Data Science Seminar

Hosted by the Department of Mathematics and Statistics

- Date: Tuesday, April 14, 2026
- Time: 12:15pm – 1:15pm
- Room: Whitney Hall 100E
- Speaker: Dr. Yang Feng (New York University)
- Title: Transfer and Multi-task Learning: Statistical Insights for Modern Data Challenges.

Abstract

In the era of big data, borrowing strength across related tasks through Transfer Learning (TL) and Multi-task Learning (MTL) is essential for prediction efficiency. However, a major challenge is ensuring adaptive transfer while avoiding “negative transfer” from misleading source data. This talk presents a framework for addressing these challenges across three settings. First, for high-dimensional Generalized Linear Models (GLMs), I introduce TransGLM, a two-step procedure that uses a source-detection algorithm to filter uninformative sources, thereby improving estimation and prediction performance. Second, I extend these ideas to Unsupervised Federated Learning via the FedGrEM algorithm, which addresses the challenges of learning mixture models across heterogeneous clients without sharing raw data. Finally, I move to Representation Learning, where tasks share a low-dimensional linear representation but differ in downstream relationships. I present a framework that adapts to unknown levels of task similarity, ensuring robustness toward adversarial attacks and minimax optimality.

Reference: https://yangfengstat.github.io/projects/transfer_learning/

Biography of the speaker: Yang Feng is a Professor of Biostatistics in the School of Global Public Health at New York University, where he is also affiliated with the Center for Data Science. He earned his Ph.D. in Operations Research from Princeton University in 2010. Dr. Feng’s research focuses on the theoretical and methodological foundations of machine learning, high-dimensional statistics, network models, and nonparametric statistics. His work addresses critical applications in Alzheimer’s disease prognosis, cancer subtype classification, genomics, electronic health records, and biomedical imaging, aiming to enable more accurate risk assessment and clinical decision-making. He has published over 70 peer-reviewed papers in leading journals across statistics, machine learning, econometrics, and medicine. His research has been supported by grants from the National Institutes of Health (NIH) and the National Science Foundation (NSF), including the NSF CAREER Award. Currently, Dr. Feng serves as the Review Editor for the Journal of the American Statistical Association (JASA) and The American Statistician (2026–2028). He also serves as an Associate Editor for several premier journals, including JASA Theory and Methods, the Journal of Business & Economic Statistics, the Journal of Computational & Graphical Statistics, and the Annals of Applied Statistics. He is a Fellow of the American Statistical Association (2022) and the Institute of Mathematical Statistics (2023), and has been an elected member of the International Statistical Institute since 2017.