

# Workshop on Advanced Statistical Methods and Dynamic Data Visualizations for Mental Health Studies



## BIO-SKETCHES (June 28<sup>th</sup>)

### ORGANIZING COMMITTEE MEMBERS



**Dulal K. Bhaumik, PhD**

**Affiliation:** University of Illinois at Chicago

**Bio:** Dr. Bhaumik is a Professor of Biostatistics at the University of Illinois at Chicago. His research areas include statistics, biostatistics, environmental statistics, and mental health. His major contributions are in development of statistical methods for estimation, multiple comparisons, sample-size determination for hierarchical designs, and meta-analysis for rare events. He has contributed to the development of statistical methodology and dissemination of software for power analysis (RMASS) and functional magnetic resonance imaging data from patients with schizophrenia (fMRI View), traumatic brain injury, autism spectrum disorder, and substance abuse. He has been elected a Fellow of the American Statistical Association (ASA) and Royal Statistical Society (RSS) and has twice received the Youden Award for Inter-laboratory Testing. One of his articles received the 2009 Outstanding Statistical Application Award from the ASA. His recent research in Microbiome has been covered by more than 30 national and international news channels in different languages.

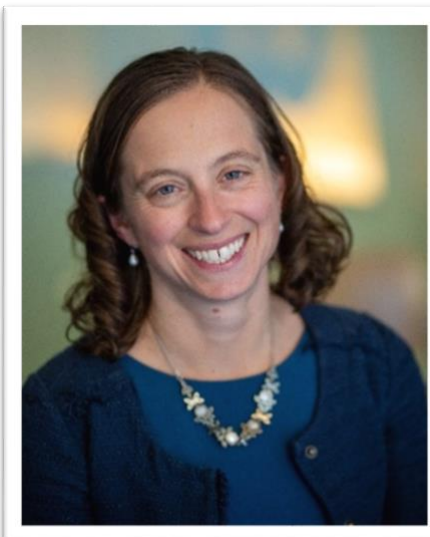


**Ying Guo, PhD**

**Affiliation:** Emory University

**Bio:** Dr. Guo is Professor in the Department of Biostatistics and Bioinformatics, Rollins School of Public Health, at Emory University and an appointed Graduate Faculty of the Emory Neuroscience Program. She is a Founding Member and current Director of the Center for Biomedical Imaging Statistics (CBIS) at Emory University.

Dr. Guo's research focuses on developing analytical methods for neuroimaging and mental health studies. Her main research areas include statistical methods for agreement and reproducibility studies, brain network analysis, multimodal neuroimaging, and imaging-based prediction methods. Dr. Guo is a Fellow of the American Statistical Association (ASA) and Chair-Elect 2022 for the ASA Statistics in Imaging Section. She is a Standing Member of NIH Emerging Imaging Technologies in Neuroscience (EITN) Study Section and has served on the editorial boards of several scientific journals in statistics and psychiatry.



**Elizabeth Stuart, PhD**

**Affiliation:** Johns Hopkins Bloomberg School of Public Health

**Bio:** Dr. Stuart is Bloomberg Professor of American Health in the Department of Mental Health at the Johns Hopkins Bloomberg School of Public Health, with joint appointments in the Department of Biostatistics and the Department of Health Policy and Management. She received her PhD in statistics in 2004 from Harvard University and is a Fellow of the American Statistical Association (ASA) and the American Association for the Advancement of Science (AAAS). Her primary research interests include designs for estimating causal effects in non-experimental settings (such as propensity scores), mediation analysis, methods to assess and enhance the generalizability of randomized trials to target populations, and methods for policy evaluation. She has a current NIMH-funded R01 on methods for mediation analysis and is former Chair of the NIMH Mental Health Services Research Committee (SERV). She has received the mid-career award from the Health Policy Statistics Section of the ASA, the Gertrude Cox Award for applied statistics, Harvard University's Myrto Lefkopoulou Award for excellence in biostatistics, and the inaugural Society for Epidemiologic Research Marshall Joffe Epidemiologic Methods award.





**Wesley Thompson, PhD**

**Affiliation:** University of California, San Diego (UCSD)

**Bio:** Dr. Thompson is Professor of Biostatistics at the University of California, San Diego. His methodological research focuses on the development and application of Bayesian hierarchical and mixture models for multivariate data. Dr. Thompson is co-director of the UCSD Population Neuroscience and Genetics Laboratory (<https://chd.ucsd.edu/research/PoNG/index.html>), dedicated to understanding how human brain and cognition develops through complex interactions of genes and environment. He is also Director of Biostatistics for two national imaging genetics consortia, the Adolescent Brain and Cognitive Development Study (ABCD, [abcdstudy.org](http://abcdstudy.org)), and the National Consortium on Alcohol and Neurodevelopment in Adolescence (NCANDA, <http://www.ncanda.org/>).

