

For favour of posting

DEPARTMENT OF STATISTICS AND ACTUARIAL SCIENCE
THE UNIVERSITY OF HONG KONG

Departmental Seminar

Dr. Hongyuan CAO

Department of Statistics
University of Missouri, Columbia
USA

will give a talk
entitled

**MULTIPLE TESTING MEETS ISOTONIC REGRESSION
FOR HIGH DIMENSIONAL INTEGRATIVE ANALYSIS**

Abstract

Large scale multiple testing is a fundamental problem in statistical inference. Recent technological advancement makes available various types of auxiliary information such as prior data and external covariates. Our goal is to utilize such auxiliary information to improve statistical power in multiple testing. This is formally achieved through a shape-constrained relationship between auxiliary information and the prior probabilities of being null. We propose to estimate the unknown parameters by embedding the isotonic regression in the EM algorithm. The resulting testing procedure utilizes the ordering of the auxiliary information and is thus very robust. We show that the proposed method leads to a large power increase, while controlling the false discovery rate, both empirically and theoretically. Extensive simulations demonstrate the advantage of the proposed method over several state-of-the-art methods. The new methodology is illustrated with dataset from genome-wide association studies.

on

Monday, March 5, 2018

(Refreshments will be served from 10:15 a.m. outside Room 301 Run Run Shaw Building)

10:30 a.m. – 11:30 a.m.

at

Room 301, Run Run Shaw Building

Visitors Please Note that the University has limited parking space. If you are driving please call the Department at 3917 2466 for parking arrangement.

All interested are welcome