Statistical Machine Learning Seminar

Hosted by Department of Mathematical Sciences

- Date: Tuesday, December 6, 2016
- Time: 12:00-1:00
- Room: WH-100E
- Speaker: Yang Ning (Cornell University)
- Title: A General Framework for High-Dimensional Inference and Multiple Testing

Abstract

We consider the problem of how to control the false scientific discovery rate in high-dimensional models. Towards this goal, we focus on the uncertainty assessment for low dimensional components in high-dimensional models. Specifically, we propose a novel decorrelated likelihood based framework to obtain valid p-values for generic penalized M-estimators. Unlike most existing inferential methods which are tailored for individual models, our method provides a general framework for high-dimensional inference and is applicable to a wide variety of applications, including generalized linear models, graphical models, classifications and survival analysis. The proposed method provides optimal tests and confidence intervals. The extensions to general estimating equations are discussed. Finally, we show that the p-values can be combined to control the false discovery rate in multiple hypothesis testing.