ENAR 2021 Spring Meeting

Event Schedule

Sun, Mar 14, 2021

8:00am

SC1: The Analysis of Single-cell RNA Seq Data

🕐 8:00am - 5:00pm, Mar 14

Short Course

Single cell RNA-seq (scRNA-seq) is a powerful technology for profiling gene expression in individual cells. It has been widely applied to answer a variety of important biological and clinical questions. Analyzing scRNA-seq data is a challenging task due to the complexity of the data and the biological questions. In addition, there are numerous scRNA-seq analysis software available, and it could be difficult to choose the appropriate tools for one's analysis.

This short course will introduce participants to a number of scRNA-seq analysis procedures. The topics include data preprocessing, data normalization, batch effect correction, cell clustering, pseudo-time construction, rare cell type identification, cell annotation, and differential expression. The emphasis is to provide guidance and hands-on experience in analyzing real-world scRNA-seq data. There will be two lab sessions, where real datasets and example R code will be provided for practice. This short course is of interest to researchers without prior experience working with scRNA-seq data, as well as more experienced individuals interested in learning practical solutions to some common analytic challenges. Experience with R is required.

📢 **Speakers**

Hao Wu Associate Professor, Emory University

Ziyi Li MD Anderson

SC2: Targeted Learning: Causal Inference Meets Ensemble Machine Learning

🕐 8:00am - 5:00pm, Mar 14

Short Course

This full-day short course will provide a comprehensive introduction to the field of targeted learning and the corresponding tlverse software ecosystem (https://github.com/tlverse). In particular, we will focus on targeted minimum loss-based estimators of causal effects, including those of static, dynamic, optimal dynamic, and stochastic interventions. These multiply robust, efficient plug-in estimators use state-of-the-art, ensemble machine learning tools to flexibly adjust for confounding while yielding valid statistical inference.

In addition to discussion, this workshop will incorporate both interactive activities and hands-on, guided R programming exercises, to allow participants the opportunity to familiarize themselves with methodology and tools that will translate to real-world data analysis. It is highly recommended for participants to have an understanding of basic statistical concepts such as confounding, probability distributions, confidence intervals, hypothesis tests, and regression. Advanced knowledge of mathematical statistics is useful but not necessary. Familiarity with the R programming language will be essential. The instructional team for this workshop will include Jeremy Coyle, Nima Hejazi, Ivana Malenica, and Rachael Phillips.

Mark Van Der Laan Professor of Biostatistics and Statistics, University of California, Berkeley

Alan Hubbard Professor, University of California, Berkeley

SC3: Master Protocols: Tackling Complex Diseases (and COVID-19!) with Bayesian Adaptive Platform Trials

🕐 8:00am - 5:00pm, Mar 14

Short Course

As medical research continues to push into new frontiers of discovery and personalized patient care, along with new complex diseases and worldwide pandemics (COVID-19), it is imperative that clinical trial designs and statistical methodologies evolve to address the forthcoming challenges. One key innovation is the master protocol, including "platform" trial designs which can evaluate multiple therapies simultaneously in complex heterogenous diseases.

In this course, we explain Bayesian adaptive methodologies underlying modern trials with master protocols. We introduce fundamental concepts in Bayesian adaptive trials, including Bayesian priors and posteriors, predictive probabilities, hierarchical modeling and "basket" trials, adaptive sample size, and response adaptive randomization. We explain the objectives and efficiencies of adaptive platform trial designs, with high profile examples investigating treatments in COVID-19, Amyotrophic Lateral Sclerosis (ALS), and Cancer. We show the role of virtual trial simulation in trial design and discuss logistical and practical considerations in the implementation of these complex designs. In addition, we discuss the impact of the COVID-19 pandemic on both design and implementation of adaptive clinical trials.

A highlight of the course will be interactive breakout activities, which encourage individual participation and teach key adaptive platform trial concepts. Upon completion of the course, participants will have a general understanding of Bayesian adaptive platform trials and underlying methodologies, and better recognize opportunities for innovation in their respective organizations. The target audience for the workshop includes statisticians, data scientists, and quantitative investigators involved in clinical trial design.

📢 **Speakers**

Ben Saville Director & Senior Statistical Scientist, Berry Consultants, Berry Consultants, LLC

Anna McGlothlin Director and Senior Statistical Scientist, Berry Consultants, Inc.

SC4: Methodological Issues and Strategies for Using Race and Measuring Racial Disparities in Statistical Analysis

🕐 8:00am - 12:00pm, Mar 14

Short Course

Initial interest in social statistics was tethered closely to the study of race and social stratification.

However, current best practices in social statistics are often blind to race and ethnicity and researchers using statistical methods often are not cognizant of the ways their understandings of race and ethnicity seep into their research designs and statistical analyses. At the heart of this course is the central question of how the social construction of race and ethnicity influences the ways in which statisticians and other researchers measure racial and ethnic phenomenon including racial and ethnic disparities. This course will enhance a statistician's ability to give greater, more careful consideration to how race and ethnicity fit in their statistical models.

📢 **Speakers**

Alyasah Ali Sewell Associate Professor of Sociology, Emory University

Melody Goodman Associate Professor of Biostatistics, New York University

SC5: Functional and Intensive Longitudinal Data Analyses for Wearables, Electronic Diaries, and Real-time Smartphone Surveys
🕐 8:00am - 12:00pm, Mar 14

Short Course

Technological advances have made many wearable devices available for use in large epidemiological cohorts, national biobanks, and clinical studies. The embedding of multiple sensors in wearable devices now allows for continuous tracking of physical activity, sleep, circadian rhythmicity, heart rate, blood glucose and many more to come. This multi-system real-time monitoring of human physiology and ambient environmental exposure is increasingly accompanied by connected smartphone apps that collect contextual information concerning the individual's behavior including real-time self-reports of quality of sleep, mood, stress, etc. This opens up a tremendous opportunity for clinical and public health researchers to unveil previously hidden but pivotal physiological and behavioral signatures and relate them to disability and disease. Therefore, understanding and analysis of complex multilevel functional, non-functional, and intensive longitudinal data produced by such devices becomes crucial.

This course will consist of three parts. First, we will present an overview of the functional data analysis methods for modeling physical activity data, review their strengths and limitations, and demonstrate their implementation in R packages refund and mgcv. Second, we cover a few popular non-functional approaches for extracting informative and interpretable features from wearable data. Third, we will overview intensive longitudinal methods for modelling data coming from electronic diaries and real-time smartphone surveys. We will demonstrate all the methods using epidemiological studies such as Head Start Program and National Health and Nutrition Examination Survey and a clinical study of Congestive Heart Failure.

📢 **Speakers**

Vadim Zipunnikov Johns Hopkins University, Bloomberg School of Public Health

Jeff Goldsmith Associate professor, Columbia University

SC6: Statistical Considerations for Phase II Basket Trial Designs
🕐 1:00pm - 5:00pm, Mar 14

Short Course

The classic phase II clinical trials have been designed to evaluate a single treatment in patients with a particular cancer type. In these conventional trials, we try to answer the question, "Does this particular drug work in this particular cancer type?" and our hypothesis: "Is the response rate in this drug therapy better than in the standard therapy?" A change in emphasis of oncology clinical drug development has occurred that involves the use of tumor genomics to guide the use of molecularly targeted drugs. We now have a clinical trial where we would like to test a new therapy that targets a specific mutation, but these mutations can be present in many different cancer types. Subsequently, a new class of clinical trials has emerged where the drug is tested simultaneously across the different subgroups of different tumor types (or baskets). In this trial design, we need to answer, "Does the drug work in any subgroup?" and "Does the response/outcome differ between subgroups?" So, the activity of the drug may have a similar response across all sub-groups, or the response may be similar in some sub-groups but have no activity in others. In the basket trial design, it would be advantageous to be able to share or borrow information across the subgroups or baskets. The statistical models for Phase II basket trials need to consider the heterogeneity between the sub-groups, the sample size, and control of Type I and II errors within each sub-group and for the trial as a whole. In this course, we will compare and contrast different analysis methods for basket designs, including an aggregation design with two stages and multiple Bayesian models that exploit the similarity of responses and borrow information between baskets (subgroups). We will address the sample size requirements for the basket design, control of Type I and II errors, and trial duration. We will consider points made in the FDA Guidance for Master Protocols [September 2018].

📢 **Speakers**

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Alexia Iasonos Memorial Sloan Kettering Cancer Center
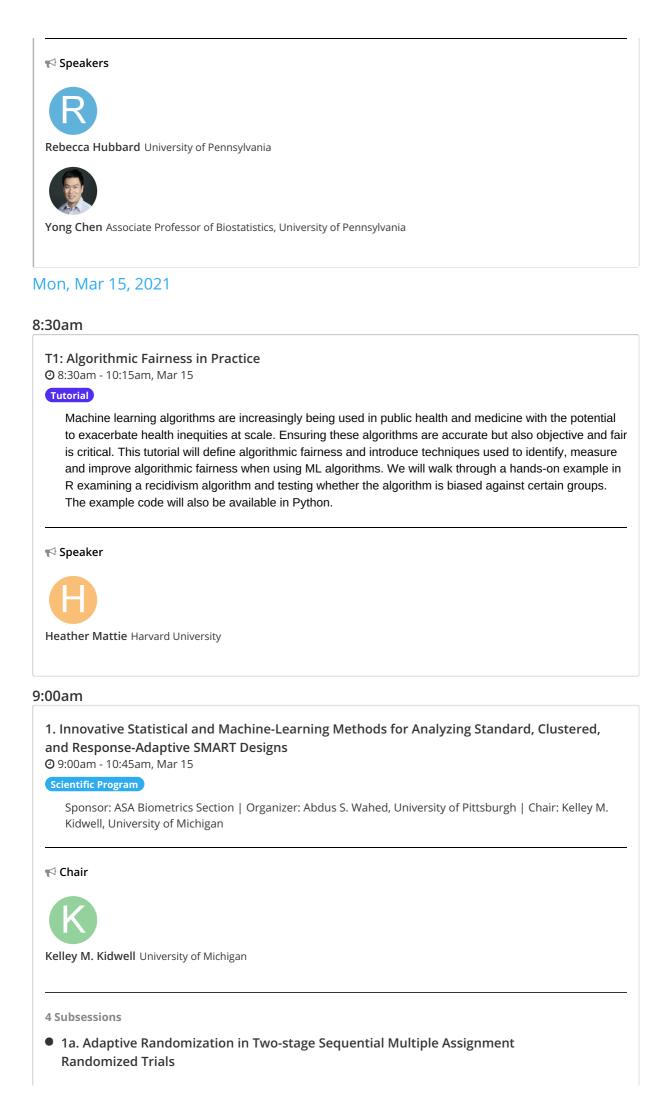
K

Kristen Cunanan Stanford University

SC7: Case Studies in Generating Real World Evidence From Real World Data
🕐 1:00pm - 5:00pm, Mar 14

Short Course

The widespread adoption of electronic health records (EHR) has created a vast resource for the study of treatments and health outcomes in the general population. The 21st Century Cures Act and the FDA's subsequent publication of a framework for using real world data (RWD) to generate real world evidence (RWE) has spurred additional interest in using EHR to generate RWE. While there are many benefits to conducting research with RWD, many challenges arise due to the complex and messy processes that give rise to EHR data. To make valid inference, statisticians must be aware of data generation, capture, integration, and availability issues and utilize appropriate study designs and statistical analysis methods to account for these issues.

In this half-day short course, we will discuss four key issues for research conducted using RWD: (1) approaches to phenotyping using EHR; (2) missing data and data capture considerations; (3) error in covariates and outcomes extracted from EHR data; (4) accounting for confounding due to non-random treatment allocation. For each issue we will present a motivating case study to focus our discussion and use this to spur thinking about the pros and cons of using RWD for a given research question and alternative methodological choices that can strengthen inference. The overarching goal is to provide participants with a framework for thinking about the design and analysis of EHR-based studies to help guide their use of statistical best practices in the conduct of their own research.

📢 Speakers

Rebecca Hubbard University of Pennsylvania

Yong Chen Associate Professor of Biostatistics, University of Pennsylvania

Mon, Mar 15, 2021

8:30am

T1: Algorithmic Fairness in Practice
🕐 8:30am - 10:15am, Mar 15

`Tutorial`

Machine learning algorithms are increasingly being used in public health and medicine with the potential to exacerbate health inequities at scale. Ensuring these algorithms are accurate but also objective and fair is critical. This tutorial will define algorithmic fairness and introduce techniques used to identify, measure and improve algorithmic fairness when using ML algorithms. We will walk through a hands-on example in R examining a recidivism algorithm and testing whether the algorithm is biased against certain groups. The example code will also be available in Python.

📢 Speaker

Heather Mattie Harvard University

9:00am

1. Innovative Statistical and Machine-Learning Methods for Analyzing Standard, Clustered, and Response-Adaptive SMART Designs
🕐 9:00am - 10:45am, Mar 15

`Scientific Program`

Sponsor: ASA Biometrics Section | Organizer: Abdus S. Wahed, University of Pittsburgh | Chair: Kelley M. Kidwell, University of Michigan

📢 Chair

Kelley M. Kidwell University of Michigan

4 Subsessions

- **1a. Adaptive Randomization in Two-stage Sequential Multiple Assignment Randomized Trials**

9:00am - 9:25am, Mar 15

- **1b. Cluster-level Adaptive Interventions and Associated Clustered Sequentially Randomized Trial Designs**
  9:25am - 9:50am, Mar 15

- **1c. A SMART Design for Nonsurgical Treatments of Chronic Periodontitis with Spatially Referenced and Nonrandomly Missing Skewed Outcomes**
  9:50am - 10:15am, Mar 15

- **1d. Robust Q-learning**
  10:15am - 10:40am, Mar 15

2. Modern Statistical Methods for Medical Imaging Data
9:00am - 10:45am, Mar 15

Scientific Program

Sponsors: ASA Statistics in Imaging Section; ASA Statistical Learning and Data Science Section | Organizer: Shariq Mohammed, University of Michigan | Chair: Veerabhadran Baladandayuthapani, University of Michigan

4 Subsessions

- **2a. Statistical Approaches to Mitigating Inter-Scanner Differences in Medical Imaging Studies**
  9:00am - 9:25am, Mar 15

- **2b. Layered Variable Selection for Multivariate Bayesian Regression: A Case Study in Imaging Genomics**
  9:25am - 9:50am, Mar 15

- **2c. Shape Regression Models with Applications in Medical Imaging**
  9:50am - 10:15am, Mar 15

- **2d. Connectivity Regression**
  10:15am - 10:40am, Mar 15

3. Formulating Causal Estimands in the Presence of Competing Risks
9:00am - 10:45am, Mar 15

Scientific Program

Sponsor: ENAR | Organizer/Chair: Elizabeth Colantuoni, Johns Hopkins University

📣 **Chair**

E

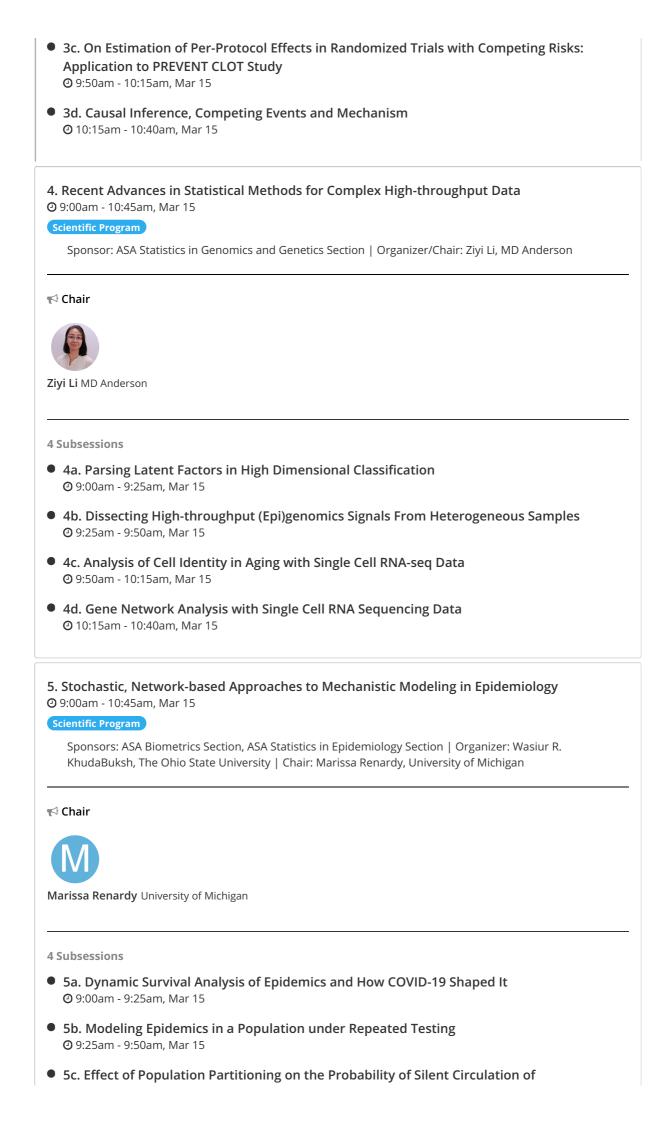**Elizabeth Colantuoni** Senior Scientist, Johns Hopkins University

4 Subsessions

- **3a. Causal Mediation Analysis and Validation of Surrogate Failure-time Endpoints**
  9:00am - 9:25am, Mar 15

- **3b. Treatment Effects for Delirium Trials: Accounting for Truncation by Death and Informative Censoring at the Time of ICU Discharge**
  9:25am - 9:50am, Mar 15

- **3c. On Estimation of Per-Protocol Effects in Randomized Trials with Competing Risks: Application to PREVENT CLOT Study**
  🕐 9:50am - 10:15am, Mar 15

- **3d. Causal Inference, Competing Events and Mechanism**
  🕐 10:15am - 10:40am, Mar 15

4. Recent Advances in Statistical Methods for Complex High-throughput Data
🕐 9:00am - 10:45am, Mar 15

`Scientific Program`

> Sponsor: ASA Statistics in Genomics and Genetics Section | Organizer/Chair: Ziyi Li, MD Anderson

📢 **Chair**

Ziyi Li MD Anderson

4 Subsessions

- **4a. Parsing Latent Factors in High Dimensional Classification**
  🕐 9:00am - 9:25am, Mar 15

- **4b. Dissecting High-throughput (Epi)genomics Signals From Heterogeneous Samples**
  🕐 9:25am - 9:50am, Mar 15

- **4c. Analysis of Cell Identity in Aging with Single Cell RNA-seq Data**
  🕐 9:50am - 10:15am, Mar 15

- **4d. Gene Network Analysis with Single Cell RNA Sequencing Data**
  🕐 10:15am - 10:40am, Mar 15

5. Stochastic, Network-based Approaches to Mechanistic Modeling in Epidemiology
🕐 9:00am - 10:45am, Mar 15

`Scientific Program`

> Sponsors: ASA Biometrics Section, ASA Statistics in Epidemiology Section | Organizer: Wasiur R. KhudaBuksh, The Ohio State University | Chair: Marissa Renardy, University of Michigan

📢 **Chair**

M

Marissa Renardy University of Michigan

4 Subsessions

- **5a. Dynamic Survival Analysis of Epidemics and How COVID-19 Shaped It**
  🕐 9:00am - 9:25am, Mar 15

- **5b. Modeling Epidemics in a Population under Repeated Testing**
  🕐 9:25am - 9:50am, Mar 15

- **5c. Effect of Population Partitioning on the Probability of Silent Circulation of**

Poliovirus
🕐 9:50am - 10:15am, Mar 15

- **5d. Modeling Social Dynamics and Epidemics in the FRED Modeling Framework**
  🕐 10:15am - 10:40am, Mar 15

6. Advanced Methods for Pharmacoepidemiology
🕐 9:00am - 10:45am, Mar 15

`Scientific Program`

Sponsors: ASA Biopharmaceutical Section, ASA Statistics in Epidemiology Section, ASA Statistical Learning and Data Science Section | Organizer: Yong Chen, University of Pennsylvania | Chair: Jiayi Tong, University of Pennsylvania

📢 **Chair**

J

Jiayi Tong Ph.D. student, University of Pennsylvania

4 Subsessions

- **6a. Using EHR to Quantify the Gap Between Effectiveness of a Treatment in a Trial and Routine Clinical Practice**
  🕐 9:00am - 9:25am, Mar 15

