THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

PHD STUDENT SEMINAR

Controlling False Discovery Rate in Multi Task Learning

By

Mr. Chen LIU

Abstract

Currently, Multi-Task Learning (MTL), which aims to jointly learn models from different sources, is widely studied. One important issue in MTL is determining the outlier tasks to prevent them from negatively affecting the learning of other tasks. Researchers have proposed adaptive and robust methods to solve this problem. However, even though these methods can successfully identify the outlier tasks, the False Discovery Rate (FDR) has no guarantee. To address these challenges, we propose a method based on Split Knockoffs. The key innovation of our method is transforming the original problem into one of controlling the FDR in learning a model with structural sparsity. In detail, our method involves several steps. For the first step, we generate an initial guess for the outlier tasks, then we convert the problem to find outlier tasks with controlled FDR. To validate our method, experiments are conducted on both simulated datasets and a real-world dataset. In these experiments, our method achieved desired control of FDR and demonstrated strong performance.

Date : **26 April 2024 (Friday)**

Time : **2:00pm**

Venue : **Room 4475 (Lifts 25/26)**

All are Welcome!