SEMINAR

DEPARTMENT OF STATISTICS
THE CHINESE UNIVERSITY OF HONG KONG

Change Point Detection for Object-valued Time Series

INVITED SPEAKER

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TIME

July 10th, 2025 (Thu) · 2:30 pm - 3:30 pm

VENUE

LHC 104 (1/F)· Y C Liang Hall (LHC) · CUHK

ABSTRACT

Statistical analysis of object-valued data in metric spaces is emerging as an important area of functional data analysis in statistics. Examples of such data include networks, distributions, and covariance matrices. Many of these object-valued datasets are collected as time series, such as yearly age-at-death distributions for countries in Europe or daily Pearson correlation matrices for multiple cryptocurrencies.
In this talk, we introduce recent work on change point detection for non-Euclidean time series. Specifically, we present a new test for detecting a single change point in the marginal distribution of a time series and apply this test to consistently estimate multiple change points using wild binary segmentation. Our proposed test statistic relies solely on the pairwise distances between random objects and involves fewer tuning parameters than existing methods. We will also discuss the asymptotic theory supporting the validity of our testing and estimation procedures. Simulation results and real-world data applications will be presented to demonstrate the effectiveness and versatility of our approach.