## SESSION 1 SPEAKERS



**Melanie Wall, PhD**

**Affiliation:** Columbia University

**Bio:** Dr. Wall is the Director of Mental Health Data Science in the New York State Psychiatric Institute (NYSPI) and Columbia University Psychiatry Department, where she oversees a team of 14 biostatisticians collaborating on predominately NIH-funded research projects related to psychiatry. She has worked extensively with modeling complex multilevel and multimodal data on a wide array of psychosocial public health and psychiatric research questions in both clinical studies and large epidemiologic studies (over 300 total journal publications). Her biostatistical expertise includes latent variable modeling (e.g., factor analysis, item response theory, latent class models, structural equation modeling); spatial data modeling (e.g., disease mapping); and longitudinal data analysis, including the class of longitudinal models commonly called growth curve mixture models. She received a PhD (1998) from the Department of Statistics at Iowa State University.



**Yuanjia Wang, PhD**

**Affiliation:** Columbia University

**Bio:** Dr. Wang is a Professor in the Department of Biostatistics and Department of Psychiatry at Columbia University and a core member of the Division of Biostatistics at New York State Psychiatric Institute. She was elected as a Fellow of the American Statistical Association (ASA) in 2016. Dr. Wang works on developing data-driven approaches to explore relationship between biomarkers, clinical markers, and health outcomes to assist discoveries in disease etiology and increase diagnostic capabilities of psychiatric and neurological diseases. Her methodological interests include statistical learning, analytics for precision medicine, network analysis, and novel design and analysis of clinical trials. Her substantive research areas of interest include psychiatric disorders and neurological disorders.



**Munmun De Choudhury, PhD**

**Affiliation:** Georgia Tech

**Bio:** Dr. De Choudhury is an Associate Professor (with tenure) in the School of Interactive Computing at Georgia Tech. Trained as a computer scientist, she has developed methods to use social media as both a mechanism to understand our mental health, as well as to improve access to mental health care. At Georgia Tech, she leads the Social Dynamics and Wellbeing Lab (SocWeB Lab). The lab studies and analyzes appropriate social media, responsibly and ethically, to derive computational, large-scale, data-driven insights, and to develop mechanisms and technologies for improving our well-being, particularly our mental health. Her research has been supported by the National Institutes of Health (NIH), National Science Foundation (NSF), Intelligence Advanced Research Projects Activity (IARPA), Centers for Disease Control and Prevention (CDC), Everytown for Gun Safety, the United Nations Foundation, Microsoft, Facebook, Mozilla, Yahoo!, and Samsung. Before moving to Georgia Tech in spring 2014, she was a postdoctoral researcher at Microsoft Research, Redmond, and received her PhD in 2011 from the Department of Computer Science at Arizona State University, Tempe.



**Benjamin Lê Cook, PhD**

**Affiliation:** Harvard University

**Bio:** Dr. Benjamin Lê Cook is Director of the Health Equity Research Lab at Cambridge Health Alliance, Associate Professor in the Department of Psychiatry at the Harvard Medical School, and Visiting Clinical Assistant Professor at the Albert Einstein College of Medicine in the Bronx, NY. He holds a PhD in Health Policy from Harvard University and an MPH in Health Behavior and Health Education from UNC Chapel Hill. Dr. Cook is a health services researcher focused on improving quality of life and access and quality of treatment for individuals living with mental illnesses and substance use disorders. His NIH-, AHRQ-, and foundation-funded research tracks health care disparities in the United States and the impacts of health reform on disparities; seeks to understand discrimination in the patient-provider interaction; and evaluates the impact of hospital-based interventions on health equity. He currently serves as Chair of the Mental Health Services Research Committee (SERV) for NIMH.

## SESSION 2 SPEAKERS



**Bin Yu, PhD**

**Affiliation:** UC Berkeley

**Bio:** Dr. Yu is Chancellor's Distinguished Professor and Class of 1936 Second Chair in the Departments of Statistics and EECS at UC Berkeley. She leads the Yu Group, which consists of 15-20 students and postdocs from Statistics and EECS. She was formally trained as a statistician, but her research extends beyond the realm of statistics. Together with her group, her work has leveraged new computational developments to solve important scientific problems by combining novel statistical machine learning approaches with the domain expertise of her many collaborators in neuroscience, genomics, and precision medicine.