- **6b. Sending Analysis to the Data: Analytic Methods for Pharmacoepidemiologic Studies Conducted within Distributed Data Networks**
  🕐 9:25am - 9:50am, Mar 15

- **6c. Building Better Medication Dose Data from Electronic Health Records for Pharmacoepidemiology Studies**
  🕐 9:50am - 10:15am, Mar 15

- **6d. An Augmented Estimation Procedure for EHR-based Association Studies Accounting for Differential Misclassification**
  🕐 10:15am - 10:40am, Mar 15

7. From Population Control, Pathogenesis Identification to Clinical Trials: Statistical Strategies for Combating COVID-19
🕐 9:00am - 10:45am, Mar 15

`Scientific Program`

Sponsor: IMS | Organizer/Chairs: Xiaoyu Song, Icahn School of Medicine at Mount Sinai; Gen Li, University of Michigan

📢 **Chair**

X

Xiaoyu Song Assistant Professor, Icahn School of Medicine at Mount Sinai

Gen Li Assistant Professor, University of Michigan

4 Subsessions

- **7a. Survival Convolution Model for COVID-19 Forecast and Evaluation of State-level Public Health Interventions**
  ⏱ 9:00am - 9:25am, Mar 15

- **7b. Leveraging Proteogenomic Data from Bulk Tissue to Identify ACE2 Involved Pathways in Epithelial Cells for SARS-CoV-2 Pathogenesis**
  ⏱ 9:25am - 9:50am, Mar 15

- **7c. Evaluating the Efficacy of Vaccines and Therapies Against COVID-19**
  ⏱ 9:50am - 10:15am, Mar 15

- **7d. Learning from COVID-19 Data in Wuhan, USA and the World on Transmission, Health Outcomes and Interventions**
  ⏱ 10:15am - 10:40am, Mar 15

8. Contributed Papers: Recent Development in Bayesian Modeling
⏱ 9:00am - 10:45am, Mar 15

`Scientific Program`

Sponsor: ENAR | Chair: Zhiguo Li, Duke University

📢 **Chair**

Z

Zhiguo Li Duke University

6 Subsessions

- **8a. Bayesian Variable Selection Using Knockoffs with Applications to Genomics**
  ⏱ 9:00am - 9:15am, Mar 15

- **8b. Bayesian Regression Analysis of Skewed Tensor Responses**
  ⏱ 9:15am - 9:30am, Mar 15

- **8c. Bayes Optimal Informer Sets for Drug Discovery**
  ⏱ 9:30am - 9:45am, Mar 15

- **8d. Bayesian Variable Shrinkage in Multinomial Logistic Regression**
  ⏱ 9:45am - 10:00am, Mar 15

- **8e. Bayesian Latent Class Models for Characterizing Circadian Rhythms in High Dimensional Biomarkers**
  ⏱ 10:00am - 10:15am, Mar 15

- **8f. Bayesian Framework for Simultaneous Registration and Estimation of Noisy, Sparse and Fragmented Functional Data**
  ⏱ 10:15am - 10:30am, Mar 15

9. Contributed Papers: Statistical Modeling for Genetics Data
⏱ 9:00am - 10:45am, Mar 15

`Scientific Program`

📢 **Chair**

Satabdi Saha PhD Student, Michigan State University

6 Subsessions

- **9a. ConQuR: Batch Effect Correction for Microbiome Data Via Conditional Quantile Regression**
  🕘 9:00am - 9:15am, Mar 15

- **9b. An Integrative Approach for Identifying Gene-Trait Associations in Multi-Tissue Transcriptome-Wide Association Studies**
  🕘 9:15am - 9:30am, Mar 15

- **9c. Genetic Fine-mapping with Dense Linkage Disequilibrium Blocks**
  🕘 9:30am - 9:45am, Mar 15

- **9d. Identifying Risk Factors for Alzheimer's Disease using a Penalized Regression Framework for Polygenic Scores**
  🕘 9:45am - 10:00am, Mar 15

- **9e. Tissue- and Cell-type-Specific Enrichment of Risk Loci Associated with Complex Traits**
  🕘 10:00am - 10:15am, Mar 15

- **9f. Statistical Modeling and Analysis of Clonal Hematopoiesis**
  🕘 10:15am - 10:30am, Mar 15

10. Contributed Papers: Causal Inference Methods
🕘 9:00am - 10:45am, Mar 15

`Scientific Program` `Student Award Winner`

Sponsor: ENAR | Chair: Sarah Robertson, Brown University

📢 **Chair**

Sarah Robertson Brown University

6 Subsessions

- **10a. Assessing Performance of Inverse Probability Weighting for Multiple Treatments**
  🕘 9:00am - 9:15am, Mar 15

- **10b. Sharpening the Rosenbaum Sensitivity Bounds to Address Concerns About Interactions Between Observed and Unobserved Covariates**
  🕘 9:15am - 9:30am, Mar 15

- **10c. Design Considerations to Incorporate Baseline Covariates to Validate Surrogate Endpoints in a Vaccine Trial**

9:30am - 9:45am, Mar 15

- **10d. Outcome Model-free Causal Inference with Ultra-high Dimensional Covariates**
  9:45am - 10:00am, Mar 15

- **10e. Causal Inference of Hazard Ratio Based on Propensity Score Matching**
  10:00am - 10:15am, Mar 15

- **10f. Causal Mediation Analysis with an Interval Censored Time to Event Outcome**
  10:15am - 10:30am, Mar 15

11. Contributed Papers: Functional Data Analysis
9:00am - 10:45am, Mar 15

`Scientific Program`

Sponsor: ENAR | Chair: Zhou Lan, Yale School Medicine

📢 **Chair**

Z

Zhou Lan Statistician, Yale School Medicine

5 Subsessions

- **11a. Local Longitudinal Functional Model**
  9:00am - 9:15am, Mar 15

- **11b. Statistical Analysis of Heart Variability From Electrocardiogram Data During Sleep**
  9:15am - 9:30am, Mar 15

- **11c. Complex Survey Weighted Functional Regression Methods for Mortality Prediction in National Health and Nutrition Examination studies (NHANES)**
  9:30am - 9:45am, Mar 15

- **11d. Estimation of Free-living Walking Cadence from Wrist-worn Sensor Accelerometry Data and Its Association with SF-36 Quality of Life Scores**
  9:45am - 10:00am, Mar 15

- **11e. Interpreting Blood Glucose Data with R Package iglu**
  10:00am - 10:15am, Mar 15

12. Contributed Papers: Missingness in Estimation and Study Design
9:00am - 10:45am, Mar 15

`Scientific Program`

Sponsor: ENAR | Chair: Dustin J. Rabideau, Massachusetts General Hospital, Harvard Medical School

📢 **Chair**

D

Dustin Rabideau Massachusetts General Hospital, Harvard Medical School

6 Subsessions

- **12a. Leveraging Random Assignment to Impute Missing Covariates in Causal Studies**
  ⏲ 9:00am - 9:15am, Mar 15

- **12b. The More Data, the Better? Demystifying Deletion-Based Methods in Linear Regression Models with Incomplete Observations**
  ⏲ 9:15am - 9:30am, Mar 15

- **12c. Efficient Estimation of Population Size Via Covariate-adjusted Capture-recapture Designs**
  ⏲ 9:30am - 9:45am, Mar 15

- **12d. Handling Missing Electronic Health Records Data Using Importance-Weighted Autoencoders**
  ⏲ 9:45am - 10:00am, Mar 15

- **12e. Analysis of Crossover Designs with Nonignorable Dropout**
  ⏲ 10:00am - 10:15am, Mar 15

- **12f. An Efficient Stratified Proportional Subdistribution Hazards Model for Competing Risks Data with Missing Covariates**
  ⏲ 10:15am - 10:30am, Mar 15

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13. Contributed Papers: Biomarker Modeling
⏲ 9:00am - 10:45am, Mar 15

`Scientific Program`

Sponsor: ENAR | Chair: Muxuan Liang, Fred Hutchinson Cancer Research Center

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📢 **Chair**

Muxuan Liang Post-doctoral Research Fellow, Fred Hutchinson Cancer Research Center

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6 Subsessions

- **13a. Analysis of Structural Brain Asymmetries and Neurocognitive Performance**
  ⏲ 9:00am - 9:15am, Mar 15

- **13b. Aggregating Subgroup Hazard Ratios in Validating In-vitro Diagnostic for Predictive Biomarker**
  ⏲ 9:15am - 9:30am, Mar 15

- **13c. Maternal Plasma Lipidomic Profiles in Pregnancy and Neonatal Anthropometry**
  ⏲ 9:30am - 9:45am, Mar 15

- **13d. A Biomarker-Stratified Two-Stage Design In A Phase II Single Arm Trial**
  ⏲ 9:45am - 10:00am, Mar 15

- **13e. Improved Semiparametric Analysis of Polygenic Gene-Environment Interactions in Case-Control Studies**
  ⏲ 10:00am - 10:15am, Mar 15

- **13f. Automated Analysis of Low-Field Brain MRI in Cerebral Malaria**
  ⏲ 10:15am - 10:30am, Mar 15

14. Contributed Papers: Computational Methods and Complex Data
🕘 9:00am - 10:45am, Mar 15

`Scientific Program`

Sponsor: ENAR | Chair: Jing N. Xie, University of Missouri

📢 **Chair**

Jing Xie University of Missouri

5 Subsessions

- **14a. Distributed Binary Regression of Electronic Health Records Data Across Heterogeneous Clinical Sites**
  🕘 9:00am - 9:15am, Mar 15

- **14b. Extracting Interconnected Communities in Gene Co-expression Networks**
  🕘 9:15am - 9:30am, Mar 15

- **14c. Online Causal Inference**
  🕘 9:30am - 9:45am, Mar 15

- **14d. Parsimonious Model Selection for Mixtures of Tukey's g-h Distributions**
  🕘 9:45am - 10:00am, Mar 15

- **14e. An Efficient Two-Stage Algorithm for Dirichlet Diffusion Trees**
  🕘 10:00am - 10:15am, Mar 15

15. Contributed Papers: Recent Advances in Survival Analysis
🕘 9:00am - 10:45am, Mar 15

`Scientific Program` `Student Award Winner`

Sponsor: ENAR | Chair: Zhengyang Zhou, University of North Texas Health Science Center

📢 **Chair**

Zhengyang Zhou Assistant Professor, University of North Texas Health Science Center

5 Subsessions

- **15a. Survival Analysis Via Ordinary Differential Equations**
  🕘 9:00am - 9:15am, Mar 15

- **15b. Modeling Negatively Skewed Survival Data in Accelerated Failure Time Models**
  🕘 9:15am - 9:30am, Mar 15

- **15c. Controlled Variable Selection in Weibull Mixture Cure Models for High-Dimensional Data**
  🕘 9:30am - 9:45am, Mar 15

- **15d. Nonparametric Estimation of Marked Survival Data in the Presence of Dependent Censoring**

○ 9:45am - 10:00am, Mar 15

● **Mediation Analysis for Censored Outcome Based on Accelerated Failure Time Models**
   ○ 10:00am - 10:15am, Mar 15

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2. Modern Statistical Methods for Medical Imaging Data
○ 9:00am - 10:45am, Mar 15

`Scientific Program`

Sponsors: ASA Statistics in Imaging Section; ASA Statistical Learning and Data Science Section | Organizer: Shariq Mohammed, University of Michigan | Chair: Veerabhadran Baladandayuthapani, University of Michigan

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📢 **Chair**

Veera Baladandayuthapani Professor, University of Michigan

10:30am

T2: Bayesian Biopharmaceutical Applications Using PROC MCMC and PROC BGLIMM
○ 10:30am - 12:15pm, Mar 15

`Tutorial`

This tutorial reviews Bayesian capabilities in SAS that are relevant to the biopharmaceutical industry (e.g., the general-purpose simulation MCMC procedure and the specialized BGLIMM procedure for Bayesian generalized linear mixed models), and presents pharma-related data analysis examples and case studies. Topics include Bayesian design and simulation, posterior predictions, use of historical information, and adaptive basket trials. The objective is to equip attendees with useful Bayesian computational tools through often-encountered examples in the industry. This is joint work with G. Frank Liu (Merck & Co. Inc.).

📢 **Speaker**

Fang Chen SAS Institute

11:00am

16. Scientific and Regulatory Aspects of Developing COVID-19 Vaccine During Pandemic
○ 11:00am - 12:45pm, Mar 15

`Scientific Program`

Sponsors: ASA Statistics in Epidemiology Section, ASA Health Policy Statistics Section, ASA Biopharmaceutical Section | Organizer/Chair: Satrajit Roychoudhury, Pfizer Inc.

📢 **Chair**

Satrajit Roychoudhury Pfizer Inc.

4 Subsessions

- **16a. Assessing Immune Correlates of Protection in COVID-19 Vaccine Efficacy Trials**
  🕐 11:00am - 11:25am, Mar 15

- **16b. Challenges and Opportunities in the Development of COVID-19 Vaccines from a Regulatory Reviewer's Perspective**
  🕐 11:25am - 11:50am, Mar 15

- **16c. Vaccine Efficacy Trials for COVID-19 and Other Emerging Pathogens**
  🕐 11:50am - 12:15pm, Mar 15

- **16d. A Seamless Phase 1,2,3 Design to Rapidly Evaluate Vaccine Candidates for COVID-19, Accelerate Development and Assess Safety and Efficacy in the Context of a Global Pandemic**
  🕐 12:15pm - 12:40pm, Mar 15

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17. Statistical Challenges in Single Cell Genomics
🕐 11:00am - 12:45pm, Mar 15

`Scientific Program`

Sponsor: IMS | Organizer/Chair: Nancy Zhang, University of Pennsylvania

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📢 **Chair**

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Nancy Zhang University of Pennsylvania

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4 Subsessions

- **17a. Demystifying the Drop-outs in Single Cell RNA-seq Data**
  🕐 11:00am - 11:25am, Mar 15

- **17b. A Statistical and Computational Framework for Single-cell Multi-modal Alignment**
  🕐 11:25am - 11:50am, Mar 15

- **17c. Wide and Deep Learning for Automatic Cell Type Identification**
  🕐 11:50am - 12:15pm, Mar 15

- **17d. Single-nucleus Transcriptome Analysis Reveals Cell Type-specific Molecular Signatures Across Reward Circuitry in the Human Brain**
  🕐 12:15pm - 12:40pm, Mar 15

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18. Developing Statistical Methods in the Context of Cohort Studies
🕐 11:00am - 12:45pm, Mar 15

`Scientific Program`

Sponsor: ASA Statistics in Epidemiology Section | Organizer/Chair: Leslie McClure, Drexel University

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📢 **Chair**

Leslie McClure Drexel

4 Subsessions

- **18a. Sampling Design Considerations for Nested Biomarker Studies**
  🕐 11:00am - 11:25am, Mar 15

- **18b. Using Electronic Health Records for Building Cohort Studies: Challenges and Opportunities**
  🕐 11:25am - 11:50am, Mar 15

- **18c. Statistical Methods to Accommodate Population Diversity in Large Cohort Studies**
  🕐 11:50am - 12:15pm, Mar 15

- **18d. Cohort Studies, Racial Disparities, and the Race to Eliminate Them**
  🕐 12:15pm - 12:40pm, Mar 15

19. Extracting and Modelling Digital Biomarkers from Personal Wearable Devices
🕐 11:00am - 12:45pm, Mar 15

`Scientific Program`

Sponsors: ASA Statistics in Epidemiology Section, ASA Statistical Learning and Data Science Section | Organizer: Vadim Zipunnikov, Johns Hopkins Bloomberg School of Public Health | Chair: Jiawei Bai, Johns Hopkins Bloomberg School of Public Health

📢 **Chair**

Jiawei Bai Assistant Scientist, Johns Hopkins University

4 Subsessions

- **19a. Robust Algorithm for Estimation of Walking Using Wearable Devices**
  🕐 11:00am - 11:25am, Mar 15

- **19b. Quantile Learning and Its Applications to Modelling Digital Gait Biomarkers**
  🕐 11:25am - 11:50am, Mar 15

- **19c. Toward Building a Larger Dataset of Labeled Accelerometer Data**
  🕐 11:50am - 12:15pm, Mar 15

- **19d. Classification of Human Physical Activity Based on the Raw Accelerometry Data Via Spherical Coordinate Transformation**
  🕐 12:15pm - 12:40pm, Mar 15

20. Challenges and Opportunities in Causal Inference
🕐 11:00am - 12:45pm, Mar 15

`Scientific Program`

Sponsor: ASA Biometrics Section | Organizer/Chair: Haiwen Shi, U.S. Food and Drug Administration

🔊 Chair

H

Haiwen Shi U.S. Food and Drug Administration

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4 Subsessions

- **20a. Optimal Doubly Robust Estimation of Heterogeneous Causal Effects**
  🕐 11:00am - 11:25am, Mar 15

- **20b. Estimation of Optimal Testing and Treatment Regimes under No Direct Effect (NDE) of Testing**
  🕐 11:25am - 11:50am, Mar 15

- **20c. Real World Data, Machine Learning and Causal Inference**
  🕐 11:50am - 12:15pm, Mar 15

- **20d. Targeted Machine Learning for Causal Inference Based on Real World Data**
  🕐 12:15pm - 12:40pm, Mar 15

21. Leading a Research Group: Challenges Faced, Lessons Learned, and Advice for Junior Researchers
🕐 11:00am - 12:45pm, Mar 15

`Panel` `Scientific Program`

Sponsor: ASA Biometrics Section | Organizer/Chair: Joseph L. Antonelli

As young statisticians progress from being students and postdoctoral fellows into young professionals, they are faced with new challenges that come from leading their own research teams. Leading research groups and mentoring younger researchers presents an invaluable opportunity for professional growth, increased productivity, and helping to mold future generations of statisticians. Unfortunately, junior statisticians are frequently given little guidance on how to develop positive mentor/mentee relationships or how to lead their own research groups. In light of this, leading and advising others on research projects can appear daunting to junior statisticians, and it can be difficult for them to construct productive research environments for those that they mentor. The purpose of this panel is to bring together four researchers that have excelled throughout their careers in academia, government, and nonprofit research institutes. They will discuss issues from leading research groups that they have encountered throughout their careers, and take questions from the audience to provide young statisticians at ENAR with insights into developing into leading researchers.

