

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



PROGRAM

(NOTE: All times are in EDT)

9:00 am — 9:30 am

Opening/Vision

Josh Gordon, MD, PhD, Director — National Institute of Mental Health

SESSION I: Recent Advances in Statistical Methods for Mental Health Services Research

9:30 am — 10:50 am

Chair: *Elizabeth Stuart, PhD — Johns Hopkins University*

Data Science as the Engine for a Learning Health Care Service System for First Episode Psychosis in Coordinated Specialty Care
Melanie Wall, PhD — Columbia University

Machine Learning Approaches for Optimizing Treatment Strategies for Mental Disorders
Yuanjia Wang, PhD — Columbia University

Employing Social Media to Improve Mental Health: Harnessing the Potentials and Avoiding the Pitfalls
Munmun De Choudhury, PhD — Georgia Tech

Discussant: *Benjamin Lê Cook, PhD — Harvard Medical School*

10:50 am — 11:00 am

Break

SESSION II: Statistical Methods for Generating Reliable and Reproducible Findings from Neuroimaging Data

11:00 am — 12:20 pm

Chair: *Ying Guo, PhD — Emory University*

Veridical Data Science for Biomedical Research with an Application to DeepTune for Characterizing V4 Neurons
Bin Yu, PhD — UC Berkeley

The Impact of Methodological Variation in fMRI Inferences
Thomas Nichols, PhD — University of Oxford

The Role of Statistics in Large Complex Neuroimaging Studies
Martin Lindquist, PhD — Johns Hopkins University

Discussant: *Todd Ogden, PhD — Columbia University*

12:20 pm — 1:00 pm **Lunch Break**

SESSION III: Statistical Testing and Power Analysis for High-dimensional Neuroimaging Mental Health Data

1:00 pm — 2:20 pm **Chair:** *Dulal K. Bhaumik, PhD — University of Illinois at Chicago*

Power Analysis for High-dimensional Neuroimaging Studies
Dulal K. Bhaumik, PhD — University of Illinois at Chicago

A Semi-parametric Approach to Solve the Multiple Comparison Problem in
Analyzing Functional MRI Data
Rajesh R. Nandy, PhD — University of North Texas

Adjusting for Confounders in Cross-correlation Analysis of Resting-State Networks
Deepak N. Ayyala, PhD — Augusta University

Discussants/Panel Members:

Olu Ajilore, MD, PhD — University of Illinois at Chicago
Nicole Lazar, PhD — Penn State University

2:20 pm — 2:30 pm **Break**

SESSION IV: Recent Statistical Developments in Imaging Genetics

2:30 pm — 3:50 pm **Chair:** *Wes Thompson, PhD — University of California at San Diego (UCSD)*

Estimating the Fraction of Variance of Cognitive Traits Explained by High-
dimensional Genetic and Neuroimaging Measures
Armin Schwartzman, PhD — University of California at San Diego (UCSD)

Efficient Vertexwise/Voxelwise Imaging GWAS for Large-scale Heterogeneous
Population Imaging Data and Enabling Downstream Multivariate Inference
Chun Fan, PhD — University of California at San Diego (UCSD)

A Platform for Imaging Genetic Study of Brain Aging
Kevin Anderson, PhD — Harvard University

Discussant: *Thomas Nichols, PhD — University of Oxford*

3:50 pm — 4:00 pm **Break**

SESSION V: Panel Discussion on the Roles of Statistical Methods to Improving Mental Health Studies

4:00 pm — 4:40 pm **Chair:** *Sarah Hollingsworth "Holly" Lisanby, MD — National Institute of Mental Health*