Dr. Yu and her team develop relevant theory to understand random forests and deep learning for insight into and guidance for practice. She is a member of the U.S. National Academy of Sciences and of the American Academy of Arts and Sciences. Dr. Yu is Past President of the Institute of Mathematical Statistics (IMS), Guggenheim Fellow, Tukey Memorial Lecturer of the Bernoulli Society, Rietz Lecturer of IMS, and a COPSS E. L. Scott prize winner. She is serving on the editorial board of Proceedings of National Academy of Sciences (PNAS) and the scientific advisory committee of the UK Turing Institute for Data Science and AI.



**Thomas E. Nichols, PhD**

**Affiliation:** University of Oxford

**Bio:** Dr. Nichols is the Professor of Neuroimaging Statistics at the Oxford Big Data Institute. He is a statistician with a solitary focus on modeling and inference methods for brain imaging research. He has a unique background, with both industrial and academic experience, and diverse training, having earned his PhD in Statistics at Carnegie Mellon University with cross-training in cognitive neuroscience. After joining the faculty at the Department of Biostatistics at the University of Michigan, he was the Director of Modeling and Genetics at GlaxoSmithKline's Clinical Imaging Centre, London, where he developed methods for fMRI clinical trials and imaging genetics studies. In 2009, Dr. Nichols received the Wiley Young Investigator Award by the Organization for Human Brain Mapping in recognition for his contributions to statistical modeling and inference of neuroimaging data. He is a developer of both the Statistical Parametric Mapping (SPM) and FMRIB Software Library (FSL) tools and is well known for bringing advanced statistical methodology to brain imaging and making it accessible to non-statisticians.



**Martin A. Lindquist, PhD**

**Affiliation:** Johns Hopkins University

**Bio:** Dr. Lindquist is a Professor of Biostatistics at Johns Hopkins University. His research focuses on mathematical and statistical problems relating to functional magnetic resonance imaging (fMRI). Dr. Lindquist is actively involved in developing new analysis methods to enhance our ability to understand brain function using human neuroimaging. He has published over 100 research articles and serves on the editorial boards of several scientific journals both in statistics and neuroimaging. He is a Fellow of the American Statistical Association and was awarded the Organization for Human Brain Mapping's Education in Neuroimaging Award in 2018. His online classes have taught fMRI methods to more than 100,000 students worldwide.





**Todd Ogden, PhD**

**Affiliation:** Columbia University

**Bio:** Dr. Ogden, currently Professor and Vice Chair for Education in the Department of Biostatistics at Columbia University, has recently worked on methodological development and applications involving functional data, other high-dimensional data settings, and precision medicine. He has had a longstanding interest in imaging data, particularly brain imaging with PET, and has contributed to that field in many ways.

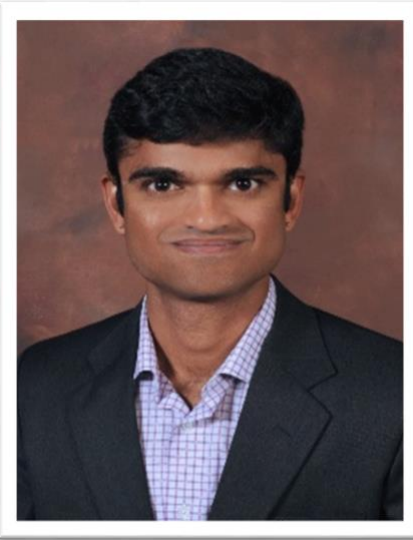
## SESSION 3 SPEAKERS



**Rajesh R. Nandy, PhD**

**Affiliation:** University of North Texas

**Bio:** Dr. Nandy received his PhD in Mathematics from the University of Washington, specializing in the theory of stochastic processes. He has also completed a Master's degree in statistics and pursued PhD-level study in physics while at the University of Washington. He has developed novel statistical methods with a focus on analyzing fMRI data, resulting in several high-impact publications and numerous presentations at ISMRM and HBM meetings. He has expertise in working with large and complex data sets using multivariate statistical methods and machine learning apart from the traditional areas of biostatistics, such as clinical trials and optimal designs. For fMRI data analysis, he has made contributions to the fields of multivariate Canonical Correlation Analysis (CCA), Multiple Testing, Functional Connectivity, Independent Component Analysis (ICA), and nonparametric methods.



**Deepak N. Ayyala, PhD**

**Affiliation:** Augusta University

**Bio:** Dr. Ayyala is an Assistant Professor of Biostatistics and Data Science in the Department of Population Health Sciences in the Medical College of Georgia at Augusta University. He received his PhD in Statistics from University of Maryland Baltimore County. Prior to joining Augusta University, he held postdoctoral positions at The Ohio State University and Jackson Laboratory for Genomic Medicine. His research interests include high-dimensional inference, genomics, metagenomics, functional MRI analysis, and biomedical big data analysis.



