:15 p.m. Floor Discussion

532 CC-W176a

● Novel Statistical Methods for Deciphering Genotype-Phenotype Map—Topic-Contributed

Section on Nonparametric Statistics

Organizer(s): Chuanhua Julia Xing, XPrecision

Chair(s): Olga A. Vsevolozhskaya, University of Kentucky

- 10:35 a.m. Family Bayesian Integrative Tensor for Genetic Interaction Networks for Integrative Identification of Disease Risks in Signal Pathways—◆Xiaoqing Wang, University of Connecticut; Chuanhua Julia Xing, XPrecision
- 10:55 a.m. Variable Selection with Correlated Bivariate Mixed Outcomes Using Penalized Generalized Estimating Equations—◆Ved Deshpande, University of Connecticut; Elizabeth Schifano, University of Connecticut; Dipak Dey, University of Connecticut
- 11:15 a.m. Robust Semiparametric Methods for Analysis of Multivariate Secondary Phenotypes in Case-Control Genome-Wide Association Studies—◆Chuanhua Julia Xing, XPrecision; Elizabeth Schifano, University of Connecticut; Xihong Lin, Harvard T.H. Chan School of Public Health
- 11:35 a.m. Integrative Tissue-Specific Functional Annotations in the Human Genome Provide Novel Insights on Complex Traits and Improve Signal Prioritization in Genome-Wide Association Studies—◆Qiongshi Lu, Yale University; Ryan Powles, Yale University; Qian Wang, Yale University; Beixin He, Yale New Haven Hospital; Hongyu Zhao, Yale University
- 11:55 a.m. Efficient Semiparametric Inference Under Two-Phase Sampling, with Applications to Genetic Association Studies—◆Ran Tao, The University of North Carolina at Chapel Hill; Donglin Zeng, The University of North Carolina at Chapel Hill; Danyu Lin, The University of North Carolina at Chapel Hill
- 12:15 p.m. Floor Discussion

533 CC-W194a

Modeling Confounders via Smoothing and Regularization Methods? The Case of Age-Period-Cohort and Beyond—Topic-Contributed

Social Statistics Section, Survey Research Methods Section

Organizer(s): Wenjiang Fu, University of Houston

Chair(s): Wenjiang Fu, University of Houston

- 10:35 a.m. A Bayesian Approach to Smoothed Lexis Diagram with Applications to Breast Cancer—◆I-Shou Chang, National Health Research Institutes
- 10:55 a.m. The Selection of the Constraint for Smoothing Cohort Model—◆Shujiao Huang, University of Houston; Wenjiang Fu, University of Houston

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 11:15 a.m. Parameter Constraints and Impact on Parameter Estimation in ANOVA and Age-Period-Cohort Models—◆Kuikui Gao, University of Houston; Shujiao Huang, University of Houston; Wenjiang Fu, University of Houston
- 11:35 a.m. Resolving the Identifiability Problem with the Lasso Regularization Method in Age-Period-Cohort Analysis—◆Beverly Fu; Wenjiang Fu, University of Houston
- 11:55 a.m. Bias Correction in Modeling Confounded Age, Period, and Cohort Effects—◆Martina Fu, Stanford University
- 12:15 p.m. Floor Discussion

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

- 534 CC-W192c
■● Cultivating Leadership Skills Through SWB Projects and Committee Participation—Topic-Contributed
 Statistics Without Borders
 Organizer(s): Cathy Furlong, Statistics without Borders
 Chair(s): Rochelle Tractenberg, Georgetown University Medical Center
 Panelists: ◆Cathy Furlong, Statistics without Borders
 ◆Sowmya Rao, Boston University
 ◆Jennifer Sniadecki, Ultragenyx
 ◆Loren Velasquez, Statistics without Borders
- 12:15 p.m. Floor Discussion

- 535 CC-W183a
■● Global Challenges and Collaboration in Biopharmaceutical Statistics—Topic-Contributed
 Biopharmaceutical Section, International Chinese Statistical Association, Committee on Applied Statisticians
 Organizer(s): Toshimitsu Hamasaki, National Cerebral and Cardiovascular Center
 Chair(s): Geert Molenberghs, Universiteit Hasselt
 Panelists: ◆Jose Pinheiro, Johnson & Johnson
 ◆Yuki Ando, Pharmaceutical and Medical Device Agency, Japan
 ◆Frank Bretz, Novartis Pharma
 ◆Luis Escobar, Louisiana State University
 ◆Estelle Russek-Cohen, FDA
 ◆Abdus S. Wahed, University of Pittsburgh

- 536 CC-W192b
■ Ethics in Data Science for Statistical Consultants—Topic-Contributed
 Section on Statistical Consulting
 Organizer(s): Nik Andric, Deloitte Consulting
 Chair(s): Andrew Vesper, Deloitte Consulting
 Panelists: ◆Nik Andric, Deloitte Consulting
 ◆James Guszcza, Deloitte Consulting
 ◆Andrej Zwitter, University of Groningen
 ◆Hope McIntyre, University of Virginia
- 12:15 p.m. Floor Discussion

- 537 CC-W176c
● Empowering Bayesians Through the 21st Century Cures Act—Topic-Contributed
 Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA)
 Organizer(s): Fanni Natanegara, Eli Lilly and Company
 Chair(s): Fanni Natanegara, Eli Lilly and Company
 Panelists: ◆Lisa LaVange, Office of Biostatistics Organization
 ◆Karen Price, Eli Lilly and Company
 ◆Roger Lewis, Harbor-UCLA Medical Center
 ◆Steven Goodman, Stanford University School of Medicine
- 12:15 p.m. Floor Discussion

Contributed Sessions 10:30 a.m. – 12:20 p.m.

- 538 CC-W186a
■● Methods for Risk Prediction—Contributed
 Biometrics Section, Biopharmaceutical Section, Section on Risk Analysis
 Chair(s): Rebecca Scherzer, University of California at San Francisco
- 10:35 a.m. Dynamic Scheduling of the Next Exam in Cancer Screening—◆Dongfeng Wu, University of Louisville
- 10:50 a.m. Evaluating Probability Forecasts—◆Shulamith Gross, Baruch College
- 11:05 a.m. Comparisons of Statistical Methods for Determining Gene Expression Signatures to Predict Prostate Cancer Response—Dirk Moore, Rutgers School of Public Health; ◆Qian Dong, Celgene
- 11:20 a.m. Estimating HIV Relative Risk in India Using CAR Models—◆Kaushik Ghosh, University of Nevada, Las Vegas; Chandrasekaran Kandhasamy, National Institute for Research in Tuberculosis

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

11:35 a.m. **A Latent-Variable Approach to Derive a Pediatric Cardiac Inotrope Score Associated with Congenital Heart Surgery**—◆Mallikarjuna Rettiganti, University of Arkansas for Medical Sciences; Avishek Chakraborty, University of Arkansas; Punkaj Gupta, University of Arkansas for Medical Sciences

11:50 a.m. **Semiparametric Estimation and Inference for Partial AUC of Biomarkers Subject to Limit of Detection**—◆Lixuan Yin, George Mason University; Guoqing Diao, George Mason University; Aiyi Liu, Eunice Kennedy Shriver National Institute of Child Health and Human Development

12:05 p.m. **Missing Data and Prediction Models**—◆Sarah Fletcher, Vanderbilt University School of Medicine; Jeffrey David Blume, Vanderbilt University School of Medicine

539 **CC-W191**

● **Advances in Computer Experiments—Contributed**

Section on Physical and Engineering Sciences, Quality and Productivity Section

Chair(s): Derek Bingham, Simon Fraser University

10:35 a.m. **A Hybrid M-Estimation Method with Application in Simultaneous Tuning and Calibration for Computer Experiments**—◆Gang Han, Texas A&M University; Ao Yuan, Georgetown University; Qizhai Li, Chinese Academy of Sciences; Haiqun Lin, Yale School of Public Health; Thomas Santner, The Ohio State University

10:50 a.m. **Patient-Specific Prediction of Abdominal Aortic Aneurysm Expansion Using Bayesian Calibration**—◆Liangliang Zhang, Michigan State University; Tapabrata Maiti, Michigan State University; Chae Young Lim, Seoul National University; Jongeun Choi, Michigan State University; Seungik Baek, Michigan State University

11:05 a.m. **Modeling Material Stress Using Integrals of Gaussian Markov Random Fields**—◆Peter Marcy, Los Alamos National Laboratory; Scott Vander Wiel, Los Alamos National Laboratory; Curtis Storie, Mayo Clinic

11:20 a.m. **Variable Selection for Gaussian Process Models Using Experimental Design-Based Subagging**—◆Yibo Zhao, Rutgers University; Ying Hung, Rutgers University

11:35 a.m. **Approximate Likelihood Methods for Estimation and Prediction in Gaussian Process Regression Models for Computer Experiments**—◆Ryan Parker, SAS Institute; Brian J. Reich, North Carolina State University; Chris Gotwalt, SAS Institute

11:50 a.m. **Sequential Pareto Optimization of Physical Systems Using Calibrated Computer Simulators**—◆Po-Hsu Allen Chen, The Ohio State University;

Angela Dean, The Ohio State University; Thomas Santner, The Ohio State University

12:05 p.m. **Floor Discussion**

540 **CC-W179b**

● **Statistical Computing for Machine Learning—Contributed**

Section on Statistical Computing

Chair(s): Elizabeth Claassen, JMP Analytical Development

10:35 a.m. **Dimensionality Reduction for Clustering Data on a Unit Hypersphere with Application to Text Mining**—◆Semhar Michael, South Dakota State University; Volodymyr Melnykov, University of Alabama

10:50 a.m. **A New Approach to Visualizing and Clustering Mixed Categorical and Numeric Data**—◆Samuel Buttrey, Naval Postgraduate School; Lyn Whitaker, Naval Postgraduate School

11:05 a.m. **Likelihood Transformation and Information-Based Approach to Clustering**—◆Milan Bimali, University of Kansas School of Medicine; Michael Brimacombe, University of Kansas Medical Center

11:20 a.m. **On Safe Semi-Supervised Learning**—◆Kenneth Ryan; Mark Culp, West Virginia University

11:35 a.m. **Multiple Predicting Cross-Validation**—◆Yoonsuh Jung, University of Waikato

11:50 a.m. **On Liu's Simplicial Depth and Randles' Interdirections**—◆Yunfei Wang, The University of Texas at Dallas; Robert Serfling, The University of Texas at Dallas

12:05 p.m. **Fully Bayesian Inference in Functional Principal Component Analysis for the Opioid Dependence Treatment Data**—◆Jun Ye; Yehua Li, Iowa State University; Yongtao Guan, University of Miami

541 **CC-W193b**

● **Non-Gaussian Methods for Environmental Data—Contributed**

Section on Statistics and the Environment

Chair(s): Eric Gilleland, National Center for Atmospheric Research

10:35 a.m. **Adjusting for Capture, Recapture, and Identity Uncertainty When Estimating Detection Probability from Capture-Recapture Surveys**—◆Stacy Edmondson, Whitman College

10:50 a.m. **A Hidden Markov Model for Animal Social Networks**—◆Meridith L. Bartley, Penn State University; Ephraim M. Hanks, Penn State University; David P. Hughes, Penn State University

- 11:05 a.m. **Spatial Envelope**—◆Hossein Rekadarkolae, Virginia Commonwealth University
- 11:20 a.m. **Clustering of Soil Geochemical and Mineralogical Data from the Conterminous United States Using a Bayesian Finite Mixture Model**—◆Karl Ellefsen, U.S. Geological Survey; Laurel Woodruff, U.S. Geological Survey; David Smith, U.S. Geological Survey; William Cannon, U.S. Geological Survey; Federico Solano, U.S. Geological Survey
- 11:35 a.m. **Non-Gaussian Bivariate Modeling for Geophysical Inversions**—◆Andrew Zammit-Mangion, University of Wollongong; Noel Cressie, University of Wollongong
- 11:50 a.m. **Factor Copula Models for Spatial Data**—◆Pavel Krupskiy, King Abdullah University of Science and Technology; Marc Genton, KAUST; Raphaël Huser, KAUST
- 12:05 p.m. **Geostatistical Binary Data: Models, Properties, and Connections**—◆Victor De Oliveira, The University of Texas at San Antonio

542 CC-W186b

■ Semiparametric Methods for Longitudinal and Event Time Data—Contributed

Biometrics Section, Biopharmaceutical Section, International Chinese Statistical Association

Chair(s): Jing Wang, St. Louis University

- 10:35 a.m. **A Semiparametric Joint Model for Terminal Trend of Quality of Life and Survival in Palliative Care Research**—◆Zhigang Li; H. Rob Frost, Dartmouth College; Lihui Zhao, Northwestern University; Lei Liu, Northwestern University; Kathleen Lyons, Dartmouth College; Huaihou Chen, University of Florida; Bernard Cole, University of Vermont; David Currow, Flinders University; Marie Bakitas, University of Alabama at Birmingham; Tor Tosteson, Dartmouth College
- 10:50 a.m. **Semiparametric Structural Equation Models with Latent Variables for Right-Censored Data**—◆Kin Yau Wong, The University of North Carolina at Chapel Hill; Donglin Zeng, The University of North Carolina at Chapel Hill; Danyu Lin, The University of North Carolina at Chapel Hill
- 11:05 a.m. **Classification of Longitudinal Data Using P-Splines and Correlated Mixed-Effects Models Applied to Predict Pregnancy Outcomes**—◆Cristian Meza, Universidad de Valparaiso; Ana Arribas-Gil, Universidad Carlos III de Madrid; Rolando De la Cruz, P. Universidad Catolica de Valparaiso; Claudio Fuentes, Oregon State University
- 11:20 a.m. **Semiparametric Spatial Model for Interval-Censored Data with Time-Varying Covariate Effect**—◆Yue Zhang, University of Cincinnati;

- Xia Wang, University of Cincinnati; Bin Zhang, Cincinnati Children's Hospital Medical Center
- 11:35 a.m. **Pseudo-Value Method for Ultra-High-Dimensional Semiparametric Models with Life-Time Data**—◆Tony Sit, The Chinese University of Hong Kong
- 11:50 a.m. **A Semiparametric Survival Model with a Time-Dependent Cure Process**—◆Sophie Yu-Pu Chen, University of Michigan; Alex Tsodikov, University of Michigan
- 12:05 p.m. **A General Semiparametric Accelerated Failure Time Model Imputation Approach for Censored Covariate**—◆Shengchun Kong, Gilead Sciences; Ying Ding, University of Pittsburgh; Shan Kang, Robert Bosch LLC

543 CC-W183c

Matching and Propensity Score Methods for Causal Inference—Contributed

Section on Statistics in Epidemiology, International Chinese Statistical Association

Chair(s): Michael Rosenblum, Johns Hopkins Bloomberg School of Public Health

- 10:35 a.m. **Proximity Score Matching: Using the Random Forest Proximity Matrix for Matching in Causal Inference**—◆Hui Fen Tan, Cornell University; David Isaac Miller, Northwestern University; James Savage, Lendable
- 10:50 a.m. **Discovering Effect Modification in Matched Observational Studies with Multiple Controls**—◆Kwonsang Lee, University of Pennsylvania; Dylan Small, University of Pennsylvania; Paul R. Rosenbaum, University of Pennsylvania
- 11:05 a.m. **Leveraging Multiple Outcomes in Matched Observational Studies**—◆Colin B. Fogarty, MIT; Dylan Small, University of Pennsylvania
- 11:20 a.m. **Propensity Score Approach for Multiple Treatment Options and Its Application in Cancer Outcome Research**—◆Yuan Liu; Jeanne Kowalski, Emory University; Theresa Wicklin Gillespie, Emory University
- 11:35 a.m. **Using Observed Outcomes to Design High-Dimensional Propensity Scores**—◆Lo-Hua Yuan, Harvard
- 11:50 a.m. **Bagged One-to-One Matching for Efficient and Robust Treatment Effect Estimation**—◆Lauren Samuels, Vanderbilt University; Robert Greevy, Vanderbilt University
- 12:05 p.m. **Prognostic Score Weighting and Nonparametric Weighting via Bagged One-to-One Matching**—◆Robert Greevy, Vanderbilt University; Lauren Samuels, Vanderbilt University

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544 CC-W178b Statistical Learning with Censored Data and Systematic Sampling—Contributed

Section on Statistical Learning and Data Science

Chair(s): Jonathan Hobbs, Jet Propulsion Laboratory

- 10:35 a.m. Modeling an Ordinal Outcome in High Dimensions with Nonparametric Feature Augmentation and Proportional Odds Boosting—◆ Kyle Ferber, Virginia Commonwealth University; Kellie J. Archer, Virginia Commonwealth University
- 10:50 a.m. Variable Selection with High-Dimensional Censored Data—◆ Zhihua Sun, Ocean University of China; Gang Li, University of California at Los Angeles
- 11:05 a.m. Selection for Semiparametric Odds Ratio Model via Adaptive Screening—◆ Jinsong Chen, University of Illinois at Chicago; Huayun Chen, University of Illinois at Chicago
- 11:20 a.m. Using Inverse Probability of Censoring Weighted Bagging to Adapt Machine-Learning Techniques to Censored Data—◆ Ales Kotalik, University of Minnesota; Julian Wolfson, University of Minnesota; David Vock, University of Minnesota School of Public Health; Gediminas Adomavicius, University of Minnesota; Sunayan Bandyopadhyay, University of Minnesota
- 11:35 a.m. Bayesian Neural Network for Predicting Survival Time of Competing Risks—◆ Taysseer Sharaf, Slippery Rock University
- 11:50 a.m. Systematic Sampling Design with Application to Data Splitting—◆ Redouane Betrouni, George Mason University; James E. Gentle, George Mason University
- 12:05 p.m. Statistical Computation with Mixture Data—◆ Shiju Zhang, St. Cloud State University

545 CC-W184a Variable Selection and Risk Prediction in Genomics—Contributed

Section on Statistics in Genomics and Genetics, Biopharmaceutical Section

Chair(s): Simon Vandekar, University of Pennsylvania

- 10:35 a.m. Multi-Tuning Parameter Lasso for Sample Classification—◆ Kimberly Siegmund, University of Southern California; Jie Liu, University of Southern California; Juan Pablo Lewinger, University of Southern California
- 10:50 a.m. A Permanent Approach in Predicting the Relapse Risk of Breast Cancer—◆ Haipeng Liu, University of Illinois at Chicago; Jie Yang, University of Illinois at Chicago

- 11:05 a.m. Expandable Factor Analysis—◆ Sanvesh Srivastava, University of Iowa; Barbara E. Engelhardt, Princeton; David Dunson, Duke University
- 11:20 a.m. Random Forest for Paired Data—◆ Matthew Mitchell, Metabolon; Jacob Edward Wulff, Metabolon; Philip Ross Gunst, Metabolon
- 11:35 a.m. Predicting Pathologic Complete Response Using Clinical and Microarray Data in the Presence of a Dominating Class—◆ Jonathon Abernethy, University of Illinois at Chicago; Jie Yang, University of Illinois at Chicago
- 11:50 a.m. Analysis of Ultra-High-Dimensional Polycystic Ovary Syndrome Genome Using DC-RR—◆ Jill Lundell, Utah State University; Guifang Fu, Utah State University
- 12:05 p.m. Tree-Based Model for Longitudinal Data and Its Application in Mapping Shape Quantitative Trait Loci—◆ Xiaotian Dai

546 CC-W184d Noninferiority Studies—Contributed

Biopharmaceutical Section, International Chinese Statistical Association

Chair(s): Pilar Lim, Janssen R&D

- 10:35 a.m. Clinical Trial Design of Authorized Biosimilars in Europe—◆ Johanna Mielke, Novartis Pharma AG; Bernd Jilma, Medical University of Vienna; Byron Jones, Novartis Pharma; Franz Koenig, Medical University of Vienna
- 10:50 a.m. Average Inferiority Measure and Standardized Margins to Address Issues in Biosimilar Trials—◆ Gang Li, Johnson & Johnson; Weichung J. Shih, Rutgers University
- 11:05 a.m. Various Approaches to Calculate 95% CIs of Treatment Difference from a Stratified Noninferiority Trial—◆ Qiaoyang Lu, Astellas Pharma; Misun Lee, Astellas Pharma
- 11:20 a.m. Bayesian Design of Phase II Noninferiority (NI) Safety Clinical Trial—◆ Lu-May Chiang, Novartis Pharma; David Ohlssen, Novartis; Dong Xi, Novartis
- 11:35 a.m. The Role of Multiple Imputation in Noninferiority Trials—◆ Brian Wiens, Portola Pharmaceuticals; Ilya Lipkovich, Quintiles
- 11:50 a.m. Is It Valid to Claim Superiority in a Noninferiority Trial?—◆ Jitendra Ganju, Global Blood Therapeutics
- 12:05 p.m. Noninferiority Tests for Anti-Infective Drugs Using Control Quantiles—◆ Michael Fay, National Institute of Allergy and Infectious Diseases; Dean Follmann, National Institute of Allergy and Infectious Diseases

- 547** **CC-W182**
Statistical Challenges and Solutions for Neuroimaging Studies—Contributed
 Section on Statistics in Imaging
 Chair(s): Yize Zhao, Statistical and Applied Mathematical Sciences Institute
- 10:35 a.m. **Statistical Analysis of Magnetic Resonance Imaging-Based Tumor Heterogeneity Density Profiles in Glioblastoma**—◆Abhijoy Saha, The Ohio State University; Sayantan Banerjee, MD Anderson Cancer Center; Sebastian A. Kurtek, The Ohio State University; Shivali Narang, MD Anderson Cancer Center; Ganesh Rao, MD Anderson Cancer Center; Juan Martinez, BrainLAB; Karthik Bharath, University of Nottingham; Arvind Rao, MD Anderson Cancer Center; Veera Baladandayuthapani, MD Anderson Cancer Center
- 10:50 a.m. **An Investigation of a Quadratic Design Criterion for Estimation of the Hemodynamic Response Function**—◆Darcie Delzell, Wheaton College
- 11:05 a.m. **Image Registration Techniques Alter Image Properties in fMRI**—◆Kevin Liu, Marquette University; Daniel Rowe, Marquette University
- 11:20 a.m. **The Interplay Between Sample Size and Reproducibility of Results in fMRI Studies**—◆Han Bossier, Ghent University; Ruth Seurinck, Ghent University; Sanne Roels, Ghent University; Simone Kuehn, MPI for Human Development; Jean-Baptiste Poline, University of California at Berkeley; Beatrijs Moerkerke, Ghent University
- 11:35 a.m. **Improving the Balance Between Sensitivity and Specificity for Functional Localization in fMRI Data**—◆Jasper Degryse, Ghent University; Ruth Seurinck, Ghent University; Beatrijs Moerkerke, Ghent University
- 11:50 a.m. **Removing Inter-Subject Technical Variability in Magnetic Resonance Imaging Studies**—◆Jean-Philippe Fortin, The Johns Hopkins University; Elizabeth M. Sweeney, Johns Hopkins Bloomberg School of Public Health; John Muschelli, The Johns Hopkins University; Ciprian Crainiceanu, The Johns Hopkins University; Russell Shinohara, University of Pennsylvania
- 12:05 p.m. **Classifying Dementia Based on Volumetric MRI**—◆John Kornak, University of California at San Francisco

- 548** **CC-W187c**
■ Clinical Trial Monitoring—Contributed
 Biopharmaceutical Section
 Chair(s): Theodore Lystig, Medtronic
- 10:35 a.m. **The Three Pillars of a Successful Data Monitoring Committee Organizational Meeting and Interim Monitoring of a Randomized Clinical Trial and the Eventual Impact on Public Health**—◆Navneet Ram Hakhu, Axio Research
- 10:50 a.m. **Group-Sequential Clinical Trials for Comparing Two Interventions Using Two Time-to-Event Outcomes**—◆Toshimitsu Hamasaki, National Cerebral and Cardiovascular Center; Tomoyuki Sugimoto, Hirosaki University; Koko Asakura, National Cerebral and Cardiovascular Center; Scott Evans, Harvard
- 11:05 a.m. **Enhanced Conditional Power and Predictive Power Using Auxiliary Information**—◆Libo Sun, Janssen R&D; Ying Wan, Janssen R&D
- 11:20 a.m. **Best Practices for Reporting Adverse Event Data to Data-Monitoring Committees**—◆Hengrui Sun, The University of North Carolina at Chapel Hill; Kwanye Jung, The University of North Carolina at Chapel Hill; Sonia Davis, The University of North Carolina at Chapel Hill
- 11:35 a.m. **Statistical Issues for Safety Monitoring of Recurrent Adverse Events in Clinical Trials**—◆LiAn Lin, Merck Research Laboratories; Greg Ball, Merck Research Laboratories; William William Wang, Merck Research Laboratories
- 11:50 a.m. **Modeling Events and Early Terminations to Predict**—◆John Johnson, PPD
- 12:05 p.m. **Collection of Adverse Events Data for the Supplemental Indications in Cancer Clinical Trials: Is It Needed?**—◆Sirisha Mushfi, FDA; Huanyu Chen, FDA; Yun Wang, FDA; Rajeshwari Sridhara, FDA

- 549** **CC-W196a**
Combined Data and Data Linkage (Surveys + Administrative Data, Geospatial Data, etc.)—Contributed
 Survey Research Methods Section
 Chair(s): Barry Graubard, National Cancer Institute
- 10:35 a.m. **Linking Federal Administrative Data to General Population Survey Samples**—◆Joseph Sakshaug; Manfred Antoni, Institute for Employment Research; Reinhard Sauckel, Institute for Employment Research
- 10:50 a.m. **Quality and Analysis of Sets of Files**—◆William Winkler

- 11:05 a.m. Modeling Similar Nonmatches in Record Linkage with Mixture Models—◆Michael Larsen, The George Washington University
- 11:20 a.m. Linked Designs of the MEPS Medical Provider and Organization Surveys—◆Marc Zodet, Agency for Healthcare Research and Quality; Sadeq Chowdhury, Agency for Healthcare Research and Quality; Steve Machlin, Agency for Healthcare Research and Quality
- 11:35 a.m. Multiple Imputation for Survey Integration Under Informative Sampling—◆Seho Park, Iowa State University; Jae-kwang Kim, Iowa State University
- 11:50 p.m. Evaluating Record Linkage Software for Agricultural Surveys—◆Michael E. Bellow, USDA/NASS; Kara Daniel, USDA/NASS; Mark Gorsak, USDA/NASS; Andreea Luisa Erculescu, National Institute of Statistical Sciences/USDA/NASS
- 12:15 p.m. Floor Discussion

550 CC-W194b

Risk Estimation—Contributed

Business and Economic Statistics Section, Section on Risk Analysis

Chair(s): Daniel McDonald, Indiana University

- 10:35 a.m. What Is the Best Model to Predict Real Failure of Hedge Funds?—◆Jose Faias, Catolica Lisbon SBE; Leila Amorim, UFBA
- 10:50 a.m. Goodness-of-Fit Assessment of Generalized Linear Models with Binary Response When Overdispersion Presents—◆Jin Xia, GE Global Research; Radu Neagu, GE Global Research
- 11:05 a.m. Assessing Value at Risk in Mortgage Credit—◆Robert Kevin Winkler, George Mason University; James E. Gentle, George Mason University
- 11:20 a.m. Financial Institution Fraud and the Financial Crisis: The Non-Subprime Mortgage Crisis—◆Sharon Pedersen
- 11:35 a.m. Macroeconomic Factors and Banks' Operational Risk Losses: Is There Any Connection?—◆Vladimir Ladyzhets, Santander Bank/University of Connecticut
- 11:50 a.m. Modeling Insurance Claims Using Skewed and Mixture Probability Distributions—◆Mohammad Aziz, University of Wisconsin-Eau Claire; Aaron Leinwander, Security Health Plan
- 12:05 p.m. Floor Discussion

551 CC-W181b

Statistical Methodologies for Identifying and Modeling Structure—Contributed

Royal Statistical Society

Chair(s): Bernard W. Silverman, Home Office, UK

- 10:35 a.m. Pattern Discovery of Health Curves with an Ordered Probit Model and Functional PCA—◆Shijia Wang, Simon Fraser University; Liangliang Wang, Simon Fraser University; Jason Sutherland, University of British Columbia School of Population and Public Health
- 10:50 a.m. Trinary Framework for Modeling Multiple Parameters and Cluster-Based Interactions—◆Turkan Gardenier, Pragmatica Corp.; John Stark Gardenier, CDC/NCHS (Retired)
- 11:05 a.m. Utilizing Bootstrapping to Identify Spectral and Phasic Knee Biomechanics in Healthy and Anterior Cruciate Ligament Reconstructed Populations—◆Kristin Denise Morgan, University of Kentucky; Heather Bush, University of Kentucky; Brian Noehren, University of Kentucky
- 11:20 a.m. Dating Structural Breaks in Functional Data Without Dimension Reduction—◆Ozan Sonmez, University of California at Davis; Alex Aue, University of California at Davis; Gregory Rice, University of Waterloo
- 11:35 a.m. Simultaneous and Temporal Autoregressive Network Models—◆Daniel Sewell, University of Iowa
- 11:50 a.m. Partial Order Markov Chain Monte Carlo for Bayesian Networks—◆James Henderson, University of Michigan; George Michailidis, University of Florida
- 12:05 p.m. Edge Exchangeability: A New Foundation for Modeling Network Data—◆Harry Crane, Rutgers University; Walter Dempsey, University of Michigan

552 CC-W177

Bayesian Computation—Contributed

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

Chair(s): Keshav Pokhrel, University of Michigan

- 10:35 a.m. An Auxiliary-Variable Gibbs Sampler for Diffusions—◆Vinayak Rao, Purdue University; Yee Whye Teh, University of Oxford
- 10:50 a.m. Efficient Bayesian Posterior Sampling for Massive Data Sets—◆Reihaneh Entezari; Radu V. Craiu, University of Toronto; Jeffrey S. Rosenthal, University of Toronto
- 11:05 a.m. Sequential Monte Carlo Smoothing with Parameter Estimation—◆Biao Yang, The

George Washington University; Jonathan Stroud, Georgetown University; Gabriel Huerta, University of New Mexico

11:20 a.m. **PIE: Simple, Scalable, and Accurate Posterior Interval Estimation**—◆Cheng Li, Duke University; Sanvesh Srivastava, University of Iowa; David Dunson, Duke University

11:35 a.m. **A Bayesian Approach to Modeling Atomic Structural Disorder**—◆Karl Pazdernik; Brian J. Reich, North Carolina State University; Katharine Page, Oak Ridge National Laboratory

11:50 a.m. **Sufficient Burn-In for the Random-Walk Metropolis Algorithm**—◆David Spade, University of Missouri-Kansas City

12:05 p.m. **Scalable Bayesian Variable Selection for Structured Data**—◆Suprateek Kundu, Emory University; Changgee Chang, Emory University; Qi Long, Emory University

553 **CC-W176b**

● **Nonparametric Models—Contributed**

Section on Nonparametric Statistics

Chair(s): Vanda Lourenco, Universidade Nova de Lisboa

10:35 a.m. **Eigenvalue Concentration in the Finite-Dimensional Random Dot Product Graph Model**—◆Joshua Cape, The Johns Hopkins University; Minh Tang, The Johns Hopkins University; Carey Priebe, The Johns Hopkins University

10:50 a.m. **Modified Liu Estimator in Partially Linear Models**—◆Gulin Tabakan, Aksaray University

11:05 a.m. **Optimal Estimation of Derivatives in Nonparametric Regression**—◆Wenlin Dai, King Abdullah University of Science and Technology; Marc Genton, KAUST; Tiejun Tong, Hong Kong Baptist University

11:20 a.m. **Reduced Sample-Compressed Learning of Big Probability Distributions**—◆Subhadeep Mukhopadhyay, Temple University Fox School of Business

11:35 a.m. **Semiparametric Generalized Linear Models for Time-Series Data**—◆Thomas Fung, Macquarie University; Alan Huang, University of Queensland

11:50 a.m. **Estimation and Variable Selection for the Quantile Partially Linear Single-Index Model**—◆Yuankun Zhang, University of Cincinnati; Heng Lian, University of New South Wales; Yan Yu, University of Cincinnati

12:05 p.m. **Rank-Based Group Variable Selection**—◆Brice Merlin Nguelifack, U.S. Naval Academy

Topic-Contributed Poster Presentations 10:30 a.m. – 12:20 p.m.

