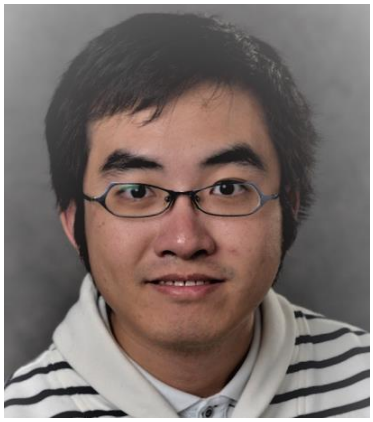

Statistics Seminar

Friday, October 22 12:00 pm - 1:00 pm Derr 122

Significance Tests Based on Sieve Quasi-likelihood Ratio Test Using Neural Networks with Application to Genetic Association Studies

Xiaoxi Shen

Abstract: Despite the great success of applications of neural networks in many different fields, such as natural language processing and image recognition, lack of research focuses on the interpretation of neural network models. In this talk I will propose a sieve quasi-likelihood ratio test based on neural networks with one hidden layer to conduct significance tests of input features. The test statistics has asymptotic chi-squared distribution so that it is easy to apply in real data analysis. The validity of the asymptotic distribution is investigated via simulation and we applied our proposed test to perform a genetic association analysis on the sequencing data from Alzheimer's Disease Neuroimaging Initiative (ADNI).

Bio: Dr. Shen is an Assistant Professor at the Department of Mathematics, Texas State University.
He received his Ph.D. in Statistics from Michigan State University in 2019. His research focusing on developing novel statistical methodologies in detecting associations between genetic variants and phenotypes.