THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

DEPARTMENT OF APPLIED MATHEMATICS
應 用 數 學 系

The Hong Kong Polytechnic University
Department of Applied Mathematics

Seminar

Recent advances in the problem of combining p-values

By

Prof George TSENG

University of Pittsburgh

Abstract

The topic of combining p-values has a long-standing history and interest in statistical science and many application fields. In this talk, we will survey methods in three major historical developments: (1) combine independent and non-sparse signals (2) combine independent, sparse and weak signals (3) combine dependent, sparse and weak signals. I will firstly summarize several recent developments from our lab as well as others in all three categories. Specifically, an adaptive Fisher's method is developed using weakly geometric grid search for combining independent signals with optimal detection boundary. In the second paper, an accurate and ultra-efficient computational strategy for higher criticism will be presented for large-scale data analysis. Finally, heavy-tailed distribution for combining dependent p-values with asymptotic robustness is discussed with their theoretical properties. Multiple applications from omics research and COVID-19 surveillance will be presented.

Date: 19 October 2023 (Thursday)
Time: 10:30-11:30 (Hong Kong Standard Time GMT +8)
Venue: TU101
Speaker: Prof George Tseng, University of Pittsburgh
Host: Dr Catherine Chunling Liu, The Hong Kong Polytechnic University

*** * * ALL ARE WELCOME * * ***