554 **CC-Hall F1 West**

SPAAC Poster Competition—Topic-Contributed

Scientific and Public Affairs Advisory Committee

Chair(s): Sreelatha Meleth, RTI International

- 1 **Extending the Schelling Process in Chicago**—◆Daniel Silva-Inclan, The University of Chicago
- 2 **Break Detection Methods Applied for International Industrial Property Time Series Data**—◆BeomYong Kim, Seoul National University; HyUP YANG, Kangwon National University
- 3 **Bayesian Inference in Nonparanormal Graphical Models**—◆Jami Jackson, North Carolina State University; Subhashis Ghosal, North Carolina State University
- 4 **A Bayesian Adaptive Dose-Finding Design with Time Trend Detection**—◆Jun Yin, Mayo Clinic
- 5 **Time Series Matching for Novelty Detection in the Stepdown Ward: A Gaussian Process Approach**—◆Glen Wright Colopy, University of Oxford; Marco A. F. Pimentel; Stephen J. Roberts; David A. Clifton
- 6 **A Limitation of the Two-Scales Covariance Estimator in the Context of High-Frequency Financial Trading**—◆Cyrille Nzouda, University of Nebraska-Lincoln; Shunpu Zhang, University of Central Florida; Kent Eskridge, University of Nebraska-Lincoln
- 7 **Grouping Engineered Nanomaterials by Pulmonary Toxicity Using Rodent Dose-Response Relationships**—◆Nathan Drew, National Institute for Occupational Safety and Health; Eileen D. Kuempel, National Institute for Occupational Safety and Health
- 8 **The Impact of Share 35 Policy on Graft Survival in Patients Undergoing Liver Transplantation with Gender and Race Mismatched Donors**—◆Yefei Zhang; Maha Bektour, The Methodist Hospital
- 9 **Super-Delta: A New Approach on Microarray Data Normalization and Its Applications**—◆Yuhang Liu, Florida State University; Xing Qiu, Rochester University; Jinfeng Zhang, Florida State University
- 10 **Empirical Estimation of Sequencing Error Rates Using Smoothing Splines**—◆Xuan Zhu, MD Anderson Cancer Center; Jian Wang, MD Anderson Cancer Center; Bo Peng, MD Anderson Cancer Center; Sanjay Shete, MD Anderson Cancer Center
- 11 **Finding Optimal Combination in Cancer Drug Development: An Evidence Synthesis Approach**—◆Sofia Paul, Novartis; Fei Ma, Novartis; Satrajit Roychoudhury, Novartis

- 12 **Predicting Patient Costs**—◆Grace Shrader, University of Wisconsin-Madison; Jonathan Berthet, The University of Chicago; Katherine Tong, The University of Chicago; David O. Meltzer, The University of Chicago
- 13 **Convergence of Binomial to Limiting Normal Distribution: Multiple Proofs**—◆Subhash Bagui, University of West Florida; K.L. Mehra, University of Alberta
- 14 **Text-Mining Using Discrete Optimization: An Application to Automate Conference Scheduling**—Jason Pan, Pfizer; ◆Kelly Zou, Pfizer; Ching-Ray Yu, Pfizer; Franklin W. Sun, Pfizer; Martin O. Carlsson, Pfizer
- 15 **A Likelihood-Based Approach for Multivariate One-Sided Tests with Missing Data**—◆Guohai Zhou, University of British Columbia; Lang Wu, University of British Columbia; Rollin Brant, University of British Columbia; J Mark Ansermino
- 16 **Enumerating Latent Classes with Differential Participant Attrition: A Simulation Study Using PROC TRAJ**—◆Patrick Stuchlik; Leann Myers, Tulane University
- 17 **Practical Guidance and Tools for Rule-Out Sensitivity to Unmeasured Confounding Analyses**—◆Lucy D'Agostino McGowan; Robert Greevy, Vanderbilt University
- 23 **Effects of Measurement Errors and Heteroscedasticity in Estimation of Constrained Parameters**—◆Melinda Holt, Sam Houston State University; Cecil Hallum, Sam Houston State University
- 24 **Modeling Body Mass Index Distribution Using Flexible Skewed Density Functions: An Application to UWEC Health Data**—Thao Tran, University of Wisconsin-Eau Claire; Mohammad Aziz, University of Wisconsin-Eau Claire; ◆Cara Wiskow, University of Wisconsin-Eau Claire; Kaolee Yang, University of Wisconsin-Eau Claire
- 25 **A Web Application for Optimal Selection of Adaptive Designs in Phase I Oncology Clinical Trials**—◆Sheau-Chiann Chen; Yu Shyr, Vanderbilt University
- 26 **The Effect of Multicollinearity in Various Regression Scenarios**—◆Daniel Mundfrom, Eastern Kentucky University; Lisa Kay, Eastern Kentucky University; Michelle Smith, Eastern Kentucky University
- 27 **Distance-Based Anomaly Detection by Random Sampling**—◆Kalbi Zongo, Oregon State University; Charlotte Wickham, Oklahoma State University; Sarah Emerson, Oregon State University

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

555 CC-Hall F1 West

Contributed Poster Presentations: Section for Statistical Programmers and Analysts—Contributed

Section for Statistical Programmers and Analysts

Chair(s): Genevera Allen, Rice University

Section for Statistical Programmers and Analysts

- 18 **MEGSA: A Powerful and Flexible Framework for Analyzing Mutual Exclusivity of Tumor Mutations**—◆Xing Hua, National Cancer Institute; Jianxin Shi, National Cancer Institute
- 19 **Cell Suppression and Risk Measurement Across Multiple Tables**—◆Joshua Borton, NORC at the University of Chicago
- 20 **Distribution of Random Correlation Matrices: Hyperspherical Parameterization of the Cholesky Factor**—◆Xiao Wang; Mohsen Pourahmadi, Texas A&M University
- 21 **SPM: Statistical Process Monitoring, an R Package**—◆Curry Hilton, University of Alabama; Subhabrata Chakraborti, University of Alabama
- 22 **Inference on Interval-Valued Data Regression by Measurement Error Models**—◆Yaotong Cai, University of Georgia; Lynne Billard, University of Georgia
- 28 **A Comparison of Repeated Measures ANOVA and Mixed-Effects Models in Analyzing Repeated Measures Data**—◆Allison M. Butler, Intermountain Healthcare; Gregory L. Snow, Intermountain Healthcare; Bill McDermott, The Orthopedic Specialty Hospital; Jeffrey Ferraro, Homer Warner Center for Informatics Research; Kyle Hiroyasu, Homer Warner Center for Informatics Research
- 29 **A Simple Method for Assessing Occupational Exposure via the One-Way Random Effects Model**—◆Jie Peng, St. Ambrose University; Kalimuthu Krishnamoorthy, University of Louisiana at Lafayette; Thomas Mathew, University of Maryland Baltimore County
- 30 **Exploring the Main Sources of Inefficiency of Software for Matrix Operations**—◆Luis Frank, University of Buenos Aires; Guillermo Frank, CONICET
- 31 **Lucid: An R Package for Pretty Printing Floating Point Numbers**—◆Kevin Wright, DuPont Pioneer
- 32 **Parameter Estimation for the Modulated Extended Cumulative Exposure Model**—◆Takenori Sakumura, Chuo University; Toshinari Kamakura, Chuo University
- 33 **Properties of Adaptive Clinical Trial Signature Design in the Presence of Gene and Gene-Treatment Interaction**—◆Alexander Cambon, University of

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CC-Hall F1 West

Contributed Poster Presentations: Section on Statistical Computing—Contributed

Section on Statistical Computing

Chair(s): Genevera Allen, Rice University

Wednesday

- Louisville; Shesh N. Rai, University of Louisville; Guy Brock, University of Louisville
- 34 **Coefficient of Variance Correction for Cluster-Randomized Trial Power Calculation Is Anticonservative**—◆Fangzhou Liu, University of Massachusetts-Amherst; Ken Kleinman, University of Massachusetts-Amherst
- 35 **Variable Selection and Direction Estimation for Single-Index Models via DC-TGDR Method**—◆Xi Liu, Xiamen University; Shuangge Ma, Yale University; Wei Zhong, Xiamen University
- 36 **Estimation of Geometric Brownian Motion Model with T-Distribution-Based Particle Filter**—◆Edesiri Nkemnole, University of Lagos; Olaide Bridget Abass, University of Lagos
- 37 **Maximum Feasible Parameter Size for Moment Preserving Finitizations**—◆Martin Levy, University of Cincinnati; James J. Cochran, University of Alabama; Saeed Golnabi, Optimum Office Solutions
- 38 **Application of Computer Vision and Machine Learning to Public Health Data Validation**—◆Daniel Robertson, CDC; Jin-Mann Lin, CDC
- 39 **On Fitting the Constrained Lasso**—◆Brian R. Gaines, North Carolina State University; Hua Zhou, University of California at Los Angeles
- 40 **Modeling Temporal Dependence to Improve Learning Algorithms for Streaming Data**—◆Maggie Johnson, Iowa State University; Petrutza Caragea, Iowa State University; Lisa Bramer, Pacific Northwest National Laboratory; Bryan Stanfill, Pacific Northwest National Laboratory; Sarah Reehl, Pacific Northwest National Laboratory
- 41 **Fast Bayesian Variable Screenings for Binary Response Regressions**—◆Sheng-Mao Chang, National Cheng Kung University
- 42 **A Scalable Algorithm and R Package to Measure the Impact of Nonignorable Missing Data**—◆Weihua Gao, University of Illinois at Chicago; Baodong Xing, University of Illinois at Chicago; Donald Hedeker, The University of Chicago; Robin J. Mermelstein, University of Illinois at Chicago; Hui Xie, University of Illinois at Chicago
- 43 **A Parametric Approach for Analyzing Heteroscedastic Regression Models with Non-Normally Distributed Residuals**—◆Fassil Nebebe, Concordia University; Tak Kwan Mak, Concordia University
- 557 **Contributed Poster Presentations: Section on Statistical Consulting—Contributed** Section on Statistical Consulting
Chair(s): Genevera Allen, Rice University
- 44 **Analysis of Eyelid Position in Ophthalmologic Plastic Surgery Research**—◆Jonathan Grotts
- 45 **Piecewise Growth Curve Modeling for the Hypothermia Study of Mice**—◆Jingyi Zhang, Michigan State University; Frank Lawrence, Michigan State University; Claire Hankenson, Michigan State University; Ania Skorupski, Michigan State University
- 46 **Ten Essential Elements for Developing or Reforming a Biostatistics Core for a Cancer Center with (or Aspiring for) NCI Designation**—◆Erin Moshier, Icahn School of Medicine at Mount Sinai; Umut Ozbek, Icahn School of Medicine at Mount Sinai; Madhu Mazumdar, Icahn School of Medicine at Mount Sinai
- 47 **Correlations for Repeated Measures Can Be Calculated, but May Not Add Value**—◆Ke Yan, Medical College of Wisconsin; Dudley Benson, Children's Hospital of Wisconsin; John Scott, Medical College of Wisconsin; Robert Niebler, Medical College of Wisconsin; Debra Newman, Blood Center of Wisconsin; Pippa Simpson, Medical College of Wisconsin
- 48 **Longitudinal Model Comparison (GAMM, GEE, GLMM) When the Data Is Not Gaussian**—◆Raymond Hoffmann, Medical College of Wisconsin; Mahua Dasgupta, Medical College of Wisconsin; Ke Yan, Medical College of Wisconsin
- 49 **Impact of Correlation Structure on Longitudinal Models Examining Effects of Psychiatric Diagnoses on Hospital Admissions for Pain in Children with Sickle Cell Disease**—◆Mahua Dasgupta, Medical College of Wisconsin; Matthew P. Myrvik, MCW; Pippa Simpson, Medical College of Wisconsin; Raymond Hoffmann, Medical College of Wisconsin
- 50 **Missing Patterns May Determine Results and Limit Generalizability**—◆Yumei Cao, Medical College of Wisconsin; Joshua Field, Blood Center of Wisconsin; Joel Linden, La Jolla Institute for Allergy and Immunology; Pippa Simpson, Medical College of Wisconsin
- 51 **Finding the 'Best' Measurement of Body Weight Status Was Difficult with Missing Data**—◆Liyun Zhang, Medical College of Wisconsin; Michele Polfuss, University of Wisconsin-Milwaukee; Kathleen J. Sawin, University of Wisconsin-Milwaukee; Pippa Simpson, Medical College of Wisconsin
- 52 **Accurately Placing Landmarks on the Occlusal Surface of Fossil Bovid Teeth: Expert Intelligence vs. Artificial Intelligence**—◆Maxwell Luetkemeier, Loyola University

Chicago; Gregory Matthews, Loyola University Chicago; Juliet K. Brophy, Louisiana State University; Geroge K. Thiruvathukal, Loyola University Chicago

558 CC-Hall F1 West

Contributed Poster Presentations: Section on Statistical Education—Contributed

Section on Statistical Education

Chair(s): Genevera Allen, Rice University

- 53 A Classroom Data Analysis Project Comparing 1960s Local Radio Chart Data to the National Billboard Charts—◆John Gabrosek, Grand Valley State University; Len O'Kelly, Grand Valley State University
- 54 Missing Data and Complex Sample Surveys: The Impact of Listwise Deletion vs. Multiple Imputation on Point and Interval Estimates When Data Are MCAR and MAR—◆DeAnn Trevathan, University of South Florida; Anh Kellermann, University of South Florida; Jeffrey Kromrey, University of South Florida
- 55 Data Visualization of Science Test Score Distribution Across Districts—◆Leila Jamoosian; Kathryn Hayes, California State University at East Bay; Eric Sues, California State University at East Bay
- 56 Innovative Content Development for the Online Applied Statistics Graduate Programs at Penn State—◆Mosuk Chow, Penn State University; Glenn Johnson, Penn State University; James Rosenberger, Penn State University
- 57 Early Detection of Placement for Success in an Online Quantitative Class—◆Ping-Hung Hsieh, Oregon State University; Xiaohui Chang, Oregon State University; Andrew Olstad, Oregon State University
- 58 Development and Pilot Test of a Mobile Application for Field Data Collection—◆Laurel Chiappetta, Data Development Integration Verification Analysis; Mary Margaret Kerr, University of Pittsburgh School of Education
- 59 Improving Retention in an Online Introductory Statistics Course—◆Whitney Zimmerman, Penn State University; Glenn Johnson, Penn State University
- 60 How to Lie (to Congress) with Statistics—◆Kirk Anderson, Grand Valley State University; Mary Richardson, Grand Valley State University
- 61 Lexical Ambiguity in Statistics: The Development of High-Impact, Little-Time Activities to Help Students Better Understand the Meaning of Parameter—◆Neal Rogness, Grand Valley State University; Jennifer Kaplan, University of Georgia; Diane Fisher, University of Louisiana at Lafayette
- 62 Methods for Identifying Outliers for Carry-Forward Imputation in the Survey of Graduate Students and Postdoctorates in Science and Engineering—◆Jiantong Wang, Research Triangle Institute International;

Kimberly Ault, Research Triangle Institute International; Rachel Harter, RTI International

- 63 Perception and Deception: What Students Assume About an Introductory Business Statistics Course—◆Deborah Gougeon, University of Scranton
- 64 Knowledge and Understanding of Biostatistics Among Sports and Exercise Medicine Professionals—◆Abdulaziz Farooq, Aspetar-Orthopaedic and Sports Medicine Hospital
- 65 Simulation/Randomization: How Much Is Really Necessary?—◆Tisha Hooks, Winona State University; Christopher J. Malone, Winona State University
- 66 STAT-MAPS: A Matrix-Based Electronic Learning Tool for Beginning Statistics Students—◆Concetta DePaolo, Indiana State University
- 67 The Lights of Mathile 212—◆Laurence Robinson, Ohio Northern University
- 68 RepASA: A Virtual Repository to Improve Statistics Teaching in High Schools in Puerto Rico—◆Pedro Torres-Saavedra, University of Puerto Rico at Mayaguez; Roberto Rivera, University of Puerto Rico at Mayaguez
- 69 The Vocabulary Knowledge of Introductory Statistics Students and Its Relationship to Conceptual Understanding—◆Amy Froelich, Iowa State University
- 70 Tell Me About the ROSA Symposium 2016—◆Marjorie Bond, Monmouth College

559 CC-Hall F1 West

SPEED: Statistical Methods for Clinical Trials and Longitudinal Analysis, Part 2A—Contributed

Biometrics Section, Biopharmaceutical Section

Chair(s): Genevera Allen, Rice University

- 1 Statistical Inference of Covariate-Adjusted Response-Adaptive Randomized Clinical Trials—◆Wanying Zhao, The George Washington University
- 2 A Comparison of Methods for Confidence Intervals on the Location of a Quadratic Growth Curve—◆Puyu San, Arizona State University; Mark Reiser, Arizona State University; Wanchunzi Yu, Arizona State University
- 3 Adaptive Estimation of Personalized Maximum Tolerated Doses in Cancer Phase I Clinical Trials According to All Toxicities and Individual Characteristics—◆Zhengjia Chen, Emory University; Zheng Li, Penn State University; Ying Yuan, MD Anderson Cancer Center; Michael Kutner, Emory University; Taofeek Owonikoko, Emory University; Walter J. Curran, Emory University; Jeanne Kowalski, Emory University
- 4 Small Sample Inference in Imbalanced Cluster Randomized Clinical Trials with Binary Outcomes—

- ◆ Dong Hyun Ahn, New York University; Judith D. Goldberg, New York University School of Medicine
- 5 Robust Generalized Multivariate Bioequivalence—
◆ Srinand Ponnathapura Nandakumar, Quintiles
- 6 Explore Methodologies for Extrapolation of Efficacy from the Adult to the Specific Pediatric Population—
◆ Yao Li, AbbVie; Bidan Huang, AbbVie
- 7 A Clinical Trial Design Based on the Concept of Relative Time Using the Generalized Gamma Ratio Distribution—◆ Milind Phadnis, University of Kansas Medical Center
- 8 Improved Methods for the Marginal Analysis of Longitudinal Data in the Presence of Time-Dependent Covariates—◆ I-Chen Chen, University of Kentucky; Philip Westgate, University of Kentucky
- 9 Proportional Likelihood Ratio Mixed Model—
◆ Hongqian Wu, University of Iowa; Michael Jones, University of Iowa
- 10 Simultaneous Confidence Intervals for Assessing SNP Effects on Treatment Efficacy—◆ Yushi Liu; Jason C. Hsu, Eli Lilly and Company/The Ohio State University

560 CC-Hall F1 West
SPEED: Advances in Statistical Genetics, Part 2A—Contributed

Section on Statistics in Genomics and Genetics

Chair(s): Genevera Allen, Rice University

- 11 Variable Selection in Untargeted Metabolomics Data Analysis—◆ Alexander Kirpich, University of Florida; Matthew Merritt, University of Florida; George Michailidis, University of Florida; Lauren McIntyre, University of Florida
- 12 Predicting Human and Animal Protein Subcellular Locations—◆ Sepideh Khavari; James Munyon, Bowling Green State University; Xiangjia Min, Youngstown State University; Guang-Hwa Chang, Youngstown State University
- 13 ASAFE: Ancestry-Specific Allele Frequency Estimation—◆ Qian Zhang, University of Washington; Brian Browning, University of Washington; Sharon Browning, University of Washington
- 14 Robust Modeling of EQTL Effect Sizes—◆ John Palowitch; Andrey Shabalin, Virginia Collegiate University; Fred Wright, North Carolina State University; Andrew Nobel, The University of North Carolina at Chapel Hill; Yihui Zhou, North Carolina State University
- 15 Pathway-Structured Predictive Model for Cancer Survival Prediction—◆ Xinyan Zhang, University of Alabama at Birmingham; Yan Li, University of Alabama at Birmingham; Omotomilayo F. Akinyemiju,

- University of Alabama at Birmingham; Akinyemi I. Ojesina, University of Alabama at Birmingham; Phillip Buckhaults, University of South Carolina; Bo Xu, Southern Research Institute; Nengjun Yi, University of Alabama at Birmingham
- 16 A New Method to Construct Large Gene Regulatory Networks Using Genetical Genomics Data—◆ Chen Chen, Purdue University; Min Zhang, Purdue University; Dabao Zhang, Purdue University
- 17 A Pseudotime-Series-Based Analysis for Single-Cell Sequencing Data Reveals Directed Associations Between Gene Expression Data—◆ Alicia Taylor Specht, University of Notre Dame; Jun Li, University of Notre Dame
- 18 Stochastic Network Models with Applications to ‘Omics Data—◆ Thomas Bartlett
- 19 Multiple Imputation for Non-Detects in QPCR—
◆ Valeriia Sherina, University of Rochester; Matthew Nicholson McCall, University of Rochester

561 CC-Hall F1 West
SPEED: Advances in Survey Research Methodology, Part 2A—Contributed

Survey Research Methods Section

Chair(s): Genevera Allen, Rice University

- 21 Pilot Surveys of Shore Fishing on Oahu, Hawaii—
◆ Hongguang Ma, Pacific Islands Fisheries Science Center; Tom Ogawa, Hawaii Department of Land and Natural Resources; Jay Breidt, Colorado State University; Virginia Lesser, Oregon State University; Jean Opsomer, Colorado State University; Tom Sminkey, NOAA Fisheries; Christopher Hawkins, Western Pacific Regional Fishery Management Council; April Bagwill, NOAA Fisheries/ECS Federal; David Van Voorhees, NOAA Fisheries
- 22 How Can a Clothing Price Index Be Enhanced? Statistics Canada’s Recent Experience—◆ Krista MacIsaac, Statistics Canada; Jean-Sébastien Provençal, Statistics Canada
- 23 Accuracy in Effect Size Estimation for IID Observations—◆ Francis Bilson Darku, The University of Texas at Dallas; Ken Kelly, Mendoza College of Business; Bhargab Chattopadhyay, The University of Texas at Dallas
- 24 Spatio-Temporal Balanced Sampling Design for Longitudinal Area Survey—◆ Zhonglei Wang, Iowa State University; Zhengyuan Zhu, Iowa State University
- 25 Sampling with Minimal Strata Sample Size Requirements—◆ Stanislav Kolenikov, Abt SRBI; Igor Griva, George Mason University
- 26 Predicting and Preventing Break-Offs in Web Surveys—
◆ Felicitas Mittereder, University of Michigan

- 27 Assessing the Reliability of Conversational Interviewing—
◆William Mockovak, Bureau of Labor Statistics
- 28 Using Instrumental Variables for Bias Correction of Estimates of General Population Parameters from Nonrandomized Web Panel Data—◆Vladislav Beresovsky, CDC/NCHS; Alan Dorfman, CDC/NCHS; Pavlina Rumcheva, CDC/NCHS
- 29 Calibration of Design Weights Using a Power Transformation—◆Sarjinder Singh, Texas A&M University-Kingsville; Veronica Salinas, Texas A&M University-Kingsville; Stephen Sedory, Texas A&M University-Kingsville
- 30 Calibration Weighting for Nonresponse with Proxy Frame Information—◆Phil Kott, RTI International
- 7 Using Endpoints to Analyze Patients Rather Than Patients to Analyze Endpoints: A Pre-Trial Substudy to Develop a Global Outcome for Clinical Trials—
◆Natalia Gouskova, Harvard T.H. Chan School of Public Health; Thomas Holland, Duke University; Sarah Doernberg, University of California at San Francisco; Hongyu Jeanne Jiang, Harvard; Sara Patillo, Duke University; Ralph Corey, Duke University; Helen Boucher, Tufts University; Vance G. Fowler, Duke University; Sara E. Cosgrove, The Johns Hopkins University; Henry F. Chambers, University of California at San Francisco; Scott Evans, Harvard
- 8 Applying Statistical Design to Improve Target Selection: An Example from Whole-Genome siRNA Screens—
◆Mandy Bergquist; Katja Remlinger, GlaxoSmithKline
- 9 Good Practices and Implementation Methods for Optimally Stratified Randomization—◆Jonathan Chipman, Vanderbilt University; Cole Beck, Vanderbilt University; Robert Greevy, Vanderbilt University
- 10 When Do Auxiliary Variables Not Work in Multiple Imputation?—◆Jiaqi Zhang, University of Cincinnati; Christopher Swoboda, University of Cincinnati; Kyle Cox, University of Cincinnati; Zuchao Shen, University of Cincinnati; Ryan Joseph Hart, University of Cincinnati

Contributed Poster Presentations 11:35 a.m. – 12:20 p.m.

562 **CC-Hall F1 West**
SPEED: Statistical Methods for Clinical Trials and Longitudinal Analysis, Part 2B—Contributed

Biometrics Section, Biopharmaceutical Section

Chair(s): Genevera Allen, Rice University

- 1 Dangers of Misusing Ordinal Data—◆Ivy Liu, Victoria University of Wellington; Daniel Fernandez Martinez, New York University; Peter Yongqi Gu, Victoria University of Wellington
- 2 A Simulation-Based Method for Detecting the Best Treatment in Clinical Trials—◆Yan Zhao, University of Oklahoma Health Sciences Center; Roy Tamura, University of South Florida; Michael Brown, Oklahoma Medical Research Foundation
- 3 Efficient Estimation Method for the Extended Hazards Model—◆Yinding Wang; Jiajia Zhang, University of South Carolina
- 4 A Small N Sequential Multiple Assignment Randomized Trial for Use in Rare Disease Research—
◆Roy Tamura, University of South Florida
- 5 The Impact of Model Misspecification on Repeated Measures Analysis—◆Yingmei Xi, Vertex Pharmaceuticals; John Jiang, Vertex Pharmaceuticals
- 6 Correlates of Time to Sexual Debut in 15-19-Year-Olds in the Jamaica Youth Risk and Resiliency Survey 2006: A Survival Analysis—◆Tamika Royal-Thomas, University of the West Indies; Novie Younger-Coleman, University of the West Indies; Jan Van den Broeck, University of Bergen; Debajyoti Sinha, Florida State University; Daniel McGee, Florida State University; Shelly McFarlane, University of the West Indies; Damian Francis, University of the West Indies; Rainford Wilks, University of the West Indies

563 **CC-Hall F1 West**
SPEED: Advances in Statistical Genetics, Part 2B—Contributed

Section on Statistics in Genomics and Genetics

Chair(s): Genevera Allen, Rice University

- 11 SCDC: A Statistical Approach for Reducing Nuisance Variability Due to Oscillating Genes in Unsynchronized Single-Cell RNA-Seq Experiments—◆Jeea Choi, University of Wisconsin-Madison; Christina Kendziorski, University of Wisconsin; Ning Leng, Thomson Lab at the Morgridge Institute for Research; Li-Fang Chu, Thomson Lab at the Morgridge Institute for Research; Ron Stewart, Thomson Lab at the Morgridge Institute for Research; James Thomson, Morgridge Institute for Research
- 12 Spectral Analysis for DNA Barcoding—◆Zhijian Li, Ohio University; Wei Lin, Ohio University
- 13 Accounting for Correlations in Genetic Enrichment Analysis for Improved Interpretation of Genome-Scale Data—◆Duo Jiang, Oregon State University; Bin Zhuo, Oregon State University
- 14 Hybrid-Network: A Bayesian Approach—◆Demba Fofana; Ebenezer Olusegun George, University of Memphis; Dale Bowman, University of Memphis
- 15 Clustering Functional Data from High-Throughput Sequencing Assays—◆Emery Goossens; Heejung Shim, Purdue University

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 16 Sparse, Efficient Phylogenetic Factor Analysis—◆Max Tolkoﬀ; Marc Adam Suchard, University of California at Los Angeles
- 17 Comparison of the Bayesian and Frequentist Estimation of the Inbreeding Coefficient—◆Zhenyi Xue, Becton, Dickinson, and Company

564 **CC-Hall F1 West**
SPEED: Advances in Survey Research Methodology, Part 2B—Contributed

Survey Research Methods Section

Chair(s): Genevera Allen, Rice University

- 21 Alternate Methods for Constructing BRR Weights with National Health and Nutrition Examination Survey (NHANES) Single-Year Samples—◆Te-Ching Chen, CDC/NCHS; Jennifer Parker, CDC/NCHS
- 22 Generating Correlated Synthetic Binary Indicators of Radio Listening Behavior for Long-Term Projections—◆Yanna Yan, University of Michigan; Michael Elliott, University of Michigan; Brady West, University of Michigan; William Waldron, Nielsen
- 23 Access and Explore NCES Survey and Administrative Data Through Self-Guided Online Training

- Modules—◆Andrew A. White, National Center for Education Statistics
- 24 A Composite Likelihood Approach in Testing for Hardy Weinberg Equilibrium Using Family-Based Genetic Survey Data—◆Lingxiao Wang, Joint Program in Survey Methodology; Barry Graubard, National Cancer Institute; Yan Li, Joint Program in Survey Methodology
- 25 Extension of the Peters-Belson Method to Estimate Health Disparities Among Multiple Groups Using Logistic Regression with Survey Data—◆Yan Li, Joint Program in Survey Methodology; Barry Graubard, National Cancer Institute; Pengyu Huang, Fors Marsh Group; Joseph L. Gastwirth, The George Washington University
- 26 Regression Models and Tests for Recruitment Dynamics in Respondent-Driven Sampling—◆Li Zeng, Yale University; Forrest Crawford, Yale University; Jianghong Li, Yale University
- 27 A Comparison Between Standard Regression and Multilevel Modeling Techniques to Analyze Complex Survey Data Based on the Monte Carlo Simulation Study—◆Alomgir Hossain, University of Ottawa Heart Institute; George Wells, University of Ottawa Heart Institute; Punam Pahwa, University of Saskatchewan

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● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 28 Ranking Question Design and Data Analysis—◆Chia-ling Kuo, University of Connecticut Health Center; Jessica Hoag, University of Connecticut Health Center

Speaker with Lunch 12:30 p.m. – 1:50 p.m.

