For favour of Posting

THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

PHD STUDENT SEMINAR

A spectral approach for online covariance change point detection

By

Miss Kha Man CHEONG

Abstract

Change point detection in covariance structures is a fundamental problem in high-dimensional sequential data analysis. While most existing methods focus on offline settings, many practical applications require online procedures that detect changes as soon as they occur. In this talk, we present a new online detection method based on linear spectral statistics of sequential sample Fisher matrices. Using these statistics, we construct a random-walk-type process and develop a CUSUM-type detection procedure based on the invariance principle. Simulation results show that the proposed method detects covariance changes quickly and often outperforms existing approaches. This is joint work with Zhigang Bao, Yuji Li, and Jiaxin Qiu.

Date : 4 May 2026, Monday

Time : 2:00pm

Venue : Room 5508 (Lifts 25/26)

All are Welcome!