🔊 Chair

J

Joseph L. Antonelli Department of Statistics, University of Florida

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🔊 Speakers

P

Paul Albert National Cancer Institute

Brian Caffo Professor, Johns Hopkins University

Susan Paddock Chief Statistician and Executive VP, NORC at the University of Chicago

Brisa Sanchez Dornsife Professor of Biostatistics, Drexel University

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22. Advanced Statistical Data Integration in Medical Image Studies
🕐 11:00am - 12:45pm, Mar 15

`Scientific Program`

Sponsors: ASA Statistics in Imaging Section, ASA Statistical Learning and Data Science Section, ASA Mental Health Statistics Section | Organizer/Chair: Chao Huang, Florida State University

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📢 **Chair**

C

Chao Huang Assistant Professor of Statistics, Florida State University

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4 Subsessions

- **22a. Varying Coefficient Monotone Single Index Model for Heterogeneous Imaging Responses**
  🕐 11:00am - 11:25am, Mar 15

- **22b. Principal Brain Parcellation Analysis in Multiple Biomedical Studies**
  🕐 11:25am - 11:50am, Mar 15

- **22c. Integrated Analysis of Pathology Images and Genetics**
  🕐 11:50am - 12:15pm, Mar 15

- **22d. Simultaneous Non-Gaussian Component Analysis (SING) for Data Integration in Neuroimaging**
  🕐 12:15pm - 12:40pm, Mar 15

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23. Using EHRs to Run Pragmatic Trials: Opportunities and Challenge
🕐 11:00am - 12:45pm, Mar 15

`Scientific Program`

Sponsors: ASA Statistics in Epidemiology Section, ASA Health Policy Statistics Section, ASA Statistical Learning and Data Science Section | Organizer/Chair: Lili Zhao, University of Michigan

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📢 **Chair**

L

Lili Zhao University of Michigan

4 Subsessions

- **23a. Learning Quickly: A Micro-randomized Cluster-crossover Trial to Evaluate a Clinical Decision Support Tool and Intervention to Detect and Reduce Outpatient No-shows**
  🕐 11:00am - 11:25am, Mar 15

- **23b. Randomized Pragmatic Clinical Trials Utilizing RWD: Myths & Realities**
  🕐 11:25am - 11:50am, Mar 15

- **23c. Patient Recruitment Using Electronic Health Records: a Two-phase Sampling Framework**
  🕐 11:50am - 12:15pm, Mar 15

- **23d. The Perils and Pitfalls of Pragmatic Trial Design**
  🕐 12:15pm - 12:40pm, Mar 15

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24. Contributed Papers: Multivariate Modeling
🕐 11:00am - 12:45pm, Mar 15

`Scientific Program`

Sponsor: ENAR | Chair: Juming Pan, Rowan University

📢 **Chair**

Juming Pan Assistant Professor, Rowan University

3 Subsessions

- **24a. A Neural Network Model for Multivariate Frailty Data**
  🕐 11:00am - 11:15am, Mar 15

- **24b. Tractable Bayes of Skew-Elliptical Link Models for Correlated Binary Data**
  🕐 11:15am - 11:30am, Mar 15

- **24c. Joint Analysis of Multivariate Interval-Censored Survival Data and a Time-Dependent Covariate**
  🕐 11:30am - 11:45am, Mar 15

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25. Contributed Papers: Measurement Error
🕐 11:00am - 12:45pm, Mar 15

`Scientific Program`

Sponsor: ENAR | Chair: Yu Gu, University of Rochester

📢 **Chair**

Yu Gu Ph.D. Candidate, University of Rochester

5 Subsessions

- **25a. Addressing Concurrent Confounding and Exposure Measurement Error Using Conditional Score Functions**
  ⏱ 11:00am - 11:15am, Mar 15

- **25b. A Bootstrapping Method for Effectiveness Assessment Based on Repeated Measures with Measurement Errors**
  ⏱ 11:15am - 11:30am, Mar 15

- **25c. Pooled Testing Regression with Measurement Error**
  ⏱ 11:30am - 11:45am, Mar 15

- **25d. An Augmented Likelihood Approach for the Discrete Proportional Hazards Model using Auxiliary and Validated Outcome Data â€" with Application to HCHS/SOL Data**
  ⏱ 11:45am - 12:00pm, Mar 15

- **25e. A Quasi-score Approach with Online Estimation Algorithm for Dynamics of Disease Transmission**
  ⏱ 12:00pm - 12:15pm, Mar 15

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26. Contributed Papers: Meta Analysis, Distributed Learning
⏱ 11:00am - 12:45pm, Mar 15

`Scientific Program` `Student Award Winner`

Sponsor: ENAR | Chair: Hwanhee Hong, Duke University

📢 **Chair**

H

Hwanhee Hong Assistant Professor, Duke University

4 Subsessions

- **26a. A Penalization Approach to Random-effects Meta-analysis**
  ⏱ 11:00am - 11:15am, Mar 15

- **26b. Distributed Quasi-Poisson Regression of Multi-Site Overdispersed Count Outcomes Using Electronic Health Records**
  ⏱ 11:15am - 11:30am, Mar 15

- **26c. Incorporating Patient Subgroups in Surrogate Paradox Measures**
  ⏱ 11:30am - 11:45am, Mar 15

- **26d. Bayesian Network Meta-Regression for Heterogeneous Ordinal Outcomes**
  ⏱ 11:45am - 12:00pm, Mar 15

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27. Contributed Papers: Statistical Genomics
⏱ 11:00am - 12:45pm, Mar 15

`Scientific Program`

Sponsor: ENAR | Chair: Jean V. Morrison, University of Michigan

📢 **Chair**

J

Jean V. Morrison Assistant Professor, University of Michigan

5 Subsessions

- **27a. An Adaptive Test for Microbiome Association Studies via Feature Selection**
  🕐 11:00am - 11:15am, Mar 15

- **27b. Estimating Cell Type Composition using Isoform Expression One Gene at a Time**
  🕐 11:15am - 11:30am, Mar 15
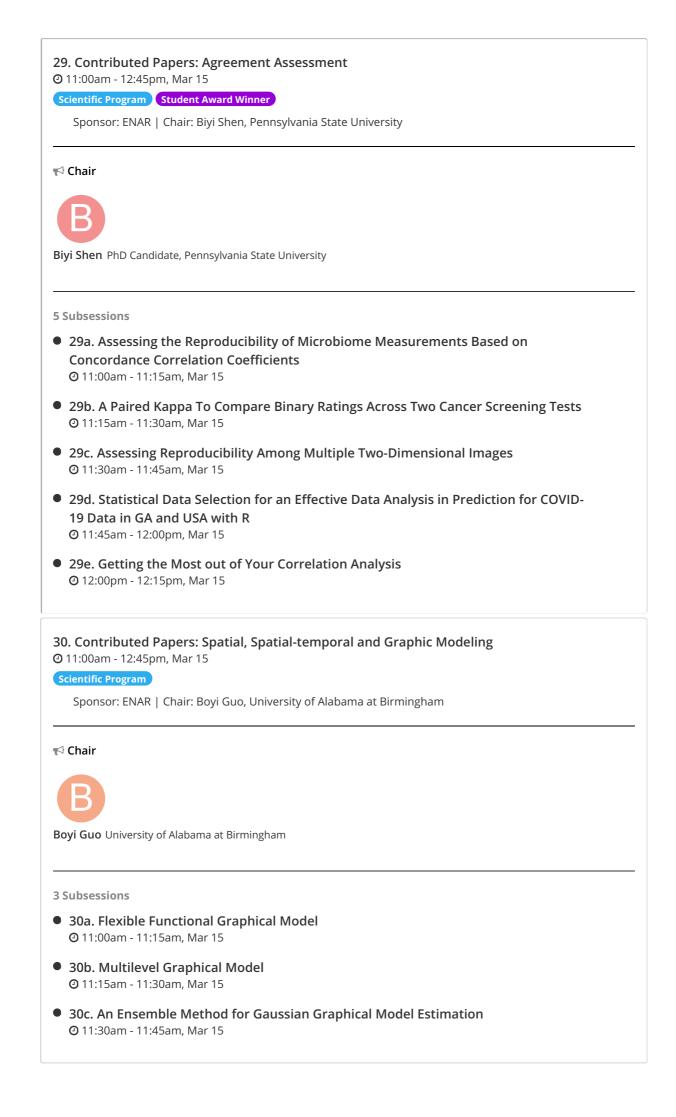
- **27c. Quantification and Statistical Modeling of Droplet-Based Single-Nucleus RNA-Sequencing Data**
  🕐 11:30am - 11:45am, Mar 15

- **27d. SECANT: A Biology-guided Semi-supervised Method for Clustering, Classification, and Annotation of Single-cell Multi-omics**
  🕐 11:45am - 12:00pm, Mar 15

- **27e. Mixed Margin Copula Models for Microbial Interactions**
  🕐 12:00pm - 12:15pm, Mar 15

28. Contributed Papers: Machine Learning
🕐 11:00am - 12:45pm, Mar 15

`Scientific Program` `Student Award Winner`

Sponsor: ENAR | Chair: Sarah Weinstein, University of Pennsylvania

📢 **Chair**

S

Sarah Weinstein PhD student, University of Pennsylvania

5 Subsessions

- **28a. A Tree-based Federated Learning Approach for Personalized Treatment Effect Estimation from Heterogeneous Data Sources**
  🕐 11:00am - 11:15am, Mar 15

- **28b. Mixture Survival Trees for Cancer Risk Classification**
  🕐 11:15am - 11:30am, Mar 15

- **28c. Fast Optimal Subsampling Probability Approximation for Generalized Linear Models**
  🕐 11:30am - 11:45am, Mar 15

- **28d. Bagged Feature-Weighted Random Forests**
  🕐 11:45am - 12:00pm, Mar 15

- **28e. Image-on-Scalar Regression Via Neural Networks**
  🕐 12:00pm - 12:15pm, Mar 15

29. Contributed Papers: Agreement Assessment

🕐 11:00am - 12:45pm, Mar 15

`Scientific Program` `Student Award Winner`

Sponsor: ENAR | Chair: Biyi Shen, Pennsylvania State University

📢 **Chair**

B

Biyi Shen PhD Candidate, Pennsylvania State University

5 Subsessions

- **29a. Assessing the Reproducibility of Microbiome Measurements Based on Concordance Correlation Coefficients**
  🕐 11:00am - 11:15am, Mar 15

- **29b. A Paired Kappa To Compare Binary Ratings Across Two Cancer Screening Tests**
  🕐 11:15am - 11:30am, Mar 15

- **29c. Assessing Reproducibility Among Multiple Two-Dimensional Images**
  🕐 11:30am - 11:45am, Mar 15

- **29d. Statistical Data Selection for an Effective Data Analysis in Prediction for COVID-19 Data in GA and USA with R**
  🕐 11:45am - 12:00pm, Mar 15

- **29e. Getting the Most out of Your Correlation Analysis**
  🕐 12:00pm - 12:15pm, Mar 15

30. Contributed Papers: Spatial, Spatial-temporal and Graphic Modeling

🕐 11:00am - 12:45pm, Mar 15

`Scientific Program`

Sponsor: ENAR | Chair: Boyi Guo, University of Alabama at Birmingham

📢 **Chair**

B

Boyi Guo University of Alabama at Birmingham

3 Subsessions

- **30a. Flexible Functional Graphical Model**
  🕐 11:00am - 11:15am, Mar 15

- **30b. Multilevel Graphical Model**
  🕐 11:15am - 11:30am, Mar 15

- **30c. An Ensemble Method for Gaussian Graphical Model Estimation**
  🕐 11:30am - 11:45am, Mar 15

12:45pm

RT1: Early Career Mentoring: What Do I Do Now?
🕐 12:45pm - 2:00pm, Mar 15

Roundtable

A career in the field of Biostatistics can be rewarding but also a challenge to navigate early in one's career. Some parts of the field seem to be changing quickly, others seem to stay the same. Departments and research groups grow and shrink, scientific (and funding!) priorities shift with new technology, new discoveries, and new approaches. In this roundtable, we will consider multiple issues involved with beginning a career in Biostatistics. We will discuss the different "currencies of success" associated with careers in academic, industry, and government organizations. We will discuss communication skills, funding strategies, collaboration skills, and opportunities to contribute to the field in multiple ways. Please feel free to bring questions (or send them to the facilitator beforehand) to allow the discussion to address your needs as well as these guidelines.

📢 **Speaker**

Lance A. Waller Professor, Emory University

RT2: Understanding the NIH Grant Review Process
🕐 12:45pm - 2:00pm, Mar 15

Roundtable

Have you ever wondered what it is like to be member of an NIH study section? Have you ever wondered about the review process for grants that you have submitted or plan to submit? In this roundtable we will discuss the NIH review process, from the perspective of a current member of Biostatistical Methods and Research Design (BMRD) Study Section. Attendees should leave the discussion with a better understanding of the grant review process to better inform how they might prepare future grants or as they consider service on future study sections.

📢 **Speaker**

Scarlett Bellamy Professor, Drexel University

RT3: Data Science Programs
🕐 12:45pm - 2:00pm, Mar 15

Roundtable

Academic and online data science programs are popping up everywhere. Employers now post positions for data scientist and rarely for statisticians or data analyst. If statistical thinking is the bedrock of data science, how can we ensure that statistics and good statistical thinking play a proper role in the training of the next generation of statistical scientist? What has your experience been with the emergence of data science at your university or your place of employment. These, as well as other participant-generated questions will be the source of discussion for this roundtable.

📢 **Speaker**

J

Joel Greenhouse Carnegie Mellon University

RT4: Running a Statistical Consulting Business
🕐 12:45pm - 2:00pm, Mar 15

`Roundtable`

Running your own consultancy has many benefits, such as choosing your clients and projects, setting your own hours, and possibly working from home. This roundtable will focus on meeting challenges and carrying out responsibilities associated with those benefits. We will discuss making decisions related to: incorporation, using an attorney to review contracts, accounting, insurance, SOPs including for quality control, and having subcontractors and/or employees. Based on time and attendees' interests, we may also discuss one or more of: 1) Deciding what projects to undertake, with respect to areas of statistical expertise and 2) project type, such as short- or long-term; papers, grants, and/or FDA submissions; 3) How to get clients; 4) Working with clients that are not local; and 5) Ensuring your continued professional development statistically, and in soft skills like working as part of an interdisciplinary team. Come with questions and/or suggestions!

📢 **Speaker**

Alicia Y. Toledano President, Biostatistics Consulting, LLC

RT5: Being a Biostatistician in a Medical Center
🕐 12:45pm - 2:00pm, Mar 15

`Roundtable`

Statisticians are in great demand in medical centers. This can be both exciting and daunting. We will discuss strategies for flourishing in a medical center, from gaining respect among medical collaborators, to identifying and pursuing interesting research projects, to protecting one's time.

📢 **Speaker**

B

Bryan Shepherd Vanderbilt University

RT6: Data Science in the Fight Against COVID
🕐 12:45pm - 2:00pm, Mar 15

`Roundtable`

Data and analyses are critical to make progress on every front of society's most pressing issue: the fight against COVID-19. Areas of investigation include transmission modeling, disease surveillance, social determinants of health, study of the impact of policy interventions, the design and analysis of vaccine studies, and genetics and genomics, among others. This roundtable will discuss on-going work in these and other areas, and strategies biostatisticians can employ to seek out roles in this field and make meaningful contributions in this critical fight for the public's health.

📢 **Speaker**

Xihong Lin Professor of Biostatistics, Harvard T.H. Chan School of Public Health

RT7: Promoting Graduate Student Mental Health
🕐 12:45pm - 2:00pm, Mar 15

Roundtable

There is a growing recognition that graduate students are at an increased risk for mental health issues and mental illness during their studies. A November 2019 editorial in Nature entitled, "The Mental Health of PhD Researchers Demands Urgent Attention," stated "Anxiety and depression in graduate students is worsening. The health of the next generation of researchers needs systemic change to research cultures." In this roundtable we discuss some of the recent data published on this issue, lessons learned by the recently-formed Mental Health Working Group in the Department of Biostatistics at Harvard, and potential actions departments and advisors can take to improve graduate student mental health.

📣 **Speaker**

Emma Thomas Associate Statistician, RAND

RT8: Scientific Leadership
🕐 12:45pm - 2:00pm, Mar 15

Roundtable

The central importance of data and biostatistics in public health and biomedicine has perhaps never been more apparent than from the challenges we face in society today. As a result, opportunities for biostatisticians to take on scientific leadership roles abound. This roundtable will discuss effective strategies for identifying and engaging in such opportunities, whether it be leading a unit of quantitative researchers or leading an interdisciplinary team of scientists. We will discuss leadership skills that I have found helpful for promoting a supportive team environment conducive to both high-impact research and rich career development opportunities for team members.

📣 **Speaker**

Karen Bandeen-Roche Frank Hurley and Catharine Dorrier Professor and Chair, Johns Hopkins Bloomberg School of Public Health

RT9: Causal Inference in Disparities Research
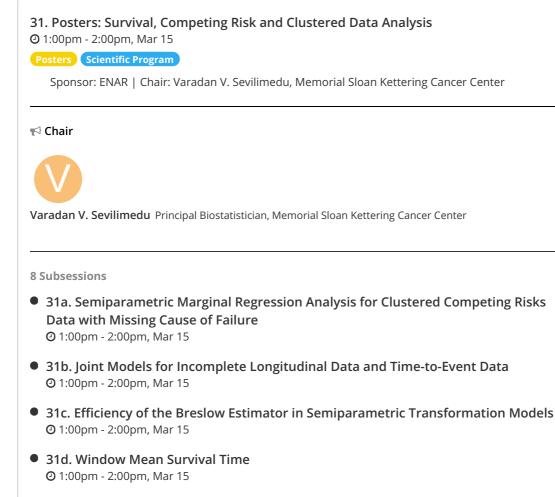🕐 12:45pm - 2:00pm, Mar 15

Roundtable

There is emerging awareness of wide and increasing inequalities in health outcomes. We have unprecedented opportunities to gather information across different sources to identify and provide actionable recommendations to reduce unjust differences in health outcomes across racial ethnic groups and socio-economic status, for instance. This roundtable will discuss key opportunities and challenges to improve the characterization and understanding of health disparities adopting a causal inference perspective. In particular, we will discuss relevant targets of inference and their policy implications, considerations on design and analytic strategies to improve internal and external validity of health

disparities studies, algorithmic fairness. The objective of the roundtable will be to raise awareness about the key role of biostatisticians in health disparities research and to share best practices in the adoption of causal inference approaches in this field.

📢 **Speaker**

L

Linda Valeri Columbia University

1:00pm

31. Posters: Survival, Competing Risk and Clustered Data Analysis
🕐 1:00pm - 2:00pm, Mar 15

Posters **Scientific Program**

Sponsor: ENAR | Chair: Varadan V. Sevilimedu, Memorial Sloan Kettering Cancer Center

📢 **Chair**

V

Varadan V. Sevilimedu Principal Biostatistician, Memorial Sloan Kettering Cancer Center

8 Subsessions

- **31a. Semiparametric Marginal Regression Analysis for Clustered Competing Risks Data with Missing Cause of Failure**
  🕐 1:00pm - 2:00pm, Mar 15

- **31b. Joint Models for Incomplete Longitudinal Data and Time-to-Event Data**
  🕐 1:00pm - 2:00pm, Mar 15

- **31c. Efficiency of the Breslow Estimator in Semiparametric Transformation Models**
  🕐 1:00pm - 2:00pm, Mar 15

- **31d. Window Mean Survival Time**
  🕐 1:00pm - 2:00pm, Mar 15

- **31e. Semiparametric Regression Analysis of Clustered Interval-censored Failure Time Data with Cure Fraction**
  🕐 1:00pm - 2:00pm, Mar 15

- **31f. Flexible, Parametric Mixture Models with Inflation of Zeroes' with Application to a NHANES Study of Risk Factors of Incident Type 2 Diabetes**
  🕐 1:00pm - 2:00pm, Mar 15

- **31g. Clustering Methods for Identifying Commuter Characteristics Associated with Total Traffic-related PM2.5 Exposure**
  🕐 1:00pm - 2:00pm, Mar 15

- **31h. Deep Learning for Quantile Regression: DeepQuantreg**
  🕐 1:00pm - 2:00pm, Mar 15

32. Posters: Decision Making, Testing, Latent Variables

🕐 1:00pm - 2:00pm, Mar 15

Posters **Scientific Program**

Sponsor: ENAR | Chair: Xiaoke Zhang, George Washington University

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📢 **Chair**

X

Xiaoke Zhang Assistant Professor of Statistics, George Washington University

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8 Subsessions

- **32a. A Regression Approach to Estimating the Diagnostic Likelihood Ratio Function for the Evaluation of Diagnostic Tests**
  🕐 1:00pm - 2:00pm, Mar 15

- **32b. Model-free Posterior Inference on the Area under the Receiver Operating Characteristic Curve**
  🕐 1:00pm - 2:00pm, Mar 15

- **32c. A Robust Spearman Correlation Coefficient Permutation Test**
  🕐 1:00pm - 2:00pm, Mar 15

- **32d. Estimating the Reliability of a Composite in Multidimensional Measurements with Overlapping Items**
  🕐 1:00pm - 2:00pm, Mar 15

- **32e. Group Testing Estimation Using R**
  🕐 1:00pm - 2:00pm, Mar 15

- **32f. Semiparametric Gaussian Copula Regression Modelling for Mixed Data Types (SGCRM)**
  🕐 1:00pm - 2:00pm, Mar 15

- **32g. Inverse Reinforcement Learning for Deriving Optimal Dynamic Treatment Regimes with Observational Data**
  🕐 1:00pm - 2:00pm, Mar 15

- **32h. Joint Modeling of Survival and Longitudinal Data under the Proportional Mean Residual Model**
  🕐 1:00pm - 2:00pm, Mar 15

Regional Advisory Board (RAB) Meeting (by Invitation Only)
🕐 1:00pm - 3:30pm, Mar 15

Committee Meeting

1:45pm

T3: How to Measure Vaccine Effectiveness
🕐 1:45pm - 3:30pm, Mar 15

Tutorial

In this tutorial, we dive into the world of vaccine clinical trials and studies, to cover the fundamentals of how we determine the effectiveness of a vaccine. We will distinguish between the key vaccine estimands of direct, indirect (herd), total, and overall effectiveness. We will review the basics of the vaccine evaluation pathway, through early phase development, vaccine efficacy trials, and post-licensure studies. Using illustrative examples from the literature, we will describe the key design and analysis decisions in Phase III trials. We will similarly examine the role of cluster-randomized trials to measure real-world

effectiveness and indirect protection. Finally, we will discuss the use of observational study designs like the test negative design. The test negative design is routinely used to assess seasonal influenza vaccine effectiveness. This tutorial will be highly relevant for statisticians collaborating on (or just paying close attention to) Covid-19 vaccine studies.