565 CC-W476
Health Policy Statistics Section Speaker with Lunch (Added Fee)—Speaker with Lunch

Health Policy Statistics Section

Organizer(s): Ruth Etzioni, Fred Hutchinson Cancer Research Center

- WL10 Advances in Mental Health Measurement—
 ◆Robert Gibbons, The University of Chicago

Roundtables with Lunch 12:30 p.m. – 1:50 p.m.

566 CC-W375a
Biopharmaceutical Section P.M. Roundtable Discussion (Added Fee)

Biopharmaceutical Section

Organizer(s): Jennifer Gauvin, Novartis

- WL11 Consulting: Building Relationships and Skills—
 ◆Jason Connor, Berry Consultants
- WL12 Best Practices for Discussing/Negotiating Endpoints, Hypotheses, Sample Size, and Other Study Design Aspects of Clinical Studies with FDA Reviewers—◆Jennifer Mischke, NAMSA
- WL13 Challenges Implementing CDISC—◆William Coar, Axio Research; Amber Randall, Axio Research

567 CC-W375a
Section on Statistical Computing P.M. Roundtable Discussion (Added Fee)

Section on Statistical Computing

Organizer(s): Eric Laber, North Carolina State University

- WL14 Computational Challenges in Neuroimaging Data—◆Ana-Maria Staicu, North Carolina State University

568 CC-W375a
Section on Statistical Consulting P.M. Roundtable Discussion (Added Fee)

Section on Statistical Consulting

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

- WL15 Building a Successful Private Practice from the Ground Up—◆Kim Love, K. R. Love Quantitative Consulting and Collaboration

569 CC-W375a
Section on Statistical Education P.M. Roundtable Discussion (Added Fee)

Section on Statistical Education

Organizer(s): Dalene K. Stangl, Duke University

- WL16 Modern Teaching Methods for Graduate Statistics Courses—◆Jana Anderson, Colorado State University
- WL17 Training Statisticians to Be Effective Instructors—
 ◆Jennifer Kaplan, University of Georgia
- WL18 Community Engagement in the Classroom and as a Conduit to Published Research—◆Amy Phelps, Duquesne University
- WL19 Creating a Course on Statistical Learning—◆Sam Behseta, California State University at Fullerton

570 CC-W375a
Section on Statistics in Epidemiology P.M. Roundtable Discussion (Added Fee)

Section on Statistics in Epidemiology

Organizer(s): Scarlett Bellamy, University of Pennsylvania

- WL20 Strategies for Becoming an Effective Statistical Leader of Interdisciplinary Research Teams—
 ◆Renee Moore, Emory University; Jesse Chittams, University of Pennsylvania

571 CC-W375a
Government Statistics Section P.M. Roundtable Discussion (Added Fee)

Government Statistics Section

Organizer(s): Michael Hawes, U.S. Department of Education

- WL21 Prospects for Using Commercial Data for Federal Statistics—◆Zachary Seeskin, NORC at the University of Chicago

572 CC-W375a
Section on Statistics in Marketing P.M. Roundtable Discussion (Added Fee)

Section on Statistics in Marketing

Organizer(s): Jeff Dotson, Brigham Young University

- WL22 Segmentation Analysis in Market Research—
 ◆Joseph Retzer, ACT Market Research Solutions; Ewa Nowakowska, GfK

573 CC-W375a
Mental Health Statistics Section P.M. Roundtable Discussion (Added Fee)

Mental Health Statistics Section

Organizer(s): Booil Jo, Stanford University

- WL23 Efficient Handling of Binary and Continuous Missing Data in Hierarchical Models—◆Yongyun Shin, Virginia Commonwealth University

574 CC-W375a
Section on Physical and Engineering Sciences P.M. Roundtable Discussion (Added Fee)

Section on Physical and Engineering Sciences

Organizer(s): Byran Smucker, Miami University

WL24 Online Experimentation: What It Is and Why It Is So Important—◆Peter Qian, University of Wisconsin-Madison

575 CC-W375a
Section on Physical and Engineering Sciences P.M. Roundtable Discussion (Added Fee)

Section on Physical and Engineering Sciences

Organizer(s): Michael Messner, EPA

WL25 Is Your Mixed Model Analysis Mixed Up?—◆Phil Gibbs, SAS Institute

576 CC-W375a
Quality and Productivity Section P.M. Roundtable Discussion (Added Fee)

Quality and Productivity Section

Organizer(s): Anne Hansen, Intel Corporation

WL26 Postdocs in Statistics: No Longer the Unicorn—◆Karl Pazdernik

577 CC-W375a
Survey Research Methods Section P.M. Roundtable Discussion (Added Fee)

Survey Research Methods Section

Organizer(s): Tom Krenzke, Westat

WL27 Field Observation of Survey Data Collection: Experiences and Lessons Learned—◆John Eltinge, Bureau of Labor Statistics

578 CC-W375a
Section on Statistics and the Environment P.M. Roundtable Discussion (Added Fee)

Section on Statistics and the Environment

Organizer(s): Elizabeth Mannshardt, EPA

WL28 Statistical Issues in Climate Science—◆Michael Stein, The University of Chicago

Invited Sessions 2:00 p.m. – 3:50 p.m.

579 CC-W183a
■ ● Challenges and Opportunities for Analysis of High-Dimensional and Big Data—Invited

ENAR, Committee on Applied Statisticians

Organizer(s): Kevin He, University of Michigan

Chair(s): Kevin He, University of Michigan

2:05 p.m. CoCoLasso for High-Dimensional Error-in-Variables Regression—◆Hui Zou, University of Minnesota; Abhirup Datta, University of Minnesota

2:30 p.m. Covariance-Insured Screening Methods for Ultrahigh-Dimensional Variable Selection—◆Yi Li, University of Michigan; Ji Zhu, University of Michigan; Jiashun Jin, Carnegie Mellon University; Kevin He, University of Michigan; Yanming Li, University of Michigan

2:55 p.m. Robust Covariance Estimation for Approximate Factor Models—Jianqing Fan, Princeton; ◆Weichen Wang, Princeton; Yiqiao Zhong, Princeton

3:20 p.m. Disc: Jiashun Jin, Carnegie Mellon University

3:40 p.m. Floor Discussion

580 CC-W184d
■ ● Statistical and Computational Advances in Microbiome and Metagenomic Studies—Invited

Biometrics Section

Organizer(s): Hongzhe Li, University of Pennsylvania

Chair(s): Jun Chen, Mayo Clinic

2:05 p.m. COCACOLA: Binning Metagenomic Contigs Using Sequence COmposition, Read CoverAge, CO-Alignment, and Paired-End Read LinkAge—◆Fengzhu Sun, University of Southern California; Yang Lu, University of Southern California; Ting Chen, University of Southern California; Jed Fuhrman, University of Southern California

2:30 p.m. The Need for Parametric Statistics in Microbiome Research—◆Bill Shannon, Washington University/Biorankings; Sharina Carter, BioRankings

2:55 p.m. Resolving Heteroscedasticity Issues in Multivariate Analysis of Microbiome Data—◆Alexander V. Alekseyenko, Medical University of South Carolina

3:20 p.m. Disc: Hongzhe Li, University of Pennsylvania

3:40 p.m. Floor Discussion

581 CC-W180● **Approaches for Text Analysis—Invited**

Section on Statistical Computing

Organizer(s): Wendy Martinez, Bureau of Labor Statistics

Chair(s): Xiaofei Susan Wang, Yale University

2:05 p.m. Mining Text in R—◆David Marchette, Naval Surface Warfare Center

2:40 p.m. Using Text Analytics to Extend Customer Behavior Analysis—◆Edward R. Jones, Texas A&M Statistical Services

3:15 p.m. Floor Discussion

582 CC-W183c■ ● **Powerful Experimental Designs for Non-Gaussian Responses—Invited**

Quality and Productivity Section, International Chinese Statistical Association, Section on Physical and Engineering Sciences

Organizer(s): Matthew Plumlee, University of Michigan

Chair(s): Matthew Plumlee, University of Michigan

2:05 p.m. Using Orthogonal Arrays to Obtain Efficient Designs for Certain Generalized Linear Models—◆John Stufken, Arizona State University

2:30 p.m. Efficient Follow-Up Strategies Using Foldovers with Column Permutations—◆William Li, University of Minnesota; Dennis K. J. Lin, Penn State University

2:55 p.m. Efficient Sequential Design of Sensitivity Testing with Small Samples—◆C.F. Jeff Wu, Georgia Institute of Technology; Dianpeng Wang, Beijing Institute of Technology

3:20 p.m. Disc: Arman Sabbaghi, Purdue University

3:40 p.m. Floor Discussion

583 CC-W175a■ ● **Recent Advances in Empirical Bayes Methods—Invited**

International Indian Statistical Association, IMS, International Chinese Statistical Association

Organizer(s): Gourab Mukherjee, University of Southern California

Chair(s): Gourab Mukherjee, University of Southern California

2:05 p.m. Complex Empirical Bayes Models for Normal Data—◆Ya'acov Ritov, Hebrew University/University of Michigan

2:30 p.m. Optimal Shrinkage Estimation in Heteroscedastic Hierarchical Models: Beyond Gaussian—◆Samuel Kou, Harvard; Lawrence D. Brown, University of Pennsylvania; Xianchao Xie, Two Sigma Investments

2:55 p.m. An Empirical Bayes Improvement of Common Shrinkage Estimators—◆Eitan Greenshtein, Central Bureau of Statistics, Israel; Ya'acov Ritov, Hebrew University/University of Michigan; Ariel Mansura, Bank of Israel

3:20 p.m. Empirical Bayes Prediction for the Multivariate Newsvendor Loss Function—◆Lawrence D. Brown, University of Pennsylvania; Gourab Mukherjee, University of Southern California; Paat Rusmevichientong, University of Southern California

3:45 p.m. Floor Discussion

584 CC-W375b● **Medallion Lecture II: Model Averaging and Post-Model Selection—Invited**

IMS, Royal Statistical Society

Organizer(s): Jan Hannig, The University of North Carolina at Chapel Hill

Chair(s): Jean Opsomer, Colorado State University

2:05 p.m. Model Averaging and Post-Model Selection—◆Gerda Claeskens, KU Leuven

3:45 p.m. Floor Discussion

585 CC-W175c■ ● **Recent Advances in Bayesian Modeling of Dependent Biomedical Data—Invited**

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

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

Chair(s): Rong Zabolcki, University of California at San Diego

2:05 p.m. A Flexible Spectral Approach to Nonparametric Estimation of Spatial Data—◆Sally Wood, University of Sydney; Aldo Saavedra, University of Sydney; Hugh Durrant-Whyte, University of Sydney; Ori Rosen, The University of Texas at El Paso

2:30 p.m. Adaptive Spectral Analysis of Replicated Nonstationary Time Series—◆Robert Krafty, University of Pittsburgh; Martica Hall, University of Pittsburgh; Scott Bruce, Temple University

2:55 p.m. A Novel Bayesian Model for the Local False Discovery Rate—◆Wesley Thompson, University of California at San Diego; Rong Zabolcki, University of California at San Diego; Richard Levine, San Diego State University

3:20 p.m. Disc: Ori Rosen, The University of Texas at El Paso

3:40 p.m. Floor Discussion

586 CC-W196c
■ ● Collaboration Among Academia, Industry, and Government, and the Role of ASA—Invited

Committee on ASA Archives and Historical Materials, International Chinese Statistical Association, Scientific and Public Affairs Advisory Committee, Committee on Applied Statisticians

Organizer(s): Mahinda Karunaratne, AbbVie

Chair(s): Mahinda Karunaratne, AbbVie

- 2:05 p.m. Case Studies in Academic-Industry-Government Collaborations in Bayesian Adaptive Clinical Trials—◆Bradley Carlin, University of Minnesota
- 2:30 p.m. An Academic on the Factory Floor: My Experience as the David Jordan Visiting Scholar—◆Rick Chappell, University of Wisconsin-Madison
- 2:55 p.m. The Whole Is Greater Than the Sum of Its Parts: ASA Members Working Together—◆Wendy Martinez, Bureau of Labor Statistics; Anna Nevius
- 3:20 p.m. Disc: Frank Harrell, Vanderbilt University School of Medicine
- 3:45 p.m. Floor Discussion

587 CC-W176a
Resampling Methods for High-Dimensional Inference—Invited

Section on Nonparametric Statistics

Organizer(s): Miles Lopes, University of California at Davis

Chair(s): Eric Chi, North Carolina State University

- 2:05 p.m. Union of Intersections (UoI) Method for Bootstrap-Based Interpretable Discovery—◆Sharmodeep Bhattacharyya, Oregon State University; Kristofer Bouchard, Lawrence Berkeley National Laboratory; Michael W. Mahoney, University of California at Berkeley; Farbod Roosta-Khorasani, University of California at Berkeley; Alejandro F. Bujan, University of California at Berkeley
- 2:30 p.m. Post-Hoc Edge Testing for the Graphical Lasso—◆Maxwell Jacob Grazier G'Sell, Carnegie Mellon University; William Fithian, University of California at Berkeley
- 2:55 p.m. Bootstrapping Spectral Statistics in High Dimensions—◆Miles Lopes, University of California at Davis
- 3:20 p.m. A Nonparametric Rao-Blackwell Theorem with Application to Selective Inference—◆Dennis Sun, Cal Poly/Google
- 3:45 p.m. Floor Discussion

588 CC-W183b
■ ● Estimation of Heterogeneous Treatment Effects—Invited

Business and Economic Statistics Section, Section on Statistics in Marketing

Organizer(s): Craig A. Rolling, University of Oregon

Chair(s): Craig A. Rolling, University of Oregon

- 2:05 p.m. Estimation and Inference of Treatment Effect Heterogeneity in Randomized Experiments—◆Max H. Farrell, The University of Chicago Booth School of Business
- 2:30 p.m. Estimation and Inference of Heterogeneous Treatment Effects Using Random Forests—◆Susan Athey, Stanford University; Stefan Wager, Stanford University
- 2:55 p.m. Making Sense of Digital Experiments with Bayesian Nonparametrics—◆Matt Taddy, Chicago Booth
- 3:20 p.m. Sufficient Dimension Reduction for Treatment Effect Estimation—◆Wenbo Wu, University of Oregon; Craig A. Rolling, University of Oregon
- 3:45 p.m. Floor Discussion

589 CC-W194b
■ Recent Developments in Bayesian Modeling to Analyze Large-Scale Spatial and Spatio-Temporal Data Sets—Invited

Section on Statistics and the Environment, International Society for Bayesian Analysis (ISBA), Section on Bayesian Statistical Science, International Chinese Statistical Association

Organizer(s): Rajarshi Guhaniyogi, University of California at Santa Cruz

Chair(s): Dipankar Bandyopadhyay, Virginia Commonwealth University

- 2:05 p.m. Computational Considerations for Applying Nearest Neighbor Gaussian Processes to Large Spatial Data Sets: A Case Study from Forest Biomass Prediction Across Alaska—Sudipto Banerjee, University of California at Los Angeles; Abhirup Datta, University of Minnesota; Bruce Cook, NASA; ◆Andrew Finley, Michigan State University
- 2:30 p.m. Some Scalable Spatial Modeling Framework for Large Spatial Data—◆Rajarshi Guhaniyogi, University of California at Santa Cruz; Sudipto Banerjee, University of California at Los Angeles
- 2:55 p.m. Parallel Computing for Spatio-Temporal Bayesian Models—Francisco Beltran, Lawrence Livermore National Laboratory; ◆Bruno Sanso, University of California at Santa Cruz
- 3:20 p.m. Disc: Christopher Wikle, University of Missouri
- 3:40 p.m. Floor Discussion

590 CC-W190b
■ ● Computing for Nonlinear Methods with Large Data Sets—Invited

Government Statistics Section, Section on Statistical Computing

Organizer(s): Adam Bloniarz, University of California at Berkeley

Chair(s): Adam Bloniarz, University of California at Berkeley

2:05 p.m. Random Forests for High-Throughput Omics Data and Survival Endpoints: A Tour of the Horizon—◆Andreas Ziegler, University of Tuebingen; Marvin N. Wright, University of Tuebingen; Matthias Schmid, University of Bonn

2:30 p.m. Supervised Neighborhoods for Distributed Nonparametric Regression—◆Ameet Talwalkar, University of California at Los Angeles

2:55 p.m. Signal Recovery from Deep Scattering Representations—◆Joan Bruna, University of California at Berkeley

3:20 p.m. Disc: Sumanta Basu, University of California at Berkeley

3:40 p.m. Floor Discussion

591 CC-W196b
JASA-ACS Invited Session—Invited

JASA, Applications and Case Studies, International Society for Bayesian Analysis (ISBA), Section on Bayesian Statistical Science, International Chinese Statistical Association

Organizer(s): Joseph G. Ibrahim, The University of North Carolina at Chapel Hill

Chair(s): Joseph G. Ibrahim, The University of North Carolina at Chapel Hill

2:05 p.m. Bayesian Nonparametric Estimation for Dynamic Treatment Regimes with Sequential Transition Times—◆Peter F. Thall, MD Anderson Cancer Center; Yanxun Xu; Peter Mueller, The University of Texas at Austin; Abdus S. Wahed, University of Pittsburgh

2:55 p.m. A Regularization Scheme on Word Occurrence Rates That Improves Estimation and Interpretation of Topical Content—◆Eduardo M. Airoldi, Harvard

2:40 p.m. Disc: Eric Laber, North Carolina State University

3:30 p.m. Disc: Eric D. Kolaczyk, Boston University

3:45 p.m. Floor Discussion

Invited Panels 2:00 p.m. – 3:50 p.m.

592 CC-W192b
■ ● Memorial Session in Honor of Dr. Ramanathan Gnanadesikan—Invited

Memorial

Organizer(s): Jon R. Kettenring, Drew University

Chair(s): Vijayan N. Nair, University of Michigan

Panelists: ◆Roshan Chaddha, Retired
 ◆Jon R. Kettenring, Drew University
 ◆Jim Landwehr, Retired
 ◆Bill Strawderman, Rutgers University

3:45 p.m. Floor Discussion

Topic-Contributed Sessions 2:00 p.m. – 3:50 p.m.

593 CC-W187b
■ ● Batch Effects in Genomics Data—Topic-Contributed

Section on Statistics in Genomics and Genetics, Biopharmaceutical Section

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

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

2:05 p.m. Batch Effects in Network Inference—◆Claire Ruberman

2:25 p.m. Confounder Adjustment in Multiple Hypotheses Testing—◆Jingshu Wang; Qingyuan Zhao, Stanford University

2:45 p.m. Correction for Confounding Factors in Genome and Epigenome-Wide Association Studies—◆Jennifer Listgarten, Microsoft Research

3:05 p.m. Accounting for Sample Quality and Other Unwanted Effects in Single-Cell RNA-Seq Data—◆Davide Risso, University of California at Berkeley; Michael Cole, University of California at Berkeley; John Ngai, University of California at Berkeley; Nir Yosef, University of California at Berkeley; Sandrine Dudoit, University of California at Berkeley

3:25 p.m. Batch Effects in Genomics Data—◆Florian Buettner; Oliver Stegle, EMBL-European Bioinformatics Institute

3:45 p.m. Floor Discussion

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

594 CC-W178a

■ **Advanced Statistical Methods in Analysis of Genomics and Epigenomics Data—Topic-Contributed**

International Chinese Statistical Association

Organizer(s): Zhaohui S. Qin, Emory University; Jun Xie, Purdue University

Chair(s): Jun Xie, Purdue University

- 2:05 p.m. Integrating Cell Line and Patient Genomic Data for Drug Response Prediction—◆Ker-Chau Li, Institute of Statistical Science, Academia Sinica
- 2:25 p.m. A New Statistical Method for Longitudinal High-Dimensional Data Analysis—◆Yuping Zhang, University of Connecticut
- 2:45 p.m. Epigenome Isoform Analysis with Applications—◆Hongkai Ji, Johns Hopkins Bloomberg School of Public Health; Weixiang Fang, Johns Hopkins Bloomberg School of Public Health
- 3:05 p.m. A Hierarchical Hidden Markov Model for the Annotation of Chromatin States—◆Guo-Cheng Yuan, Dana-Farber Cancer Institute; Eugenio Marco, Editas Medicine; Wouter Meuleman, MIT; Manolis Kellis, MIT; Jialiang Huang, DFCI; Kimberley Glass, Harvard Medical School; Jianrong Wang, MIT; Luca Pinello, DFCI
- 3:25 p.m. Estimating and Accounting for Tumor Purity in Methylation Microarray Analysis—◆Hao Wu, Emory University
- 3:45 p.m. Floor Discussion

595 CC-W193a

■ **Update on Current Population Survey Research—Topic-Contributed**

Survey Research Methods Section

Organizer(s): Yang Cheng, U.S. Census Bureau

Chair(s): Stephen Ash, U.S. Census Bureau

- 2:05 p.m. Current Population Survey Sample Size Study—◆Daniel Sommers, U.S. Census Bureau; Stephanie Chan Yang, U.S. Census Bureau; Yang Cheng, U.S. Census Bureau
- 2:25 p.m. An Iterative Composite Estimator in the Current Population Survey—◆Yang Cheng, U.S. Census Bureau; Zhou Yu, East China Normal University; Jun Shao, University of Wisconsin
- 2:45 p.m. An Overview of Current Population Survey Variance Methodology—◆Aaron Gilarly, U.S. Census Bureau; Yang Cheng, U.S. Census Bureau; Eric Slud, U.S. Census Bureau
- 3:05 p.m. Calculating Generalized Variance Functions with a Single-Series Model in the Current

Population Survey—◆Justin McIllece, Bureau of Labor Statistics

- 3:25 p.m. Update on Current Population Survey Research, Discussion—◆Edwin Robison, Bureau of Labor Statistics
- 3:45 p.m. Floor Discussion

596 CC-W185d

■ **Statistical Challenges in Drug Development in the Era of Immuno-Oncology—Topic-Contributed**

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

Organizer(s): Ji Lin, Eli Lilly and Company

Chair(s): Jingyi Liu, Eli Lilly and Company

- 2:05 p.m. How Many Birds Can Be Killed with One Stone? The KEYNOTE-001 Experience—◆Cong Chen, Merck; Nicole Li, Merck; Jin Zhang, Merck
- 2:25 p.m. Measures of Clinical Benefit in Immuno-Oncology Studies—◆Luping Zhao; Pralay Mukhopadhyay, AstraZeneca
- 2:45 p.m. Generalized Pairwise Comparisons for Several Complex Outcome Measures—◆Marc Buyse
- 3:05 p.m. Combination Studies with Immuno-Oncology Drugs—◆Jonathan Denne, Eli Lilly and Company; Yanping Wang, Eli Lilly and Company
- 3:25 p.m. Improved Design and Analysis in the Clinical Development of Cancer Immunotherapies—◆Bo Huang, Pfizer; Margarida Geraldes, Pfizer
- 3:45 p.m. Floor Discussion

597 CC-W185bc

■ **Emerging Topics in Benefit-Risk Assessment in Clinical Development Decision Making—Topic-Contributed**

Biopharmaceutical Section, Committee on Applied Statisticians, Section on Risk Analysis

Organizer(s): Weili He, Merck

Chair(s): Jonathan Norton, MedImmune

- 2:05 p.m. Practical Considerations for Benefit Risk Assessment and Implementation: Vorapaxar TRA-2P TIMI 50 Case Study—◆Weili He, Merck
- 2:25 p.m. Patient Preference in Benefit-Risk Analysis in Medical Device Trials—◆Xuefeng Li, FDA
- 2:45 p.m. Benefit-Risk Assessment via Case Studies—◆George Quartey, Genentech; Qi Jiang, Amgen; Weili He, Merck
- 3:05 p.m. Some Consideration on Endpoint Selection, Weighting Determination, and Uncertainty

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

Evaluation in the Benefit-Risk Assessment in Pharmaceutical Drug Development—◆ Haijun Ma; Qi Jiang, Amgen

3:25 p.m. Disc: Martin Ho, FDA/CDRH

3:45 p.m. Floor Discussion

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CC-W175b

■ ● **Innovative Bayesian Methods in Biostatistics—Topic-Contributed**

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

Organizer(s): Samiran Sinha, Texas A&M University

Chair(s): Michael Longnecker, Texas A&M University

2:05 p.m. Flexible Link Functions in Nonparametric Binary Regression with Gaussian Process Priors—◆ Xia Wang, University of Cincinnati; Dan Li, University of Cincinnati; Lizhen Lin, The University of Texas; Dipak Dey, University of Connecticut

2:25 p.m. A Multi-Scale Spatial Model for Stroke Lesion Segmentation—◆ Huiyan Sang, Texas A&M University; Ciprian Crainiceanu, The Johns Hopkins University; Elizabeth M. Sweeney, Johns Hopkins Bloomberg School of Public Health; John Muschelli, The Johns Hopkins University

2:45 p.m. Cross-Validation Bayes Factors for Testing Lack of Fit in Regression—◆ Jeffrey Hart, Texas A&M University

3:05 p.m. Quantile Graphical Models: An Approximate Bayesian Approach—◆ Nilabja Guha, Texas A&M University; Bani K. Mallick, Texas A&M University

3:25 p.m. Floor Discussion

599

CC-W184a

■ **Bayesian Nonparametric and Semiparametric Methods for Causal Inference—Topic-Contributed**

Biometrics Section, Biopharmaceutical Section, Section on Nonparametric Statistics, International Society for Bayesian Analysis (ISBA), Section on Bayesian Statistical Science, International Chinese Statistical Association

Organizer(s): Kirsten J. Lum, University of Pennsylvania

Chair(s): Jason Roy, University of Pennsylvania

2:05 p.m. Accounting for Uncertainty in Confounder and Effect Modifier Selection When Estimating Average Causal Effects in Generalized Linear Models—◆ Chi Wang, University of Kentucky; Francesca Dominici, Harvard T.H. Chan School of Public Health; Giovanni Parmigiani, Dana-Farber Cancer Institute/Harvard T.H. Chan School of Public Health; Corwin Zigler, Harvard T.H. Chan School of Public Health

2:25 p.m. A Bayesian Nonparametric Approach to Estimating Causal Effects—◆ Kirsten J. Lum, University of Pennsylvania; Michael Daniels, The University of Texas at Austin; Jason Roy, University of Pennsylvania

2:45 p.m. A Dirichlet Process Functional Approach to Heteroscedastic-Consistent Covariance Estimation and Sensitivity Analysis of Causal Effects—◆ George Karabatsos, University of Illinois at Chicago

3:05 p.m. A Bayesian Nonparametric Causal Inference Model for Comparative Effectiveness Research—◆ Chenguang Wang, The Johns Hopkins University

3:25 p.m. Bayesian Semiparametric Latent Mediation Model—◆ Chanmin Kim, Harvard; Michael Daniels, The University of Texas at Austin; Yisheng Li, MD Anderson Cancer Center

3:25 p.m. Floor Discussion

600

CC-W179a

When the Plot Is Not the End: Advances in Computing and Reasoning on Data Visualizations—Topic-Contributed

Section on Statistical Graphics

Organizer(s): Gabriel Becker, Genentech Research

Chair(s): Bill Forrest, Genentech Research

2:05 p.m. Cognostics: Metrics Enabling Detailed Interactive Visualization of Big Data—◆ Barret Schloerke

2:25 p.m. Visual Inference for Networks—Heike Hofmann, Iowa State University; Samantha Tyner, Iowa State University; Mahbubul Majumder, University of Nebraska-Omaha; ◆ Haley Jeppson, Iowa State University

2:45 p.m. Viztrackr: Tracking and Discovering Plots via Automatic Semantic Annotations—◆ Gabriel Becker, Genentech Research; Sara E. Moore, University of California at Berkeley; Michael Lawrence, Genentech Research

3:05 p.m. Visualization and Computation Over Hierarchically Organized Features for Metagenomics and Epigenomics—◆ Hector Corrada Bravo, University of Maryland

3:25 p.m. Floor Discussion

601 CC-W190a
Expanding Capacity for the Measurement of Sexual Orientation and Gender Identity in Federal Surveys—Topic-Contributed

Social Statistics Section, Scientific and Public Affairs Advisory Committee, Survey Research Methods Section

Organizer(s): Paul Guerino, Centers for Medicare and Medicaid Services

Chair(s): Diane Herz, Mathematica Policy Research

- 2:05 p.m. Measurement of Sexual Orientation and Gender Identity in the Federal Statistical System—
◆Jennifer Park, Office of Management and Budget
- 2:25 p.m. Improving Measurement of Same-Sex Couple Households for Census 2020—◆Nancy Bates; Rose Kreider, U.S. Census Bureau; Daphne Loquist, U.S. Census Bureau
- 2:45 p.m. Results from Cognitive Interviews to Assess Items to Measure Gender and Sexual Identity Among English- and Spanish-Speaking Older Adults in Surveys—◆Stuart Michaels, NORC at the University of Chicago; Michael Stern, NORC at the University of Chicago; Michael Kozloski, NORC at the University of Chicago; Samuel “Chris” Haffer, Centers for Medicare and Medicaid Services; Paul Guerino, Centers for Medicare and Medicaid Services; Debra Reed-Gillette, Centers for Medicare and Medicaid Services
- 3:05 p.m. Testing of Sexual Orientation and Gender Identity Questions for the National Crime Victimization Survey—◆Jennifer Truman, Bureau of Justice Statistics
- 3:25 p.m. Disc: Sean Cahill, The Fenway Institute
- 3:45 p.m. Floor Discussion

