



The Hong Kong University of Science and Technology

Department of Mathematics

Mathematics Colloquium

Causal Modeling and Machine Learning

by

Prof. Kun ZHANG

Carnegie Mellon University

Abstract

Can we find causal structure by statistical analysis of observational data? How can we find the causal direction between two variables? How can we make optimal predictions in the presence of distribution shift? We are often faced with such causal modeling or prediction problems. Recently, with the rapid accumulation of huge volumes of data, both causal discovery, i.e., learning causal information from purely observational data, and machine learning are seeing exciting opportunities as well as great challenges. This talk will be focused on recent advances in causal discovery and how causal information facilitates understanding and solving certain problems of learning from heterogeneous data. In particular, I will talk about basic approaches to causal discovery and address some practical issues, including data heterogeneity and the presence of measurement error. Finally, I will discuss why and how underlying causal knowledge helps in learning from heterogeneous data when the i.i.d. assumption is dropped, with transfer learning as a particular example.

Date: Friday, 26 April 2019

Time: 3:00p.m. - 4:00p.m.

**Venue: Lecture Theater F,
Academic Building, 1/F
(near Lifts 25 - 26), HKUST**

All are welcome!