📢 **Speaker**

Natalie Dean Assistant Professor of Biostatistics, University of Florida

2:15pm

33. Statistical Methods for Large-scale Time Series and Longitudinal Data Analysis
🕐 2:15pm - 4:00pm, Mar 15

`Scientific Program`

Sponsor: ASA Statistical Learning and Data Science Section | Organizer: Sumanta Basu, Cornell University | Chair: Abhirup Datta, Johns Hopkins University

📢 **Chair**

A

Abhirup Datta Johns Hopkins University

4 Subsessions

- **33a. Multilevel Joint Modeling of Hospitalization and Survival in Patients on Dialysis**
  🕐 2:15pm - 2:40pm, Mar 15

- **33b. Statistical Inference for Networks of High-Dimensional Point Processes**
  🕐 2:40pm - 3:05pm, Mar 15

- **33c. Multiple Change Point Detection in Reduced Rank High Dimensional Vector Autoregressive Models**
  🕐 3:05pm - 3:30pm, Mar 15

- **33d. Estimation of Large Spectral Density Matrices**
  🕐 3:30pm - 3:55pm, Mar 15

34. Integrative Modeling of Heterogeneous Observational Health Data
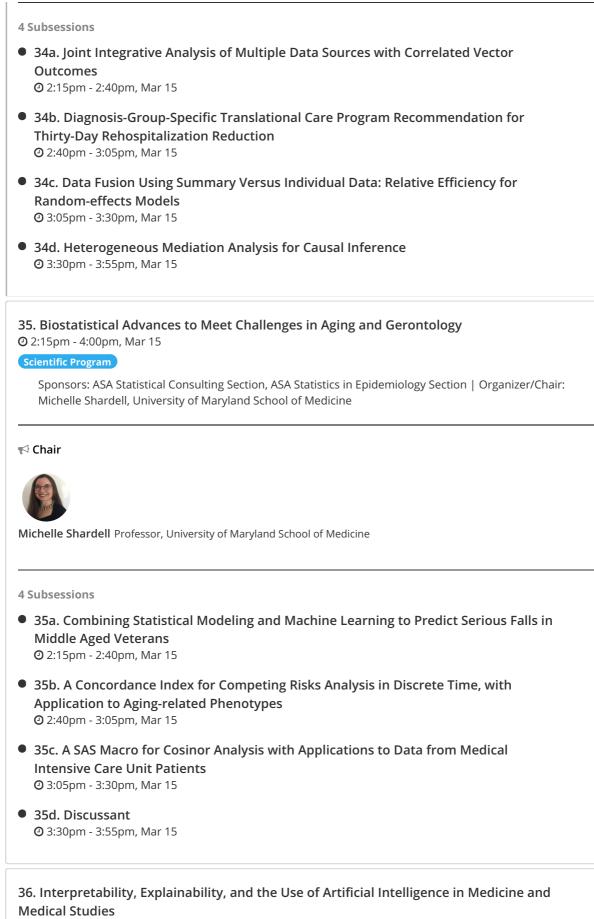🕐 2:15pm - 4:00pm, Mar 15

`Scientific Program`

Sponsors: ASA Health Policy Statistics Section, ASA Statistical Learning and Data Science Section | Organizer/Chair: Lu Tang, University of Pittsburgh
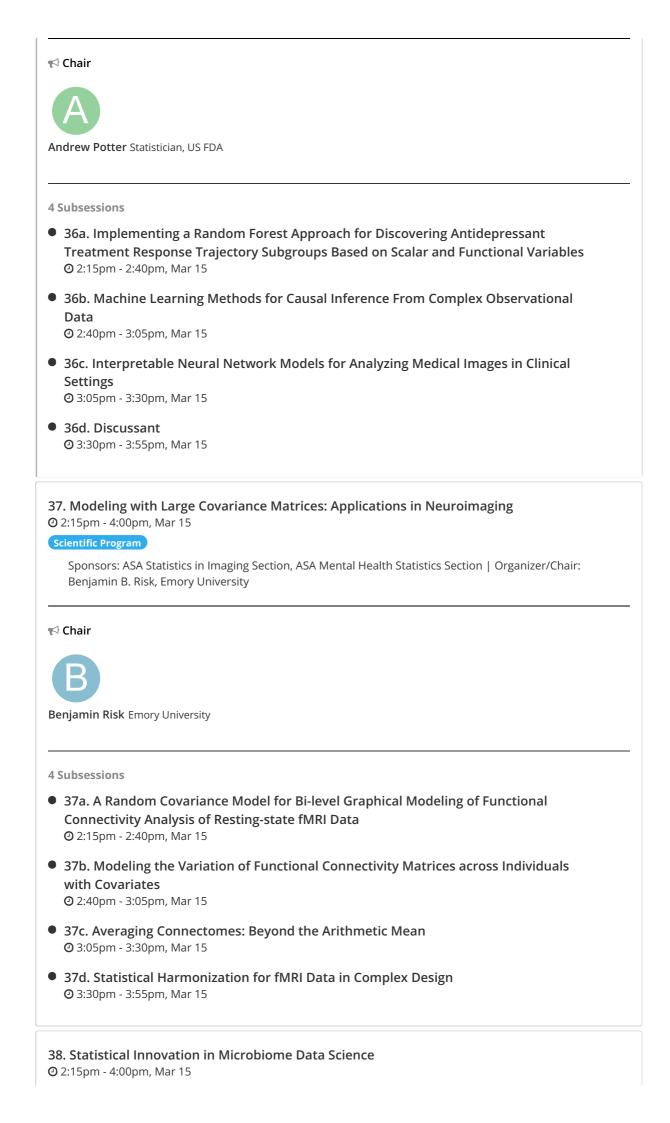
📢 **Chair**

L

Lu Tang Assistant Professor, University of Pittsburgh

4 Subsessions

- **34a. Joint Integrative Analysis of Multiple Data Sources with Correlated Vector Outcomes**
  ⏱ 2:15pm - 2:40pm, Mar 15

- **34b. Diagnosis-Group-Specific Translational Care Program Recommendation for Thirty-Day Rehospitalization Reduction**
  ⏱ 2:40pm - 3:05pm, Mar 15

- **34c. Data Fusion Using Summary Versus Individual Data: Relative Efficiency for Random-effects Models**
  ⏱ 3:05pm - 3:30pm, Mar 15

- **34d. Heterogeneous Mediation Analysis for Causal Inference**
  ⏱ 3:30pm - 3:55pm, Mar 15

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35. Biostatistical Advances to Meet Challenges in Aging and Gerontology
⏱ 2:15pm - 4:00pm, Mar 15

`Scientific Program`

> Sponsors: ASA Statistical Consulting Section, ASA Statistics in Epidemiology Section | Organizer/Chair: Michelle Shardell, University of Maryland School of Medicine

📢 **Chair**

Michelle Shardell Professor, University of Maryland School of Medicine

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4 Subsessions

- **35a. Combining Statistical Modeling and Machine Learning to Predict Serious Falls in Middle Aged Veterans**
  ⏱ 2:15pm - 2:40pm, Mar 15

- **35b. A Concordance Index for Competing Risks Analysis in Discrete Time, with Application to Aging-related Phenotypes**
  ⏱ 2:40pm - 3:05pm, Mar 15

- **35c. A SAS Macro for Cosinor Analysis with Applications to Data from Medical Intensive Care Unit Patients**
  ⏱ 3:05pm - 3:30pm, Mar 15

- **35d. Discussant**
  ⏱ 3:30pm - 3:55pm, Mar 15

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36. Interpretability, Explainability, and the Use of Artificial Intelligence in Medicine and Medical Studies
⏱ 2:15pm - 4:00pm, Mar 15

`Scientific Program`

> Sponsors: ASA Statistical Learning and Data Science Section, ASA Mental Health Statistics Section | Organizer: Rebecca Hager, Food and Drug Administration | Chair: Andrew Potter, Food and Drug Administration

Ⓐ

Andrew Potter Statistician, US FDA

4 Subsessions

- **36a. Implementing a Random Forest Approach for Discovering Antidepressant Treatment Response Trajectory Subgroups Based on Scalar and Functional Variables**
  🕐 2:15pm - 2:40pm, Mar 15

- **36b. Machine Learning Methods for Causal Inference From Complex Observational Data**
  🕐 2:40pm - 3:05pm, Mar 15

- **36c. Interpretable Neural Network Models for Analyzing Medical Images in Clinical Settings**
  🕐 3:05pm - 3:30pm, Mar 15

- **36d. Discussant**
  🕐 3:30pm - 3:55pm, Mar 15

37. Modeling with Large Covariance Matrices: Applications in Neuroimaging
🕐 2:15pm - 4:00pm, Mar 15

Scientific Program

Sponsors: ASA Statistics in Imaging Section, ASA Mental Health Statistics Section | Organizer/Chair: Benjamin B. Risk, Emory University

📢 **Chair**

Ⓑ

Benjamin Risk Emory University

4 Subsessions

- **37a. A Random Covariance Model for Bi-level Graphical Modeling of Functional Connectivity Analysis of Resting-state fMRI Data**
  🕐 2:15pm - 2:40pm, Mar 15

- **37b. Modeling the Variation of Functional Connectivity Matrices across Individuals with Covariates**
  🕐 2:40pm - 3:05pm, Mar 15

- **37c. Averaging Connectomes: Beyond the Arithmetic Mean**
  🕐 3:05pm - 3:30pm, Mar 15

- **37d. Statistical Harmonization for fMRI Data in Complex Design**
  🕐 3:30pm - 3:55pm, Mar 15

38. Statistical Innovation in Microbiome Data Science
🕐 2:15pm - 4:00pm, Mar 15

Sponsor: IMS | Organizer/Chair: Hongzhe Li, University of Pennsylvania

📢 **Chair**

Hongzhe Li Perelman Professor, University of Pennsylvania

4 Subsessions

- **38a. ConQuR Batch Effects in Microbiome Studies**
  🕐 2:15pm - 2:40pm, Mar 15

- **38b. Bayesian Variable Selection for High-dimensional Rank Data**
  🕐 2:40pm - 3:05pm, Mar 15

- **38c. Estimating Microbial Abundances from High-throughput Sequencing**
  🕐 3:05pm - 3:30pm, Mar 15

- **38d. Hypothesis Testing for Phylogenetic Composition: A Minimum-cost Flow Perspective**
  🕐 3:30pm - 3:55pm, Mar 15

39. Communicating Complex Statistical Concepts to Collaborators, Stakeholders, and the General Public
🕐 2:15pm - 4:00pm, Mar 15

Panel **Scientific Program**

Sponsor: ASA Statistical Consulting Section | Organizer/Chair: Jeff Leek, Johns Hopkins Bloomberg School of Public Health

Clear statistical communication is both an educational and public health priority. This session will focus on best practices for effective statistical communication that simultaneously is clear, engaging, and understandable while remaining rigorous and mathematically correct. The panelists have a range of experience with communicating complex statistical concepts to both technical and lay audiences via multiple communication mechanisms including podcasting, Twitter, engaging with journalists in print, and television correspondence on networks such as CNN and BBC. The session will begin with moderated questions posed by the organizer and then open the discussion to audience members.

📢 **Chair**

Jeff Leek Johns Hopkins Bloomberg School of Public Health

📢 **Speakers**

Lucy D'Agostino McGowan Assistant Professor of Statistics, Wake Forest University

C

Caitlin Rivers Johns Hopkins Bloomberg School of Public Health

E

Ellie Murray Boston University School of Public Health

Kareem Carr Department of Biostatistics, Harvard T.H. Chan School of Public Health

40. Contributed Papers: Biopharmaceutical Research
⏱ 2:15pm - 4:00pm, Mar 15

`Scientific Program`

Sponsor: ENAR | Chair: Vladimir Svetnik, Merck & Co.

📢 **Chair**

Vladimir Svetnik Director, Merck&Co.

5 Subsessions

- **40a. Bayesian Machine Learning for Multiomics Classification**
  ⏱ 2:15pm - 2:30pm, Mar 15

- **40b.Testing the Equality of Proportions for Combined Unilateral and Bilateral Correlated Data**
  ⏱ 2:30pm - 2:45pm, Mar 15

- **40c. A Simulation Study Evaluating Phase I Clinical Trial Designs for Combinational Agents**
  ⏱ 2:45pm - 3:00pm, Mar 15

- **40d. Monte Carlo Approaches to Frequentist Multiplicity-Adjusted Benefiting Subgroup Identification**
  ⏱ 3:00pm - 3:15pm, Mar 15

- **40e. Rectangular Multivariate Reference Regions with Applications in Laboratory Medicine**
  ⏱ 3:15pm - 3:30pm, Mar 15

41. Contributed Papers: Casual Inference, Comparative Effectiveness
⏱ 2:15pm - 4:00pm, Mar 15

`Scientific Program`

Sponsor: ENAR | Chair: Yinqiu He, University of Michigan

📢 **Chair**

Yinqiu He PhD student, University of Michigan

6 Subsessions

- **41a. Propensity Score Weighting for Causal Subgroup Analysis**
  🕐 2:15pm - 2:30pm, Mar 15

- **41b. CMAverse: A Suite of Functions for Reproducible Causal Mediation Analyses**
  🕐 2:30pm - 2:45pm, Mar 15

- **41c. Targeted Maximum Likelihood Estimation for Longitudinal Mediation Analysis**
  🕐 2:45pm - 3:00pm, Mar 15

- **41d. Robust Weights that Optimally Balance Confounders for Estimating the Effect of Binary and Continuous Treatments with Time-to-event Data**
  🕐 3:00pm - 3:15pm, Mar 15

- **41e. Causal Inference for the Odds Ratio and Hazard Ratio**
  🕐 3:15pm - 3:30pm, Mar 15

- **41f. Longitudinal Matching for Time-dependent Treatments**
  🕐 3:30pm - 3:45pm, Mar 15

42. Contributed Papers: High Dimensional Data Analysis
🕐 2:15pm - 4:00pm, Mar 15

`Scientific Program` `Student Award Winner`

Sponsor: ENAR | Chair: Ziqiao Wang, The University of Texas MD Anderson Cancer Center

📢 **Chair**

Ziqiao Wang Graduate Research Assistant, The University of Texas MD Anderson Cancer Center

6 Subsessions

- **42a. Covariance Estimation for Matrix-valued Data**
  🕐 2:15pm - 2:30pm, Mar 15

- **42b. CDPA: Common and Distinctive Pattern Analysis Between High-Dimensional Data Sets**
  🕐 2:30pm - 2:45pm, Mar 15

- **42c. Multi-way Sparse Distanced Weighted Discrimination**
  🕐 3:00pm - 3:15pm, Mar 15

- **42d. Improved Two-Stage Model Averaging for High-Dimensional Linear Regression, with Application to Riboflavin Data Analysis**
  🕐 3:15pm - 3:30pm, Mar 15

- **42e. Joint Learning of Multiple High-Dimensional Scalar-on-Image Regressions**
  🕐 3:30pm - 3:45pm, Mar 15

- **42f. Principal Component Analysis of Hybrid Functional and Vector Data**

43. Contributed Papers: Infectious Disease Modeling
🕑 2:15pm - 4:00pm, Mar 15

`Scientific Program`

Sponsor: ENAR | Chair: Shijia Bian, Emory University

📢 **Chair**

S

Shijia Bian Rollins School of Public Health, Emory University

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5 Subsessions

● **43a. The mechanistic Analysis of Founder Virus Data in Challenge Models**
🕑 2:15pm - 2:30pm, Mar 15

● **43b. A Bayesian Susceptible-Infectious-Hospitalized-Ventilated-Recovered Model to Predict Demand for COVID-19 Inpatient Care**
🕑 2:30pm - 2:45pm, Mar 15

● **43c. Mathematical Modeling of the Transmission Dynamics of Covid-19**
🕑 2:45pm - 3:00pm, Mar 15

● **43d. Statistical Modeling vs Machine Learning in Forecasting COVID Transmission**
🕑 3:00pm - 3:15pm, Mar 15

● **43e. BayesSMEG: Bayesian Segmentation Modeling for Epidemic Growth Models**
🕑 3:15pm - 3:30pm, Mar 15

44. Contributed Papers: Cancer Applications
🕑 2:15pm - 4:00pm, Mar 15

`Scientific Program`

Sponsor: ENAR | Chair: Maria Kamenetsky, University of Wisconsin-Madison

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📢 **Chair**

Maria Kamenetsky PhD Candidate, University of Wisconsin-Madison, Department of Population Health Sciences

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5 Subsessions

● **44a. Application of a Survival Model to a Prospectively Maintained Breast Cancer Cohort**
🕑 2:15pm - 2:30pm, Mar 15

● **44b. A Hierarchical Spike-and-Slab Model for Pan-Cancer Survival Using Pan-Omic Data**
🕑 2:30pm - 2:45pm, Mar 15

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44c. Branching Process Models of Mutations with Applications to Evolution of Cancer
🕐 2:45pm - 3:00pm, Mar 15

- **44d. Does Roundup Cause Cancer in Humans? How Recall Bias Might Have Skewed the Science**
🕐 3:00pm - 3:15pm, Mar 15

- **44e. Dealing with Component-Wise Censoring Head-On: What Can be Gained?**
🕐 3:15pm - 3:30pm, Mar 15

45. Contributed Papers: Environmental and Ecological Applications
🕐 2:15pm - 4:00pm, Mar 15

`Scientific Program` `Student Award Winner`

Sponsor: ENAR | Chair: Hengrui Cai, North Carolina State University

📢 **Chair**

Hengrui Cai Ph.D., North Carolina State University

6 Subsessions

- **45a. A Joint Spatial Conditional Auto-Regressive Model for Estimating HIV Prevalence Rates Among Key Populations**
🕐 2:15pm - 2:30pm, Mar 15

- **45b. Estimating Perinatal Critical Windows to Environmental Mixtures via Structured Bayesian Regression Trees**
🕐 2:30pm - 2:45pm, Mar 15

- **45c. Group Inverse-Gamma Gamma Shrinkage for Sparse Regression with Application to Correlated Environmental Exposure Data**
🕐 2:45pm - 3:00pm, Mar 15

- **45d. Varying-coefficient Regression for Pooled Biomonitoring Data**
🕐 3:00pm - 3:15pm, Mar 15

- **45e. Flexible Quantile Contour Estimation for Multivariate Functional Data: Beyond Convexity**
🕐 3:15pm - 3:30pm, Mar 15

- **45f. Geostatistical Analysis of Large-scale Datasets Using Krylov Subspace Methods**
🕐 3:30pm - 3:45pm, Mar 15

46. Contributed Papers: Semiparametric and Nonparametric Methods
🕐 2:15pm - 4:00pm, Mar 15

`Scientific Program` `Student Award Winner`

Sponsor: ENAR | Chair: Marta Karas, Johns Hopkins University

📢 **Chair**

Marta Karas PhD student, Johns Hopkins University

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4 Subsessions

- **46a. Integrating Information from Multiple Auxiliary Records to the Main Study**
  🕐 2:15pm - 2:30pm, Mar 15

- **46b. On the Evaluation of Surrogate Markers in Real World Data Settings**
  🕐 2:30pm - 2:45pm, Mar 15

- **46c. Distributional Function-on-scalar Quantile Regression Under Arbitrary Covariance Dependence, with Application to Mass Spectrometry Proteomics Data**
  🕐 2:45pm - 3:00pm, Mar 15

- **46d. Flexible Change Point Detection Approach with Link Uncertainty**
  🕐 3:00pm - 3:15pm, Mar 15

3:45pm

T4: Application of Gaussian Graphical Models to Metabolomics
🕐 3:45pm - 5:30pm, Mar 15

`Tutorial`

This tutorial will present an introduction to network analysis, with application to analysis of metabolomics data. This workshop will link network visualizations with statistical analyses of high dimensional metabolomics data, introduce gaussian graphical models and methods for the detection of network subcomponents that link to health outcomes. Emphasis will be placed on a suite of tools in R for network analyses of high dimensional data. Utility of these tools for 'story telling' in complex data settings will be illustrated. Examples will utilize metabolomics data from ongoing large-scale health research studies, although techniques are transferrable across multiple domains.