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

602 CC-W192a
Using Demography and Randomized Response Model to Improve Social Science Research—Contributed

Survey Research Methods Section, Social Statistics Section

Chair(s): Norman Bradburn, NORC at the University of Chicago

- 2:05 p.m. Identifying the Transgender Population in the Medicare Program—Samuel “Chris” Haffer, Centers for Medicare and Medicaid Services; Kimberly Proctor, Centers for Medicare and Medicaid Services; Carla Hodge, Centers for

Medicare and Medicaid Services; Cara James, Centers for Medicare and Medicaid Services; Erin Ewald, NORC at the University of Chicago; ◆Paul Guerino, Centers for Medicare and Medicaid Services

- 2:20 p.m. Urban Analytics: A Case Study in Philadelphia—Shane Jensen, The Wharton School; ◆Rachel Thurston, Stantec Architecture; Colman Humphrey, The Wharton School
- 2:35 p.m. Racial and Ethnic Disparities in Health Care: An Examination of State Inpatient Databases in the Utilization of and Outcomes Following Total Knee Arthroplasty—◆Wei Zhang, The George Washington University
- 2:50 p.m. Applications of Statistical Techniques to Smoking Cessation Studies Using National Survey Data—◆Julia Soulakova, University of Nebraska-Lincoln; Lisa Crockett, University of Nebraska-Lincoln
- 3:05 p.m. A Randomized Response Model for Continuous Data—◆Alaa Elkadry, Oakland University; Gary C. McDonald, Oakland University
- 3:20 p.m. A Revisit to Two-Deck Randomized Response Model—◆Oluseun Odumade, Deloitte Consulting; Augustus Jayaraj, Cornell University; Stephen Sedory, Texas A&M University-Kingsville; Sarjinder Singh, Texas A&M University-Kingsville
- 3:35 p.m. Simultaneous Estimation of Means of Two Sensitive Quantitative Variables—◆Segun Ahmed, Texas A&M University-Kingsville; Stephen Sedory, Texas A&M University-Kingsville; Sarjinder Singh, Texas A&M University-Kingsville

603 CC-W186c

■ **Missing Data Methodology—Contributed**

Biometrics Section, Biopharmaceutical Section

Chair(s): Vered Madar, Statistical and Applied Mathematical Sciences Institute

- 2:05 p.m. Testing for Missing Always at Random and Row Exchangeability in Multivariate Data with Missing Values—◆Iavor Bojinov, Harvard; Natesh Pillai, Harvard; Donald B. Rubin, Harvard
- 2:20 p.m. Testing Treatment Effect in Clinical Trials with Patient Dropout Using Latent Mixture Models—◆Fanhui Kong, FDA; Yeh-Fong Chen, FDA
- 2:35 p.m. Design of Primary and Sensitivity Analyses for Handling Nonfuture Dependence Missing Data in Clinical Trials with an Emphasis on the Type I Error Rate Using Pattern Mixture Model—◆Lixian Peng, Celgene; Weichung J. Shih, Rutgers University
- 2:50 p.m. A Multivariate Selection Model for Cluster-Level Outcome-Dependent Missing Data—◆Jiebiao Wang, The University of Chicago; Pei Wang,

Icahn School of Medicine at Mount Sinai; Lin Chen, The University of Chicago

- 3:05 p.m. Evaluating Principal Surrogate Markers Using Vaccine Trial Data in Presence of Multi-Phase Sampling—◆Ying Huang, Fred Hutchinson Cancer Research Center
- 3:20 p.m. Missing Data Approaches in Categorical Latent Growth and Multilevel Proportional Odds Models—◆Karen Traxler, University of Northern Colorado; Niloofar Ramezani, University of Northern Colorado
- 3:35 p.m. Floor Discussion

604 CC-W179b ● Inferential Methods in Statistical Computing— Contributed

Section on Statistical Computing

Chair(s): Wesley S. Burr, Health Canada

- 2:05 p.m. A New Approach to Multiple Testing, Results and Applications—◆Nasrine Bendjilali, Rowan University; Boualem Bendjilali, RVCC; Wei-Min Huang, Lehigh University
- 2:20 p.m. Three-Dimensional Contingency Tables, Measures of Association, and Correlation—◆Mian Adnan, Ball State University; Shannon Charlene Crouch, Ball State University; Khairul Islam, Texas A&M University-Kingsville; Judy Qiong Zhu, Apple
- 2:35 p.m. A New Class of Measures for Independence Test with Its Application in Big Data—◆Qingcong Yuan, University of Kentucky; Xiangrong Yin, University of Kentucky
- 2:50 p.m. The Statistical Power of One-Sample Location Hypothesis Tests—◆Timothy Hall, PQI Consulting
- 3:05 p.m. Comparison of two Approaches for the Generalized F Test—◆Mustafa Cavus, Anadolu University; Berna Yazici, Anadolu University; Ahmet Sezer, Anadolu University; Betul Kan Kilinc, Anadolu University; Guler Gunsoy, Anadolu University; Bulent Gunsoy, Anadolu University; Seda Tekeli, Anadolu University; Caglar Karaduman, Anadolu University; Cengiz Hakan Aydin, Anadolu University
- 3:20 p.m. A Missing Technique for Estimating Missing Values—◆Silvia Sharna, Ball State University; Mian Adnan, Ball State University; Rahmatullah Imon, Ball State University
- 3:35 p.m. Quick Multiple Monte Carlo Testing—◆Georg Hahn, Imperial College London; Axel Gandy, Imperial College London

605 CC-W194a How Are We Doing? Education Analytics— Contributed

Section on Statistical Education

Chair(s): Michael Regier, West Virginia University

- 2:05 p.m. Propensity Score Matching Using Random Forest in Educational Data Mining Problems—◆Richard Levine, San Diego State University
- 2:20 p.m. Relationship Between Student-Reported and Teacher-Rating of Student Behavioral Measures—◆Edwin Ndum, ACT, Inc.
- 2:35 p.m. An Application of TOPSIS Method to Rank the Instructors Based on Students' Performances—◆Mamunur Rashid, DePauw University
- 2:50 p.m. The Influences of a Student's Race and Sex on Confidence and Performance in Introductory Statistics—◆Cindy Van Es, Cornell University; Michelle Weaver, Cornell University
- 3:05 p.m. Determining the Nesting Structure for Hierarchical Models Fitted to Education Data—◆Ulrike Genschel, Iowa State University; Jillian Downey, Iowa State University; Mark Kaiser, Iowa State University
- 3:20 p.m. Evaluation Transition: Comparing RealVAMS and Current Value-Added Models—◆Jennifer Broatch, Arizona State University; Jennifer Green, Montana State University
- 3:35 p.m. Test the Effectiveness of an Add-On Treatment with Crossover Blocking Factors—◆Jiangtao Gou, Hunter College

606 CC-W184bc Flexible Modeling of High-Dimensional and Network Data—Contributed

Section on Statistics in Epidemiology, International Chinese Statistical Association

Chair(s): Kepher H. Makambi, Georgetown University

- 2:05 p.m. Constrained Community Detection and the External Field—◆Weston Viles, Dartmouth College; James O'Malley, Geisel School of Medicine at Dartmouth
- 2:20 p.m. Modeling Concurrency and Selective Mixing in Heterosexual Partnership Networks with Applications to Sexually Transmitted Diseases—◆Ryan Admiraal, Murdoch University; Mark Stephen Handcock, University of California at Los Angeles
- 2:35 p.m. Law of Large Numbers for Generalized Network-Based SIR Models—◆Mark Burch, The Ohio State University

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 2:50 p.m. Detecting ‘Active Subnetworks’ in Weighted, Undirected Graphs, with Application to Metabolomics Studies—◆Yubing Yao; Michael Nodzensk, Feinberg School of Medicine; Denise Scholtens, Feinberg School of Medicine; Raji Balasubramanian, University of Massachusetts-Amherst
- 3:05 p.m. Functional Variations of Cancer Mortality Rates—◆Keshav Pokhrel, University of Michigan
- 3:20 p.m. Collaborative Targeted Learning for Large-Scale and High-Dimensional Data—◆Cheng Ju, University of California at Berkeley; Mark van der Laan, University of California at Berkeley; Susan Gruber, Harvard T.H. Chan School of Public Health; Jessica Franklin, Brigham and Women’s Hospital; Richard Wyss, Brigham and Women’s Hospital; Wesley Eddings, Brigham and Women’s Hospital; Sebastian Schneeweiss, Brigham and Women’s Hospital
- 3:35 p.m. Bayesian Model Averaging Applied to Tuberculosis and HIV Research Studies—◆Brock Stewart, CDC; Charles E. Rose, CDC; Yi Pan, CDC

607 CC-W186b

■ **New Frontiers in Survival Analysis, Copula, and Clustered Data—Contributed**

Biometrics Section, Biopharmaceutical Section, International Chinese Statistical Association

Chair(s): Usha Govindarajulu, SUNY Downstate

- 2:05 p.m. Latent Promotion Time Cure Rate Model Using Dependent Tail-Free Mixtures—◆Li Li, University of New Mexico
- 2:20 p.m. Hierarchical Archimedian Copula Models for the Analysis of Familial Binary Data—◆Yihao Deng, Indiana University Purdue University Fort Wayne
- 2:35 p.m. Improved Computation of Full Data Likelihood Estimates in the Cox Proportional Hazards Model—◆Xiao Fang, The University of Texas Medical Branch; Kristofer Jennings, The University of Texas Medical Branch
- 2:50 p.m. Reversed Hazard Parametric Regression Model to Analyze Left-Censored HIV Data—◆Md Akhtar Hossain, University of South Carolina; Hrishikesh Chakraborty, University of South Carolina
- 3:05 p.m. Estimation of Rank Correlation for Clustered Data—◆Bernard Rosner, Harvard Medical School; Robert Glynn, Harvard Medical School
- 3:20 p.m. Considerations for Analysis of Time-to-Event Outcomes Measured with Error—◆Eric Oh, University of Pennsylvania; Pamela A. Shaw, University of Pennsylvania
- 3:35 p.m. Model Validation for Regression with Covariates Subject to Fixed or Random Censoring—◆Paul Bernhardt, Villanova University

608 CC-W181a
Variable Selection Methods for Sparse Learning from Data—Contributed

Section on Statistical Learning and Data Science

Chair(s): Bethany Wolf, Medical University of South Carolina

- 2:05 p.m. Group Feature Selection in Ultrahigh-Dimensional Generalized Varying-Coefficient Linear Models—◆Songshan Yang; Runze Li, Penn State University
- 2:20 p.m. Testing-Based Variable Selection for High-Dimensional Linear Models—◆Siliang Gong, The University of North Carolina at Chapel Hill; Kai Zhang, The University of North Carolina at Chapel Hill; Yufeng Liu, The University of North Carolina at Chapel Hill
- 2:35 p.m. Subsampling for Feature Selection from Large Regression Data—◆Yiyang Fan, Cleveland State University; Jiayang Sun, Case Western Reserve University
- 2:50 p.m. Flexible Modeling of Local Dependence in Variables with a Natural Ordering—◆Guo Yu, Cornell University; Jacob Bien, Cornell University
- 3:05 p.m. Nonparametric Screening Under Conditional Strictly Convex Loss for Ultra-High-Dimensional Sparse Data—◆Xu Han, Temple University
- 3:20 p.m. Sparsity-Oriented Importance Learning—◆Chenglong Ye, University of Minnesota; Yi Yang, McGill University; Yuhong Yang, University of Minnesota
- 3:35 p.m. ThrEEBoost: Thresholded Boosting for Variable Selection and Prediction via Estimating Equations—◆Benjamin Brown

609 CC-W181b

■ **Spatio-Temporal Models, Prediction, and Anomaly Detection—Contributed**

Section on Statistical Learning and Data Science, Royal Statistical Society

Chair(s): Sarah Kalicin, Intel Corporation

- 2:05 p.m. Point Process Modeling with Spatiotemporal Covariates for Predicting Crime—◆Alex Reinhart, Carnegie Mellon University; Xizhen Cai, Carnegie Mellon University; Joel Greenhouse, Carnegie Mellon University
- 2:20 p.m. Identification of Homogeneous Areas Through Lattice-Based Spatio-Temporal Clustering—◆Rodrigue Nguéyep Tzoumpe, IBM Research; Huijing Jiang, IBM; YoungDeok Hwang, IBM T. J. Watson Research Center
- 2:35 p.m. Generalized Difference in Difference Models with Gaussian Processes—◆William Herlands, Carnegie Mellon University; Daniel B. Neill, Carnegie Mellon University

- Mellon University; Akshaya Jha, Carnegie Mellon University; Seth Flaxman, University of Oxford; Kun Zhang, Carnegie Mellon University
- 2:50 p.m. Identifying Typical Patterns and Atypical Behavior in Copious Amounts of Streaming Data—◆Brett Amidan, Pacific Northwest National Laboratory; James Follum, Pacific Northwest National Laboratory
- 3:05 p.m. Archetypal Analysis and Its Application—◆Anna Quach; Adele Cutler, Utah State University
- 3:20 p.m. Vertex Nomination via Seeded Graph Matching—◆Heather Patsolic, The Johns Hopkins University; Vince Lyzinski, The Johns Hopkins University; Carey Priebe, The Johns Hopkins University
- 3:35 p.m. Efficient Discovery of Heterogeneous Treatment Effects in Randomized Experiments via Anomalous Pattern Detection—◆Edward McFowland, Carlson School of Management; Sriram Somanchi, University of Notre Dame; Daniel B. Neill, Carnegie Mellon University

610 CC-W178b

■ ● Applications and Methods in Defense and National Security: Multivariate Methods, Applications, and Sensitivity Tests—Contributed

Section on Statistics in Defense and National Security

Chair(s): Viacheslav Fofanov, Northern Arizona University

- 2:05 p.m. Modeling the Upper Tail of the Distribution of Facial Recognition Non-Match Scores—◆Brett Hunter; Dan Cooley, Colorado State University; Geof Givens, Colorado State University; J. Ross Beveridge, Colorado State University
- 2:20 p.m. Construction of Tolerance Bounds for a Multivariate Response Associated with a Covariate: A Case Study—◆Caleb King, Sandia National Laboratories; Edward Thomas, Sandia National Laboratories; Jerome Cap, Sandia National Laboratories; Angela Montoya, Sandia National Laboratories
- 2:35 p.m. Selecting an Informative/Discriminating Multivariate Response for Inverse Prediction—◆John Lewis, Sandia National Laboratories; Edward Thomas, Sandia National Laboratories; Christine Anderson-Cook, Los Alamos National Laboratory; Tom Burr, International Atomic Energy Agency; Michael S. Hamada, Los Alamos National Laboratory; Adah Zhang, Sandia National Laboratories
- 2:50 p.m. An Accurate Method in Predicting Postmortem Interval Using Microbial Community Dynamics—◆Meng Lu, University of Arizona; Hongmei Jiang, Northwestern University; Lingling An, University of Arizona
- 3:05 p.m. Trace Evidence in Forensic Study Through Cluster Analysis—◆Kyle Carter, University of Arizona;

Brooke A. Rabe, University of Arizona; Lingling An, University of Arizona

- 3:20 p.m. Enhancing the Precision of Small-Sample Sensitivity Tests—◆David H. Collins, Los Alamos National Laboratory; Michael S. Hamada, Los Alamos National Laboratory; Brian Phillip Weaver, Los Alamos National Laboratory
- 3:35 p.m. A Conjugate Model for Dimensional Analysis—◆Weijie Shen, Google; Dennis K. J. Lin, Penn State University

611 CC-W185a

■ ● Missing Data Imputations—Contributed

Biopharmaceutical Section

Chair(s): Lilianne Kim, Johnson & Johnson

- 2:05 p.m. Missing Data Imputation in Phase III Study with Time-to-Event Outcome—◆Gang Jia, Merck; Paul DeLuca, Merck; Steven Bird, Merck; Bruce Binkowitz, Merck; Weichung J. Shih, Rutgers University
- 2:20 p.m. On the Use of the Treatment Effect in the Imputation Model for Multiple Imputation Analyses of Missing Data—◆Robert Small, Sanofi Pasteur
- 2:35 p.m. An Extended Kaplan-Meier Estimator for Time-to-Treatment Success Adjusted for Informative Censoring—Misun Yu Lee, Astellas Pharma; ◆Wei Li, Astellas Pharma
- 2:50 p.m. Handling Missing Data in Multiple-Attack Migraine Studies—◆Kaifeng Lu, Allergan
- 3:05 p.m. Bias Reduction in Logistic Regression with Missing Responses When the Missing-Data Mechanism Is Nonignorable—◆Vivek Pradhan, Pfizer; Arnab Maity, Northern Illinois University
- 3:20 p.m. A Simulation Study to Compare Multiple Imputation Methods Under Missing Not-at-Random Assumption—◆David Li, Pfizer; Lingfeng Yang, BMS
- 3:35 p.m. Inverse Probability Weighting (IPW) Estimator for Comparing Two Proportions Under Nonignorable Missingness Mechanism—◆Madan Gopal Kundu, Novartis Oncology

612 CC-W187a

■ Biopharmaceutical Section Student Papers—Contributed

Biopharmaceutical Section, International Chinese Statistical Association

Chair(s): Richard McNally, Covance

- 2:05 p.m. Multi-Arm Group Sequential Designs with Simultaneous Stopping Rule—◆Susanne Urach,

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- Medical University of Vienna; Martin Posch, Medical University of Vienna
- 2:20 p.m. Prediction-Oriented Marker Selection (PROMISE) with Application to High-Dimensional Regression—◆Soyeon Kim, MD Anderson Cancer Center; J. Jack Lee, MD Anderson Cancer Center; Veera Baladandayuthapani, MD Anderson Cancer Center
- 2:35 p.m. Adaptive Dose Modification for Phase I Clinical Trials—◆Yiyi Chu, The University of Texas School of Public Health; Haitao Pan, MD Anderson Cancer Center; Ying Yuan, MD Anderson Cancer Center
- 2:50 p.m. Optimizing Dynamic Treatment Regimes via Quality-Adjusted Q-Learning and Threshold Utility Analysis for Subgroup Analysis in Clinical Trials—◆Geoffrey Johnson; Andrew Topp, University of Pittsburgh; Abdus S. Wahed, University of Pittsburgh
- 3:05 p.m. Evaluating the Effect of Delayed PEG Insertion in Patients Diagnosed with ALS via Adaptive Treatment Length Regimes—◆Xin Lu, Sanofi; Brent Johnson, University of Rochester
- 3:20 p.m. Change-Plane Analysis for Subgroup Detection and Sample Size Calculation—◆Ailin Fan, North Carolina State University; Rui Song, North Carolina State University; Wenbin Lu, North Carolina State University
- 3:35 p.m. Estimating Individualized Treatment Rules for Ordinal Treatments—◆Jingxiang Chen; Yufeng Liu, The University of North Carolina at Chapel Hill; Michael R. Kosorok, The University of North Carolina at Chapel Hill; Haoda Fu, Eli Lilly and Company; Xuanyao He, Eli Lilly and Company

613 CC-W192c Nonresponse Adjustment and Nonresponse Bias Reduction Methods—Contributed

Survey Research Methods Section

Chair(s): Eric Slud, U.S. Census Bureau

- 2:05 p.m. Effects of Nonresponse Bias Adjustments on Survey Estimates of Health Conditions and Behaviors in a Community Sample in Chicago—Linda K. Owens, Survey Research Laboratory; ◆Timothy Johnson, University of Illinois at Chicago; Jerry Krishnan, University of Illinois at Chicago
- 2:20 p.m. Collecting Proxy Measures of Key Survey Variables to Estimate, Reduce, and Adjust for Nonresponse Bias—◆Emilia Peytcheva, RTI International; Andy Peytchev, University of Michigan; Matt Jans, University of California at Los Angeles
- 2:35 p.m. Do Secondary Data and Multiple Attempts of Survey Data Collection Reduce Nonresponse Bias?—◆Xiaowei Yan; Walter F. Stewart,

Sutter Health; Vatche Minassian, Brigham and Women's Hospital

- 2:50 p.m. Are Initial Respondents Different from the Nonresponse Follow-Up Cases? A Study of Probability-Based Web Panelists—◆Wei Zeng, NORC at the University of Chicago; Michael Dennis, NORC at the University of Chicago
- 3:05 p.m. Randomly Split Zones for Samples of Size One as Reserve Replicates and Random Replacements for Nonrespondents—◆Avinash Singh, American Institutes for Research; Cong Ye, American Institutes for Research
- 3:20 p.m. The Relationship Between Nonresponse and Revisions in the CES: Anticipating the Size and Direction of Revisions Using Firm Characteristics and Their Employment Reporting History—◆Clyde Tucker, CNN/AIR; John Dixon, Bureau of Labor Statistics
- 3:35 p.m. A Calibrated Bayesian Method for Propensity Score Estimation—◆Hejian Sang, Iowa State University; Jae-kwang Kim, Iowa State University

614 CC-W195 Modeling Transportation Data—Contributed

Transportation Statistics Interest Group

Chair(s): Patricia Hu, Bureau of Transportation Statistics

- 2:05 p.m. Drivers Views on Speed and Enforcement—◆Edna Schechtman, Ben-Gurion University of the Negev; Hillel Bar-Gera, Ben-Gurion University of the Negev; Oren Musicant, Ariel University
- 2:20 p.m. Quantifying the Causal Effect of Speed Cameras on Road Traffic Accidents via an Approximate Bayesian Doubly Robust Estimator—◆Daniel Graham, Imperial College London; Haojie Li, Southeast University
- 2:35 p.m. Statistical Analysis, Visualization, and Predictive Modeling for Car Sensor Data Using HERE API—Alex Zolot; ◆Wanli Cheng
- 2:50 p.m. A Semiparametric Frailty Model with Time-Varying Coefficients Based on Penalized B-Splines with Application to the Naturalistic Truck Driving Study—◆Yi Liu
- 3:05 p.m. Spatio-Temporal Analysis of Accessibility in Public Transit Systems—◆John Handley, PARC, A Xerox Company; Lina Fu, PARC, A Xerox Company; Laura Tupper, Cornell University
- 3:20 p.m. Aviation Safety: Analysis of Historical Accident Data—◆Nastaran Coleman, Federal Aviation Administration
- 3:35 p.m. An Examination of Selective Serotonin Reuptake Inhibitors in the Population of Fatally Injured Pilots from 2009–2014—◆Paul Rogers, Federal Aviation Administration

615 **CC-W186a**
Methods for Analyzing High-Dimensional Sequencing Data—Contributed

ENAR, Biopharmaceutical Section

Chair(s): Shengchun Kong, Gilead Sciences

- 2:05 p.m. Simulation Studies for Comparison of Gene-Based Association Tests—◆Hung-Chih Ku, DePaul University; Chao Xing, The University of Texas Southwestern Medical Center
- 2:20 p.m. Geometrical and Symbolic Transformation of Sequential Data—◆Rainhard Bengesz
- 2:35 p.m. Sparse Group Screening for Gene Set Selection—Kevin He, University of Michigan; Yanming Li, University of Michigan; Ji Zhu, University of Michigan; Yi Li, University of Michigan; ◆Yuan Yang, KECC/Biostat
- 2:50 p.m. Flexible Prior Specification Through Empirical Reparameterization in Hierarchical Models for RNA-Seq Experiments—◆Andrew Lithio, Iowa State University; Dan Nettleton, Iowa State University
- 3:05 p.m. Identify Host Genetic Variants Associated with Microbiome Composition in Large-Scale Studies—◆Jianxin Shi, National Cancer Institute; Xing Hua, National Cancer Institute
- 3:20 p.m. Conditional Inference for the Kernel Association Tests—◆Kai Wang, University of Iowa
- 3:35 p.m. Cross-Validated STEPP Analysis for Biomarker Subgroup Determination Problems—◆Gu Mi, Eli Lilly and Company; Tuan Stevon Nguyen, Eli Lilly and Company; Jonathan Denne, Eli Lilly and Company

616 **CC-W176c**
Statistical Distribution Fitting—Contributed

IMS

Chair(s): Hariharan Iyer, National Institute of Statistical Sciences

- 2:05 p.m. A New Class of Approximating Distributions and Their Fitting—◆Bo Zhang, IBM Research
- 2:20 p.m. On the Kumaraswamy Laplace Distribution and Its Applications—◆Gokarna Aryal, Purdue University
- 2:35 p.m. COM-Type Generalization of Negative Hypergeometric Distribution and Its Limiting Cases with Applications—◆Sudip Roy; Ram C. Tripathi, The University of Texas at San Antonio
- 2:50 p.m. Multiple Comparisons on Several Multivariate Log-Normal Mean Vectors—◆Shu-Hui Lin, National Taichung University of Science and Technology

- 3:05 p.m. Distribution-Dependent and Distribution-Free Confidence Intervals for the Variance—◆Brent Burch, Northern Arizona University
- 3:20 p.m. Confidence Interval and Hypothesis Test for Binomial Proportions Based on Skew-Normal Distribution—◆Jose Sanqui, Appalachian State University; Amanda McGough, Virginia Tech
- 3:35 p.m. D-Optimal Designs with Ordered Categorical Data—◆Jie Yang, University of Illinois at Chicago; Liping Tong, Advocate Health Care; Abhyuday Mandal, University of Georgia

617 **CC-W182**
■ Topics in Statistical Methods and Applications—Contributed

Korean International Statistical Society

Chair(s): Hyokyung (Grace) Hong, Michigan State University

- 2:05 p.m. Unified Approach for Testing Nonconstant Variance in Linear Model—◆Jae Keun Yoo, Ewha Womans University
- 2:20 p.m. The Modified Weibull Geometric Distribution: Properties and Estimations—◆Seongho Song, University of Cincinnati; Younshik Chung, Pusan National University
- 2:35 p.m. Combining Information by Using Likelihood with Application—◆Myung Soon Song, SUNY Cortland
- 2:50 p.m. Adaptive Bayesian Inference in Nonlinear Regression—◆Ji-Yeon Yang, Kumoh National Institute
- 3:05 p.m. Generalized Normal-Gamma-Bernoulli Peak Detection Methods for Two-Dimensional Gas Chromatography Mass Spectrometry Data—◆Seongho Kim, Karmanos Cancer Institute
- 3:20 p.m. Learning About Nonrespondents' Characteristics Using Standard Exploratory Data Analysis (EDA) Tools—◆Moonjung Cho, Bureau of Labor Statistics; Larry Lang, Bureau of Labor Statistics
- 3:35 p.m. Statistical Disclosure Control for Korean SGIS Outputs—◆Min-Jeong Park, Statistics Korea

618 **CC-W196a**
Design and Analysis in Clinical and Hybrid Research—Contributed

Mental Health Statistics Section

Chair(s): Balasubramani Goundappa

- 2:05 p.m. Factorial Clinical Trials for Hybrid Research Studies—◆Christine Mauro, Columbia University; Naihua Duan, Columbia University; Katherine Shear, Columbia University; Yuanjia Wang, Columbia University

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 2:20 p.m. Analyzing Binary Outcome Data from a Partially Clustered Design—◆Brittney Bailey, The Ohio State University; Abigail Shoben, The Ohio State University
- 2:35 p.m. Design, Identification, and Sensitivity Analysis for Patient Preference Trials—◆Teppei Yamamoto, MIT; Dean Knox, MIT; Berinsky Adam, MIT; Matthew Baum, Harvard
- 2:50 p.m. On Robust Estimation of Causal Mediation Effect—◆Pan Wu, Christiana Care Health System
- 3:05 p.m. Attention Deficit Hyperactivity Disorder (ADHD): A Statistical Analysis of Incidence in Texas and Other States—◆Miguel Cerna, The University of Texas Rio Grande Valley
- 3:20 p.m. An Ensemble Classifier for Estimating Treatment Effects of Multiple Treatment Groups—◆Maiying Kong, University of Louisville; Younathan Abdia, University of Louisville; Somnath Datta, University of Florida; K.B. Kulasekera, University of Louisville
- 3:35 p.m. Dual Minimization in Clinical Trials—◆Jay Taves; Donald Taves, University of Washington

619 CC-W176b
Sparsity in Record Linkage, Networks, and Privacy: Applications to Official Statistics, Author Disambiguation Data, and the Syrian Conflict—Contributed

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

Chair(s): Rebecca Steorts, Duke University

- 2:05 p.m. Community Identification in Multilayer Networks—◆Brenda Betancourt; Rebecca Steorts, Duke University; Daniele Durante, University of Padua
- 2:20 p.m. Latent Space Approaches to Dynamic Multilayer Networks—◆Nabanita Mukherjee, Duke University; Rebecca Steorts, Duke University; Daniele Durante, University of Padua
- 2:35 p.m. No NEWS Is Good News: Dynamic Varying Models for Detecting Patient Deterioration—◆Reuben McCreanor, Duke University
- 2:50 p.m. Threshold-Based Record Linkage for Causal Inference—◆Joan Heck Wortman, Duke University; Jerome Reiter, Duke University
- 3:05 p.m. The Microclustering Property: When the Cluster Sizes Grow Sublinearly with the Size of the Data Set—◆Abbas Zaidi, Duke University
- 3:20 p.m. Privately Preserving Algorithms to Release Sparse High-Dimensional Histograms—◆Bai Li; Rebecca Steorts, Duke University
- 3:35 p.m. Floor Discussion

620 CC-W191
Sampling and Survey Methods—Contributed

Government Statistics Section

Chair(s): Zhenyi Xue, Becton, Dickinson, and Company

- 2:05 p.m. Variance Estimation for the Occupational Requirements Survey—◆Brad Rhein, Bureau of Labor Statistics; Chester Ponikowski, Bureau of Labor Statistics
- 2:20 p.m. Email Solicitation for a Business Establishment Survey: Results from the 2015 Annual Refiling Survey (ARS)—◆Sharon Stang, Bureau of Labor Statistics; Emily Thomas, Bureau of Labor Statistics
- 2:35 p.m. Evaluation of Race Edit Improvements in the Consumer Expenditure Survey—◆Brian Nix, Bureau of Labor Statistics; Sharon Krieger, Bureau of Labor Statistics; Barry Steinberg, Bureau of Labor Statistics
- 2:50 p.m. The Performance of the Empirical Best Linear Unbiased Predictor in Annual Survey of Local Government Finances—◆Peter Schilling, U.S. Census Bureau; Redouane Betrouni, George Mason University; Bac Tran, U.S. Census Bureau
- 3:05 p.m. Outliers in the Annual Survey of Public Employment and Payroll Small Area Estimation Approach—◆Giang Trinh, U.S. Census Bureau; Bac Tran, U.S. Census Bureau
- 3:20 p.m. Initial Research on Computing Estimated Measures of Sampling Variability for the Weekly Natural Gas Storage Report—◆David Kinyon, Energy Information Administration; Samson Adeshiyun, Energy Information Administration; Joseph Conklin, Energy Information Administration; Jose Villar, Energy Information Administration
- 3:35 p.m. A Pilot Study to Quantify Urban Agricultural Operations—◆Michael Hyman, USDA/NASS

