

**Indiana University-Purdue University
Indianapolis**
Department of Mathematical Sciences

STATISTICS SEMINAR

12:15pm—1:15pm, Tuesday, October 27, 2020
Zoom Meeting: Meeting ID: 751 025 519

Speaker: **Xiaoxi Shen**
Department of Biostatistics, University of Florida

Title: **Statistical Inference Based on Neural Networks**

Abstract:

Neural networks have become increasingly popular in the field of machine learning and have been successfully used in many applied fields (e.g., imaging recognition). With more and more research has been conducted on neural networks, we have a better understanding of the statistical proprieties of neural networks. While many studies focus on bounding the prediction error of neural network estimators, limited research has been done on the statistical inference of neural networks. From a statistical point of view, it is of great interest to investigate the statistical inference of neural networks as it could facilitate hypothesis testing in many fields (e.g., genetics, epidemiology, and medical science). In this talk, some statistical properties of neural networks will be reviewed and a goodness-of-fit test statistic based on neural network sieve estimators will be introduced. The test statistic follows an asymptotic normal distribution, which makes it easy to use in practice. The applicability of such a test is investigated via simulations.

Bio:

Xiaoxi Shen is a postdoctoral research fellow in the department of Biostatistics at the University of Florida. He received a B.Sc. degree in Mathematics from Shanghai University and PhD in Statistics from Michigan State University. His research interests are statistical genetics, mixed models, statistical learning and empirical processes.