📣 **Speakers**

Denise Scholtens Professor and Chief, Division of Biostatistics, Northwestern University Feinberg School of Medicine

Raji Balasubramanian University of Massachusetts

4:00pm

ENAR Virtual Mixer
🕐 4:00pm - 5:00pm, Mar 15

We welcome all meeting attendees to stop in a virtual mixer to meet new people and catch up with old friends and meet new colleagues. The mixer will use the meeting platform "tabletop" format, in which participants are rotated among virtual "tables" of four, to allow for focused conversation as would happen at an in-person mixer. We particularly encourage junior researchers and new ENAR members to attend.

Exhibit Hours
🕐 4:00pm - 6:00pm, Mar 15

`Exhibit Hours`

9:00am

47. Study Designs for Evaluating Multi-Cancer Screening Tests
🕐 9:00am - 10:45am, Mar 16

`Scientific Program`

Sponsor: ASA Medical Devices and Diagnostics Section | Organizer: Gene Pennello, Food and Drug Administration | Chair: Erik Bloomquist, Food and Drug Administration

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📢 **Chair**

E

Erik Bloomquist Food and Drug Administration

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4 Subsessions

- **47a. Evaluating Multi-Cancer Screening Tests: Framework and Challenges**
  🕐 9:00am - 9:25am, Mar 16

- **47b. Designs for Multi-Cancer Screening Tests: Insights from 35 years in Early Detection of Ovarian Cancer**
  🕐 9:25am - 9:50am, Mar 16

- **47c. Sum Versus Parts: Modeling the Harm-benefit Tradeoffs of Multi-cancer Screening Tests**
  🕐 9:50am - 10:15am, Mar 16

- **47d. Discussant**
  🕐 10:15am - 10:40am, Mar 16

48. Oh, The Places You Could Go: Surprising Careers in Statistics and Data Science
🕐 9:00am - 10:45am, Mar 16

`Panel` `Scientific Program`

Sponsors: CENS, ENAR | Organizers: Hannah L. Weeks, Vanderbilt University, Jeong Hoon Jang, Indiana University School of Medicine | Chair: Sarah Samorodnitsky, University of Minnesota

There is a large amount of diversity in job opportunities and career trajectories available for statisticians both inside and outside the categories of academia, industry, and government. Many of these options may not be on the radar of early-career statisticians, and movement within or between organizations can be challenging. In this panel discussion, we invite panelists from diverse and unique career backgrounds to share unexpected challenges, opportunities, and career changes they experienced over the course of their professional trajectories. Topics for discussion include how panelists learned about and prepared for unexpected job opportunities, how they translate professional and communication skills between different roles, how they approach working with collaborators with different functional expertise, and how they impact science, expand influence, and establish leadership as a statistician or data scientist in their respective organizations. Drawing on the experience of panelists from diverse career backgrounds, attendees will be better equipped to navigate the professional landscape and succeed in a wide range of statistical careers well-suited to their interests.

📢 **Chair**

Sarah Samorodnitsky PhD Student, University of Minnesota Division of Biostatistics

C

Christopher Fonnesbeck Senior Quantitative Analyst, New York Yankees

J

Jesse Gronsbell University of Toronto

Jessica Lavery Research Biostatistician II, Memorial Sloan Kettering Cancer Center

Wei Shen Senior Director, Strategy and Capabilities, Eli Lilly and Company

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49. Data Integration for Precision Medicine
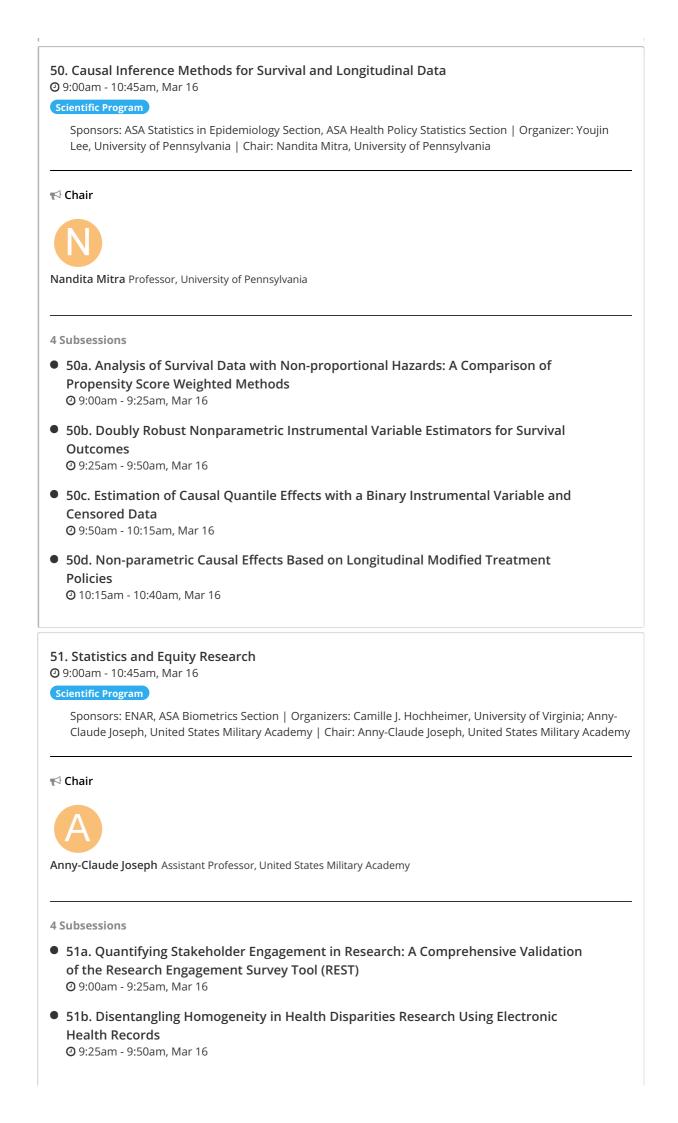🕐 9:00am - 10:45am, Mar 16

`Scientific Program`

Sponsors: ASA Bayesian Statistical Science Section, ASA Statistical Learning and Data Science Section | Organizers: Shariq Mohammed, University of Michigan; Veerabhadran Boladandayuthapani, University of Michigan | Chair: Shariq Mohammed, University of Michigan

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📢 **Chair**

S

Shariq Mohammed Postdoctoral Research Fellow, University of Michigan

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4 Subsessions

- **49a. Objective Physical Activity Monitoring Using Wearable Devices**
  🕐 9:00am - 9:25am, Mar 16

- **49b. Data Integration for Predicting Kidney Obstruction in the Absence of Gold Standard via a Bayesian Latent Class Model**
  🕐 9:25am - 9:50am, Mar 16

- **49c. Bayesian Precision Medicine Frameworks for Calibrating Individualized Therapeutic Indices in Cancer**
  🕐 9:50am - 10:15am, Mar 16

- **49d. Subgroup Analysis Across Multiple Studies**
  🕐 10:15am - 10:40am, Mar 16

50. Causal Inference Methods for Survival and Longitudinal Data

🕘 9:00am - 10:45am, Mar 16

Scientific Program

Sponsors: ASA Statistics in Epidemiology Section, ASA Health Policy Statistics Section | Organizer: Youjin Lee, University of Pennsylvania | Chair: Nandita Mitra, University of Pennsylvania

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📢 **Chair**

N

Nandita Mitra Professor, University of Pennsylvania

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4 Subsessions

- **50a. Analysis of Survival Data with Non-proportional Hazards: A Comparison of Propensity Score Weighted Methods**
  🕘 9:00am - 9:25am, Mar 16

- **50b. Doubly Robust Nonparametric Instrumental Variable Estimators for Survival Outcomes**
  🕘 9:25am - 9:50am, Mar 16

- **50c. Estimation of Causal Quantile Effects with a Binary Instrumental Variable and Censored Data**
  🕘 9:50am - 10:15am, Mar 16

- **50d. Non-parametric Causal Effects Based on Longitudinal Modified Treatment Policies**
  🕘 10:15am - 10:40am, Mar 16

51. Statistics and Equity Research

🕘 9:00am - 10:45am, Mar 16

Scientific Program

Sponsors: ENAR, ASA Biometrics Section | Organizers: Camille J. Hochheimer, University of Virginia; Anny-Claude Joseph, United States Military Academy | Chair: Anny-Claude Joseph, United States Military Academy

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📢 **Chair**

A

Anny-Claude Joseph Assistant Professor, United States Military Academy

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4 Subsessions

- **51a. Quantifying Stakeholder Engagement in Research: A Comprehensive Validation of the Research Engagement Survey Tool (REST)**
  🕘 9:00am - 9:25am, Mar 16

- **51b. Disentangling Homogeneity in Health Disparities Research Using Electronic Health Records**
  🕘 9:25am - 9:50am, Mar 16

- **51c. Statistics and Equity Research: Local and National Trends in Racial Disparities in Cardiovascular Health in the US**
  🕐 9:50am - 10:15am, Mar 16

- **51d. Discussant**
  🕐 10:15am - 10:40am, Mar 16

52. What To Do When Your Data Are Poop: Current Methods for Microbiome Analysis
🕐 9:00am - 10:45am, Mar 16

`Scientific Program`

Sponsor: ASA Statistics in Genomics and Genetics Section | Organizer: Michael C. Wu, Fred Hutchinson Cancer Research Center | Chair: Wodan Ling, Fred Hutchinson Cancer Research Center

📢 **Chair**

W

Wodan Ling Postdoc Research Fellow, Fred Hutchinson Cancer Research Center

4 Subsessions

- **52a. Deep Learning for Interrogating Gut Microbiome and Its Function**
  🕐 9:00am - 9:25am, Mar 16

- **52b. Microbiome Volatility and Longitudinal Microbiome Analysis**
  🕐 9:25am - 9:50am, Mar 16

- **52c. Testing Presence-Absence Associations in the Microbiome**
  🕐 9:50am - 10:15am, Mar 16

- **52d. Multivariate Panomic Analysis Suggests Tissue Associated Microbiota in Colorectal Polyps Mediates Immune Gene Expression Response**
  🕐 10:15am - 10:40am, Mar 16

53. Group Testing for Identifying Cases of COVID-19: Opportunities and Challenges
🕐 9:00am - 10:45am, Mar 16

`Panel` `Scientific Program`

Sponsors: ASA Statistics in Epidemiology Section | Organizer/Chair: Paul Albert, National Cancer Institute

Group testing for disease screening has been proposed as a cost savings method for identifying disease in a population. In its simplest form, it involves pooling k samples together to perform a single assay to determine whether any of individuals in the group are positive. If this grouped assay is positive, then individuals within the group will be individually tested. This simple algorithm was originally proposed by Dorfman (1943) for screening U.S. Army recruits for Syphilis where only limited resources were available for this activity. Since that time, there has been an enormous amount of research in the computer science, statistics, and biostatistics literature proposing increasingly efficient designs under more complex settings including the incorporation of dilution error in pooled samples. Until recently, these designs have not been extensively used in practice. All this changed a few months ago with the advent of the COVID-19 crises. These designs are now being discussed and widely used, usually without much input from statisticians. In fact, there have been numerous reports in the lay press advocating their use, including articles in the Scientific American, NY Times, and Forbes, where the latter published an article in March 2020 titled, "Group testing is our surefire weapon against coronavirus" The goal of this panel is to bring together a group of statisticians who have extensive methodological and applied research in this area. Included in the group are individuals involved with assay development for COVID-19 diagnosis and other aspects of study design. Six Panel members will be asked to comment on opportunities and challenges of using group testing in the setting of emerging infections like COVID-19. There will be an active exchange between panel members and the audience.

P

Paul Albert National Cancer Institute

C

Chris Bilder Professor, University of Nebraska-Lincoln

Michael Hudgens Professor, University of North Carolina at Chapel Hill

S

Sally Hunsberger National Institute of Allergy and Infectious Diseases

A

Aiyi Liu Senior Investigator, NICHD, NIH

Yaakov Malinovsky Associate Professor, University of Maryland, Baltimore County

S

Susan Stramer Vice President of Scientific Research, Red Cross

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54. Challenges and Advances in Biobank-scale Brain Imaging Genetics
🕐 9:00am - 10:45am, Mar 16

Scientific Program

Sponsors: ASA Statistics in Genomics and Genetics Section, ASA Statistics in Imaging Section, ASA Mental Health Statistics Section | Organizer: Hongtu Zhu, University of North Carolina at Chapel Hill | Chair: Bingxin Zhao, Department of Statistics, Purdue University

📢 Chair

B

Bingxin Zhao Assistant Professor, Department of Statistics, Purdue University

4 Subsessions

● **54a. Biobank-scale Brain Imaging Genetics: Clinical and Methodological Advances**

○ 9:00am - 9:25am, Mar 16

- **54b. Brain Imaging Genetics: Integrated Analysis and Statistical Machine Learning**
  ○ 9:25am - 9:50am, Mar 16

- **54c. Implicating Causal Brain Imaging Endophenotypes in Alzheimer's Disease using Multivariable IWAS and GWAS Summary Data**
  ○ 9:50am - 10:15am, Mar 16

- **54d. Genetic Correlations Between Imaging Traits and Common Diseases**
  ○ 10:15am - 10:40am, Mar 16

55. Recent Advances in Analysis of Expression Quantitative Trait Loci
○ 9:00am - 10:45am, Mar 16

`Scientific Program`

Sponsor: IMS | Organizer/Chair: Lin Chen, University of Chicago

📢 **Chair**

Lin Chen Associate Professor, University of Chicago

4 Subsessions

- **55a. Detecting Cell-type-specific eQTLs Using Bayesian Estimates of Cell-type-specific Gene Expression from Tissue Samples with Single-cell Prior**
  ○ 9:00am - 9:25am, Mar 16

- **55b. A Hierarchical Low-Rank Approach for Integrating GWAS and Multi-Omics QTL Summary Statistics**
  ○ 9:25am - 9:50am, Mar 16

- **55c. CCmed: Cross-condition Mediation Analysis for Identifying Robust Trans-associations Mediated by cis-gene**
  ○ 9:50am - 10:15am, Mar 16

- **55d. Probabilistic eQTL Analysis and Its Applications in Integrative Genetic Analysis**
  ○ 10:15am - 10:40am, Mar 16

56. Contributed Papers: Time Series Modeling
○ 9:00am - 10:45am, Mar 16

`Scientific Program`

Sponsor: ENAR | Chair: Meng Li, Rice University

📢 **Chair**

Meng Li Rice University

6 Subsessions

- **56a. Estimating Task Effects on Intrinsic Connectivity Networks with BICNet**
  🕐 9:00am - 9:15am, Mar 16

- **56b. Conex-Connect: Learning Patterns in Extremal Brain Connectivity From Multi-Channel EEG Data**
  🕐 9:15am - 9:30am, Mar 16

- **56c. Levels and Trends in the Sex Ratio at Birth by Vietnam Region Between 1980 and 2018 with Probabilistic Projections to 2050: A Bayesian Modeling Approach**
  🕐 9:30am - 9:45am, Mar 16

- **56d. Smooth Online Parameter Estimation for Time Varying VAR Models with Application to Resting-state EEG Dataset**
  🕐 9:45am - 10:00am, Mar 16

- **56e. Using Deep Learning for Automated Scoring of Patient Sleep and Wake States in Clinical Trials**
  🕐 10:00am - 10:15am, Mar 16

- **56f. Theta Autoregressive Neural Network Model for COVID-19 Outbreak Predictions**
  🕐 10:15am - 10:30am, Mar 16

57. Contributed Papers: Novel Frameworks for Survival Analysis
🕐 9:00am - 10:45am, Mar 16

`Scientific Program`

Sponsor: ENAR | Chair: Michael Daniel C. Lucagbo, University of Maryland, Baltimore County

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📢 **Chair**

Michael Daniel Lucagbo University of Maryland, Baltimore County

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6 Subsessions

- **57a. A Unified Proportional Hazards Model**
  🕐 9:00am - 9:15am, Mar 16

- **57b. Penalized Empirical Likelihood Inference for the Cox Model with Spatial Homogeneity**
  🕐 9:15am - 9:30am, Mar 16

- **57c. Latent Class Analysis with Proportional Hazards Submodel for Time-to-event Data**
  🕐 9:30am - 9:45am, Mar 16

- **57d. Non-parametric Estimation of Cancer-specific Age-at-onset Distribution, with Application to BRCA1/2 Related Breast and Ovarian Cancer**
  🕐 9:45am - 10:00am, Mar 16

- **57e. High-dimensional Variable Selection for the Additive Cox's Model with Interval-censored Data**
  🕐 10:00am - 10:15am, Mar 16

- **57f. The Scale Transformed Power Prior with Applications to Time-To-Event Data**
  🕐 10:15am - 10:30am, Mar 16

58. Contributed Papers: Survey Research
🕐 9:00am - 10:45am, Mar 16

`Scientific Program`

Sponsor: ENAR | Chair: Megan C. Hollister, Vanderbilt University

📢 **Chair**

Megan C. Hollister Vanderbilt University

4 Subsessions

- **58a. Nonparametric Transition Probability Estimation for Complex Survey Data**
  🕐 9:00am - 9:15am, Mar 16

- **58b. Receiver Operating Characteristic Curve for Complex Survey Data**
  🕐 9:15am - 9:30am, Mar 16

- **58c. A Note On Quantile Regression for Complex Surveys**
  🕐 9:30am - 9:45am, Mar 16

- **58d. Estimating Seroprevalence of SARS-CoV-2 in Ohio: A Bayesian Approach with Multiple Diagnostic Tests**
  🕐 9:45am - 10:00am, Mar 16

59. Contributed Papers: Clinical Trial, Bayesian Clinical Trial
🕐 9:00am - 10:45am, Mar 16

`Scientific Program`

Sponsor: ENAR | Chair: Bin Wang, FDA

📢 **Chair**

Bin Wang Mathematical Statistician, FDA

6 Subsessions

- **59a. Integrating External Adult Data Into the Design of Pediatric dose-finding Studies**
  🕐 9:00am - 9:15am, Mar 16

- **59b. Power Prior Models for Treatment Effect Estimation in a Small n, Sequential, Multiple Assignment, Randomized Trial**
  🕐 9:15am - 9:30am, Mar 16

- **59c. Sample Size Estimation for Hierarchical 2x2 Factorial Trials Accounting for Variable Cluster Sizes**
  🕐 9:30am - 9:45am, Mar 16

- **59d. From Truncation by Death to the Survival-adjusted Median: A Summary Measure in the Presence of Death**
  🕐 9:45am - 10:00am, Mar 16

- **59e. Hierarchical Bayesian Modeling of Disease Progression to Inform Clinical Trial Design in Centronuclear Myopathy**
  ⏲ 10:00am - 10:15am, Mar 16

- **59f. Multi-Regional Clinical Trials Using Bayesian Model Averaging**
  ⏲ 10:15am - 10:30am, Mar 16

60. Contributed Papers: Advanced Modeling for Imaging Data
⏲ 9:00am - 10:45am, Mar 16

`Scientific Program`

Sponsor: ENAR | Chair: Dayu Sun, Emory University

📢 **Chair**

Dayu Sun Postdoctoral Fellow, Emory University

6 Subsessions

- **60a. A Simple Permutation-Based Test of Intermodal Correspondence**
  ⏲ 9:00am - 9:15am, Mar 16

- **60b. Fully Automated Detection of Paramagnetic Rims in Multiple Sclerosis Lesions on 3T Susceptibility-Based MR Imaging**
  ⏲ 9:15am - 9:30am, Mar 16

- **60c. Modeling Dependence for Multi-Region Multi-Metabolite MRS Data**
  ⏲ 9:30am - 9:45am, Mar 16

- **60d. Bayesian Inference for Brain Activity from Functional Magnetic Resonance Imaging Collected at Two Spatial Resolutions**
  ⏲ 9:45am - 10:00am, Mar 16

- **60e. Bayesian Inferences in EEG-Based Brain-Computer Interface via the Split-and-Merge Gaussian Process**
  ⏲ 10:00am - 10:15am, Mar 16

- **60f. Combating the Curse of Dimensionality in Multidimensional Functional Data Analysis**
  ⏲ 10:15am - 10:30am, Mar 16

61. Contributed Papers: Handling of Missing Data
⏲ 9:00am - 10:45am, Mar 16

`Scientific Program`

Sponsor: ENAR | Chair: Bryan Blette, University of North Carolina, Chapel Hill

📢 **Chair**

Bryan Blette Ph.D. Candidate, University of North Carolina at Chapel Hill

5 Subsessions

- **61a. Weighted Within-cluster-resampling Method for Longitudinally Measured Response and Informative Cluster Size with Non-ignorable Zeros**
  ⏰ 9:00am - 9:15am, Mar 16