621 CC-W193b
Design and Evidence-Synthesis Methods for Health Policy Analysis—Contributed

Health Policy Statistics Section

Chair(s): Jason Brinkley, American Institutes for Research

- 2:05 p.m. Causal Regression Discontinuity and Its Application to a Biomedical Example—◆Marie-Abele Bind; Fan Li, Duke University; Farbizia Meali, University of Florence
- 2:20 p.m. Fired from School: Evaluating Health Risk Factors Among Young Adults After High-School Suspension Using Matched Sampling and Causal Mediation Methods—◆Janet Rosenbaum
- 2:35 p.m. Overlap Propensity Score Weighting to Balance Covariates—◆Kari Lock Morgan, Penn State

- University; Fan Li, Duke University; Alan M. Zaslavsky, Harvard Medical School
- 2:50 p.m. Using Adaptive Designs to Avoid Selecting the Wrong Arms in a Comparative Effectiveness Trial—◆Byron Gajewski, University of Kansas Medical Center
- 3:05 p.m. Questionnaire on Network Meta-Analysis to Assess Its Relevance and Credibility—◆Joseph Cappelleri, Pfizer
- 3:20 p.m. Robust Variance Estimation in Meta-Regression: Adjustments for Small and Moderate Sample Sizes—◆Elizabeth Tipton, Columbia University; James Eric Pustejovsky, The University of Texas at Austin
- 3:35 p.m. Floor Discussion

622

CC-W177

● Nonparametric Tests—Contributed

Section on Nonparametric Statistics

Chair(s): Jin Wang, Northern Arizona University

- 2:05 p.m. Distribution-Free Detection of Structured Anomalies: Permutation and Rank-Based Scans—Ery Arias-Castro, University of California at San Diego; Rui Castro, Technische Universiteit Eindhoven; Ervin Tanczos, Technische Universiteit Eindhoven; ◆Meng Wang, University of California at San Diego
- 2:20 p.m. An Algorithm with Applications in Ranked-Set Sampling—◆Yimin Zhang, Villanova University; Jesse Frey, Villanova University
- 2:35 p.m. On Multiple Comparisons Based on Ranks in ANOVA Models—Hossein Mansouri, Texas Tech University; ◆Bo Li, Texas Tech University
- 2:50 p.m. New Nonparametric Tests of Fit on the Orthogonal Group—◆Amir Sepehri, Stanford University
- 3:05 p.m. A Nonparametric Bootstrap Test for Checking the Equality of the Correlation Structures of Two Correlated Time Series—◆Lei Jin, Texas A&M University-Corpus Christi; Suojin Wang, Texas A&M University
- 3:20 p.m. Model Selection Probabilities—◆Xin Lu Tan; Andreas Buja, The Wharton School; Lawrence D. Brown, University of Pennsylvania; Abba Krieger, University of Pennsylvania; Zongming Ma, University of Pennsylvania
- 3:35 p.m. Sample Size Planning of Two-Arm Trials Generating Discrete Quantitative Data to Be Analyzed by Means of the Mann-Whitney-Wilcoxon Statistic—◆Stefan Wellek, CIMH/University of Heidelberg

623

CC-W187c

Statistical Methods in Medical Devices and Diagnostics—Contributed

Section on Medical Devices and Diagnostics

Chair(s): Natalia Gouskova, Harvard T.H. Chan School of Public Health

- 2:05 p.m. Comparison of Propensity Score Methods for Estimating Average Treatment Effects with Ordinal Treatment—◆Juan Ding, Vanderbilt University; Chang Yu, Vanderbilt University; Hui Nian, Vanderbilt University; Tebeb Gebretsadik, Vanderbilt University; Tan Ding, Vanderbilt University; William Dupont, Vanderbilt University; Tina Hartert, Vanderbilt University; Pingsheng Wu, Vanderbilt University
- 2:20 p.m. A Statistical Clinical Decision Support Tool for Determining Thresholds in Remote Monitoring Using Predictive Analytics—◆Celeste Fralick, Intel Corporation
- 2:35 p.m. Hierarchical Classification Models for Functional Data—◆Abhirup Mallik; Snigdhanu Chatterjee, University of Minnesota-Twin Cities
- 2:50 p.m. Nonstationary and Spectral Analysis of Balance Dynamics in Patients with Parkinson's Disease—◆Tanujit Dey, Cleveland Clinic; Wojbor Woyczynski, Case Western Reserve University; Sarah Ozinga, Cleveland Clinic; Jay Alberts, Cleveland Clinic
- 3:05 p.m. Statistical Issues in Evaluating Hemostasis State of a Blood Sample—◆Kyungsook Kim, FDA
- 3:20 p.m. Effect of Skewed and Nonparametric Link Functions for Rater-Item Binary Data—◆Xiaoyan Lin, University of South Carolina; Don Edwards, University of South Carolina
- 3:35 p.m. Assessment of Multiple Aesthetic Photonumeric Scales: A Novel Algorithm for Randomly Selecting Populations with Minimal Imbalance Across Scale Grades—◆Shraddha Mehta, Allergan; Rowena Fronda Bastero, Allergan; Yijun Sun, Allergan; Diane Murphy, Allergan; Ray Zhu, Allergan; Bhushan Hardas, Allergan

Invited Sessions 4:45 p.m. – 6:15 p.m.

624

H-International Ballroom

COPSS Awards and Fisher Lecture—Invited

Committee of Presidents of Statistical Societies, ASA, IMS, International Chinese Statistical Association, Caucus for Women in Statistics

- 4:50 p.m. Personalizing Disease Prevention: Statistical Challenges—◆Alice S. Whittemore, Stanford University School of Medicine

THURSDAY AUGUST 4

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 2016 theme, "The Extraordinary Power of Statistics." 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.

JSM Hours

7:00 a.m. – 10:30 a.m. CC-W181c
Speaker Management Room

7:30 a.m. – 10:30 a.m. CC-Hall F1 West Central Concourse
ASA Membership/Help Desk/Press Desk

7:30 a.m. – 10:30 a.m. CC-Hall F1 West Central Concourse
JSM Main Registration

7:30 a.m. – 10:30 a.m. CC-Hall F1 West Central Concourse
Cyber Center

8:00 a.m. – 1:00 p.m. CC-West Coatroom
JSM Luggage Storage

Committee/Business Meetings & Other Activities

8:30 a.m. – 10:30 a.m. CC-W473
Council of Sections Response Meeting (Closed)
Chair(s): Bonnie Ghosh-Dastidar, RAND Corporation

10:30 a.m. – 12:30 p.m. CC-W473
Council of Sections Governing Board Closing Meeting (Closed)
Chair(s): Bonnie Ghosh-Dastidar, RAND Corporation

12:30 p.m. – 4:30 p.m. CC-W475a
Bill Cleveland Current and Former Student Meeting (Closed)
Organizer(s): Ryan Hafen, Hafen Consulting

Invited Sessions 8:30 a.m. – 10:20 a.m.

625 CC-W183b

◆ ● New Development of Robust Learning
Methods for Medical Decision Making—Invited
ENAR

Organizer(s): Wenbin Lu, North Carolina State University

Chair(s): Wenbin Lu, North Carolina State University

8:35 a.m. Personalized Treatment for Longitudinal Data Using Unspecified Random-Effects Model—Hyunkuen Cho, Western Michigan University; Peng Wang, University of Cincinnati; ◆ Annie Qu, University of Illinois at Urbana-Champaign

9:00 a.m. Concordance-Assisted Learning for Estimating Optimal Individualized Treatment Regimes—Caiyun Fan, Shanghai University of Finance and Economics; Wenbin Lu, North Carolina State University; ◆ Rui Song, North Carolina State University; Yong Zhou, Shanghai University of Finance and Economics

9:25 a.m. Estimating the Optimal Regime to Prolong Survival in Treatment of Prostate Cancer Recurrence Using Flexible Weighting Models—Jincheng Shen, Harvard T.H. Chan School of Public Health; ◆ Lu Wang, University of Michigan; Jeremy M. G. Taylor, University of Michigan

9:50 a.m. Quantile-Based Method for Choosing Optimal Treatments Using Biomarkers—◆ Xiao-Hua Andrew Zhou, University of Washington

10:15 a.m. Floor Discussion

626 CC-W178a
■ Highlights from the Journal STAT—Invited
 International Statistical Institute, Section on Statistics in Imaging
 Organizer(s): John E. Kolassa, Rutgers University
 Chair(s): John E. Kolassa, Rutgers University

- 8:35 a.m. **Highlights from the Journal STAT—So-Young Park**, North Carolina State University; ◆Ana-Maria Staicu, North Carolina State University
- 9:05 a.m. **Figures of Merit for Simultaneous Inference and Comparisons in Simulation Experiments—Noel Cressie**, University of Wollongong; ◆Sandy Burden, University of Wollongong
- 9:35 a.m. **Visuanimation in Statistics—◆Marc Genton**, KAUST; Stefano Castruccio, Newcastle University; Paola Crippa, Newcastle University; Subhajit Dutta, IIT Kanpur; Raphaël Huser, KAUST; Ying Sun, King Abdullah University of Science and Technology; Sabrina Vettori, KAUST
- 10:05 a.m. **Floor Discussion**

627 CC-W194b
■ Spatial Uncertainty in Environmental Statistics—Invited
 Section on Statistics and the Environment, International Society for Bayesian Analysis (ISBA), Section on Bayesian Statistical Science
 Organizer(s): Matthew J. Heaton, Brigham Young University
 Chair(s): Matthew J. Heaton, Brigham Young University

- 8:35 a.m. **Spatial Uncertainty in Environmental Statistics—◆Alan E. Gelfand**
- 9:00 a.m. **Modeling Environmental Impacts on Bronchiolitis in the Presence of Spatial Uncertainty—◆Candace Berrett**, Brigham Young University; Matthew J. Heaton, Brigham Young University; Chantel Sloan, Brigham Young University
- 9:25 a.m. **Multivariate Latent Structure in Bayesian Spatio-Temporal Health Models—◆Andrew B. Lawson**, Medical University of South Carolina
- 9:50 a.m. **The New Normal: Exploring the Impact of American Community Survey Demographics on Small-Area Health Studies—◆Lance Waller**, Emory University
- 10:15 a.m. **Floor Discussion**

628 CC-W192a
■● Theoretical Astrostatistics—Invited
 IMS
 Organizer(s): Jessi Cisewski, Yale University
 Chair(s): Jessi Cisewski, Yale University

- 8:35 a.m. **Solar Spectral Analyses with Uncertain Physical Models—◆Nathan M. Stein**, University of Pennsylvania
- 9:00 a.m. **Statistical Methods in Persistent Homology—◆Brittany Terese Fasy**, Montana State University
- 9:25 a.m. **Nonparametric Methods for Detecting Large-Scale Structure—◆Yen-Chi Chen**, Carnegie Mellon University; Christopher Genovese, Carnegie Mellon University; Larry Wasserman, Carnegie Mellon University; Peter Freeman, Carnegie Mellon University; Shirley Ho, Carnegie Mellon University
- 9:50 a.m. **Mapping Galaxy Spectra: Global vs. Local Views—◆Tamas Budavari**, The Johns Hopkins University
- 10:15 a.m. **Floor Discussion**

629 CC-W184d
■ Statisticians and Multiple Sclerosis Research—Invited
 Biometrics Section, Section on Statistics in Imaging
 Organizer(s): Elizabeth M. Sweeney, Johns Hopkins Bloomberg School of Public Health
 Chair(s): Amanda Mejia, Johns Hopkins Bloomberg School of Public Health

- 8:35 a.m. **Statistical Segmentation of Multiple Sclerosis Lesions on Structural Magnetic Resonance Images—◆Ciprian Crainiceanu**, The Johns Hopkins University
- 9:00 a.m. **Depression Trajectories in Multiple Sclerosis Patients for Treatment Decision Making—◆Douglas Gunzler**, Case Western Reserve University
- 9:25 a.m. **Development of a Neuroimaging Biomarker for Lesion Recovery in Multiple Sclerosis—◆Elizabeth M. Sweeney**, Johns Hopkins Bloomberg School of Public Health; Michelle Ross, University of Pennsylvania; John Muschelli, The Johns Hopkins University; Benjamin Risk, Statistical and Applied Mathematical Sciences Institute; Daniel Reich, National Institute of Neurological Disorders and Stroke; Ani Eloyan, Brown University; Ciprian Crainiceanu, The Johns Hopkins University; Russell Shinohara, University of Pennsylvania
- 9:50 a.m. **Mediation Analysis of Multiple Sclerosis and Depression for Complex Longitudinal Clinical**

Data—◆Nathan Morris, Case Western Reserve University

10:15 a.m. Floor Discussion

630 CC-W183c

■ Brain Connectivity Network Analysis and High-Dimensional Time Series—Invited

WNAR, Section on Statistics in Imaging, International Chinese Statistical Association

Organizer(s): Ali Shojaie, University of Washington

Chair(s): Ali Shojaie, University of Washington

8:35 a.m. A Unified Modeling Framework for State-Related Changes in High-Dimensional Effective Brain Connectivity—◆Hernando Ombao, University of California at Irvine; Yuxiao Wang, University of California at Irvine; Chee-Ming Ting, Universiti Teknologi Malaysia

9:00 a.m. Testing for Differential Connectivity in High-Dimensional Networks—◆Sen Zhao, University of Washington; Ali Shojaie, University of Washington

9:25 a.m. HVAR: High-Dimensional Forecasting via Interpretable Vector Autoregression—◆David Matteson, Cornell University; William B. Nicholson, Cornell University; Jacob Bien, Cornell University

9:50 a.m. Statistical Methods for Global and Subnetwork Connectomic Analyses—◆Russell Shinohara, University of Pennsylvania; Simon Vandekar, University of Pennsylvania

10:15 a.m. Floor Discussion

631 CC-W179b

■ ● Uncertainty Quantification in Climate Science—Invited

ASA Advisory Committee on Climate Change Policy

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

Chair(s): Peter Craigmile, The Ohio State University

8:35 a.m. Bayesian Combining Information Sources with Applications in Climate—◆L. Mark Berliner, The Ohio State University

9:25 a.m. Uncertainties in Spatio-Temporal Prediction for Carbon Cycle Science: From Satellite Data to Surface Fluxes—◆Noel Cressie, University of Wollongong; Andrew Zammit-Mangion, University of Wollongong; Amy Braverman, Jet Propulsion Laboratory; Jonathan Hobbs, Jet Propulsion Laboratory

9:50 a.m. Disc: Leonard Smith, The London School of Economics and Political Science

10:10 a.m. Floor Discussion

632 CC-W181a

■ Julia for Modern Statistical Computing—Invited

Section on Statistical Computing

Organizer(s): Hua Zhou, University of California at Los Angeles

Chair(s): Hua Zhou, University of California at Los Angeles

8:35 a.m. Online Algorithms for Statistical Learning—◆Josh Day, North Carolina State University

8:55 a.m. What Julia Can and Can't Already Offer Statisticians—◆John Myles White, Facebook

9:15 a.m. Julia for Data Analysis: Features, Interfaces, and Future Directions—Simon Byrne, Julia Computing; ◆Stefan Karpinski, Julia Computing

9:35 a.m. Fast Algorithms to Find Principal Components of Genomics Data in Julia—◆Jiahao Chen, MIT; Andreas Noack, MIT; Jake Bolewski, MIT; Alan Edelman, MIT

9:55 a.m. Disc: Douglas Bates, University of Wisconsin

10:15 a.m. Floor Discussion

633 CC-W196a

■ ● Can Confounders Be Estimated? How and Why? The Case of Age-Period-Cohort—Invited

Social Statistics Section, Royal Statistical Society, International Chinese Statistical Association

Organizer(s): Wenjiang Fu, University of Houston

Chair(s): Yu Zhu, Purdue University

8:35 a.m. Age-Period-Cohort Models: Solution Lines, Bounds, and Mechanisms—Ethan Fosse, Harvard; ◆Christopher Winship, Harvard

9:00 a.m. Confusions About the APC Confounding. What Have We Missed? How Can We Do Better?—◆Wenjiang Fu, University of Houston

9:25 a.m. Toward a Proper Apportionment of Period and Cohort Slopes in Age-Period-Cohort Analysis—◆Wen-Chung Lee, National Taiwan University

9:50 a.m. Disc: Jiming Jiang, University of California at Davis

10:15 a.m. Floor Discussion

634 CC-W179a
■ ● Analysis, Storage, and Privacy for Big Data—Invited

Section on Statistics in Defense and National Security, Section on Statistical Computing

Organizer(s): Joanne Wendelberger, Los Alamos National Laboratory

Chair(s): Joanne Wendelberger, Los Alamos National Laboratory

- 8:35 a.m. Distributed Data Analysis at Scale—◆Tom Peterka, Argonne National Lab
- 9:10 a.m. Storage Issues and Assessment Arising from Large-Scale Simulations—◆Emily Casleton, Los Alamos National Laboratory; Joanne Wendelberger, Los Alamos National Laboratory; Jonathan Woodring, Los Alamos National Laboratory
- 9:45 a.m. Differentially Private Data Synthesis Partitioning for Big Data—◆Claire McKay Bowen, University of Notre Dame; Fang Liu, University of Notre Dame

635 CC-W190b
■ ● Combining Data from Multiple Sources: Examples from Health Policy—Invited

Health Policy Statistics Section, Committee on Applied Statisticians

Organizer(s): Juned Siddique, Northwestern University

Chair(s): Elizabeth Stuart, Johns Hopkins Bloomberg School of Public Health

- 8:35 a.m. Combining Information from Two Data Sources with Misreporting and Incompleteness to Assess Hospice-Use Among Cancer Patients: A Multiple Imputation Approach—◆Yulei He, CDC; Mary-Beth Landrum, Harvard Medical School; Alan M. Zaslavsky, Harvard Medical School
- 9:00 a.m. Correcting for Measurement Error in Self-Reported Dietary Data from a Longitudinal Lifestyle Intervention Trial Using an External Validation Study—◆Juned Siddique, Northwestern University; Laurence Freedman, Gertner Institute for Epidemiology and Health Policy Research; Raymond Carroll, Texas A&M University; Trivellore Raghunathan, University of Michigan; Elizabeth Stuart, Johns Hopkins Bloomberg School of Public Health
- 9:25 a.m. Combining Item Response Theory with Multiple Imputation to Equate Health Assessment Questionnaires—Chenyang Gu, Brown University; ◆Roee Gutman, Brown University; Vincent Mor, Brown University
- 9:50 a.m. Disc: Ofer Harel, University of Connecticut
- 10:10 a.m. Floor Discussion

636 CC-W175a
Memorial Session for Peter Hall—Invited

Memorial, IMS, Royal Statistical Society, International Chinese Statistical Association

Organizer(s): Hans-Georg Mueller, University of California at Davis

Chair(s): Tony Cai, University of Pennsylvania

- 8:35 a.m. Peter Hall in Australia Nonparametric Deconvolution Problems—◆Aurore Delaigle, University of Melbourne
- 9:00 a.m. A Personal Remembrance of Peter Hall—◆Raymond Carroll, Texas A&M University
- 9:25 a.m. Hall's Contribution to Bootstrap and Personal Reminiscences—◆Song Xi Chen, Peking University/Iowa State University
- 9:50 a.m. Peter Hall at UC Davis and Functional Data Analysis—◆Hans-Georg Mueller, University of California at Davis
- 10:15 a.m. Floor Discussion

Invited Panels 8:30 a.m. – 10:20 a.m.

637 CC-W176c
■ ● My Life as a Statistical Consultant—Invited

Section on Statistical Consulting, Section for Statistical Programmers and Analysts, Committee on Applied Statisticians

Organizer(s): Xiaoyue Niu, Penn State University

Chair(s): Xiaoyue Niu, Penn State University

- Panelists:
- ◆James Rosenberger, Penn State University
 - ◆Mary Batcher, Ernst and Young
 - ◆Nathaniel Schenker, CDC/NCHS

- 10:10 a.m. Floor Discussion

Topic-Contributed Sessions 8:30 a.m. – 10:20 a.m.

638 CC-W192c
● New Frontiers in Analyzing Complex Data in Epidemiology—Topic-Contributed

Section on Nonparametric Statistics, Section on Statistics in Epidemiology, Section on Statistics in Imaging, International Chinese Statistical Association

Organizer(s): Chad He, Fred Hutchinson Cancer Research Center

Chair(s): Chad He, Fred Hutchinson Cancer Research Center

- 8:35 a.m. Regression for Partially Observed Household Epidemics—◆Forrest Crawford, Yale University

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 8:55 a.m. A Bayesian Approach for Envelope Models—
◆Zhihua Su, Kshitij Khare, University of Florida; Subhadip Pal, Emory University
- 9:15 a.m. Dimension Reduction for Identification of Candidate Immune Correlates of Vaccine Efficacy—◆Paul T. Edlefsen, Fred Hutchinson Cancer Research Center
- 9:35 a.m. The Latent Low-Rank Model to Co-Localize Genetic Risk Variants in Multiple GWAS—
◆Jin Liu, Duke University NUS Medical School; Can Yang, Hong Kong Baptist University
- 9:55 a.m. Estimation for Bivariate Quantile Varying Coefficient Model—◆Linglong Kong, University of Alberta; Haoxu Shu, University of Alberta; Chad He, Fred Hutchinson Cancer Research Center; Giseon Heo, University of Alberta; Martin Styner, The University of North Carolina at Chapel Hill; John Gilmore, The University of North Carolina at Chapel Hill; Hongtu Zhu, The University of North Carolina at Chapel Hill
- 10:15 a.m. Floor Discussion

639 CC-W184bc

■ ● Development and Application of Practical and Advanced Dose-Finding Designs—Topic-Contributed

Biopharmaceutical Section

Organizer(s): Yuan Ji, NorthShore University HealthSystem

Chair(s): Sue-Jane Wang, FDA

- 8:35 a.m. Practical Considerations for the Implementation of the Modified Toxicity Probability Interval (MTPI) Design and Associated Change Management—◆Erik Pulkstenis, MedImmune
- 8:55 a.m. A Flexible Model for Dose Escalation in Phase I Trials—◆Ying Lu, Palo Alto VA Health Care System/Stanford University; Shenghua Kelly Fan, California State University at East Bay; Bee Leng Lee, San Jose State University; Yanyan Song, Shanghai Jiao Tong University
- 9:15 a.m. Toxicity and Efficacy Probability Intervals Design for Phase I Dose Finding in Oncology Trials—◆Daniel He Li, Juno Therapeutics; Jim Whitmore, Juno Therapeutics; Yuan Ji, NorthShore University HealthSystem
- 9:35 a.m. Optimal Design for Dose-Finding Study with Delayed Responses—Min Yang, University of Illinois at Chicago; ◆Tian Tian, University of Illinois at Chicago
- 9:55 a.m. Optimal Designs for Active Controlled Dose-Finding Trials with Efficacy-Toxicity Outcomes—◆Weng Kee Wong, University of California at Los Angeles; Holger Dette, Ruhr University; Katrin Kettelhake, Ruhr University;

Kirsten Schorning, Ruhr University; Frank Bretz, Novartis Pharma

10:15 a.m. Floor Discussion

640 CC-W196b

Topics in Adaptive/Responsive Survey Designs—Topic-Contributed

Survey Research Methods Section

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

Chair(s): Ashley Clark, Indiana University

- 8:35 a.m. Weighting and Variance Estimation Under Adaptive and Responsive Survey Designs—
◆Jeffrey Gonzalez, Bureau of Labor Statistics
- 8:55 a.m. Cost-Benefit Analysis of a Responsive Sampling Strategy in MEPS—◆Sadeq Chowdhury, Agency for Healthcare Research and Quality; Steve Machlin, Agency for Healthcare Research and Quality
- 9:15 a.m. Experimenting with Contact Strategies to Aid Adaptive Design in Economic Surveys—Cha-Chi Fan, U.S. Census Bureau; ◆Alfred D. Tuttle, U.S. Census Bureau; Joshua Langeland, U.S. Census Bureau; Erica Marquette, U.S. Census Bureau; Aryn Hernandez, U.S. Census Bureau; Stephanie Coffey, U.S. Census Bureau; Jennifer Beck, U.S. Census Bureau
- 9:35 a.m. Survey of Income and Program Participation Case Prioritization Experiment Results—◆Gina Walejko, U.S. Census Bureau; Allison Zotti, U.S. Census Bureau
- 9:55 a.m. Assigning Cases Effectively for the Current Population Survey—◆Kevin Tolliver, U.S. Census Bureau
- 10:15 a.m. Floor Discussion

641 CC-W180

■ ● Advancing Precision Medicine Using Innovative Subgroup Identification Methods—Topic-Contributed

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

Organizer(s): Qi Tang, AbbVie

Chair(s): Richard A. Rode, AbbVie

- 8:35 a.m. Use of the VG (Virtual Twins Combined with GUIDE) Method in the Development of Precision Medicines—◆Jia Jia; Qi Tang, AbbVie; Wangang Xie, AbbVie; Richard A. Rode, AbbVie
- 8:55 a.m. Comparison of Some Subgroup Identification Algorithms for Precision Medicine in Drug Development—◆Xin Huang; Yan Sun, AbbVie;

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

Saptarshi Chatterjee, AbbVie; Viswanath Devanarayan, AbbVie

- 9:15 a.m. Subgroup Identification Based on Multiple Outcomes—◆Chensheng Kuang, University of Wisconsin-Madison; Menggang Yu, University of Wisconsin-Madison; Sijian Wang, University of Wisconsin-Madison
- 9:35 a.m. Development of Predictive Signature to Identify Patient Subgroups with Differential Treatment Effect—◆Yu-Chuan Chen; James Chen, FDA/NCTR; Un Jung Lee, FDA/NCTR
- 9:55 a.m. Subgroup Identification in a Learn-and-Confirm Setting—◆Lei Shen, Eli Lilly and Company
- 10:15 a.m. Floor Discussion

642 **CC-W176b**

■ ● Advances in Seasonal Adjustment and Time Series Analysis—Topic-Contributed

Business and Economic Statistics Section

Organizer(s): Gian Luigi Mazzi, European Commission-Eurostat

Chair(s): Robert A. Cage, Bureau of Labor Statistics

- 8:35 a.m. Seasonal Adjustment of Short Time-Series: A Comparative Study—◆Enrico Infante, Eurostat; Gian Luigi Mazzi, European Commission-Eurostat
- 8:55 a.m. Adjusting Production Indices for Varying Weather Effects—◆Sven Schreiber, IMK, Hans Boeckler Foundation; Erik Haustein, University of Kiel
- 9:15 a.m. A Class of Periodic Trend Models for Economic Time Series—◆Gian Luigi Mazzi, European Commission-Eurostat; Tommaso Proietti, Universita di Roma Tor Vergata; Martyna Marczak, University of Hohenheim
- 9:35 a.m. Quality Reporting for Seasonal Adjustment with JDemetra+—◆Dominique Ladiray, INSEE
- 9:55 a.m. CAMPLET: Seasonal Adjustment Without Revisions—Jan Jacobs, University of Groningen; ◆Barend Abeln, Retired
- 10:15 a.m. Floor Discussion

643 **CC-W185bc**
■ ● Emerging Public Health Issues—Topic-Contributed

Section on Statistics in Epidemiology, International Chinese Statistical Association

Organizer(s): Rajeshwari Sundaram, Eunice Kennedy Shriver National Institute of Child Health and Human Development

Chair(s): Zhen Chen, Eunice Kennedy Shriver National Institute of Child Health and Human Development

- 8:35 a.m. Sieve Analysis Using the Number of Infecting Pathogens—◆Dean Follmann, National Institute of Allergy and Infectious Diseases; Chung-Yu Huang, The Johns Hopkins University
- 8:55 a.m. A Framework for Quantifying Risk Stratification from Diagnostic Tests—◆Hormuzd Katki, National Cancer Institute
- 9:15 a.m. Semiparametric Estimation of ROC Curve with Multiple Imperfect Gold Standards: Application to the Diagnosis of Endometriosis—◆Danping Liu, Eunice Kennedy Shriver National Institute of Child Health and Human Development; Beom Seuk Hwang, Eunice Kennedy Shriver National Institute of Child Health and Human Development; Zhen Chen, Eunice Kennedy Shriver National Institute of Child Health and Human Development
- 9:35 a.m. Unobserved Heterogeneity in Prevalent Cohort and Current Duration Designs—◆Niels Keiding, University of Copenhagen
- 9:55 a.m. Persistent Organochlorine Compounds, Menstrual Cycle Length, and Fecundity: A Joint Modeling Approach—◆Rajeshwari Sundaram, Eunice Kennedy Shriver National Institute of Child Health and Human Development
- 10:15 a.m. Floor Discussion

644 **CC-W186c**
■ Integrative Approaches for Genomics Data—Topic-Contributed

Biometrics Section, Biopharmaceutical Section

Organizer(s): Marinela Capanu, Memorial Sloan Kettering Cancer Center

Chair(s): Marinela Capanu, Memorial Sloan Kettering Cancer Center

- 8:35 a.m. Meta-Analysis for Discovering Rare-Variant Associations—◆Zheng-Zheng Tang, Vanderbilt University
- 8:55 a.m. Integrative Analysis of Sequencing and Array Genotype Data for Discovering Disease Associations with Rare Mutations—◆Yijuan Hu, Emory University; Yun Li, The University of North Carolina at Chapel Hill; Paul Auer, University of Wisconsin-

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- Milwaukee; Danyu Lin, The University of North Carolina at Chapel Hill
- 9:15 a.m. Pedigree-Based Imputation from Sequencing Data and Its Applications—◆Dan Nicolae, The University of Chicago
- 9:35 a.m. Integrated Analysis of Germline, Omic, and Disease Data—◆David Conti, University of Southern California; Zhao Yang, University of Southern California; Duncan Thomas, University of Southern California
- 9:55 a.m. Disc: Colin Begg, Memorial Sloan Kettering Cancer Center
- 10:15 a.m. Floor Discussion

645 CC-W175c

■ Maintenance, Monitoring, and Inference: Different Aspects of Reliability Modeling in Industrial Applications—Topic-Contributed

Quality and Productivity Section, Section on Physical and Engineering Sciences

Organizer(s): Ananda Sen, University of Michigan
Chair(s): Nandini Kannan, National Science Foundation

- 8:35 a.m. The EM Algorithm for One-Shot Device Testing with Competing Risk Under Different Lifetimes Distributions—◆Hon Yiu So, McMaster University; Narayanaswamy Balakrishnan, McMaster University; Man Ho Ling, Hong Kong Institute of Education
- 8:55 a.m. Degradation and Maintenance Modeling Using the Inverse Gaussian Process—◆Bo Henry Lindqvist, Norwegian University of Science and Technology; Odd Eirik Farestveit, Accenture
- 9:15 a.m. Reliability Monitoring in a Mass-Production Environment—◆Emmanuel Yashchin, IBM Research
- 9:35 a.m. Disc: Ravindra Khattree, Oakland University
- 9:55 a.m. Floor Discussion

646 CC-W187c

■ Multiplicity in Diagnostic Device Development and Validation—Topic-Contributed

Section on Medical Devices and Diagnostics, Biopharmaceutical Section, Section on Statistics in Imaging

Organizer(s): Gene Pennello, FDA/CDRH/OSB/DBS
Chair(s): Alicia Y. Toledano, Biostatistics Consulting, LLC

- 8:35 a.m. Identifying Optimal Approaches to Early Termination in Two-Stage Biomarker Validation Studies—◆Alexander Kaizer, University of Minnesota; Joseph S. Koopmeiners, University of Minnesota

- 8:55 a.m. Statistical Considerations in Evaluating Radiological Imaging Devices in FDA/CDRH—◆Qin Li, FDA/CDRH
- 9:15 a.m. Multiple Success Criteria in the Performance Evaluation of Diagnostic Devices—◆Norberto Pantoja-Galicia, FDA/CDRH; Gene Pennello, FDA/CDRH/OSB/DBS
- 9:35 a.m. Creating a Biomarker Signature for a Companion Diagnostic Using Bootstrapping and Aggregating Thresholds from Tree-Based Models—◆Raj Chandran
- 9:55 a.m. Multiple Endpoint Evaluation in Diagnostic Medical Imaging: Analyses, Labeling, and Claims—◆Camille Vidal, GE Healthcare
- 10:15 a.m. Floor Discussion

647 CC-W195

■ ● Americans on the Move: Challenges and Solutions in Modeling Transportation Data—Topic-Contributed

Government Statistics Section, Survey Research Methods Section
Organizer(s): Jiashen You, Department of Transportation
Chair(s): Feng Guo, Virginia Tech

- 8:35 a.m. Identifying Risk Factors for Interstate Crashes Using Spatial Statistics—◆Kaitlin Gibson, Brigham Young University; Matthew J. Heaton, Brigham Young University
- 8:55 a.m. Modeling Transportation Characteristics: Small-Area Estimation Using the National Household Travel Survey—Theresa Firestone, U.S. Department of Transportation; ◆Stephen Brumbaugh, U.S. Department of Transportation
- 9:15 a.m. Geographical Predictors of GPS-Based Transportation Survey Response Rates—◆Timothy Michalowski, Abt SRBI; Dara Seidl, Abt SRBI
- 9:35 a.m. Direct and Indirect Effects of Alcohol Impairment and Safety Belt Use on Head Injuries and Their Associated Charges in Illinois—◆Mehdi Nassirpour, Illinois Department of Transportation
- 9:55 a.m. Disc: Patricia Hu, Bureau of Transportation Statistics
- 10:15 a.m. Floor Discussion

Topic-Contributed Panels 8:30 a.m. – 10:20 a.m.

