Indiana University-Purdue University Indianapolis
Department of Mathematical Sciences

STATISTICS SEMINAR

12:15pm—1:15pm, Tuesday, April 16, 2024
Zoom Meeting: Meeting ID: 845 0989 4694

Speaker: Lu Xia
Department of Statistics and Probability,
Michigan State University

Title: Reliable High-Dimensional Inference Beyond Linear Models

Abstract:

Modern technologies have made it possible to collect a large amount of information in biomedical studies, where the number of covariates is comparable to or even larger than the sample size. Statistical methods for reliable inference on regression parameters in the presence of high-dimensional covariates are warranted. While much of the existing literature focuses on linear regression, other widely adopted models in biomedical research, for example, for binary, time-to-event and correlated data, pose additional challenges in both theoretical development and empirical performance.

The first part of this talk concerns a projection-based approach for inference on linear functionals of regression parameters in generalized estimating equations, under the "large p, small n" regime, to analyze correlated data. Then, I will present a de-biased lasso approach for drawing inference on stratified Cox models under the "large n, diverging p" regime. The proposed methods are shown to enjoy more reliable empirical performance, especially in estimation bias and confidence interval coverage, than their competitors, and are applied to analyses of longitudinal proteomic profiling and the Scientific Registry of Transplant Recipients data, respectively.

Bio:
Dr. Lu Xia is an Assistant Professor in the Department of Statistics and Probability at Michigan State University. Before joining Michigan State in 2023, she earned her PhD in Biostatistics from the University of Michigan and worked as a Postdoctoral Scholar in the Department of Biostatistics at the University of Washington after graduation. She received the JSM Biometrics Section Travel Award in 2020. Her current research focuses on high-dimensional statistics, data integration, machine learning and multi-omics data analysis.