- **61b. Semiparametric Maximum Likelihood Estimation with Two-phase Stratified Case-control Sampling**
  ⏰ 9:15am - 9:30am, Mar 16

- **61c. Evaluating Disseminated Effects in Network-Based Studies In the Presence of Missing Outcomes**
  ⏰ 9:30am - 9:45am, Mar 16

- **61d. Non-Standard Applications of Hidden Markov Models in the Biosciences**
  ⏰ 9:45am - 10:00am, Mar 16

- **61e. Multiply Robust Generalized Estimating Equations in Cluster Randomized Trials with Missing Outcomes**
  ⏰ 10:00am - 10:15am, Mar 16

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62. Contributed Papers: Statistical Genetics
⏰ 9:00am - 10:45am, Mar 16

`Scientific Program`

Sponsor: ENAR | Chair: Xinjun Wang, University of Pittsburgh

📢 **Chair**

Xinjun Wang PhD Student, University of Pittsburgh

6 Subsessions

- **62a. Sparse Factor Decomposition Accounting for Correlated Errors Aids Biological Discovery from Phenome-Wide Analysis of Genetic Associations.**
  ⏰ 9:00am - 9:15am, Mar 16

- **62b. Detecting Allele Specific Expression and Alterations of Allele Specific Expression by a Bivariate Bayesian Hidden Markov Model**
  ⏰ 9:15am - 9:30am, Mar 16

- **62c. Impact of Assumptions of X Chromosome Inactivation and X Chromosome SNP Coding on Effect Estimates**
  ⏰ 9:30am - 9:45am, Mar 16

- **62d. EPISPOT: an Epigenome-driven Approach for Detecting and Interpreting Hotspots in Molecular QTL Studies**
  ⏰ 9:45am - 10:00am, Mar 16

- **62e. Scalable Statistical Test for DNA-Protein Binding Alternation With Insertion and Deletion of Bases**
  ⏰ 10:00am - 10:15am, Mar 16

- **62f. A Fast Search Algorithm for Identifying Dynamic Gene Coexpression via Bayesian Variable Selection**
  ⏰ 10:15am - 10:30am, Mar 16

11:00am

63. Presidential Invited Address
🕐 11:00am - 12:45pm, Mar 16

Presidential Address

Sponsor: ENAR | Organizer/Chair: Brent Coull, Harvard University

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3 Subsessions

- **Introduction**
  🕐 11:00am - 11:05am, Mar 16

- **Distinguished Student Paper Awards**
  🕐 11:05am - 11:15am, Mar 16

- **Statistical Leadership: A Pathway to Innovative Interdisciplinary Problem-Solving**
  🕐 11:15am - 12:45pm, Mar 16

1:00pm

CENS Networking Event
🕐 1:00pm - 2:00pm, Mar 16

Networking Opportunity

Join us for this virtual networking event hosted by ENAR Council for Emerging and New Statisticians (CENS)! This is an opportunity for everyone, especially students and recent graduates, to virtually connect during ENAR. There will be several breakout rooms for smaller group conversations. Within each breakout room, a CENS member will lead the discussion through brief introductions, structured conversation prompts, and an interactive activity. Also don't miss your chance to win fabulous prizes during our activity! *Register in advance to guarantee your seat!*

64. Posters: Genetics, Genomics
🕐 1:00pm - 2:00pm, Mar 16

Posters **Scientific Program**

Sponsor: ENAR | Chair: Wodan Ling, Fred Hutchinson Cancer Research Center

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📢 **Chair**

W

Wodan Ling Postdoc Research Fellow, Fred Hutchinson Cancer Research Center

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7 Subsessions

- **64a. A Multi-marker Test for Analyzing Paired Transplant Genetic Data**
  🕐 1:00pm - 2:00pm, Mar 16

- **64b. Decomposition of Longitudinal Microbiome Data**
  🕐 1:00pm - 2:00pm, Mar 16

- **64c. Joint Modeling of Longitudinal Proportions and Time-To-Event Data with Applications to Microbiome Data Analysis**
  🕐 1:00pm - 2:00pm, Mar 16

- **64d. A Novel Predictive Model to Understand the Influence of Progression of Tumor**

Growth to Predict Survival in Liver Cancer
🕐 1:00pm - 2:00pm, Mar 16

- **64e. A Comparison of Data Normalization Methods for NanoString GeoMxTM digital spatial profiling**
🕐 1:00pm - 2:00pm, Mar 16

- **64f. Variable Selection in Multivariate Regression With High-Dimensional Predictors and Responses**
🕐 1:00pm - 2:00pm, Mar 16

- **64g. A novel GEnomic NEtwork COrrelation Merging System (GENECOMS) to investigate the relation between differentially expressed gene modules and methylation regions in bladder cancer**
🕐 1:00pm - 2:00pm, Mar 16

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65. Posters: Causal Inference, Epidemiologic Methods
🕐 1:00pm - 2:00pm, Mar 16

`Posters` `Scientific Program`

Sponsor: ENAR | Chair: Zeyi Wang, UC Berkeley

📢 **Chair**

Z

Zeyi Wang University of California, Berkeley

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8 Subsessions

- **65a. Explanation of Moderated Mediation by Interaction Terms: Treatment and Covariates Dependence in Conditional Natural Effects in Causal Mediation Analysis**
🕐 1:00pm - 2:00pm, Mar 16

- **65b. Causal Inference for Measures of Health Disparities Using Inverse Probability Weighting Methods**
🕐 1:00pm - 2:00pm, Mar 16

- **65c. Guidelines for Propensity Score Calibration: Extensions and Limitations**
🕐 1:00pm - 2:00pm, Mar 16

- **65d. Estimating Spatially Varying Health Effects in App-based Citizen Science Research**
🕐 1:00pm - 2:00pm, Mar 16

- **65e. Assessing the Impact of Sample Size on Finite Sample Performance of Estimators in the Presence of Dissemination in Network-based Studies of Hidden Populations**
🕐 1:00pm - 2:00pm, Mar 16

- **65f. The Ternary Relationship Between Multiple Domains of Physical Activity Measurement**
🕐 1:00pm - 2:00pm, Mar 16

- **65g. How Close and How Much? Linking Health Outcomes to Built Environment Spatial Distributions**
🕐 1:00pm - 2:00pm, Mar 16

- **65h. Estimating Seroprevalence of COVID-19**

🕐 1:00pm - 2:00pm, Mar 16

Regional Committee Meeting (RECOM) (by Invitation Only)
🕐 1:00pm - 3:30pm, Mar 16

`Committee Meeting`

1:45pm

T5: Integration of Genetics and Imaging Data in Scientific Studies
🕐 1:45pm - 3:30pm, Mar 16

`Tutorial`

In this tutorial, we will discuss issues and approaches in the consideration of combining genetics and imaging data in biological and biomedical studies. A variety of motivating examples will be described. A common life-cycle pipeline for analytics will be discussed, along with some emergent lessons that have been learned through the literature. I will also focus on the types of questions that are typically asked with these data sources and the roles of regression modelling and machine learning in these contexts.

📢 **Speaker**

D

Debashis Ghosh University of Colorado

2:15pm

66. Leveraging Real-world Data for Improved Medical Decision-making: Challenges, Opportunities, and Recent Developments
🕐 2:15pm - 4:00pm, Mar 16

`Scientific Program`

Sponsors: ASA Statistics in Epidemiology Section, ASA Health Policy Statistics Section | Organizer/Chair: Michele Santacatterina, George Washington University

📢 **Chair**

Michele Santacatterina Assistant Research Professor, The George Washington University

4 Subsessions

- **66a. On the Role of Surrogates in the Efficient Estimation of Treatment Effects with Limited Outcome Data**
  🕐 2:15pm - 2:40pm, Mar 16

- **66b. Use of EHR in Randomized Clinical Trials: We Are Not Ready for it yet**
  🕐 2:40pm - 3:10pm, Mar 16

- **66c. Use of Historical Individual Patient Data in Analysis of Clinical Trials**
  🕐 3:10pm - 3:35pm, Mar 16

- **66d. Studying Comparative Effectiveness of COVID-19 Vaccines in the General Public**
  🕐 3:35pm - 4:00pm, Mar 16

67. Emerging Lessons on Opioid Policy Evaluation Methods

🕐 2:15pm - 4:00pm, Mar 16

`Scientific Program`

Sponsor: ASA Health Policy Statistics Section | Organizer/Chair: Beth Ann Griffin, RAND Corporation

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4 Subsessions

- **67a. Evaluating Methods to Estimate the Effect of State Laws on Opioid-related Outcomes in the Presence of Selection Bias and Concurrently Implemented Policies**
  🕐 2:15pm - 2:40pm, Mar 16

- **67b. Using Stacked Comparative Interrupted Time Series to Estimate Opioid Policy Effects**
  🕐 2:40pm - 3:10pm, Mar 16

- **67c. Methodological Challenges and Considerations when Conducting Opioid Policy Evaluation Studies**
  🕐 3:10pm - 3:35pm, Mar 16

- **67d. Novel Methods to Collect Local Level Policy and Enforcement Data: A Case Study of Opioid Laws**
  🕐 3:35pm - 4:00pm, Mar 16

68. Fairness in Statistics and Machine Learning for Equitable Decision-making

🕐 2:15pm - 4:00pm, Mar 16

`Scientific Program`

Sponsors: ASA Health Policy Statistics Section, ASA Statistical Learning and Data Science Section | Organizer: Arielle Marks-Anglin, University of Pennsylvania | Chair: Emma Benn, Icahn School of Medicine at Mount Sinai

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📢 **Chair**

E

Emma Benn Icahn School of Medicine at Mount Sinai

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4 Subsessions

- **68a. Developments in Fair Machine Learning for Risk Adjustment**
  🕐 2:15pm - 2:40pm, Mar 16

- **68b. Assessing Algorithmic Fairness with Unobserved Protected Class Using Data Combination**
  🕐 2:40pm - 3:10pm, Mar 16

- **68c. Fairness By Causal Mediation Analysis: Criteria, Algorithms, and Open Problems**
  🕐 3:10pm - 3:35pm, Mar 16

- **68d. Multicalibration for Uncertainty Estimation**
  🕐 3:35pm - 4:00pm, Mar 16

69. Outbreak Dynamics and Causal Inference for Infectious Disease Interventions: Methodological Tools for Addressing COVID-19

🕐 2:15pm - 4:00pm, Mar 16

`Scientific Program`

Sponsor: ASA Statistics in Epidemiology Section | Organizer/Chair: Jonathan Fintzi, Biostatistics Research Branch, National Institute of Allergy and Infectious Diseases

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📢 **Chair**

J

Jonathan Fintzi Biostatistics Research Branch, National Institute of Allergy and Infectious Diseases

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4 Subsessions

- **69a. Causal Identification of Infectious Disease Intervention Effects in a Clustered Population**
  🕐 2:15pm - 2:40pm, Mar 16

- **69b. Likelihood-based Inference for Partially Observed Epidemics on Dynamic Networks**
  🕐 2:40pm - 3:10pm, Mar 16

- **69c. Using Multiple Data Streams to Estimate and Forecast SARS-CoV-2 Transmission Dynamics**
  🕐 3:10pm - 3:35pm, Mar 16

- **69d. Statistical Transmission Models for COVID-19: Contact Rates and Confounding**
  🕐 3:35pm - 4:00pm, Mar 16

70. Advances in Statistical and Computational Tools for Analysis of Large-scale Omics Data
🕐 2:15pm - 4:00pm, Mar 16

`Scientific Program`

Sponsor: IMS | Organizer/Chair: Saonli Basu, University of Minnesota

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📢 **Chair**

Saonli Basu Professor, University of Minnesota

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4 Subsessions

- **70a. Statistical Analysis of Multi-sample Single-cell RNA-seq Data with Applications in COVID-19**
  🕐 2:15pm - 2:40pm, Mar 16

- **70b. Outcome-Guided Disease Subtyping for High-Dimensional Omics Data**
  🕐 2:40pm - 3:10pm, Mar 16

- **70c. Deep Generative Modeling of Single Cell High Throughput Chromatin Conformation Capture Data**
  🕐 3:10pm - 3:35pm, Mar 16

- **70d. Knockoff Genotypes: Value in Counterfeit**
  🕐 3:35pm - 4:00pm, Mar 16

71. Bulk Deconvolution and Single-cell Data Analysis Identifies Transcriptomic Dynamics in Tumor and Immune Cells as Potential Prognostic Markers for Cancer
⏲ 2:15pm - 4:00pm, Mar 16

Scientific Program

Sponsor: IMS | Organizer: Wenyi Wang, The University of Texas MD Anderson Cancer Center | Chair: Shaolong Cao, The University of Texas MD Anderson Cancer Center

📢 **Chair**

Shaolong Cao Post-Doctoral Fellow, The University of Texas MD Anderson Cancer Center

4 Subsessions

- **71a. Study of Tumor Immune Microenvironment**
  ⏲ 2:15pm - 2:40pm, Mar 16

- **71b. Advantages and Limitations of Statistical Deconvolution for Cell Type Heterogeneity Inferences in Cancer**
  ⏲ 2:40pm - 3:05pm, Mar 16

- **71c. Dynamics of T Cell States During Response to Donor Lymphocyte Infusion**
  ⏲ 3:05pm - 3:30pm, Mar 16

- **71d. Discussant**
  ⏲ 3:30pm - 3:55pm, Mar 16

72. Analysis of High Dimensional and Complex Data Including Genomic and Imaging Data
⏲ 2:15pm - 4:00pm, Mar 16

Scientific Program

Sponsor: IMS | Organizer/Chair: Heping Zhang, Yale University

📢 **Chair**

Heping Zhang Yale University

4 Subsessions

- **72a. High-order Image Regression with Internal Variation**
  ⏲ 2:15pm - 2:40pm, Mar 16

- **72b. Ultra-high Dimensional Semiparametric Longitudinal Data Analysis**
  ⏲ 2:40pm - 3:10pm, Mar 16

- **72c. Correlation Tensor Decomposition and Its Application in Spatial Imaging Data**
  ⏲ 3:10pm - 3:35pm, Mar 16

- **72d. A Super Scalable Algorithm for Short Segment Detection**
  ⏲ 3:35pm - 4:00pm, Mar 16

73. Contributed Papers: Recent Advances in Testing
🕐 2:15pm - 4:00pm, Mar 16

Scientific Program

Sponsor: ENAR | Chair: Paramita Saha Chaudhuri, University of Vermont

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📣 **Chair**

Paramita Saha Chaudhuri

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5 Subsessions

- **73a. MixTwice: Large-scale Hypothesis Testing for Peptide Arrays by Variance Mixing**
  🕐 2:15pm - 2:30pm, Mar 16

- **73b. Adaptive Bootstrap Tests for Composite Null Hypotheses in the Mediation Pathway Analysis**
  🕐 2:30pm - 2:45pm, Mar 16

- **73c. Bayes Estimate of Primary Threshold in Cluster-wise fMRI Inferences**
  🕐 2:45pm - 3:00pm, Mar 16

- **73d. Associations Between Incentivized Primary Care Diabetes Indicators Attainment and Emergency Hospitalizations: A Population-Based Study in England, 2010-2017**
  🕐 3:00pm - 3:15pm, Mar 16

- **73e. Machine Learning Algorithm for Renal Obstruction Diagnosis Using Baseline and Post-furosemide MAG3 Functional Data**
  🕐 3:15pm - 3:30pm, Mar 16

74. Contributed Papers: Clustered Data Methods
🕐 2:15pm - 4:00pm, Mar 16

Scientific Program

Sponsor: ENAR | Chair: Raphael Fraser, Medical College of Wisconsin

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6 Subsessions

- **74a. Outcome-guided Sparse K-means for Disease Subtype Discovery via Integrating Phenotypic Data with High-dimensional Transcriptomic Data**
  🕐 2:15pm - 2:30pm, Mar 16

- **74b. Statistical Clustering of Lesion Based MRI Features in Multiple Sclerosis Patients.**
  🕐 2:30pm - 2:45pm, Mar 16

- **74c. Monitoring and Surveillance Techniques in Healthcare**
  🕐 2:45pm - 3:00pm, Mar 16

- **74d. Choosing Appropriate Significance Levels for Sequential Community Detection**
  🕐 3:00pm - 3:15pm, Mar 16

- **74e. Implementation of Clusterability Testing Prior to Clustering**
  🕐 3:15pm - 3:30pm, Mar 16

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74f. A Maximum Entry Based Hypothesis Testing Approach for Estimating Number of Communities
🕐 3:30pm - 3:45pm, Mar 16

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75. Contributed Papers: Adaptive Design, Adaptive Randomization
🕐 2:15pm - 4:00pm, Mar 16

`Scientific Program`

Sponsor: ENAR | Chair: Dung-Tsa Chen, Moffitt Cancer Center

📢 **Chair**

D

Dung-Tsa Chen Moffitt Cancer Center

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5 Subsessions

- **75a. A Bayesian Adaptive Phase I/II Platform Trial Design (A12PT) for Pediatric Immunotherapy Trials**
  🕐 2:15pm - 2:30pm, Mar 16

- **75b. Interim Monitoring in Sequential Multiple Assignment Randomized Trials**
  🕐 2:30pm - 2:45pm, Mar 16

- **75c. Optimality in Blocked Response-Adaptive Randomization Designs for Non-Inferiority Trials**
  🕐 2:45pm - 3:00pm, Mar 16

- **75d. Adaptive Visualization of Single-cell RNA-seq Data**
  🕐 3:00pm - 3:15pm, Mar 16

- **75e. Bayesian Methods to Compare Dose Levels to Placebo in a Small n, Sequential, Multiple Assignment, Randomized Trial (snSMART) with Continuous Response**
  🕐 3:15pm - 3:30pm, Mar 16

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76. Contributed Papers: Longitudinal Data Analysis
🕐 2:15pm - 4:00pm, Mar 16

`Scientific Program`

Sponsor: ENAR | Chair: Xin Ma, Emory University

📢 **Chair**

X

Xin Ma Emory University

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5 Subsessions

- **76a. Multivariate Longitudinal Analysis for Complier Average Causal Effect With an Application to Arthritis Health Journal Study**
  🕐 2:15pm - 2:30pm, Mar 16

- **76b. Predictive Partly Conditional Models for Longitudinal Ordinal Outcomes with Application to Alzheimer's Disease**
  ⏲ 2:30pm - 2:45pm, Mar 16

- **76c. PROFIT - Significance Test in Functional Data**
  ⏲ 2:45pm - 3:00pm, Mar 16

- **76d. Statistical Analysis of Incomplete Longitudinal Data Under Different Missing Scenarios**
  ⏲ 3:00pm - 3:15pm, Mar 16

- **76e. Design and Analysis of a Two-Phase Study for Multivariate Longitudinal Outcomes**
  ⏲ 3:15pm - 3:30pm, Mar 16

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77. Contributed Papers: Bayesian Modeling for Complex Data
⏲ 2:15pm - 4:00pm, Mar 16

`Scientific Program`

Sponsor: ENAR | Chair: Yeongjin Gwon, University of Nebraska Medical Center

📣 **Chair**

Yeongjin Gwon Assistant Professor, University of Nebraska Medical Center

4 Subsessions

- **77a. A Generalized Commensurate Prior Model for Survival Outcome to Accommodate Historical Controls**
  ⏲ 2:15pm - 2:30pm, Mar 16

- **77b. Ordinal Probit Functional Outcome Regression with Application to Computer-Use Behavior in Rhesus Monkeys**
  ⏲ 2:30pm - 2:45pm, Mar 16

- **77c. A Bayesian Segmented Regression Model for Microbiome Longitudinal Analysis**
  ⏲ 2:45pm - 3:00pm, Mar 16

- **77d. Bayesian Modeling of Spatial Transcriptomics Data via a Modified Potts Model**
  ⏲ 3:00pm - 3:15pm, Mar 16

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78. Contributed Papers: Prediction, Prognostic Modeling
⏲ 2:15pm - 4:00pm, Mar 16

`Scientific Program`

Sponsor: ENAR | Chair: Yimei Li, University of Pennsylvania

📣 **Chair**

Yimei Li Assistant Professor of Biostatistics, University of Pennsylvania

5 Subsessions

- **78a. Predicting a Clinical Outcome via a Machine Learning Algorithm: An Application to Chronic Kidney Disease**
  ⏱ 2:15pm - 2:30pm, Mar 16