648 CC-W183a

■ Outside the Closed Door: Industry Statisticians Discuss the DMC Process—Topic-Contributed

Biopharmaceutical Section, Committee on Applied Statisticians

Organizer(s): David Kerr, Axio Research

Chair(s): David Kerr, Axio Research

- Panelists: ◆ Paul Gallo, Novartis
 ◆ Walt Offen, AbbVie
 ◆ Markus Abt, Roche/Genentech
 ◆ Kye Gilder, Orexigen
 ◆ Gordon Sun, BioMarin
 ◆ Gary Aras, Amgen

8:55 a.m. Floor Discussion

- 9:35 a.m. Classification of Multivariate Time Series Data with Applications to ECIS—◆ Laura Tupper, Cornell University; David Matteson, Cornell University
 9:50 a.m. Classification of Mixed Binary Outcomes Using Biomarker Information—◆ Feng-Chang Lin, The University of North Carolina at Chapel Hill; Qufeng Li, The University of North Carolina at Chapel Hill
 10:05 a.m. Optimal Decision Rule for Multiple Biomarkers Combined as Tree-Based Classifiers—◆ Yuxin Zhu, The Johns Hopkins University; Mei-Cheng Wang, The Johns Hopkins University

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

649 CC-W186a

■ Clustering, Classification, and Dimension Reduction Techniques—Contributed

Biometrics Section, Biopharmaceutical Section

Chair(s): Catherine Crespi, University of California at Los Angeles

- 8:35 a.m. Integrative Subtype Analysis of Ovarian Cancer Using Non-Negative Matrix Factorization—◆ Prabhakar Chalise, University of Kansas Medical Center; Ellen L. Goode, Mayo Clinic; Brooke L. Fridley, University of Kansas Medical Center
 8:50 a.m. Dynamic Functional Classification and Clustering—J. Richard Landis, University of Pennsylvania; Wensheng Guo, University of Pennsylvania Perelman School of Medicine; ◆ Xiaoling Hou, University of Pennsylvania
 9:05 a.m. Clustering with Non-Convex Penalized Gaussian Graphical Models for Simultaneous Parameter Estimation and Pursuit of Sparseness—◆ Chen Gao, University of Minnesota; Wei Pan, University of Minnesota; Xiaotong Shen, University of Minnesota; Yunzhang Zhu, The Ohio State University
 9:20 a.m. Methods for Joint Clustering of Longitudinal HIV Biomarker Trajectories in the Presence of Missing and Censored Observations—◆ Miranda Lynch, University of Connecticut Health Center; Marianna Baum, Florida International University; Vladimir Novitsky, Harvard T.H. Chan School of Public Health; Victor De Gruttola, Harvard

650 CC-W175b

■ ● Estimation, Prediction, and Forecasting Through Data-Driven Models—Contributed

Section on Physical and Engineering Sciences, Quality and Productivity Section

Chair(s): Rong Liu, University of Toledo

- 8:35 a.m. Monitoring the Results of Cardiac Surgery Based on Three or More Outcomes by Variable Life-Adjusted Display—◆ Fah Fatt Gan, National University of Singapore
 8:50 a.m. Longitudinal Data Harmonization Using Rasch Model—◆ Yan Wang, University of California at Los Angeles; Honghu Liu, University of California at Los Angeles
 9:05 a.m. A Flexible Spatial Quantile Interpolation with Application to Radar Rainfall Estimation—◆ Joon Jin Song, Baylor University; Soohyun Kwon, Kyungpook National University; GyuWon Lee, Kyungpook National University
 9:20 a.m. Selecting Basis Quantities for Dimensional Analysis: A Data-Driven Approach—◆ Ching-Chi Yang, Penn State University; Dennis K. J. Lin, Penn State University
 9:35 a.m. Hurricane Power Outage Forecasting—◆ Seth Guikema, University of Michigan; Steven M. Quiring, Texas A&M University
 9:50 a.m. Hierarchical Statistical Analysis of Binary Spatial Data Using Kernel Principal Component Analysis—◆ Bohai Zhang, University of Wollongong; Noel Cressie, University of Wollongong
 10:05 a.m. Reliability Assessment of Patient Outcomes as Quality Indicators of Patient Care—◆ Jianghua He, University of Kansas Medical Center

651 CC-W181b**● Advances in Sampling and Estimation—Contributed**

Section on Statistical Computing

Chair(s): Tom M. Logan, University of Michigan

- 8:35 a.m. **Adaptive (Quasi-) Monte Carlo Methods**—◆Fred Hickernell, Illinois Institute of Technology; Lan Jiang, Illinois Institute of Technology; Luis Antoni Jimenez Rugama, Illinois Institute of Technology
- 8:50 a.m. **Simulating the Heston Model via the QE Method with a Specified Error Tolerance**—◆Xiaoyang Zhao, Illinois Institute of Technology; Fred Hickernell, Illinois Institute of Technology
- 9:05 a.m. **Simplified Tools for Sample Size Determination for Correlation Coefficient Inference**—Stephen W. Looney, Augusta University; ◆Justine May, Augusta University; Jessica McKinney Ketchum, Craig Hospital
- 9:20 a.m. **Estimating the Coefficient of Variation for Some Competing Acceleratory Life-Testing Models**—◆Debaraj Sen, Concordia University; Krishna Saha, Central Connecticut State University; Sun Dong, Concordia University
- 9:35 a.m. **Guaranteed Adaptive Quasi-Monte Carlo Methods with Control Variates**—◆Da Li, Illinois Institute of Technology; Fred Hickernell, Illinois Institute of Technology
- 9:50 a.m. **Accuracy Analysis of Unbiased Estimations for Fisher Information in the Scalar Case**—◆Shenghan Guo, The Johns Hopkins University; James C. Spall, The Johns Hopkins University
- 10:05 a.m. **Uniform- and Triangular-Based Third-Order Power Method Distributions Using a Doubling Technique**—◆Mohan Dev Pant, The University of Texas at Arlington; Todd Christopher Headrick, Southern Illinois University Carbondale

652 CC-W192b**Big Data and Data Science Education—Contributed**

Section on Statistical Education, Section on Statistics in Marketing

Chair(s): Gayla Olbricht, Missouri University of Science and Technology

- 8:35 a.m. **Teaching Students to Work with Big Data Through Visualizations**—◆Shonda Kuiper, Grinnell College
- 8:50 a.m. **A Data Visualization Course for Undergraduate Data Science Students**—◆Silas Bergen, Winona State University
- 9:05 a.m. **Intro Stats for Future Data Scientists**—◆Brianna Heggseth, Williams College; Richard De Veaux, Williams College

- 9:20 a.m. **An Undergraduate Data Science Program**—◆James Albert, Bowling Green State University; Maria Rizzo, Bowling Green State University
- 9:35 a.m. **Modernizing an Undergraduate Multivariate Statistics Class**—◆David Hitchcock, University of South Carolina; Xiaoyan Lin, University of South Carolina; Brian Habing, University of South Carolina
- 9:50 a.m. **Business Analytics and Implications for Applied Statistics Education**—◆Samuel Woolford, Bentley University
- 10:05 a.m. **DataSurfing on the World Wide Web: Part 2**—◆Robin Lock, St. Lawrence University

653 CC-W185a**Longitudinal and Survival Analysis in Observational Studies—Contributed**

Section on Statistics in Epidemiology, Biopharmaceutical Section

Chair(s): Sujuan Gao, Indiana University

- 8:35 a.m. **Joint Modeling of Longitudinal Cognitive Responses and Survival Time in an Alzheimer's Disease Cohort Study**—◆Eveleen Darby, Baylor College of Medicine; Wenyaw Chan, The University of Texas Health Science Center at Houston; Elaine Symanski, The University of Texas Health Science Center at Houston; Rachelle S. Doody, Baylor College of Medicine
- 8:50 a.m. **Clustering Alzheimer's Patients into 'Syndrome Groups' Using Longitudinal Biomarker and Cognitive Trajectories**—◆Teresa Filshtein, University of California at Davis; Laurel A. Beckett, University of California at Davis
- 9:05 a.m. **A Hidden Markov Model Approach to Analyzing Longitudinal Alzheimer's Disease Stages Subject to Possible Misclassification**—◆Julia Benoit, University of Houston; Wenyaw Chan, The University of Texas Health Science Center at Houston; Linda Piller, The University of Texas Health Science Center at Houston; Rachelle S. Doody, Baylor College of Medicine
- 9:20 a.m. **Predicting Alzheimer's Disease with Mixture of Regression Modeling**—◆Frank Appiah; David Fardo, University of Kentucky; Erin L. Abner, University of Kentucky; Glen Mays, University of Kentucky; Richard Charnigo, University of Kentucky
- 9:35 a.m. **A Likelihood Model for Clustered Bivariate Binary Data with and Without Covariate Effects**—◆Sean O'Loughlin, Howard University; Paul Bezandry, Howard University; Victor Apprey, Howard University; John Kwagyan, Howard University College of Medicine
- 9:50 a.m. **Clustering Longitudinal Unbalanced Data: An Application to the Early Childhood Growth**



Save the Date

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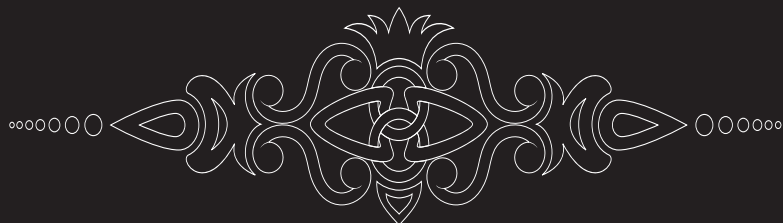
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Pattern—◆Md Hossain, Nemours Biomedical Research, A.I. DuPont Children's Hospital

- 10:05 a.m. Prediction of Invasive Group A Streptococcus Infections in Non-ABCs Areas in the United States—◆Yongping Hao, CDC

654 CC-W186b

■ Survival Analysis with Health Applications—Contributed

Biometrics Section, Biopharmaceutical Section

Chair(s): Jack Follis, University of St. Thomas

- 8:35 a.m. Attributable Excess Time Function for Censored Time-to-Event—◆Yixin Wang, Fred Hutchinson Cancer Research Center; Ying Qing Chen, Fred Hutchinson Cancer Research Center
- 8:50 a.m. The Reflected-Shifted-Truncated Gamma Distribution with Application to Left-Skewed Survival Data—◆Sophia Waymyers, University of South Carolina; Hrishikesh Chakraborty, University of South Carolina; Sanku Dey, St. Anthony's College
- 9:05 a.m. A New Estimator of Baseline Hazard Function in Bivariate Frailty Models—◆Antai Wang, New Jersey Institute of Technology; Xieyang Jia, New Jersey Institute of Technology
- 9:20 a.m. Two-Step Parsimonious Variable Selection for Right-Censored Survival Time Models—◆Anju Menon, University of Wyoming; A. Gregory DiRienzo
- 9:35 a.m. Subgroup Identification and Sample-Size Calculation for the Proportional Hazard Model—◆Suhyun Kang, North Carolina State University; Wenbin Lu, North Carolina State University
- 9:50 a.m. Efficient Methods for Fitting Bayesian Semiparametric Models to Partly Interval-Censored Data—◆Haiming Zhou, Northern Illinois University; Timothy Hanson, University of South Carolina
- 10:05 a.m. Generalized Estimating Equations for Restricted Mean Survival Time Under General Censoring Mechanisms—◆Xin Wang, University of Michigan; Douglas Schaubel, University of Michigan

655 CC-W178b

New Advances in Clustering Algorithms—Contributed

Section on Statistical Learning and Data Science

Chair(s): Mary Akinyemi, University of Lagos

- 8:35 a.m. On Assessing the Difficulty of a Clustering Problem: The Introduction of Sensitivity and Specificity to Cluster Analysis—◆Jonathon O'Brien
- 8:50 a.m. A Contribution to Distance-Based Clustering in the Presence of Errors—◆Maha Bakoben, Imperial

College London; Tony Bellotti, Imperial College London; Niall Adams, Imperial College London

- 9:05 a.m. An Adaptive Association Test for Microbiome Data—◆Chong Wu
- 9:20 a.m. Model-Based Clustering with Measurement Errors—◆Wanli Zhang, Oregon State University; Yanming Di, Oregon State University
- 9:35 a.m. Constructing Combinations of Graphs for Pattern Recognition—◆John Rigsby, Naval Surface Warfare Center
- 9:50 a.m. A Simultaneous Variable Selection and Clustering Method for High-Dimensional Multinomial Regression Model—◆Sheng Ren, University of Cincinnati; Jason Lu, Cincinnati Children's Hospital Research Foundation; Emily Lei Kang, University of Cincinnati
- 10:05 a.m. A Bootstrap Procedure for Classification Problems Based on Features and Observations Resampling—◆Junhong Liu, The University of Hong Kong

656 CC-W182

Hypothesis Testing for Correlation and Dependence—Contributed

Section on Statistical Learning and Data Science

Chair(s): Jongphil Kim, Moffitt Cancer Center

- 8:35 a.m. Dependence Discovery from Multimodal Data via Multiscale Graph Correlation—◆Cencheng Shen, Temple University; Carey Priebe, The Johns Hopkins University; Joshua Vogelstein, The Johns Hopkins University; Mauro Maggioni, Duke University
- 8:50 a.m. A Nonparametric Test of Independence Between Two Variables—◆Bin Li, Louisiana State University; Qingzhao Yu, Louisiana State University Health Sciences Center
- 9:05 a.m. Testing Statistical Significance of Canonical Correlation Coefficients—◆Yunjin Choi, Stanford University; Robert Tibshirani, Stanford University; Jonathan Taylor, Stanford University
- 9:20 a.m. Discrete Smoothing Kernels—◆Marianthi Markatou, SUNY Buffalo; Bruce George Lindsay, Penn State University
- 9:35 a.m. Sharp Computational-Statistical Phase Transitions via Oracle Computational Model—◆Zhaoran Wang, Princeton; Quanquan Gu, University of Virginia; Han Liu, Princeton
- 9:50 a.m. Hypothesis Tests for Hypervolumes Under K-Dimensional ROC Manifold—◆Rajarshi Dey, University of South Alabama
- 10:05 a.m. Edgeworth Expansion for Summation of Symmetric Statistics and Its Application in Analyzing Massive Data—◆Liuhua Peng, Iowa State University; Song Xi Chen, Peking University/Iowa State University

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

657 CC-W185d
Statistical Methods for Integration of Omics Data—Contributed

Section on Statistics in Genomics and Genetics, Biopharmaceutical Section

Chair(s): Xinglei Chai, University of Pennsylvania

- 8:35 a.m. An Analysis of Variation-Based Procedure for PCA on Multiple Groups—◆Zi Yang, University of Michigan; George Michailidis, University of Florida
- 8:50 a.m. Quadratically Regularized Functional Canonical Correlation Analysis and Its Application to Genetic Pleiotropic Analysis of Multiple Phenotypes—◆Nan Lin; Yun Zhu, Tulane University; Fen Peng, The University of Texas Health Science Center at Houston; Jinying Zhao, Tulane University; Momiao Xiong, The University of Texas Health Science Center at Houston
- 9:05 a.m. Locally Adaptive Bayesian Nonparametric Inference for Phylodynamics—◆James R. Faulkner, University of Washington; Vladimir Minin, University of Washington
- 9:20 a.m. Improved Environmental Modeling in Statistical Genetics and Genomics—◆Claus Ekstrom, University of Copenhagen
- 9:35 a.m. Testing for Genetic Associations in Arbitrarily Structured Populations—◆Minsun Song, University of Nevada, Reno; John D. Storey, Princeton; Wei Hao, Princeton
- 9:50 a.m. The Functional False Discovery Rate Methodology and Applications to Genomics—◆Xiongzhi Chen, Princeton; David G. Robinson, Princeton; John D. Storey, Princeton
- 10:05 a.m. Floor Discussion

658 CC-W187a
Statistical Learning in Various Areas of Clinical Trials—Contributed

Biopharmaceutical Section

Chair(s): Ugochi A. Emeribe, AstraZeneca

- 8:35 a.m. Is Q-Learning a Valid Method of Knowing?—◆Francisco Diaz, University of Kansas Medical Center
- 8:50 a.m. Finding Common Support for Causal Inference Through Largest Connected Components—◆Sharif Mahmood, Kansas State University; Michael Higgins, Kansas State University
- 9:05 a.m. Application of Classification and Clustering Methods on MVoC (Medical Voice of Customer) Data for Scientific Engagement—◆Yingzi Xu, North Carolina State University; Jeffery Painter, GlaxoSmithKline

- 9:20 a.m. Imaging Information Chaos: The Consequences of More Complete Imaging and Less Complete Understanding—◆David Raunig, ICON Medical Imaging
- 9:35 a.m. A Versatile Multi-Domain Test with Adaptive Weighting—◆Yang Zhao, Sanofi Genzyme; Stephen Lake, Sanofi Genzyme
- 9:50 a.m. Patient Subgroup Identification in Clinical Trials Where Overall Treatment Response Is Suboptimal—◆Isaac Nuamah, Janssen R&D; Youping Huang, Janssen R&D
- 10:05 a.m. Deconstructing the Measure of Vaccine Efficacy Against Disease Irrespective of HPV in HPV Vaccine Clinical Trials—◆Oliver Bautista, Merck; Alain Luxembourg, Merck

659 CC-W187b
Recent Advances in Massive Imaging Data Analysis—Contributed

Section on Statistics in Imaging

Chair(s): Qingpo Cai, Emory University

- 8:35 a.m. Efficient Dimension Reduction for a Group of Images—◆Dong Wang; Haipeng Shen, The University of Hong Kong; Young Truong, The University of North Carolina at Chapel Hill
- 8:50 a.m. Comparing the Performances of Different Parametrizations Used for Dimension Reduction in Approximating Shapes of Planar Contours—◆Chalani Prematilake, Texas Tech University; Leif Ellingson, Texas Tech University
- 9:05 a.m. Including Data-Analytical Stability in Cluster-Based Inference—◆Sanne Roels, Ghent University; Tom Loeys, Ghent University; Beatrijs Moerkerke, Ghent University
- 9:20 a.m. Interpretable High-Dimensional Inference via Score Maximization with an Application in Neuroimaging—◆Simon Vandekar, University of Pennsylvania; Philip Reiss, New York University; Russell Shinohara, University of Pennsylvania
- 9:35 a.m. Imputing Missing Values for Neuroimaging Data Based on Principal Component Analysis—Lan Kong, Penn State University College of Medicine; ◆Menghan Li, Penn State University College of Medicine
- 9:50 a.m. Improving K-Means Color Quantization of Images with the Use of Adaptive Nonlinear Transformations in Different Colorspaces—◆Ranjan Maitra, Iowa State University; Juan Pablo Rodriguez-Ramirez, Iowa State University
- 10:05 a.m. Big, Deep, and Dark Data: Fundamentals, Research Challenges, and Opportunities—◆Ivo Dinov, Statistics Online Computational Resource

- 660** **CC-W184a**
■ ● Deep Dive: Exploring Testing Procedures in the Biopharmaceutical Statistician's Toolbox—Contributed
 Biopharmaceutical Section, Royal Statistical Society
 Chair(s): Thomas Kelleher, Bristol-Myers Squibb
- 8:35 a.m. **Efficient Study Designs in Clinical Research—**
 ◆Steven Julious, University of Sheffield
- 8:50 a.m. **Statistical Testing in the Presence of Nonproportional Hazards—**
 ◆Amarjot Kaur, Merck; Yabing Mai, Merck Research Laboratories; Ziliang Li, MRL; Xia Xu, MRL; Wen-Chi Wu, MRL
- 9:05 a.m. **The Impact of Sensitivity and Specificity of Case Definition on Vaccine Efficacy Trial Design—**
 ◆Xiaohua Sheng, Sanofi Pasteur; Steven Self, Fred Hutchinson Cancer Research Center; Ehab Bassily, Sanofi Pasteur; Joshua Chen, Sanofi Pasteur
- 9:20 a.m. **Evaluation of Logistic and Cox Regression Models Using Simulated Survival Data and Clinical Practice Research Datalink—**
 ◆Jessica Kim, FDA; Chenyi Pan, University of Virginia; Clara Y. Kim, FDA/CDER; Esther Zhou, FDA/CDER
- 9:35 a.m. **Challenges in Disease Prevention Studies That Utilize Continuous Diagnostic Endpoints—**
 ◆Norman Bohidar, Johnson & Johnson; George Capuano, Johnson & Johnson
- 9:50 a.m. **Why the Likelihood Ratio Test Is Inappropriate to Test Dose-Response and Sharing of Information Among Antibody Therapies for Dose Selection—**
 ◆Russell Reeve, Quintiles
- 10:05 a.m. **Asymmetric Margins for Equivalence Tests—**
 ◆Somesh Chattopadhyay
- 9:05 a.m. **Medical Event Reporting in the 2005 to 2013 MEPS in Terms of Self and Proxy Reporting According to the Person's Relationship to the Respondent—**
 ◆Frances Chevarley, Agency for Healthcare Research and Quality; Karen Davis, Agency for Healthcare Research and Quality
- 9:20 a.m. **Motivated Misreporting in Web Panels—**
 ◆Ruben Bach, Institute for Employment Research; Stephanie Eckman, RTI International
- 9:35 a.m. **Evaluating the Quality of Survey and Administrative Data with Generalized Multitrait-Multimethod Models—**
 ◆Daniel Oberski, Tilburg University; Antje Kirchner, University of Nebraska-Lincoln; Stephanie Eckman, RTI International; Frauke Kreuter, University of Maryland/University of Mannheim/German Federal Employment Agency
- 9:50 a.m. **Stratified Sampling from Electronic Health Records: Approaches to Addressing Errors in Stratum Definitions—**
 ◆Nathaniel Mercaldo, Vanderbilt University; Jonathan Scott Schildcrout, Vanderbilt University
- 10:05 a.m. **Total Survey Error in a National Survey of Influenza Vaccination with Recall Error—**
 ◆Nicholas Davis, NORC at the University of Chicago; Kennon Copeland, NORC at the University of Chicago; Lin Liu, NORC at the University of Chicago; Tammy Santibanez, CDC; Jim Singleton, CDC; Zhen Zhao, CDC; David Yankey, CDC/NCIRD; Katherine Kahn, CDC/NCIRD; Yusheng Zhai, CDC/NCIRD; Jenny Jeyarajah, CDC
- 662** **CC-W177**
Advances in Statistical Inference—Contributed
 SSC
 Chair(s): Alomgir Hossain, University of Ottawa Heart Institute
- 8:35 a.m. **Quantifying the Asymptotic Coverage Probabilities of Bootstrap Percentile Confidence Intervals—**
 ◆Chunlin Wang, University of Waterloo; Pengfei Li, University of Waterloo; Paul Marriott, University of Waterloo
- 8:50 a.m. **Asymptotic Analysis of Covariance Parameter Estimation for Gaussian Processes in the Misspecified Case—**
 ◆Francois Bachoc, University Paul Sabatier
- 9:05 a.m. **Gaussian Likelihood Inference on Non-Gaussian Random Fields—**
 ◆Yuan Yan, King Abdullah University of Science and Technology; Marc Genton, KAUST
- 9:20 a.m. **An Adaptable Generalization of Hotelling's T2 Test in High Dimension—**
 ◆Haoran Li; Debashis Paul, University of California at Davis; Alex Aue, University of California at Davis; Jie Peng, University of California at Davis; Pei Wang, Icahn School of Medicine at Mount Sinai
- 661** **CC-W196c**
Issues in Estimating and Adjusting for Sampling and Nonsampling Errors—Contributed
 Survey Research Methods Section
 Chair(s): Meena Khare, CDC/NCHS
- 8:35 a.m. **Interviewer Effects and the Measurement of Financial Literacy—**
 ◆Panagiota Tzamourani, Deutsche Bundesbank; Thomas F. Crossley, University of Essex/Institute of Fiscal Studies; Tobias Schmidt, Deutsche Bundesbank; Joachim Winter, University of Munich
- 8:50 a.m. **Occupation Coding During the Interview—**
 ◆Malte Schierholz, Institute for Employment Research; Miriam Gensicke, TNS Infratest Sozialforschung; Nikolai Tschersich, TNS Infratest Sozialforschung

- 9:35 a.m. Singularity Structures and Parameter Estimation in Mixtures of Skew Normal Distributions—◆Nhat Ho; XuanLong Nguyen, University of Michigan
- 9:50 a.m. A Semiparametric Method to Compare the Means of Several Populations—◆Suohong Wang, Meredith College; Biao Zhang, University of Toledo; Wencan He, University of Toledo
- 10:05 a.m. Calibration of Weights for Different Classes of Linear Estimators Under Varying Probability Sampling Design Using Chi-Square and Entropy Distance Functions—◆Gopi Chand Tikkiwal, Manipal University Jaipur/JNVU Jodhpur (Retired)

663 CC-W176a

■ Bayesian Modeling with Economic Data—Contributed

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

Chair(s): Julie Novak, IBM

- 8:35 a.m. A Bayesian Approach to Multivariate Signal Extraction—◆Christopher Hassett, University of Missouri; Scott H. Holan, University of Missouri; Tucker McElroy, U.S. Census Bureau
- 8:50 a.m. Bayesian Dynamic Linear Models for Strategic Asset Allocation—◆Jared Fisher, The University of Texas McCombs School of Business; Carlos Carvalho, The University of Texas; Davide Pettenuzzo, Brandeis University
- 9:05 a.m. Region-Wise Variable Selection with Bayesian Group Lasso—◆Sayan Chakraborty, Michigan State University; Tapabrata Maiti, Michigan State University
- 9:20 a.m. Estimating Home Price Indices Over Small Regions—◆Paul Kidwell, Roofstock
- 9:35 a.m. Bayesian Estimate of PIN Model—◆Yu Huan, Peking University; Junni Zhang, Peking University; Mingjin Wang, Peking University
- 9:50 a.m. Exploring New Estimation Techniques for the Monthly Wholesale Trade Survey—◆Joanna Fane Lineback, U.S. Census Bureau; Martin Klein, U.S. Census Bureau; Joseph L. Schafer, U.S. Census Bureau
- 10:05 a.m. A New Stochastic Regime-Switching Model with Time-Varying Regression Coefficients and Error Variances—◆Xiaojin Dong, SUNY Stony Brook

664 CC-W191

Emerging Topics in Statistics—Contributed

IMS

Chair(s): Elizabeth Gross

- 8:35 a.m. Batch-Size Selection of Batch Means and Spectral Variance Estimators in Markov Chain Monte Carlo—◆Ying Liu, University of California at Riverside; James Flegal, University of California at Riverside
- 8:50 a.m. On the Efficient Interpretability of Empirical Recurrence Rates Ratio as a Hidden Markov Chain—◆Moinak Bhaduri, University of Nevada, Las Vegas; Amei Amei, University of Nevada, Las Vegas; Chih-Hsiang Ho, University of Nevada, Las Vegas
- 9:05 a.m. On Likelihood Functions of Interval-Valued Random Variables—◆Xin Zhang, University of New South Wales; Scott Anthony Sisson, University of New South Wales
- 9:20 a.m. Dynamic Weighted Average Approach for Predicting Street Parking Availability—◆Yi Hua, University of Illinois at Chicago; Ouri E. Wolfson, University of Illinois at Chicago; Xudong Lin, South China Agricultural University; Jie Yang, University of Illinois at Chicago
- 9:35 a.m. Partial Martingale Difference Correlation—◆Trevor Park, University of Illinois at Urbana-Champaign; Xiaofeng Shao, University of Illinois at Urbana-Champaign; Shun Yao, University of Illinois at Urbana-Champaign
- 9:50 a.m. The Apparent Randomness of Squares Modulo a Prime Hides a Pattern of Runs—◆Roger Bilisoly, Central Connecticut State University
- 10:05 a.m. AdaPT: A New Class of Ordered Testing Procedures—◆Lihua Lei, University of California at Berkeley; William Fithian, University of California at Berkeley