**Olusola Ajilore, MD, PhD**

**Affiliation:** University of Illinois at Chicago

**Bio:** Dr. Ajilore is an Associate Professor in the Department of Psychiatry at the University of Illinois at Chicago. Dr. Ajilore did his MD/PhD degree at Stanford University, where he studied the deleterious effects of stress hormones on the brain. He joined the research track residency at UCLA, where he transitioned into neuroimaging in major depression. He is currently using novel neuroimaging techniques to better understand the pathophysiology of mood disorders.

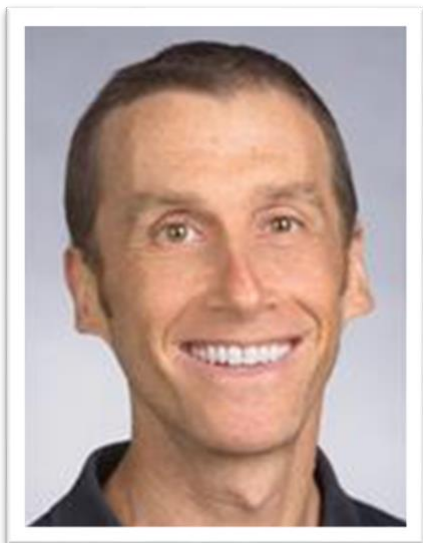


**Nicole Lazar, PhD**

**Affiliation:** Penn State University

**Bio:** Dr. Lazar is a Professor of Statistics at Penn State University. She received her PhD in Statistics from the University of Chicago and MS in Statistics from Stanford University. Her research interests include the foundations of statistical inference and the analysis of functional neuroimaging data. She has done pioneering work on the statistical analysis of cognitive neuroscience data, with a focus on functional magnetic resonance imaging (fMRI). Dr. Lazar is the author of the book, *The Statistical Analysis of Functional MRI Data*, published by Springer. She is an Elected member of the International Statistical Institute, a Fellow of the American Statistical Association, and a Fellow of the Institute of Mathematical Statistics. Dr. Lazar also served as President of the Caucus for Women in Statistics in 2019. She has an extensive record of service to the statistics profession. Prior to joining Penn State in 2020, she was on the faculty of Carnegie Mellon University and the University of Georgia, where she was Interim Department Head from 2014 to 2016.

## SESSION 4 SPEAKERS



**Armin Schwartzman, PhD**

**Affiliation:** University of California at San Diego (UCSD)

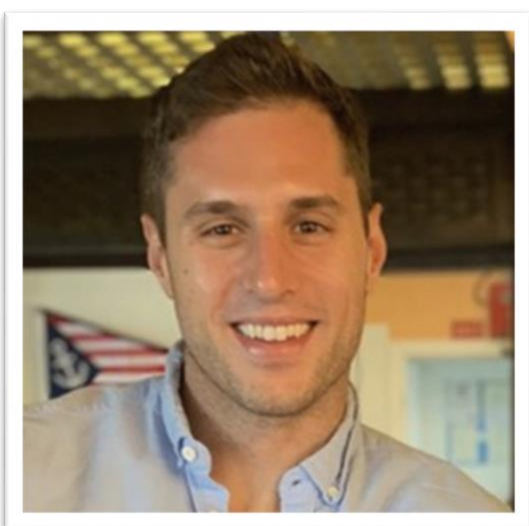
**Bio:** Dr. Schwartzman received his MS degree in Electrical Engineering from the California Institute of Technology and his PhD in Statistics from Stanford University. He was an R&D engineer at Rockwell Semiconductor and Biosense Webster and has held faculty positions at Harvard University and North Carolina State University. He is currently Professor at the University of California, San Diego, with a joint position between Biostatistics and the Halicioglu Data Science Institute. His research interests are in signal and image analysis, with applications to biomedicine and the environment.



**Chun Fan, PhD**

**Affiliation:** University of California at San Diego (UCSD)

**Bio:** Dr. Fan is Assistant Professor of Radiology at the University of California, San Diego. Dr Fan is Co-Director of the Population Neuroscience and Genetics Lab. His research interests focus broadly on the domains of psychiatry, neuroimaging, and genetics, striving to understand how molecular mechanisms impact measurable neurocircuitry and observed psychopathologies.



**Kevin Anderson, PhD**

**Affiliation:** University of California at San Diego (UCSD)

**Bio:** Dr. Anderson is a postdoctoral fellow at Harvard University in the lab of Dr. Randy Buckner. His work investigates the biology of normative brain aging, incorporating tools from psychology, neuroscience, and genetics. Dr. Anderson earned his doctorate from Yale University in the lab of Dr. Avram Holmes, conducting imaging genetic investigations of heritable forms of psychiatric illness.