- **78b. Prediction and Variable Selection Using Network-integrated Spike-and-slab Gaussian Model**
  ⏱ 2:30pm - 2:45pm, Mar 16

- **78c. An Illustration and Evaluation of the Pattern Submodel Approach for Handling Missing Data in Prediction Modeling**
  ⏱ 2:45pm - 3:00pm, Mar 16

- **78d. From Signal Processing to Functional Data Analysis: Analyzing a System of Streaming Data from Different Sources**
  ⏱ 3:00pm - 3:15pm, Mar 16

- **78e. Investigating Latent Neurocircuitry Traits Underlying Brain Dynamic Functional Connectome**
  ⏱ 3:15pm - 3:30pm, Mar 16

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79. Contributed Papers: Analytical Methods for Genomics
⏱ 2:15pm - 4:00pm, Mar 16

`Scientific Program`

Sponsor: ENAR | Chair: Tingting Zhan, Thomas Jefferson University

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📢 **Chair**

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Tingting Zhan Assistant Professor, Thomas Jefferson University

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4 Subsessions

- **79a. A Comprehensive Statistical Framework for Inferring Transcriptional Bursting Kinetics Using Single-cell RNA Sequencing Data**
  ⏱ 2:15pm - 2:30pm, Mar 16

- **79b. Computationally Efficient Classification in Large Drug Screening Studies**
  ⏱ 2:30pm - 2:45pm, Mar 16

- **79c. A Comprehensive Evaluation of Differential Abundance Analysis Methods for Microbiome Sequencing Data**
  ⏱ 2:45pm - 3:00pm, Mar 16

- **79d. Accurate Estimation of Molecular Counts from Amplicon Sequence Data with Unique Molecular Identifiers**
  ⏱ 3:00pm - 3:15pm, Mar 16

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74. Contributed Papers: Clustered Data Methods
⏱ 2:15pm - 4:00pm, Mar 16

`Scientific Program`

Sponsor: ENAR | Chair: Raphael Fraser, Medical College of Wisconsin

67. Emerging Lessons on Opioid Policy Evaluation Methods
 2:15pm - 4:00pm, Mar 16

`Scientific Program`

Sponsor: ASA Health Policy Statistics Section | Organizer/Chair: Beth Ann Griffin, RAND Corporation

 Chair

Beth Griffin Senior Statistician, RAND Corporation

3:45pm

T6: Reproducible Computation at Scale in R with Targets
 3:45pm - 5:30pm, Mar 16

`Tutorial`

Data science can be slow. A single round of statistical computation can take several minutes, hours, or even days to complete. The targets R package keeps results up to date and reproducible while minimizing the number of expensive tasks that actually run. Targets learns how your pipeline fits together, skips costly runtime for steps that are already up to date, runs the rest with optional implicit parallel computing, abstracts files as R objects, and shows tangible evidence that the output matches the underlying code and data. In other words, the package saves time while increasing our ability to trust the conclusions of the research. Targets surpasses the most burdensome permanent limitations of its predecessor, drake, to achieve greater efficiency and provide a safer, smoother, friendlier user experience. This interactive tutorial provides guided hands-on practice using targets to manage a machine learning project.

 Speaker

Will Landau Research Scientist, Eli Lilly and Company

4:00pm

Exhibit Hours
 4:00pm - 6:00pm, Mar 16

`Exhibit Hours`

Wed, Mar 17, 2021

8:00am

ENAR Drop-In
🕐 8:00am - 9:00am, Mar 17

We welcome meeting attendees to drop-in to connect with fellow friends and colleagues. This drop-in will use the meeting platform "tabletop" format, in which participants are rotated among virtual "tables" of four, to allow for focused conversation. ENAR officers will attend, which will allow attendees to learn more about ENAR and ask any questions about the society and provide input into priority areas and future directions.

11:00am

80. Statistical Methods in Criminal Justice: Challenges and Opportunities for Statisticians
🕐 11:00am - 12:45pm, Mar 17

`Scientific Program`

Sponsors: ASA Statistics in Epidemiology Section, ASA Health Policy Statistics Session | Organizer/Chair: Elizabeth A. Stuart, Johns Hopkins Bloomberg School of Public Health

📢 **Chair**

Elizabeth Stuart Bloomberg Professor of American Health, Johns Hopkins Bloomberg School of Public Health

4 Subsessions

- **80a. Conditional Likelihood Models for the Relationship Between Officer Features and Police Shootings**
  🕐 11:00am - 11:25am, Mar 17

- **80b. Synthetic Controls and Weighted Event Studies with Staggered Adoption**
  🕐 11:25am - 11:55am, Mar 17

- **80c. A Distributed Lag Negative Binomial Regression Model to Estimate the Effects of State Gun Policies**
  🕐 11:55am - 12:20pm, Mar 17

- **80d. Discussant**
  🕐 12:20pm - 12:45pm, Mar 17

81. Statistics for Advanced Measures of Brain Health
🕐 11:00am - 12:45pm, Mar 17

`Scientific Program`

Sponsors: ASA Statistics in Imaging Section, ASA Statistical Learning and Data Science Section, ASA Mental Health Statistics Section | Organizer/Chair: Russell Shinohara, University of Pennsylvania

📢 **Chair**

Russell Shinohara University of Pennsylvania

4 Subsessions

- **81a. The Proportional Recovery Rule Redux: Arguments for Biological and Predictive Relevance**
  🕐 11:00am - 11:25am, Mar 17

- **81b. Chronic Pain and the Brain**
  🕐 11:25am - 11:50am, Mar 17

- **81c. Image Analysis Tools for Quantitative Susceptibility Maps in Multiple Sclerosis Lesions**
  🕐 11:50am - 12:15pm, Mar 17

- **81d. Cluster Activation Mapping with Applications to Medical Imaging**
  🕐 12:15pm - 12:40pm, Mar 17

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82. Recent Advance in Meta-Analysis and Network Meta-Analysis
🕐 11:00am - 12:45pm, Mar 17

`Scientific Program`

Sponsors: ASA Bayesian Statistical Science Section, ASA Biometrics Section | Organizer: Ming-Hui Chen, University of Connecticut | Chair: Dipak K. Dey, University of Connecticut

📢 **Chair**

D

Dipak K. Dey University of Connecticut

4 Subsessions

- **82a. Meta-Analysis of Rare Adverse Events in Randomized Clinical Trials: Bayesian and Frequentist Methods**
  🕐 11:00am - 11:25am, Mar 17

- **82b. A Variance Shrinkage Method Improves Arm-Based Bayesian Network Meta-Analysis**
  🕐 11:25am - 11:50am, Mar 17

- **82c. Assessment of Homogeneity and Consistency for Network Meta-Analysis**
  🕐 11:50am - 12:15pm, Mar 17

- **82d. Statistical Considerations in the Choice of Fixed or Random Intercepts for Meta-Analytic Models**
  🕐 12:15pm - 12:40pm, Mar 17

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83. Trial Design and Analysis Methods for COVID-19 Treatment/Prevention
🕐 11:00am - 12:45pm, Mar 17

`Scientific Program`

Sponsors: ENAR; ASA Biometrics Section, ASA Biopharmaceutical Statistics Section | Organizer: Michael Rosenblum, Johns Hopkins University | Chair: Bingkai Wang, Johns Hopkins University

📢 **Chair**

Bingkai Wang PhD student, Johns Hopkins Bloomberg School of Public Health

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4 Subsessions

- **83a. Improving Precision and Power in Randomized Trials for COVID-19 Treatments Using Covariate Adjustment, for Binary, Ordinal, or Time to Event Outcomes**
  ⏱ 11:00am - 11:25am, Mar 17

- **83b. Statistical Aspects of COVID-19 Vaccine Trials**
  ⏱ 11:25am - 11:50am, Mar 17

- **83c. Clinical Trials Impacted by the COVID-19 Pandemic: Adaptive Designs to the Rescue?**
  ⏱ 11:50am - 12:15pm, Mar 17

- **83d. Discussant**
  ⏱ 12:15pm - 12:40pm, Mar 17

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84. Recent Advancements of Methods to Treat Non-proportional Hazards in Cancer Immunotherapy Trials
⏱ 11:00am - 12:45pm, Mar 17

`Scientific Program`

Sponsors: ASA Biometrics Section, ASA Biopharmaceutical Section | Organizer/Chair: Chang Yu, Vanderbilt University Medical Center

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📢 **Chair**

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Chang Yu Associate Professor, Vanderbilt University Medical Center

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4 Subsessions

- **84a. A Weighted Log-rank Test for Cancer Trials with Delayed Treatment Effect**
  ⏱ 11:00am - 11:25am, Mar 17

- **84b. Alternative Analysis Methods for Time to Event Endpoints Under Non-proportional Hazards**
  ⏱ 11:25am - 11:50am, Mar 17

- **84c. Design Considerations Assuming Delayed Treatment Effect**
  ⏱ 11:50am - 12:15pm, Mar 17

- **84d. Design for Immuno-oncology Clinical Trials Enrolling Both Responders and Nonresponders**
  ⏱ 12:15pm - 12:40pm, Mar 17

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85. New Statistical Methods for Microbiome Data Analysis
⏱ 11:00am - 12:45pm, Mar 17

`Scientific Program`

Sponsor: ASA Statistics in Genomics and Genetics Section | Organizer/Chair: Gen Li, University of Michigan

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📢 **Chair**

Gen Li Assistant Professor, University of Michigan

4 Subsessions

- **85a. Meta-analysis of Microbiome Association Studies**
  🕐 11:00am - 11:25am, Mar 17

- **85b. Systematic Comparisons for Composition Profiles, Taxonomic Levels, and Machine Learning Methods for Microbiome-based Disease Prediction**
  🕐 11:25am - 11:50am, Mar 17

- **85c. Principal Amalgamation Analysis for Compositional Data**
  🕐 11:50am - 12:15pm, Mar 17

- **85d. From Microbiome and Mycobiome to Human Health: Computational Tools and Integrative Analysis**
  🕐 12:15pm - 12:40pm, Mar 17

86. Novel Time-to-event Models in Complex Observational Studies
🕐 11:00am - 12:45pm, Mar 17

`Scientific Program`

Sponsors: ASA Biometrics Section, ASA Statistics in Epidemiology Section | Organizer: Sedigheh Mirzaei S., St. Jude Children's Research | Chair: Stanley Pounds, St. Jude Children's Research

📢 **Chair**

S

Stanley Pounds St. Jude Children's Research

4 Subsessions

- **86a. Facility Profiling Under Competing Risks Using Multivariate Prognostic Score Weighting**
  🕐 11:00am - 11:25am, Mar 17

- **86b. Variable Section for Interval-Censored Failure Time Data**
  🕐 11:25am - 11:50am, Mar 17

- **86c. Estimating Time-to-Event Distribution from Partially Recalled Data**
  🕐 11:50am - 12:15pm, Mar 17

- **86d. Semiparametric Random-Effect Models for Panel Count Data**
  🕐 12:15pm - 12:40pm, Mar 17

87. Bayesian Unsupervised Learning Across Multiple Studies
🕐 11:00am - 12:45pm, Mar 17

`Scientific Program`

Sponsors: ASA Bayesian Statistical Science Section, ASA Statistics in Epidemiology Section | Organizer/Chair: Giovanni Parmigiani, Dana Farber Cancer Institute

G

Giovanni Parmigiani Dana Farber Cancer Institute

4 Subsessions

- **87a. Bayesian Multi-study Factor Analysis**
  🕐 11:00am - 11:25am, Mar 17

- **87b. Bayesian Combinatorial Multi-Study NMF for Mutational Signatures**
  🕐 11:25am - 11:50am, Mar 17

- **87c. Perturbed factor analysis: Improving generalizability across studies**
  🕐 11:50am - 12:15pm, Mar 17

- **87d. Shared Subspace Models for Multi-Group Covariance Estimation**
  🕐 12:15pm - 12:40pm, Mar 17

88. Advances in Applications of Random Matrix Theory to High-dimensional Statistics
🕐 11:00am - 12:45pm, Mar 17

`Scientific Program`

Sponsor: IMS | Organizer/Chair: Debashis Paul, University of California, Davis

📢 **Chair**

D

Debashis Paul University of California, Davis

4 Subsessions

- **88a. Bootstrapping Spectral Statistics in High Dimensions**
  🕐 11:00am - 11:25am, Mar 17

- **88b. Hierarchical Clustering via Spectral Methods in Networks under General Hierarchical Stochastic Blockmodels**
  🕐 11:25am - 11:50am, Mar 17

- **88c. Empirical Bayes prediction Under Check Loss in Gaussian Models with Unknown Covariance**
  🕐 11:50am - 12:15pm, Mar 17

- **88d. Testing High Dimensional General Linear Hypotheses Under a Spiked Covariance Model**
  🕐 12:15pm - 12:40pm, Mar 17

89. Contributed Papers: Epidemiologic Methods
🕐 11:00am - 12:45pm, Mar 17

`Scientific Program` `Student Award Winner`

Sponsor: ENAR | Chair: Jenna Krall, George Mason University

J

Jenna Krall Assistant Professor, George Mason University

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6 Subsessions

- **89a. A Method to Govern the Activity of Covariates in Latent Class Analysis with Application to Mild Cognitive Impairment**
  🕐 11:00am - 11:15am, Mar 17

- **89b. On Variance of the Treatment Effect in the Treated Using Inverse Probability Weighting**
  🕐 11:15am - 11:30am, Mar 17

- **89c. Using Group Testing in a Two-Phase Epidemiologic Design to Identify the Effects of High-Dimensional Antibody Reactions on Disease Risk**
  🕐 11:30am - 11:45am, Mar 17

- **89d. Two-Stage Sampling Framework for Combining Case-Cohort Studies from Partially Overlapped Cohorts with Different Timings of Biomarker Measurement**
  🕐 11:45am - 12:00pm, Mar 17

- **89e. Bias-variance Tradeoff in Surrogate Guided Chart Review of EHR Data**
  🕐 12:00pm - 12:15pm, Mar 17

- **89f. Design for Retrospective Studies with Outcome-dependent Sampling Under Generalized Linear Models**
  🕐 12:15pm - 12:30pm, Mar 17

90. Contributed Papers: Variable Selection
🕐 11:00am - 12:45pm, Mar 17

Scientific Program **Student Award Winner**

Sponsor: ENAR | Chair: Hai Shu, New York University

📢 **Chair**

Hai Shu Assistant Professor, New York University, Department of Biostatistics

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6 Subsessions

- **90a. Bayesian Variable Selection for Generalized Linear Models with High-dimensional Matrix-valued Data**
  🕐 11:00am - 11:15am, Mar 17

- **90b. Feature Selection by Second-Generation P-Values Can Outperform Oracle Adaptive Lasso**
  🕐 11:15am - 11:30am, Mar 17

- **90c. Modeling Metabolic Syndrome and Inflammatory Biomarkers via Bayesian Graphical Regression with Multiple Data Types**
  🕐 11:30am - 11:45am, Mar 17

- **90d. Global-local Shrinkage Prior for Variable Selection in Graph-structured Models**
  🕐 11:45am - 12:00pm, Mar 17

- **90e. Simultaneous Feature Selection and Outlier Detection with Optimality Guarantees**
  🕐 12:00pm - 12:15pm, Mar 17

- **90f. Variable Selection for Interval-censored Data with Time Dependent Effects**
  🕐 12:15pm - 12:30pm, Mar 17

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91. Contributed Papers: Nonparametric, Bayesian Methods
🕐 11:00am - 12:45pm, Mar 17

`Scientific Program`

Sponsor: ENAR | Chair: Chixiang Chen, University of Pennsylvania

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📢 **Chair**

Chixiang Chen University of Pennsylvania

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5 Subsessions

- **91a. Individualized Risk Assessment of Preoperative Opioid Use by Interpretable Neural Network Regression**
  🕐 11:00am - 11:15am, Mar 17

- **91b. Estimating Model-based Nonnegative Population Marginal Means in Application to Medical Expenditures Covered by Different Health Care Policies: A Study on Medical Expenditure Panel Survey (MEPS)**
  🕐 11:15am - 11:30am, Mar 17

- **91c. Bayesian Focal-Area Detection for Multi-Class Dynamic Model with Application to Gas Chromatography**
  🕐 11:30am - 11:45am, Mar 17

- **91d. A New Framework of Data-driven Model for Point Process**
  🕐 11:45am - 12:00pm, Mar 17

- **91e. Variable Selection in Bayesian Nonparametric Models for High-Dimensional Confounding**
  🕐 12:00pm - 12:15pm, Mar 17

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92. Contributed Papers: Imaging, High Dimensional Data Analysis
🕐 11:00am - 12:45pm, Mar 17

`Scientific Program`

Sponsor: ENAR | Chair: Sean D. McCabe, Harvard T.H. Chan School of Public Health

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📢 **Chair**

Sean D. McCabe Harvard T.H. Chan School of Public Health

6 Subsessions

- **92a. Tensor Partial Least Squares for the Quantile Regression Model with Multiway Neuroimaging Data**
  🕐 11:00am - 11:15am, Mar 17

- **92b. Tensor Response Quantile Regression with Neuroimaging Data**
  🕐 11:15am - 11:30am, Mar 17

- **92c. The Spike-and-Slab Elastic Net as a Classification Tool in Alzheimer's Disease**
  🕐 11:30am - 11:45am, Mar 17

- **92d. Sparse Bayesian Group Independent Component Analysis**
  🕐 12:00pm - 12:15pm, Mar 17

- **92e. Finding and Removing Unwanted Spatial Effects in Microenvironment Microarray Data**
  🕐 12:15pm - 12:30pm, Mar 17

- **92f. A Wavelet-Based Independence Test for Functional Data with an Application to MEG Functional Connectivity**
  🕐 12:30pm - 12:45pm, Mar 17

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93. Contributed Papers: Causal Inference, Statistical Testing
🕐 11:00am - 12:45pm, Mar 17
`Scientific Program`

Sponsor: ENAR | Chair: Dongfeng Wu, University of Louisville

📢 **Chair**

D

Dongfeng Wu Associate Professor, University of Louisville

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4 Subsessions

- **93a. Bayesian Testing in Multiple Endpoint Studies Under Principal Strata**
  🕐 11:00am - 11:15am, Mar 17

- **93b. Bounding Local Average Treatment Effects in Studies of Engagement with Mobile Interventions**
  🕐 11:15am - 11:30am, Mar 17

- **93c. Propensity Score Weighting Under Limited Overlap and Model Misspecification**
  🕐 11:30am - 11:45am, Mar 17

- **93d. Center-specific Causal Inference with Multicenter Trials: Reinterpreting Trial Evidence in the Context of Each Participating Center**
  🕐 11:45am - 12:00pm, Mar 17

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94. Contributed Papers: Spatial-temporal Methods, Data Mining
🕐 11:00am - 12:45pm, Mar 17
`Scientific Program`

Sponsor: ENAR | Chair: Tanzy M. Love, University of Rochester

📣 **Chair**

Tanzy Love Associate Professor, University of Rochester

5 Subsessions

- **94a. Geographic and Racial Disparities in the Incidence of Low Birthweight in Pennsylvania**
  🕐 11:00am - 11:15am, Mar 17

- **94b. Network Representation of Spatial Communities with Applications in Sociology and Public Health Research**
  🕐 11:15am - 11:30am, Mar 17

- **94c. A Comparative Study of Methods for Producing Age-Standardized Rate Estimates for Small Areas**
  🕐 11:30am - 11:45am, Mar 17

- **94d. Spatio-Temporal Analysis to Investigate the Association of Cause of Death Data with Food Intake**
  🕐 11:45am - 12:00pm, Mar 17

- **94e. Identifying Spatial Clusters of Breast Cancer Risk: A Lasso Approach to the Wisconsin Women's Health Study**
  🕐 12:00pm - 12:15pm, Mar 17

95. Contributed Papers: Personalized Medicine
🕐 11:00am - 12:45pm, Mar 17

`Scientific Program` `Student Award Winner`

Sponsor: ENAR | Chair: Ana Maria Ortega-Villa, National Institute of Allergy and Infectious Diseases

📣 **Chair**

Ana Maria Ortega-Villa National Institute of Allergy and Infectious Diseases

5 Subsessions

- **95a. Relative Contrast Functions for Individualized Treatment Recommendation**
  🕐 11:00am - 11:15am, Mar 17