665 CC-W193b

Bayesian Methodology—Contributed

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

Chair(s): David Puelz, The University of Texas

- 8:35 a.m. Generalized Orthant Normal and L1-Regularized G Priors—◆Christopher Hans, The Ohio State University
- 8:50 a.m. Bayesian Method for Testing Differential Directed Acyclic Graphs—◆Hongmei Zhang, University of Memphis; Xianzheng Huang, University of South Carolina; Shengtong Han, The University of Chicago; Wilfried Karmaus, University of Memphis

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 9:05 a.m. AFT Modeling of Misclassified Clustered Interval-Censored Data—◆Alejandro Jara, Pontificia Universidad Catolica de Chile; Maria José Garcia-Zattera, Pontificia Universidad Catolica de Chile; Arnost Komarek, Charles University in Prague
- 9:20 a.m. On Some Aspects of Bayesian Multiple Testing and Decision Making—◆Emrah Gecili; Siva Sivaganesan, University of Cincinnati
- 9:35 a.m. A Restricted Most Powerful Bayesian Test for Equality of Means in High Dimension via Random Projections—◆Roger Zoh, Texas A&M University; Abhra Sarkar, Duke University; Raymond Carroll, Texas A&M University; Bani K. Mallick, Texas A&M University
- 9:50 a.m. Bayesian Generalized ANOVA Modeling for Functional Data Using INLA—◆Yu Yue, Baruch College; David Bolin, Chalmers University of Technology; Havard Rue, Norwegian University of Science and Technology; Xiao-feng Wang, Cleveland Clinic Lerner Research Institute
- 10:05 a.m. Scalable Bayesian Variable Selection and Model Averaging Under Block Orthogonal Design—◆Omiros Papaspiliopoulos; David Rossell, University of Warwick

666 CC-W194a Sampling and Survey Methods—Contributed

Government Statistics Section

Chair(s): Samantha Tyner, Iowa State University

- 8:35 a.m. National Versus Combined State and Large Urban School District Youth Risk Behavior Surveys for Assessing Health Risk Behaviors Among Sexual Minority High-School Students—◆Emily Olsen, CDC; Laura Kann, CDC; Tim McManus, CDC
- 8:50 a.m. Modeling the Optimal Contact Mode in the Current Population Survey—◆John Dixon, Bureau of Labor Statistics; Brian Meekins, Bureau of Labor Statistics; Polly Phipps, Bureau of Labor Statistics
- 9:05 a.m. The Sample Design of the U.S. Census Bureau's 2015 National Content Test—◆Sarah Konya, U.S. Census Bureau; Michael Bentley, U.S. Census Bureau; Kelly Mathews, U.S. Census Bureau
- 9:20 a.m. From Concept to Question: Lessons from Developing a Business Survey on Banks' Small Business Lending Practices—◆Kenneth Herrell, U.S. Census Bureau; Kenneth Pick, USDA/NASS; Michael Purcell, U.S. Census Bureau; Susan Bucci, U.S. Census Bureau
- 9:35 a.m. The Efficacy of Using Economic Census Data as a Frame Source for PPI—◆Collin Witt, Bureau of Labor Statistics

- 9:50 a.m. Evaluation of Estimation Methods for Section 203 of the Voting Rights Act—◆Patrick M. Joyce, U.S. Census Bureau

10:05 a.m. Floor Discussion

667 CC-W193a ● Applications of Nonparametric Methods—Contributed

Section on Nonparametric Statistics

Chair(s): Megan Heyman, Rose-Hulman Institute of Technology

- 8:35 a.m. Estimation of Heterogeneity for Multinomial Probit Models—◆Yixi Xu; Qiang Liu, Purdue University; Xiao Wang, Purdue University
- 8:50 a.m. Dirichlet Process Mixture of Voigt Profiles with Application to Peak Detection in X-Ray Photoelectron Spectroscopy Data—◆Anton Lobach, University of Rhode Island; Gavino Puggioni, University of Rhode Island; David Heskett, University of Rhode Island; Benjamin Young, Rhode Island College
- 9:05 a.m. Capitalizing on the Use of Basis Sets in Regression Spline Mixed Models—◆Karen Nielsen
- 9:20 a.m. Predicting High-Spending Customers Using Semiparametric Quantile Regression—◆Adam Maidman, University of Minnesota; Lan Wang, University of Minnesota
- 9:35 a.m. Nonparametric Kernel Density Estimation Using Auxiliary Information from Complex Survey Data—◆Sayed A. Mostafa, Oklahoma State University; Ibrahim A. Ahmad, Oklahoma State University
- 9:50 a.m. Density Estimation on the Sphere as a Solution of the Heat Equation—◆Jonathan Odumegwu, Central Michigan University; Mohamed Amezziane, Central Michigan University
- 10:05 a.m. Floor Discussion

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

668 CC-W194b ■ ● Emerging Problems in High-Dimensional Inference and Testing—Invited

IMS, International Chinese Statistical Association

Organizer(s): Lan Wang, University of Minnesota

Chair(s): Wen Zhou, Colorado State University

- 10:35 a.m. Projection Test for High-Dimensional Mean Vectors with Optimal Direction—◆Runze Li, Penn State University; Yuan Huang, Yale University; Lan Wang, University of Minnesota; Chen Xu, University of Ottawa

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 11:00 a.m. Combinatorial Inference—◆Han Liu, Princeton
- 11:25 a.m. Debiasing Regularized Estimators with High-Dimensional Data—◆Cun-Hui Zhang, Rutgers University
- 11:50 a.m. Semiparametric High-Dimensional Partial Linear Models: Estimation and Inference—◆Michael Levine, Purdue University; Lawrence D. Brown, University of Pennsylvania; Lie Wang, MIT
- 12:15 p.m. Floor Discussion

669 CC-W178a

■ ● Showcasing Statistics and Public Policy—Invited

Statistics and Public Policy, Royal Statistical Society, Scientific and Public Affairs Advisory Committee

Organizer(s): David Banks, Duke University

Chair(s): Michael Cohen, Committee on National Statistics

- 10:35 a.m. The Twentieth-Century Reversal: How Did the Republican States Switch to the Democrats and Vice Versa?—◆Andrew Gelman, Columbia University
- 11:00 a.m. A Commentary on Statistical Assessment of Violence Recidivism Risk—◆Peter B. Imrey, Cleveland Clinic; Philip Dawid, University of Cambridge
- 11:25 a.m. Using Student Test Scores for Teacher Evaluations: The Pros and Cons of Student Growth Percentiles—◆J.R. Lockwood, Educational Testing Service; Katherine E. Castellano, Educational Testing Service; Daniel F. McCaffrey, Educational Testing Service
- 11:50 a.m. Disc: David Banks, Duke University
- 12:10 p.m. Floor Discussion

670 CC-W180

■ ● Resampling Methods in Mixed Effects Models with Applications in Small Area Estimation and Other Related Fields—Invited

Survey Research Methods Section

Organizer(s): Jiming Jiang, University of California at Davis

Chair(s): Jiming Jiang, University of California at Davis

- 10:35 a.m. Simultaneous Model Selection and Inference in Small-Area and Other Complex Models—◆Snigdhanu Chatterjee, University of Minnesota-Twin Cities
- 11:00 a.m. A Unified Monte-Carlo Jackknife for Small-Area Estimation After Model Selection—◆Thuan Nguyen, Oregon Health & Science University; Jiming Jiang, University of California at Davis; P. Lahiri, University of Maryland

- 11:25 a.m. New Bootstrap Bias Corrections with Application to Estimation of Prediction Mean Square Error in Small-Area Estimation—◆Danny Pfeiffermann, CBS Israel, Hebrew University/University of Southampton
- 11:50 a.m. Disc: Eric Slud, U.S. Census Bureau
- 12:10 p.m. Floor Discussion

671 CC-W175c

■ Pragmatic Computer Model Calibration in the Modern Big-Simulation/Big-Data World—Invited

Section on Physical and Engineering Sciences, Quality and Productivity Section

Organizer(s): Robert B. Gramacy, The University of Chicago

Chair(s): Robert B. Gramacy, The University of Chicago

- 10:35 a.m. A Frequentist Approach to Computer Model Calibration—◆Raymond Wong, Iowa State University; Curtis Storlie, Mayo Clinic; Thomas Lee, University of California at Davis
- 11:00 a.m. Empirical Orthogonal Function Calibration with Simulator Uncertainty—◆Matthew Pratola, The Ohio State University; Oksana Chkrebtii, The Ohio State University
- 11:25 a.m. Ice Sheet Model Calibration with Paleoclimate and Modern Data—◆Murali Haran, Penn State University; Won Chang, Penn State University; David Pollard, Penn State University Earth and Environmental Systems Institute; Patrick Applegate, Penn State University
- 11:50 a.m. Inference for Multi-Model Ensembles: An Application in Glaciology—◆Derek Bingham, Simon Fraser University; Ofir Harari, Simon Fraser University; Gwenn Flowers, Simon Fraser University
- 12:15 p.m. Floor Discussion

672 CC-W184bc

■ ● Recent Advances for Handling Composite Endpoints in Clinical Trials—Invited

Pharmaceutical Research and Manufacturers of America

Organizer(s): Hong Tian, Janssen R&D

Chair(s): Hong Tian, Janssen R&D

- 10:35 a.m. Bayesian Approach to Design and Analysis of Composite Endpoints in Clinical Trials with Multiple Dependent Binary Outcomes—◆Boris G. Zaslavsky, FDA/CBER
- 10:55 a.m. A Multivariate One-Directional Test of Multiple Event-Time Outcomes—◆John M. Lachin, The George Washington University; Ionut Bebu, The George Washington University

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

11:15 a.m. **Weighted Win Ratio Approach**—Junshan Qiu, FDA; Steven Bai, FDA; Wei-Yann Tsai, Columbia University; ◆Xiaodong Luo, Sanofi

11:35 a.m. **Large Sample Inference for a Win Ratio Analysis of a Composite Outcome**—◆Ionut Bebu, The George Washington University; John M. Lachin, The George Washington University

11:55 a.m. Disc: Surya Mohanty, Janssen R&D

12:15 p.m. Floor Discussion

673 CC-W192b

Accelerating Bayesian Computation by Intersecting Monte Carlo and Optimization—Invited

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

Organizer(s): Luke Bornn, Simon Fraser University; Mathieu Gerber, Harvard

Chair(s): Luke Bornn, Simon Fraser University

10:35 a.m. **Diversifying Sparsity Using Variational Determinantal Point Processes**—◆Kayhan Batmanghelich, MIT

11:05 a.m. **Coupling of Particle Filters with Applications to Score and Smoothing Estimators**—◆Pierre E. Jacob, Harvard; Fredrik Lindsten, Uppsala University; Thomas Schoen, Uppsala University

11:35 a.m. **Scalable Discrete Sampling as a Multi-Armed Bandit Problem**—◆Yutian Chen, Google DeepMind; Zoubin Ghahramani, University of Cambridge

12:05 p.m. Floor Discussion

674 CC-W183b

New Development of Flexible Methods for Survival Analysis—Invited

ENAR, IMS, International Chinese Statistical Association

Organizer(s): Rui Song, North Carolina State University

Chair(s): Rui Song, North Carolina State University

10:35 a.m. **Variable Selection for Quantile Regression Under General Censoring Scheme**—◆Lan Wang, University of Minnesota

11:00 a.m. **Maximum Likelihood Estimation for Semiparametric Models with Interval-Censored Data**—◆Danyu Lin, The University of North Carolina at Chapel Hill

11:25 a.m. **Cox Model Asymptotic Distributional Theory of Weighted Estimation for Nested Case-Control Design**—◆Bin Nan, University of Michigan; Ross Prentics, Fred Hutchinson Cancer Research Center; Tianxi Cai, Harvard

11:50 a.m. **Doubly Robust Estimation of Optimal Treatment Regime in Additive Hazards Regression**—◆Wenbin Lu, North Carolina State University; Suhyun Kang, North Carolina State University

12:15 p.m. Floor Discussion

675 CC-W183a

Statistical Methods in HIV Study—Invited

Section on Statistics in Epidemiology, International Chinese Statistical Association

Organizer(s): Le Bao, Penn State University

Chair(s): Evan Ray, University of Massachusetts

10:35 a.m. **Probabilistic Models of HIV/AIDS-Related Deaths Using Verbal Autopsy**—◆Tyler McCormick, University of Washington; Sam Clark, University of Washington; Zehang Li, University of Washington

11:00 a.m. **Leaving No One Behind: Estimating HIV Epidemics at Sub-National and Sub-Population Level**—◆Le Bao, Penn State University; Ben Sheng, Penn State University; Xiaoyue Niu, Penn State University; Yuan Tang, Penn State University

11:25 a.m. **Design and Analysis Issues Associated with Community-Based HIV Test and Treat: The SEARCH Study**—◆Nicholas P. Jewell, University of California at Berkeley

11:50 a.m. **The Extraordinary Power of Statistics That Underlies a Scientific Breakthrough in HIV/AIDS Research**—◆Ying Qing Chen, Fred Hutchinson Cancer Research Center

12:15 p.m. Floor Discussion

676 CC-W196c

Statistics in Finance—Invited

Business and Economic Statistics Section, IMS

Organizer(s): Rituparna Sen, Indian Statistical Institute

Chair(s): Wenbo Wu, University of Oregon

10:35 a.m. **High-Dimensionality Effects on the Efficient Frontier**—◆Rituparna Sen, Indian Statistical Institute

11:00 a.m. **Modeling Structured Correlation Matrices in Finance**—◆Mohsen Pourahmadi, Texas A&M University

11:25 a.m. **Bayesian Modeling of High-Frequency Crude Oil Prices**—◆Jonathan Stroud, Georgetown University; Michael Johannes, Columbia University; Norman Seeger, VU University

11:50 a.m. **The Observed Standard Error of High-Frequency Estimators for Parameters Containing Jumps**—◆Christina Dan Wang, Columbia University

12:15 p.m. Floor Discussion

677 CC-W175a

■ ● **The Good, the Bad, and the Messy: Innovations in Analysis of Electronic Medical Records—Invited**

Section on Statistical Learning and Data Science, Committee on Applied Statisticians

Organizer(s): Ruth Etzioni, Fred Hutchinson Cancer Research Center; Suchi Saria, The Johns Hopkins University

Chair(s): Frank Yoon, Mathematica Policy Research

- 10:35 a.m. Missing Data as a Causal and Probabilistic Problem—◆Ilya Shpitser, Johns Hopkins Computer Science
- 11:00 a.m. Individualizing Prognosis of Disease Trajectories Using Longitudinal Electronic Medical Record Data: Application to Scleroderma—◆Suchi Saria, The Johns Hopkins University; Peter Schulam, The Johns Hopkins University
- 11:25 a.m. New Machine-Learning Approaches to Causal Inference—◆Cynthia Rudin, Duke University
- 11:50 a.m. Disc: Ruth Etzioni, Fred Hutchinson Cancer Research Center
- 12:10 p.m. Floor Discussion

678 CC-W192c

■ ● **Strategies for Developing Undergraduate Data Science Programs—Invited**

Section on Statistical Education

Organizer(s): Christopher J. Malone, Winona State University

Chair(s): Christopher J. Malone, Winona State University

- 10:35 a.m. Teaching Data Science Skills in an Introductory CS Course—◆Olaf Hall-Holt, St. Olaf College
- 10:55 a.m. Cross-Disciplinary Minor in Data Science: A New Paradigm for Partnership Across Disciplines—◆Andrew Schaffner, Cal Poly; Alexander Dekhtyar, Cal Poly
- 11:15 a.m. From the Sun Setting of a Statistics Major to the Implementation of a Business Analytics Major—◆Scott Toney, University of Denver
- 11:35 a.m. Developing a Comprehensive Data Science Program—◆Mark John Lancaster, Northern Kentucky University
- 11:55 a.m. Disc: James McGuffee, Northern Kentucky University
- 12:15 p.m. Floor Discussion

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

679 CC-W182

■ ● **Topics in Modern Multivariate Analysis: Some Recent Results—Topic-Contributed**

Royal Statistical Society, Section on Statistical Computing

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

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

- 10:35 a.m. Approximations to Permutation Tests of Independence Between Random Vectors—Martin Bilodeau; ◆Aurelien Guetsop, Université de Montréal
- 10:55 a.m. Robust Semiparametric Estimation with Missing Responses—◆Francesco Bravo
- 11:15 a.m. Exact Subset Selection in Regression via Modern Optimization—◆Rahul Mazumder, MIT
- 11:35 a.m. Disc: David Scott
- 11:55 a.m. Disc: Jan Beran, University of Konstanz
- 11:35 a.m. Floor Discussion

680 CC-W190b

■ ● **Statistical Aspects in Cancer Immunotherapy Development—Topic-Contributed**

International Chinese Statistical Association

Organizer(s): Zhaowei Hua, Takeda

Chair(s): Ling Wang, Takeda

- 10:35 a.m. Design Immunotherapy Trials with Delayed Treatment Effect—◆Zhenzhen Xu, FDA; Boguang Zhen, FDA; Yongseok Park, University of Pittsburgh; Bin Zhu, National Cancer Institute
- 10:55 a.m. Dealing with Multiplicity Issues in Late-Stage Oncology Trials—◆Keaven Anderson, Merck; Christine K. Gause, Merck Research Laboratories
- 11:15 a.m. Randomization Ratio in Survival Trials—◆Jingyuan Wang, Radiushealth
- 11:35 a.m. Disc: Jianliang Zhang, MedImmune
- 11:55 a.m. Floor Discussion

681 CC-W187c
■ ● Importance of Quantitative Imaging Biomarkers and Assessment of Their Reproducibility in Biomedical Applications—Topic-Contributed

Section on Statistics in Imaging

Organizer(s): Richard Baumgartner, Merck

Chair(s): Yaoyuan Vincent Tan, University of Michigan

- 10:35 a.m. Statistical Considerations Regarding Evaluation of Test-Retest Reliability in Positron Emission Tomography (PET) Imaging—◆Richard Baumgartner, Merck; Dai Feng, Merck; Aniket Joshi, Novartis
- 10:55 a.m. Evaluating the Reliability of Dynamic Connectivity in fMRI—◆Martin Lindquist, The Johns Hopkins University
- 11:15 a.m. Statistical Methods for Computer Algorithm Comparisons in Quantitative Imaging Biomarkers—◆Huiman Barnhart, Duke University
- 11:35 a.m. Statistical Methods for Assessing Reproducibility in Multicenter Neuroimaging Studies—◆Ying Guo, Emory University; Tian Dai, Emory University; Limin Peng, Emory University; Amita Manatunga, Emory University
- 11:55 a.m. Floor Discussion

682 CC-W186a
■ ● Modern Inference for Selected Models—Topic-Contributed

ENAR, Biopharmaceutical Section, International Chinese Statistical Association

Organizer(s): Yuval Benjamini, Hebrew University

Chair(s): Nancy Zhang, University of Pennsylvania

- 10:35 a.m. Adaptive Sequential Model Selection—◆William Fithian, University of California at Berkeley; Jonathan Taylor, Stanford University; Robert Tibshirani, Stanford University; Ryan Tibshirani, Carnegie Mellon University
- 10:55 a.m. Measuring Bumps: Intervals for Effect Size of Selected Regions in Genomic Signal—◆Yuval Benjamini, Hebrew University; Rafael A. Irizarry, Dana-Farber Cancer Institute; Jonathan Taylor, Stanford University
- 11:15 a.m. Selection-Adjusted Bayesian Inference in the Linear Model—◆Asaf Weinstein; Jonathan Taylor, Stanford University; Snigdha Panigrahi, Stanford University
- 11:35 a.m. No Assumptions? No Problem!—◆Ryan Tibshirani, Carnegie Mellon University
- 11:55 a.m. Floor Discussion

683 CC-W176c
■ ● Testing for Data Quality: Challenges in Practice—Topic-Contributed

Government Statistics Section

Organizer(s): Daniel Yang, Bureau of Labor Statistics

Chair(s): Randall Powers, Bureau of Labor Statistics

- 10:35 a.m. Recent Advances in Post-Randomization: An Extensive Study Comparing PRAM and Data Swapping on ACS—◆Jiashen You, Department of Transportation; Tapan Nayak, U.S. Census Bureau
- 10:55 a.m. Evaluating the Effects of Using Top-Coded Consumer Expenditure Data on Economic Models—◆Daniel Yang, Bureau of Labor Statistics; Daniell Toth, Bureau of Labor Statistics
- 11:15 a.m. Using Power Laws to Validate Survey and Universe Estimates—◆Brett Baden, Nielsen
- 11:35 a.m. Identifying Patterns in Employer Reporting Errors in the BLS Survey of Occupational Injuries and Illnesses—◆Sara Wuellner, Washington State Department of Labor and Industries; Polly Phipps, Bureau of Labor Statistics
- 11:55 a.m. Disc: Donsig Jang, Mathematica Policy Research
- 12:15 p.m. Floor Discussion

684 CC-W178b
■ ● Collecting and Analyzing Sensitive Data: Making Lies Naked!—Topic-Contributed

Survey Research Methods Section

Organizer(s): Sarjinder Singh, Texas A&M University-Kingsville

Chair(s): Sarjinder Singh, Texas A&M University-Kingsville

- 10:35 a.m. A Weighted, Squared-Distance Function for Two Decks of Cards in Randomized Response Technique—◆Augustus Jayaraj, Cornell University; Stephen Sedory, Texas A&M University-Kingsville; Sarjinder Singh, Texas A&M University-Kingsville; Oluseun Odumade, Deloitte Consulting
- 10:55 a.m. A Comparison of Three New Randomized Response Models for Simultaneous Estimation of Three Sensitive Dependent Characteristics and Their Overlaps—◆Oluwaseun Olanipekun; Stephen Sedory, Texas A&M University-Kingsville; Sarjinder Singh, Texas A&M University-Kingsville
- 11:15 a.m. Unrelated Question Model with Two Decks of Cards—◆Stephen Sedory, Texas A&M University-Kingsville; Sarjinder Singh, Texas A&M University-Kingsville
- 11:35 a.m. Estimation of Odds Ratio and Attributable Risk Using Randomized Response Techniques—◆Cheonsig Lee; Stephen Sedory, Texas A&M University-Kingsville; Sarjinder Singh, Texas A&M University-Kingsville

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

11:55 a.m. Disc: James Alan Fox, Northeastern University
12:15 p.m. Floor Discussion

685 CC-W185d

■ **Integrated Analysis of Transcriptomics Data in Drug Discovery: The QSTAR Framework—Topic-Contributed**

Biopharmaceutical Section

Organizer(s): Ziv Shkedy, Hasselt University

Chair(s): Olga Marchenko, Quintiles

10:35 a.m. Introduction to the QSTAR Modeling Framework in Drug Discovery—◆Willem Talloen, Janssen; Hinrich Göhlmann, Janssen
10:55 a.m. Multiple Factor Analysis for QSTAR Data Integration—◆Nolen Joy Parualila, Hasselt University
11:15 a.m. Construction of Genetic Biomarkers in Drug Discovery Experiments Using Joint Modeling Methods—◆Ziv Shkedy, Hasselt University
11:35 a.m. Integrated Analysis Based on Cluster Analysis and Analysis of Differential Expression—◆Adetayo Kasim, Durham University
11:55 a.m. Disc: Javier Cabrera, Rutgers University
12:15 p.m. Floor Discussion

686 CC-W179a

■ ● **Statistics for Social Good—Topic-Contributed**

Social Statistics Section

Organizer(s): Hui Fen Tan, Cornell University

Chair(s): Hadley Wickham, RStudio

10:35 a.m. Cascaded High-Dimensional Histograms and an Application to Criminology—◆Siong Thye Goh, MIT; Cynthia Rudin, Duke University
10:55 a.m. Detecting Text Reuse in State Legislative Bills—◆Joe Walsh, The University of Chicago; Matthew Burgess, University of Michigan; Eugenia Giraudy, YouGov; Julian Katz-Samuels, University of Michigan; Derek Willis, ProPublica; Rayid Ghani, The University of Chicago
11:15 a.m. Testing for Discrimination in Police Searches—◆Camelia Simoiu; Sam Corbett-Davies, Stanford University; Sharad Goel, Stanford University
11:35 a.m. Predicting Patient Cost Blooms: A Longitudinal Population-Based Study—◆Suzanne Tamang, Stanford University; Jean-Raymond Betteerton, Stanford University; Lester Mackey, Stanford University; Lucas Jansen, Stanford University; Arnold Milstein, Stanford University; Henrik Sorensen, Aarhus University; Lars Pedersen, Aarhus University; Nigam Shah, Stanford University

11:55 a.m. Disc: Rayid Ghani, The University of Chicago
11:55 a.m. Floor Discussion

687 CC-W185bc

■ ● **The Power of Historical Data-Borrowing Methods in Increasing Clinical Trial Efficiencies—Topic-Contributed**

Biopharmaceutical Section

Organizer(s): Qi Tang, AbbVie

Chair(s): Ran Liu, AbbVie

10:35 a.m. Covariate-Adjusted Borrowing of Historical Data for Clinical Development—◆John Zhong, Biogen; Baoguang Han, Biogen; Peng Sun, Biogen; Stacy Lindborg, Biogen
10:55 a.m. Utilization of Historical Patient-Level Data for Efficient Trial Design—◆Zachary Thomas, Eli Lilly and Company; Tianle Hu, Eli Lilly and Company; Nathan Enas, Eli Lilly and Company; Honglu Liu, Eli Lilly and Company
11:15 a.m. Using Clustered Historical Borrowing in Clinical Trials—◆Michelle Detry, Berry Consultants; Kert Viele, Berry Consultants
11:35 a.m. Use of Co-Data in Clinical Trials with Time-to-Event Endpoint—◆Satrajit Roychoudhury, Novartis
11:55 a.m. How to Decide When to Borrow Historical Data for a Clinical Trial—◆Qi Tang, AbbVie; Martin King, AbbVie; Ran Liu, AbbVie; Bo Fu, AbbVie; Sandra Lovell, AbbVie; Alan Hartford, AbbVie
12:15 p.m. Floor Discussion

688 CC-W193a

Personalized Intervention Based on Health Care Big Data Research—Topic-Contributed

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

Organizer(s): Douglas Faries, Eli Lilly and Company

Chair(s): Douglas Faries, Eli Lilly and Company

10:35 a.m. Build Individualized Treatment Rule on Scale Using Health Care Data with Genomic Information—◆Jin Zhou, University of Arizona; Haoda Fu; Kevin Doubleday, University of Arizona
10:55 a.m. Multicategory Personalized Treatment Rule with Application to Diabetes Data Analysis—◆Xuanyao He, Eli Lilly and Company; Haoda Fu
11:15 a.m. Optimal Treatment Regime in Inhomogeneous Data—◆Chengchun Shi, North Carolina State University

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

11:35 a.m. Housing Transition and Aging: 45 and Up Study—
◆Joanna Wang, University of Technology Sydney

11:55 a.m. Floor Discussion

689 CC-W184d

■ Recent Developments in Restricted Mean Survival Time—Topic-Contributed

Biometrics Section, Biopharmaceutical Section

Organizer(s): Lihui Zhao, Northwestern University

Chair(s): Lei Liu, Northwestern University

10:35 a.m. Restricted Mean Survival Time: Does Covariate Adjustment Improve Precision in Randomized Clinical Trials?—◆Theodore Karrison, The University of Chicago; Masha Kocherginsky, The University of Chicago

10:55 a.m. Issues of Conventional Meta-Analysis for Time-to-Event Outcomes Using Reported Hazard Ratios or Relative Risks from Independent Studies—
◆Hajime Uno, Dana-Farber Cancer Institute; Masayuki Kaneko, Kitasato University

11:15 a.m. Estimating the Optimal Treatment Regime for Time-to-Event Data—◆Min Zhang, University of Michigan; Baqun Zhang, Renmin University of China

11:35 a.m. Restricted Mean Event Time in the Presence of Multiple Endpoints—◆Lihui Zhao, Northwestern University; Lu Tian, Stanford University; Lee-Jen Wei, Harvard

11:55 a.m. Disc: Lu Tian, Stanford University

12:15 p.m. Floor Discussion

690 CC-W193b

■ Working with Statistically Trained Nonstatistician Scientists: Conflicts and Possible Resolutions—Topic-Contributed

Section on Teaching of Statistics in the Health Sciences, Pharmacometrics Interest Group, Biopharmaceutical Section

Organizer(s): Alan Hartford, AbbVie

Chair(s): Alan Hartford, AbbVie

10:35 a.m. I Was a Statistician Before I Was a Pharmacometrician, I Swear!—◆Kevin Dykstra, Qpharmetra

10:55 a.m. Statistics for Nonstatisticians: A Mixed Bag Is Better Than a String Bag—◆Felicity Enders, Mayo Clinic

11:15 a.m. Overlap Between Statisticians and Pharmacometricians in Clinical Drug Development: Conflicts and Possible Resolutions—
◆Ken Kowalski, Kowalski PMetrics Consulting

11:35 a.m. How to Train Both Statisticians and Nonstatisticians, Including Pharmacokineticists and Pharmacometricians, to Develop a Good Consulting Environment—◆Balakrishna Hosmane, Northern Illinois University (Retired)

11:55 a.m. Disc: Heather Bush, University of Kentucky

11:55 a.m. Floor Discussion

691 CC-W181a

■ Modern Biosurveillance at the Edge of Online Social Media, Social Networks, and Nontraditional Big Data—Topic-Contributed

Section on Statistics and the Environment, Section on Statistics in Epidemiology

Organizer(s): Georgiy Bobashev, RTI International; Yulia R. Gel, The University of Texas at Dallas

Chair(s): Julia Kozlitina, The University of Texas Southwestern Medical Center

10:35 a.m. Improving Influenza Forecast by Counteracting Structural Errors—◆Sen Pei, Columbia University; Jeffrey Shaman

10:55 a.m. Harnessing the Power of Twitter with Offline Contact Networks for Probabilistic Flu Forecasting—◆Kusha Nezafati, The University of Texas at Dallas; Leticia Ramirez-Ramirez, Mexico Autonomous Institute of Technology; Yulia R. Gel, The University of Texas at Dallas

11:15 a.m. Can Wikipedia Improve Flu Forecasts in the United States?—◆Dave Osthus, Los Alamos National Laboratory; Reid Priedhorsky, Los Alamos National Laboratory; Jim Gattiker, Los Alamos National Laboratory; Sara Del Valle, Los Alamos National Laboratory

11:35 a.m. Forecasting of Cases for Climate Sensitive Mosquito-Borne Diseases Using Online/Social Media Information—◆Lilia Leticia Ramirez Ramirez, Centro de Investigacion en Matematicas; Yulia R. Gel, The University of Texas at Dallas; Vyacheslav Lyubchich, University of Maryland Center for Environmental Science

11:55 a.m. Inbound Call Survey (ICS) Technology and Rapid Surveillance—◆Georgiy Bobashev, RTI International; Burton Levine, RTI International; Karol Krotki, RTI International; Scott Richards, Reconnect Research

12:15 p.m. Floor Discussion

Contributed Sessions 10:30 a.m. – 12:20 p.m.