- **95b. Using Imputation to Estimate Confidence in Individual Treatment Decisions**
  🕐 11:15am - 11:30am, Mar 17

- **95c. Simulation Based Approach to Calculate the Probability to Identify a Beneficial Individualized Treatment Rule**
  🕐 11:30am - 11:45am, Mar 17

- **95d. Constructing Stabilized Dynamic Surveillance Rules for Optimal Monitoring Schedule**
  🕐 11:45am - 12:00pm, Mar 17

- **95e. Disease Associated Network Detection in Multi-Omic Single-Cell Experiments**

⏱ 12:00pm - 12:15pm, Mar 17

96. Contributed Papers: Statistical Methods for Competing Risk
⏱ 11:00am - 12:45pm, Mar 17

`Scientific Program`

Sponsor: ENAR | Chair: Jiang Wang, The University of Texas at Arlington

📢 **Chair**

J

Jiang Wang The University of Texas at Arlington

5 Subsessions

- **96a. Analysis of Readmissions Data Taking Account of Competing Risks**
  ⏱ 11:00am - 11:15am, Mar 17

- **96b. Proportional Subdistribution Hazards Model for Competing Risks in Case-cohort Studies**
  ⏱ 11:15am - 11:30am, Mar 17

- **96c. Joint Modelling of Longitudinal and Survival Data in the Presence of Competing Risks with Applications to Prostate Cancer Data**
  ⏱ 11:30am - 11:45am, Mar 17

- **96d. Estimation and Modeling of the Restricted Mean Time Lost in the Presence of Competing Risks**
  ⏱ 11:45am - 12:00pm, Mar 17

- **96e. Evaluation of Competing Risks Prediction Models Using Polytomous Discrimination Index**
  ⏱ 12:00pm - 12:15pm, Mar 17

1:00pm

97. Posters: Bayesian Modeling
⏱ 1:00pm - 2:00pm, Mar 17

`Posters` `Scientific Program`

Sponsor: ENAR | Chair: Mark J. Meyer, Georgetown University

9 Subsessions

- **97a. Joint Modeling with an Integrated Fractional Brownian Motion Process**
  ⏱ 1:00pm - 2:00pm, Mar 17

- **97b. Bayesian Stereotype Model for Feature Selection in High-Dimensional Genomic Data**
  ⏱ 1:00pm - 2:00pm, Mar 17

- **97c. Bayesian Predictive Models for High-Dimensional Microbiome Data**
  ⏱ 1:00pm - 2:00pm, Mar 17

- **97d. Longitudinal Structural Topic Models for Estimating Latent Health Trajectories using Administrative Claims Data**
  ⏱ 1:00pm - 2:00pm, Mar 17

- **97e. Hello World**
  - 🕐 1:00pm - 2:00pm, Mar 17

- **97f. Continuous Time MCMC Model for Transmission of Infectious Diseases in Close Contact Groups**
  - 🕐 1:00pm - 2:00pm, Mar 17

- **97g. Informative Sampling of Bayesian Inference for Repeated Measurements of Continuous Response**
  - 🕐 1:00pm - 2:00pm, Mar 17

- **97h. Integrating Sample Relatedness Information into Latent Class Models: A Tree-Structured Shrinkage Approach**
  - 🕐 1:00pm - 2:00pm, Mar 17

- **97i. Bayesian Additive Regression Trees for Multivariate Skewed Responses**
  - 🕐 1:00pm - 2:00pm, Mar 17

98. Posters: Clinical Trial, Study Design
🕐 1:00pm - 2:00pm, Mar 17

`Posters` `Scientific Program` `Student Award Winner`

Sponsor: ENAR | Chair: Ran Tao, Vanderbilt University Medical Center

📢 **Chair**

Ran Tao Assistant Professor, Vanderbilt University Medical Center

6 Subsessions

- **98a. Clustered Q-Learning to Inform the Empirical Construction of an Optimal Clustered Adaptive Intervention**
  - 🕐 1:00pm - 2:00pm, Mar 17

- **98b. Exploring Different RAR Schemes in a Bayesian Hierarchical Adaptive Platform Trial Design for Stroke Patients**
  - 🕐 1:00pm - 2:00pm, Mar 17

- **98c. Homogeneity Test of Proportions for Combined Unilateral and Bilateral Data Under Equal-Correlated intraclass model**
  - 🕐 1:00pm - 2:00pm, Mar 17

- **98d. Treatment-by-Subgroup Interaction Tests: Defining and Performing Different Hypothesis Tests**
  - 🕐 1:00pm - 2:00pm, Mar 17

- **98e. Synthetic / Historical Control Arms in Clinical Trials - An Introduction and Case Studies**
  - 🕐 1:00pm - 2:00pm, Mar 17

- **98f. Power and Sample Size Considerations for the Test-negative Design**
  - 🕐 1:00pm - 2:00pm, Mar 17

99. Posters: Machine Learning, Computation, Complex Data Modeling
🕐 1:00pm - 2:00pm, Mar 17

Sponsor: ENAR | Chair: Hsin-Hsiung Huang, University of Central Florida

📢 **Chair**

H

Hsin-Hsiung Huang Associate Professor, University of Central Florida

9 Subsessions

- **99a. Filtrated Common Functional Principal Components for Multivariate Functional data**
  🕐 1:00pm - 2:00pm, Mar 17

- **99b. Permutation-based Hypothesis Testing for Neural Networks**
  🕐 1:00pm - 2:00pm, Mar 17

- **99c. Can Machine Learning Help to Identify Drug-drug Interaction (DDI)?**
  🕐 1:00pm - 2:00pm, Mar 17

- **99d. Investigating Linked Latent Constructs in Brain Connectivity and PTSD Symptoms Using PLS**
  🕐 1:00pm - 2:00pm, Mar 17

- **99e. ComBat-HDMI: Combining Batches of High-Dimensional Multiplexed Images**
  🕐 1:00pm - 2:00pm, Mar 17

- **99f. Estimation of Knots in Generalized Linear Spline Models**
  🕐 1:00pm - 2:00pm, Mar 17

- **99g. A Unified Framework on Defining Depth for Point Process Using Function Smoothing**
  🕐 1:00pm - 2:00pm, Mar 17

- **99h. Risk Estimation of County-level Opioid Mortality Rate with Bayesian Spatiotemporal Modeling**
  🕐 1:00pm - 2:00pm, Mar 17

- **99i. Integrative Analysis and Prediction Method for Identifying Subgroup-specific Biomarkers**
  🕐 1:00pm - 2:00pm, Mar 17

97. Posters: Bayesian Modeling
🕐 1:00pm - 2:00pm, Mar 17

Sponsor: ENAR | Chair: Mark J. Meyer, Georgetown University

📢 **Chair**

Mark Meyer Assistant Professor of Statistics, Georgetown University

2:15pm

100. New Topics in Analysis of Microbiome Data
⏱ 2:15pm - 4:00pm, Mar 17

`Scientific Program`

Sponsor: ASA Statistics in Genomics and Genetics Section | Organizer/Chair: Yijuan Hu, Emory University

📢 **Chair**

Yijuan Hu Associate Professor, Emory University

4 Subsessions

- **100a. IFAA: Robust Association Identification and Inference for Absolute Abundance in Microbiome Analyses**
  ⏱ 2:15pm - 2:40pm, Mar 17

- **100b. Statistical Methods for Integrative Analysis of Multiple Microbiome Datasets**
  ⏱ 2:40pm - 3:05pm, Mar 17

- **100c. False Discovery Rate (FDR) Control in Microbiome Analysis**
  ⏱ 3:05pm - 3:30pm, Mar 17

- **100d. Joint Modeling of Longitudinal Microbiome Data and Survival Outcome.**
  ⏱ 3:30pm - 3:55pm, Mar 17

101. Recent Developments in Epidemiological Studies with Incompletely Observed Data
⏱ 2:15pm - 4:00pm, Mar 17

`Scientific Program`

Sponsors: ASA Biometrics Section, ASA Statistics in Epidemiology Section | Organizer/Chair: Yei Eun Shin, National Cancer Institute

📢 **Chair**

Yei Eun Shin Investigator, National Cancer Institute

4 Subsessions

- **101a. Statistical Methods for Mediation Analysis with Multiple Sources of Information**
  ⏱ 2:15pm - 2:40pm, Mar 17

- **101b. Hypothesis Testing under Two-phase Stratified Sampling**
  ⏱ 2:40pm - 3:05pm, Mar 17

- **101c. Weight Calibration to Improve Efficiency for Estimating Pure Risks from Case-control Samples Nested in a Cohort**
  ⏱ 3:05pm - 3:30pm, Mar 17

- **101d. Augmenting a Stratified Subsample of a Cohort with New Cases and Controls**

from Further Follow-up: Design and Analysis
🕐 3:30pm - 3:55pm, Mar 17

102. Benefit-Risk Evaluations of Diagnostic Tests and Prediction Models
🕐 2:15pm - 4:00pm, Mar 17

`Scientific Program`

Sponsor: ASA Medical Devices and Diagnostics Section | Organizer: Gene Pennello, Food and Drug Administration | Chair: Jingjing Ye, Beigene

📢 **Chair**

J

Jingjing Ye Senior Director, BeiGene

4 Subsessions

- **102a. Identifying the Optimal Cost-effective Point on the Concentration Curve to Define a Clinically-usable Screening Test**
  🕐 2:15pm - 2:40pm, Mar 17

- **102b. Moving From Individualized Risk-based Prevention to Benefit-based Prevention: Estimating Individualized Life-years Gained From Prevention Services**
  🕐 2:40pm - 3:05pm, Mar 17

- **102c. Opportunities for Using Net Benefit Metrics in Biomarker Research**
  🕐 3:05pm - 3:30pm, Mar 17

- **102d. Microsimulation Models to Predict the Benefits and Risks of Screening**
  🕐 3:30pm - 3:55pm, Mar 17

103. Statistical Methodology for Biomedical Time Series
🕐 2:15pm - 4:00pm, Mar 17

`Scientific Program`

Sponsor: ASA Biometrics Section | Organizer/Chair: Pramita Bagchi, George Mason University

📢 **Chair**

P

Pramita Bagchi George Mason University

4 Subsessions

- **103a. Classification of Categorical Time Series Using the Spectral Envelope and Optimal Scalings**
  🕐 2:15pm - 2:40pm, Mar 17

- **103b. Exploring Non-Linear Interactions in Multivariate Time Series**
  🕐 2:40pm - 3:05pm, Mar 17

- **103c. Adaptive Frequency Band Analysis for Functional Time Series**

○ 3:05pm - 3:30pm, Mar 17

● **103d. Spectra in Low-Rank Localized Layers (SpeLLL) for Interpretable Time-Frequency Analysis**
○ 3:30pm - 3:55pm, Mar 17

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104. Multi-wave Sampling Designs for Validating Routinely Collected Data
○ 2:15pm - 4:00pm, Mar 17

`Scientific Program`

Sponsors: ASA Biometrics Section, ASA Statistics in Epidemiology Section | Organizer/Chair: Bryan E. Shepherd, Vanderbilt University

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📢 **Chair**

B

Bryan Shepherd Vanderbilt University

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4 Subsessions

● **104a. Two-Wave Two-Phase Outcome-Dependent Sampling Designs for Longitudinal Binary Data**
○ 2:15pm - 2:40pm, Mar 17

● **104b. Adaptive Two-phase Sampling Designs**
○ 2:40pm - 3:05pm, Mar 17

● **104c. Adaptive Multi-wave Sampling Designs to Address Error Prone Data**
○ 3:05pm - 3:30pm, Mar 17

● **104d. Prior Information Improves Multi-wave Designs**
○ 3:30pm - 3:55pm, Mar 17

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105. Statistical Methods for Large-scale Omics Data
○ 2:15pm - 4:00pm, Mar 17

`Scientific Program`

Sponsor: ASA Statistics in Genomics and Genetics Section | Organizer: Xiang Zhan, Penn State University | Chair: Kalins Banerjee, Pennsylvania State University

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📢 **Chair**

K

Kalins Banerjee Department of Public Health Sciences, Pennsylvania State University

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4 Subsessions

● **105a. Variable Selection Analysis in Small-sample Microbiome Compositional Data**
○ 2:15pm - 2:40pm, Mar 17

● **105b. Multi-Omics Subtyping of Chronic Obstructive Pulmonary Disease Using Deep Learning Approaches**

○ 2:40pm - 3:05pm, Mar 17

- **105c. Multivariable Mendelian Randomization integrating GWAS, eQTL and meQTL information in identifying genomic risk factors for complex diseases**
  ○ 3:05pm - 3:30pm, Mar 17

- **105d. Estimation of SNP-based Heritability in Multi-Ethnic Studies**
  ○ 3:30pm - 3:55pm, Mar 17

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106. Tensor Methods in Biomedical Data Analysis
○ 2:15pm - 4:00pm, Mar 17

`Scientific Program`

Sponsor: IMS | Organizer/Chair: Ming Yuan, Columbia University

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📣 **Chair**

(M)

Ming Yuan Columbia University

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4 Subsessions

- **106a. Simultaneous Clustering and Estimation of Multiple Graphical Models via Sparse Tensor Decomposition**
  ○ 2:15pm - 2:40pm, Mar 17

- **106b. Bulk Eigenvalue Matching Analysis: A New Approach to Estimating K in a Spiked Covariance Model**
  ○ 2:40pm - 3:05pm, Mar 17

- **106c. Tensor Denoising and Completion Based on Ordinal Observations**
  ○ 3:05pm - 3:30pm, Mar 17

- **106d. Discussant**
  ○ 3:30pm - 3:55pm, Mar 17

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107. Contributed Papers: ROC Analysis, Decision Making
○ 2:15pm - 4:00pm, Mar 17

`Scientific Program` `Student Award Winner`

Sponsor: ENAR | Chair: Anne Eaton, University of Minnesota

📣 **Chair**

(A)

Anne Eaton Assistant Professor, University of Minnesota

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5 Subsessions

- **107a. Deep Jump Q-Evaluation for Personalized Decision Making with Continuous Treatments**
  ○ 2:15pm - 2:30pm, Mar 17

- 107b. Relation of Maternal BMI and Discriminative Capacity of EFW in Predicting Abnormal Birthweight
  ⏲ 2:30pm - 2:45pm, Mar 17

- 107c. Evaluating Biomarkers Under Tree Ordering: Confidence Interval Estimation of Sensitivity of A Single Biomarker and of Difference between Sensitivities of Two Correlated Biomarkers Given Specificity
  ⏲ 2:45pm - 3:00pm, Mar 17

- 107d. Inferences for the Correct Classification Fractions of a Continuous Biomarker in Trichotomous Settings with an Application to Patients with Hepatocellular Carcinoma
  ⏲ 3:00pm - 3:15pm, Mar 17

- 107e. Flexible Lehmann family ROC curves
  ⏲ 3:15pm - 3:30pm, Mar 17

108. Contributed Papers: Medical Devices
⏲ 2:15pm - 4:00pm, Mar 17

`Scientific Program`

Sponsor: ENAR | Chair: Larry Han, Harvard University

📢 **Chair**

Larry Han PhD Candidate, Harvard University

5 Subsessions

- 108a. Development of Digital Measures for Night-time Scratch and Sleep Using Wrist-worn Wearable Devices
  ⏲ 2:15pm - 2:30pm, Mar 17

- 108b. Statistical Considerations When Combining Artificial Intelligence-Enabled Diagnostic Information
  ⏲ 2:30pm - 2:45pm, Mar 17

- 108c. Scale-Invariant Time Registration of 24-Hour Accelerometric Rest-Activity Profiles and its Application to Human Chronotypes
  ⏲ 2:45pm - 3:00pm, Mar 17

- 108d. Classification of Neuromuscular Conditions Using Learning Algorithms
  ⏲ 3:15pm - 3:30pm, Mar 17

- 108e. Inference about Time-dependent Prognostic Accuracy Measures after Covariate adjustment
  ⏲ 3:30pm - 3:45pm, Mar 17

109. Contributed Papers: Dynamic Treatment Regimens
⏲ 2:15pm - 4:00pm, Mar 17

`Scientific Program` `Student Award Winner`

Sponsor: ENAR | Chair: David Kline, The Ohio State University

David Kline The Ohio State University

6 Subsessions

- **109a. Kernel-Involved-Dosage-Decision Learning Method for Estimating the Optimal Dynamic Treatment Regimes**
  🕐 2:15pm - 2:30pm, Mar 17

- **109b. Personalized Dynamic Treatment Regimes in Continuous Time: A Bayesian Joint Model for Optimizing Clinical Decisions with Timing**
  🕐 2:30pm - 2:45pm, Mar 17

- **109c. A Q-learning Approach to Determine Optimally Cost-effective Dynamic Treatment Regimes**
  🕐 2:45pm - 3:00pm, Mar 17

- **109d. Post-Selection Inference via the Lasso in Robust Q-Learning**
  🕐 3:00pm - 3:15pm, Mar 17

- **109e. Bayesian Construction of Optimal Treatment Strategies in the Presence of Zero-Inflation and High-Dimensional Predictors**
  🕐 3:15pm - 3:30pm, Mar 17

- **109f. Budgeting SMART: Sample Size and Repeated Measures with a Cost Constraint in a Longitudinal Sequential, Multiple-Assignment Randomized Trial**
  🕐 3:30pm - 3:45pm, Mar 17

110. Contributed Papers: Graphic Modeling, and Spatial-temporal Data Analysis
🕐 2:15pm - 4:00pm, Mar 17

`Scientific Program` `Student Award Winner`

Sponsor: ENAR | Chair: Tejasv Bedi, The University of Texas at Dallas

📣 Chair

Tejasv Bedi PhD Candidate, The University of Texas at Dallas

6 Subsessions

- **110a. Spatial Homogeneity Learning for Spatially Correlated Functional Data With Application to COVID-19 Growth Rate Curves**
  🕐 2:15pm - 2:30pm, Mar 17

- **110b. Generalized Propensity Score Approach to Causal Inference with Spatial Interference**
  🕐 2:30pm - 2:45pm, Mar 17

- **110c. Prediction and Clustering of Spatial Functional Data with Phase Variation**
  🕐 2:45pm - 3:00pm, Mar 17

- **110d. Sparse Precision Matrix Estimation in Matched Case-Control Studies**
  ⏱ 3:00pm - 3:15pm, Mar 17

- **110e. Permutation-based Spatial Scanning for Detecting fMRI Group-level Activation Clusters**
  ⏱ 3:15pm - 3:30pm, Mar 17

- **110f. Modeling Drug Absorption from the Dermis after an Injection**
  ⏱ 3:30pm - 3:45pm, Mar 17

111. Contributed Papers: Advanced Analysis for Functional Data
⏱ 2:15pm - 4:00pm, Mar 17

`Scientific Program` `Student Award Winner`

Sponsor: ENAR | Chair: Aaron W. Scheffler, University of California, San Francisco

📢 **Chair**

A

Aaron W. Scheffler University of California, San Francisco

6 Subsessions

- **111a. Estimation of the Mean Function of Functional Data via Deep Neural Networks**
  ⏱ 2:15pm - 2:30pm, Mar 17

- **111b. Functional Data Analysis with Causation in Observational Studies: Covariate Balancing Functional Propensity Score for Functional Treatments**
  ⏱ 2:30pm - 2:45pm, Mar 17

- **111c. Bayesian Functional Covariance Regression**
  ⏱ 2:45pm - 3:00pm, Mar 17

- **111d. Modelling Wearable Data via Quantile-based Distributional Data Analysis**
  ⏱ 3:00pm - 3:15pm, Mar 17

- **111e. Dimension Reduction Methods for Multilevel Neural Firing Rate Data**
  ⏱ 3:15pm - 3:30pm, Mar 17

- **111f. Extracting Scalar Measures from Functional Data with Missingness**
  ⏱ 3:30pm - 3:45pm, Mar 17

112. Contributed Papers: Clinical trials, Clustered Data Analysis
⏱ 2:15pm - 4:00pm, Mar 17

`Scientific Program` `Student Award Winner`

Sponsor: ENAR | Chair: Gauri Kamat, Brown University

📢 **Chair**

Gauri Kamat PhD student, Biostatistics, Brown University

113. Contributed Papers: Diagnostic, Screening and Hypothesis Tests
⏰ 2:15pm - 4:00pm, Mar 17

Scientific Program

Sponsor: ENAR | Chair: Shu Wang, University of Florida

📢 **Chair**

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Shu Wang University of Florida

🕐 3:30pm - 3:45pm, Mar 17