692 CC-W181b

Statistical Methods for Ecology—Contributed

Section on Statistics and the Environment

Chair(s): Stefano Castruccio, Newcastle University

- 10:35 a.m. Bayesian Multispecies Ecological Models for Paleoclimate Reconstruction—◆John Tipton, Colorado State University; Mevin Hooten, Colorado State University; Robert Booth, Lehigh University; Connor Nolan, University of Arizona
- 10:50 a.m. Adaptive Control Algorithms for Managing Infectious Diseases on a Network—◆Nicholas Meyer, North Carolina State University; Eric Laber, North Carolina State University; Brian J. Reich, North Carolina State University; Krishna Pacifici, North Carolina State University
- 11:05 a.m. Dynamically Induced Spatial Confounding—◆Trevor Hefley, Colorado State University; Mevin Hooten, Colorado State University; Ephraim M. Hanks, Penn State University; Dan Walsh, National Wildlife Health Center; Robin Russell, National Wildlife Health Center
- 11:20 a.m. A Bivariate Bayesian Occupancy Model for Large Herbivores in Serengeti National Park—◆Staci Hepler, Wake Forest University; Robert Erhardt, Wake Forest University; T. Michael Anderson, Wake Forest University
- 11:35 a.m. A Spatio-Temporal Model for Ecological Colonizations—◆Perry Williams, Colorado State University; Mevin Hooten, Colorado State University; Jamie N. Womble, National Park Service; George G. Esslinger, U.S. Geological Survey Alaska Science Center; Michael R. Bower, National Park Service
- 11:50 a.m. A Score Test of Homogeneity for Generalized Additive Models for Zero-Inflated Count Data—◆Wei-Wen Hsu, Kansas State University; Gaowei Nian, IMS Health China Beijing Branch; David Todem, Michigan State University; KyungMann Kim, University of Wisconsin-Madison
- 12:05 p.m. Biomass Prediction Using Density-Dependent Diameter Distribution Models—◆Erin M. Schliep, University of Missouri; Alan E. Gelfand; James S. Clark, Duke University; Bradley J. Tomasek, Duke University

693 CC-W176b

Computational Issues in Modeling—Contributed

Section on Statistical Computing

Chair(s): Ningning Wang, Jackson State University

- 10:35 a.m. Regularized Ordinal Logistic Regression via Coordinate Descent—◆Michael Wurm, University of Wisconsin-Madison; Bret Hanlon, University of Wisconsin-Madison
- 10:50 a.m. Analysis of Bivariate Zero-Inflated Count Data with Missing Responses—◆Miao Yang, Oregon State University; Kalyan Das, Calcutta University; Anandamayee Majumdar, Soochow University
- 11:05 a.m. A Comparative Study of Penalized Least Squares and Frequentist Model Averaging—◆Sebastian Ankargren, Uppsala University; Shaobo Jin, Uppsala University
- 11:20 a.m. Toward Efficient MCMC Algorithms for Doubly Intractable Distributions—◆Jaewoo Park, Penn State University; Murali Haran, Penn State University
- 11:35 a.m. Space-Filling Exploratory Experimental Design—◆Kasturi Talapatra, North Carolina State University; Eric Laber, North Carolina State University; Leonard Stefanski, North Carolina State University
- 11:50 a.m. Multilevel Quantile Regression Models for Complex Surveys—◆Jing Wang, St. Louis University; John Fu, Saint Louis University
- 12:05 p.m. Floor Discussion

694 CC-W192a

Useful Classroom Activities—Contributed

Section on Statistical Education

Chair(s): Jennifer Broatch, Arizona State University

- 10:35 a.m. A Classroom Activity Using a Virtual Memory Tray: Does Walking Through a Doorway Lead to Memory Loss?—◆Richard Einsporn, University of Akron
- 10:50 a.m. A Randomization-Based Activity to Introduce ANOVA While Reinforcing Knowledge of Sampling Distributions—◆Kirsten Doehler, Elon University; Laura Taylor, Elon University
- 11:05 a.m. Web Application Teaching Tools for Statistics Using R and Shiny—Jimmy Doi, Cal Poly; ◆Gail Potter, The EMMES Corporation/Cal Poly; Jimmy Wong, FDA/CDER; Irvin Alcaraz, Cal Poly; Peter Chi, Cal Poly
- 11:20 a.m. Some Teaching Strategies with Promising Positive Outcomes—◆Chand Chauhan, Indiana University Purdue University Fort Wayne; Yvonne Zubovic, Indiana University

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- 11:35 a.m. **The Best of Two Worlds: Collaborative Assessment and Two-Stage Testing**—◆ Anne Michele Millar, Mount Saint Vincent University
- 11:50 a.m. **A Useful Stemplot Example**—◆ Robert Kushler
- 12:05 p.m. **Bernoulli's Ars Conjectandi and Its Pedagogical Implications**—◆ İlhan Izmirlı, George Mason University

695 CC-W176a Methods and Applications of Statistical Graphics—Contributed

Section on Statistical Graphics, Section for Statistical Programmers and Analysts

Chair(s): Yan Wang, University of California at Los Angeles

- 10:35 a.m. **Visualization of Latino Political Participation in Nebraska**—◆ Farhana Luna; Xiaoyue Cheng, University of Nebraska-Omaha; Lissette Linares, University of Nebraska-Omaha
- 10:50 a.m. **Use of Phase Plots to Explore Financial Data**—◆ Mahbubul Majumder, University of Nebraska-Omaha; John Konvalina, University of Nebraska-Omaha
- 11:05 a.m. **Improved Simulation for Exponential Random Graph Models for Social Network Analysis**—◆ Junchi Guo; Michael Larsen, The George Washington University
- 11:20 a.m. **Confident Class Micromaps for Visual Analytic Inference**—◆ Daniel Carr, George Mason University; Anand N. Vidyashankar, George Mason University
- 11:35 a.m. **Statistical Analysis of Sea Surface Temperature Using the Fisher-Rao Functional Data Framework**—◆ Weiyi Xie, The Ohio State University
- 11:50 a.m. **Integrating Large-Scale Multi-Omics Data to Achieve Causal Inference in Observational Studies**—◆ Azam Yazdani; Akram Yazdani, The University of Texas Health Science Center at Houston; Ahmad Samiei, Hasso Plattner-Institut für Softwaresystemtechnik; Eric Boerwinkle, The University of Texas Health Science Center at Houston
- 12:05 p.m. **Floor Discussion**

696 CC-W184a ■ Novel Applications of Statistical Methods to Epidemiologic Data—Contributed

Section on Statistics in Epidemiology, Biopharmaceutical Section

Chair(s): Allen Heller, University of Southern California

- 10:35 a.m. **Longitudinal Study of CMS Data Using NFCA for Aging Population**—◆ Junheng Ma, Case Western

Reserve University; Jiayang Sun, Case Western Reserve University; Neal Dawson, Case Western Reserve University/MetroHealth Medical Center

- 10:50 a.m. **Better Use of Family History Data to Predict Breast Cancer Risk**—◆ Shanshan Zhao, National Institute of Environmental Health Sciences; Clare Weinberg, National Institute of Environmental Health Sciences; Yue Jiang, The University of North Carolina at Chapel Hill
- 11:05 a.m. **Projected Outcomes of Six-Month Delay in Exception Points vs. an Equivalent MELD Score for HCC Liver Transplant Candidates**—◆ Guy N. Brock, The Ohio State University; Douglas J. Lorenz, University of Louisville; Sarah K. Alver, University of Louisville; Michael R. Marvin, Geisinger Medical Center
- 11:20 a.m. **Comparing Results from Two National Surveys: How Survey Methodologies May Influence the Observed Association Between Physical Activity and Diabetes by Mobility Disability Status**—◆ Qing Zhang, CDC/NCBDDD; Dianna D. Carroll, CDC
- 11:35 a.m. **Projection of Acute Gastroenteritis Illness Rates on Cruise Ships in the United States Through 2050**—◆ Shailendra Banerjee, CDC; Amy L. Freeland, CDC
- 11:50 a.m. **Distinguishing Hospital Performance Using Health Care-Associated Infection Survival Functions**—◆ Jonathan R. Edwards, CDC
- 12:05 p.m. **Alcohol Consumption, BMI, and Colorectal Cancer**—◆ Negasi Beyene, CDC/NCHS

697 CC-W175b Model Selection in High Dimensions: Theory and Inference—Contributed

Section on Statistical Learning and Data Science

Chair(s): Oleg Melnikov, Rice University

- 10:35 a.m. **Consistency of Penalized Cross-Validation for Model Selection**—◆ Jieyi Jiang, The Ohio State University; Steven N. MacEachern, The Ohio State University; Yoonkyung Lee, The Ohio State University
- 10:50 a.m. **High-Dimensional Multivariate Repeated Measures Analysis with Unequal Covariance Matrices**—◆ Xiaoli Kong
- 11:05 a.m. **Model Selection Confidence Sets by Likelihood Ratio Testing**—◆ Chao Zheng; Davide Ferrari, University of Melbourne; Yuhong Yang, University of Minnesota
- 11:20 a.m. **Post-Selection Inference for E-MS Algorithm**—◆ Gang Xu, University of Miami; J. Sunil Rao, University of Miami
- 11:35 a.m. **Sparse Clustering of High-Dimensional Gaussian Mixtures**—◆ Jing Ma, University of Pennsylvania;

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

- Tony Cai, University of Pennsylvania; Linjun Zhang, University of Pennsylvania
- 11:50 a.m. **High-Dimensional Matrix-Variate Linear Discriminant Analysis**—◆Aaron Molstad, University of Minnesota; Adam Rothman, University of Minnesota
- 12:05 p.m. **Pathwise Coordinate Optimization for Nonconvex Sparse Learning: Algorithm and Theory**—◆Tuo Zhao, The Johns Hopkins University; Han Liu, Princeton; Tong Zhang, Rutgers University

698 CC-W186c

■ ● **New Challenges in Complex Data Modeling II—Contributed**

Biometrics Section, Biopharmaceutical Section, International Chinese Statistical Association

Chair(s): Gu Mi, Eli Lilly and Company

- 10:35 a.m. **Inference of an Additive Transient Binding Model**—◆Jason Bernstein
- 10:50 a.m. **Stable Balancing Weights for Marginal Structural Models**—◆Maria de los Angeles Resa Juarez, Columbia University; Jose Zubizarreta, Columbia University
- 11:05 a.m. **Constrained Inference for Double Cone Alternatives**—◆Xuechan Li, Duke University; Janice McCarthy, Duke University; Zhiguo Li, Duke University; Andrew Allen, Duke University; Kourous Owzar, Duke University
- 11:20 a.m. **An Instrumental Variable Approach to Generalizing Experimental Results**—◆Chaitra Nagaraja, Fordham University; Dylan Small, University of Pennsylvania
- 11:35 a.m. **A Factor Analysis Model for Estimating the Structure of Related Covariance Matrices**—◆Teal Guidici; George Michailidis, University of Florida
- 11:50 a.m. **Quantification of Imbalances in Baseline Covariates in Observational Studies**—◆Adin-Cristian Andrei, Northwestern University
- 12:05 p.m. Floor Discussion

699 CC-W187a

● **General Methodology and Applications in Biostatistics—Contributed**

Biometrics Section, Biopharmaceutical Section, Section for Statistical Programmers and Analysts

Chair(s): Mallikarjuna Rettiganti, University of Arkansas for Medical Sciences

- 10:35 a.m. **False Discovery Rate Control for Identifying Simultaneous Signals**—◆Sihai Zhao, University of Illinois at Urbana-Champaign

- 10:50 a.m. **Pearson's Chi-Square Test and Rank Correlation Inferences for Clustered Data**—◆Joanna Shih, National Cancer Institute; Michael Fay, National Institute of Allergy and Infectious Diseases
- 11:05 a.m. **Increasing the Power of the Mann-Whitney Test in Randomized Experiments Through Flexible Covariate Adjustment**—◆Karel Vermeulen, Ghent University; Olivier Thas, Ghent University; Stijn Vansteelandt, Ghent University
- 11:20 a.m. **Power Calculations for Statistics Based on Orthogonal Components of Pearson's Chi-Square**—◆Maduranga Dassanayake, Arizona State University; Mark Reiser, Arizona State University
- 11:35 a.m. **Covariate-Adjusted ROC Analysis Using Covariate Balancing Propensity Score**—◆Seungbong Han, Gachon University
- 11:50 a.m. **Experiences and Some Thoughts on the Design and Analysis Associated with Futility Stopping of a Clinical Trial**—◆Stan Lin, FDA
- 12:05 p.m. **HIV kit lot related shifts in RNA using external control samples: the Virology Quality Assurance Program**—◆Daniel Zaccaro, RTI International; Amy Couzens, RTI International; Donald Brambilla, RTI International; Cheryl Jennings, Rush University Medical Center; James Bremer, Rush University Medical Center

700 CC-W187b

■ ● **Survival Data: New Directions—Contributed**

Biometrics Section, Biopharmaceutical Section

Chair(s): Shouhao Zhou, MD Anderson Cancer Center

- 10:35 a.m. **Concordance Index for Composite Disease Outcomes**—◆Li Cheung, The George Washington University; Qing Pan, The George Washington University; Hormuzd Katki, National Cancer Institute
- 10:50 a.m. **Study Design for Interval-Censored Outcomes**—◆Yibai Zhao, University of Massachusetts-Amherst; Xiangdong Gu, University of Massachusetts-Amherst; Raji Balasubramanian, University of Massachusetts-Amherst
- 11:05 a.m. **Sample Size Methods for Validating Treatment Selection Cancer Biomarkers from Right-Censored Survival Data**—◆Kevin Dobbin, University of Georgia; Lisa M. McShane, National Cancer Institute
- 11:20 a.m. **An Empirical Saddlepoint Approximation-Based Method for Smoothing Survival Functions Under Right Censoring**—◆Pratheepa Jeganathan, Texas Tech University; Alexandre Trindade, Texas Tech University; Robert Paige, Missouri University of Science and Technology
- 11:35 a.m. **How to Control for Unmeasured Confounding in an Observational Time-to-Event Study with**

Exposure Incidence Information: The Treatment Choice Cox Model—◆James Troendle, National Institutes of Health; Zhiwei Zhang, FDA/CDRH; Eric Leifer, National Heart, Lung, and Blood Institute; Song Yang, National Heart, Lung, and Blood Institute; Michael Sklar, University of Pennsylvania; Heather Jerry, Nebraska Department of Health and Human Services

11:50 a.m. On Propensity Score Weighting Approaches to Observational Studies with Survival Outcome—◆Huzhang Mao; Liang Li, MD Anderson Cancer Center

12:05 p.m. Estimating Mortality Hazard Ratios Using Cross-Sectional Data from Maternal Birth Histories—◆Philimon Gona, University of Massachusetts; Janet Dzangare, Ministry of Health and Child Welfare; Vasco Chikwasha, University of Zimbabwe College of Health Sciences; Sowmya Rao, Boston University

701 CC-W196a Advanced Statistical Methods for Marketing— Contributed

Section on Statistics in Marketing

Chair(s): William Rand, University of Maryland

10:35 a.m. Using Random Forest to Create Adstock Predictors—◆Kathleen Bell, LB Personifi; Scott Dachtyl, LB Personifi; Rob Howie, Hallmark

10:50 a.m. Weighted Dirichlet Process Mixture GARCH Model for Predicting Stock Price—Inyoung Kim, Virginia Tech; ◆Peng Sun, Virginia Tech

11:05 a.m. Design and Analysis of Discrete Choice Experiments in the Presence of Profile Order Effects Within Choice Sets—Roselinde Kessels, University of Antwerp; ◆Robert Mee, University of Tennessee

11:20 a.m. MaxDiff in Analytical Closed-Form Solution on Aggregate and Individual Levels—◆Stan Lipovetsky, GfK North America; Michael W. Conklin, GfK North America

11:35 a.m. Causal Models in Estimation of the Advertising—◆Igor Mandel, Telmar

11:50 a.m. Does Improvement of Customer Satisfaction Always Create Shareholder Value? An Empirical Study of the American Customer Satisfaction Index—◆Qian Chen; Duncan Fong, Penn State University; Rui Wang, Peking University; Zhe Chen, Google

12:05 p.m. Scalable High-Performance Prediction with XGBoost—◆Ewa Nowakowska, GfK; Joseph Retzer, ACT Market Research Solutions

702 CC-W186b ■● Longitudinal Analysis in Clinical Trials— Contributed

Biopharmaceutical Section

Chair(s): Chris Barker, Statistical Planning and Analysis Services

10:35 a.m. Bayesian Joint Modeling of Longitudinal Data on Frequency and Intensity of Drinking in Alcoholism Trials—◆Eugenia Buta, Yale University; Stephanie O'Malley, Yale University; Ralitza Gueorguieva, Yale University

10:50 a.m. Individualizing Drug Dosage with Longitudinal Data—◆Xiaolu Zhu, University of Illinois at Urbana-Champaign; Annie Qu, University of Illinois at Urbana-Champaign

11:05 a.m. Population-Averaged Model Versus Subject-Specific Model in the Longitudinal Binary Data Analysis—◆Hua Li, Novartis; Biswajit Sen, Novartis; David Ohlssen, Novartis

11:20 a.m. Using the Latent Correlations to Measure the Association Between Continuous and Binary Markers with Repeated Measurements—◆Dai Feng, Merck; Vladimir Svetnik, Merck

11:35 a.m. Improved Power in Crossover Designs Through Linear Combinations of Baselines—◆Thomas Jemielita; Mary Putt, University of Pennsylvania; Devan V. Mehrotra, Merck

11:50 a.m. On Analysis of Longitudinal Clinical Trials with Missing Data Using Reference-Based Imputation—◆Lei Pang, Merck; Guanghan Liu, Merck Research Laboratories

12:05 p.m. A Comparison of Model-Based and Data-Driven Methods for Clustering of Multivariate Longitudinal Data—◆Dawei Liu, Biogen; Ih Chang, Biogen; Donald Johns, Biogen; Stacy Lindborg, Biogen

703 CC-W183c ■● Novel Approaches for Large-Scale Genetic Association Studies—Contributed

Section on Statistics in Genomics and Genetics, Biopharmaceutical Section

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

10:35 a.m. SNP-Set Tests Using Generalized Berk-Jones Statistics in Genetic Association Studies—◆Ryan Sun, Harvard; Xihong Lin, Harvard T.H. Chan School of Public Health

10:50 a.m. A Genomically Informed High-Dimensional Predictor for Microbial Community Metabolic Profiles—◆Himel Mallick, Harvard; Eric Franzosa, Harvard; Lauren McIver, Harvard; Soumya Banerjee, Harvard; Alexandra Sirota-Madi, Broad

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

Institute; Aleksandar Kostic, Broad Institute; Clary B. Clish, Broad Institute; Hera Vlamakis, Broad Institute; Ramnik Xavier, Broad Institute; Curtis Huttenhower, Harvard

11:05 a.m. **Multiplicity-Adjusted Evidence Weights for Characterizing Associations of Phenotypes with Genotypes**—◆Wenjian Bi, Stanley Pounds, St. Jude Children’s Research Hospital; Guolian Kang, St. Jude Children’s Research Hospital

11:20 a.m. **A Clustering Algorithm for Human Genetic Data**—◆Jae Brodsky, Thermo Fisher Scientific; Teresa Webster, Thermo Fisher Scientific; Dorothy Oliver, Thermo Fisher Scientific; Jeremy Gollub, Thermo Fisher Scientific; Barry Eynon, Thermo Fisher Scientific

11:35 a.m. **Integrated Analysis of Cell Survival Data with Family-Based Genetic Studies to Treat Neurodegenerative Diseases**—◆Daisy Philtron, Penn State University

11:50 a.m. **Powerful and Adaptive Testing for Multi-Trait and Multi-SNP Associations with GWAS and Sequencing Data**—◆Junghi Kim, University of Minnesota; Wei Pan, University of Minnesota

12:05 p.m. **Modeling Maternal-Offspring Gene-Gene Interactions at Multiple Loci Using the Quantitative-MFG Test with an Application to Human Birth Weight**—◆Michelle M. Clark, University of California at Los Angeles; Olympe Chazara, University of Cambridge;

Eric M. Sobel, University of California at Los Angeles; Ashley Moffett, University of Cambridge; Janet S. Sinsheimer, University of California at Los Angeles

704 CC-W185a

◆● **Topics in Late-Phase Clinical Trial Research: Randomization, Group Sequential Designs, and Comparing Adverse Event Profiles**—Contributed Biopharmaceutical Section

Chair(s): Katherine Monti, Rho

10:35 a.m. **A Class of Semiparametric Models in Analysis of Adverse Events in Drug Safety**—◆Richard Entsuh, Merck

10:50 a.m. **Defensive Efficacy Interim Design: Dynamic Benefit/Risk Ratio View Using Probability of Success**—◆Zhongwen Tang, Novartis

11:05 a.m. **Comparison Beyond Power: Sample Size Re-Estimation vs. Group Sequential Design**—◆Lei Shu, Astellas Pharma; Charles Liu, Astellas Pharma; Matt Rosales, Astellas Pharma

11:20 a.m. **Multiple Comparisons in Truncated Group Sequential Experiments with Applications in Clinical Trials**—◆Tian Zhao

11:35 a.m. **Joint Modeling of Time-to-Event and Laboratory Test Data**—◆Kao-Tai Tsai

Celebrating 100 Years of Tax Statistics

This year marks the centennial of Statistics of Income (SOI), a principal Federal statistical agency responsible for the statistical policies and programs of the U.S. Internal Revenue Service.

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● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

11:50 a.m. Properties of the Blocked Randomization with the Biased Coin Design—◆Victoria Plamadeala Johnson

12:05 p.m. Comparing Randomization Methods for Clinical Trials—◆Steven Schwager, Medidata Solutions

705 **CC-W179b**
Methods for Item Missing and Unit Nonresponse—Contributed

Survey Research Methods Section

Chair(s): Barbara Carlson, Mathematica Policy Research

10:35 a.m. A Multinomial Probit Approach to Categorical Response Imputation for Iterative Sequential Regression—◆Jonathan Liscic, U.S. Department of Agriculture; Darcy Miller, USDA/NASS; Andrew Dau, U.S. Department of Agriculture

10:50 a.m. Comparison of Multiple Imputation Methods for Categorical Survey Items with High Missing Rates: Application to the Family Life, Activity, Sun, Health, and Eating Study—◆Benmei Liu, National Cancer Institute; Erin Hennessy, National Cancer Institute; April Oh, National Cancer Institute; Linda Nebeling, National Cancer Institute

11:05 a.m. Nonparametric Imputation for Nonignorable Missing Data—◆Domonique Watson, Emory University; Qi Long, Emory University

11:20 a.m. Fixed Choice Design and Augmented Fixed Choice Design for Missing Data in Social Networks—◆Miles Ott, Augsburg College; Joseph Hogan, Brown University; Nancy Barnett, Brown University; Krista Gile, University of Massachusetts-Amherst; Matthew Harrison, Brown University

11:35 a.m. A More Unified Statistical Approach to Nonresponse and Weighting Adjustments—◆Ismael Flores Cervantes, Westat

11:50 a.m. An Investigation of Weighting Procedures for Unit-Nonresponse—◆Hyunshik Lee, Westat; Jin Kim, Westat

12:05 p.m. Weighting for Nonresponse in the Survey of Registered Voters Living Overseas—◆Jonathan Mendelson, Fors Marsh Group; Pengyu Huang, Fors Marsh Group

706 **CC-W195**
Miscellaneous Topics in Business and Economics—Contributed

Business and Economic Statistics Section

Chair(s): Jocelyne Arnott, HSBC Bank

10:35 a.m. Ranking Economics Journals—◆Johan Lyhagen, Uppsala University; Thommy Perlinger, Uppsala University

10:50 a.m. Academic Salary Compression Across Disciplines and Over Time—◆James McDonald, Brigham Young University; Jeff T. Sorensen, University of California at Berkeley

11:05 a.m. Profitability in the American Corporation: Comparisons, Predictions, Associations—◆Leo Upchurch; Fan Wu, Tuskegee University; Chia Lin Chen, Tuskegee University

11:20 a.m. Forecast Inflation from Individual Components: The Colombian Case—◆Wilmer Oswaldo Martinez, Banco de la Republica de Colombia; Eliana Gonzalez, Banco de la Republica de Colombia

11:35 a.m. Weather Impacts Over the Colombian Food Inflation—◆Luis Melo, Banco de la Republica de Colombia; Daniel Parra, Banco de la Republica de Colombia; Stev Abril, Banco de la Republica de Colombia

11:50 p.m. Choosing a Dynamic Common Factor as a Coincident Index—◆Fabio H. Nieto, Universidad Nacional de Colombia; Wilmer Oswaldo Martinez, Banco de la Republica de Colombia; Pilar Poncela, Universidad Autonoma de Madrid

12:05 p.m. Floor Discussion

707 **CC-W191**
Innovations in Bayesian Statistics—Contributed

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

Chair(s): Hongmei Zhang, University of Memphis

10:35 a.m. Bayesian Signal-Response Data Nondestructive Inspection Test Planning—◆Yew-Meng Koh, Hope College; William Q. Meeker, Iowa State University

10:50 a.m. Bayesian Mixture Response Analysis for Pre-Clinical in Vivo Anti-Cancer Drug Efficacy Investigations—◆David Gold, Bristol-Myers Squibb; Ningning Chen, Apple

11:05 a.m. Spectral Inverted-Wishart: A Flexible Cross-Covariance Function for Multivariate Spatio-Temporal Data—◆Leo Duan, Duke University; Rhonda Szczesniak, Cincinnati Children's Hospital; Xia Wang, University of Cincinnati

11:20 a.m. Bayesian Analysis of Testing General Hypotheses in Linear Models with Spherically Symmetric Errors—◆Min Wang, Michigan Technological University

11:35 a.m. Bayesian Estimators of the Odd Weibull Distribution with Censored Data—◆Chin-I Cheng; Kahadawala Cooray, Central Michigan University

11:50 a.m. Reversible-Jump MCMC for Likelihood-Based Finite Mixture Models for Ordinal Data—◆Daniel Fernandez Martinez, New York University

● Themed Session ■ Applied Session ◆ Presenter CC-W—McCormick Place Convention Center, West Building CC-N—McCormick Place Convention Center, North Building H—Hilton Chicago

12:05 p.m. Sparse Mean-Variance Portfolios: A Penalized Utility Approach—◆David Puelz, The University of Texas; Carlos Carvalho, The University of Texas; P. Richard Hahn, The University of Chicago Booth School of Business

708 CC-W177
Nonresponse and Propensity Scores—Contributed
 Government Statistics Section, Survey Research Methods Section
 Chair(s): Wei Zhuang, Creighton University

10:35 a.m. A New Approach for Collecting Data from Long-Term Nonrespondents in the Multiple Worksite Report—◆Kelly Quinn, Bureau of Labor Statistics; Emily Thomas, Bureau of Labor Statistics

10:50 a.m. Data Fusion for Accurate State-Level Diabetes and Prediabetes Prevalence Estimation—◆David A. Marker, Westat; Jianzhu Li, Westat; Russ Mardon, Westat; Luke B. Smith, Westat; Deborah Rolka, CDC; Sharon H. Saydah, CDC; Frank Jenkins, Westat; Elizabeth Petraglia, Westat

11:05 a.m. Response Rates for the Pre-Production Test of the Occupational Requirement Survey—◆Alice Yu, Bureau of Labor Statistics; Chester Ponikowski, Bureau of Labor Statistics; Erin McNulty, Bureau of Labor Statistics

11:20 a.m. Nonresponse Bias Analysis for the U.S. Census Bureau's Quarterly Financial Report—◆Jeremy Knutson, U.S. Census Bureau; Greg Cepluch, U.S. Census Bureau

11:35 a.m. A Case Study on the Use of Propensity Score Adjustments with Web Survey Data—◆Van Parsons, CDC/NCHS

11:50 a.m. Sending Pre-Notice Postcards to Increase Reponse and Decrease Cost for the Current Population Survey—◆Allison Zotti, U.S. Census Bureau;

Louis Avenilla, U.S. Census Bureau; Gina Walejko, U.S. Census Bureau

12:05 p.m. Nonresponse Bias Analysis and Sample Selection Evaluation in the Survey of Business Owners—◆Justin Nguyen

709 CC-W194a
● Nonparametric Methods with Nonstandard Assumptions and Conditions—Contributed
 Section on Nonparametric Statistics
 Chair(s): Ran Dai, The University of Chicago

10:35 a.m. Consistent Estimation in Partially Linear Models with Correlated Observations—◆Liangdong Fan; Cidambi Srinivasan, University of Kentucky; Richard Charnigo, University of Kentucky

10:50 a.m. Change-Point Estimation Using Shape-Restricted Regression Splines—◆Xiyue Liao

11:05 a.m. A Cluster-Based Outlier Detection Scheme for Multivariate Data—◆J. Marcus Jobe, Miami University of Ohio (Retired); Michael Pokojovy, Karlsruhe Institute of Technology

11:20 a.m. Robust Cluster-Based Estimators of Mean Vector and Covariance Matrix—◆Michael Pokojovy, Karlsruhe Institute of Technology; J. Marcus Jobe, Miami University of Ohio (Retired)

11:35 a.m. Robust Local Polynomial Derivative Estimator—◆Hamdy Mahmoud, Assiut University; Inyoung Kim, Virginia Tech

11:50 a.m. Statistical Estimation in the Presence of Possibly Incorrect Model Assumptions—◆Sergey Tarima, Medical College of Wisconsin

12:05 p.m. Self-Normalization Approach to the Inference in Censored Regression Quantiles—◆Seokwoo Choi, Michigan Technological University

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