THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

Summer Research Program 2022

PG STUDENT SEMINAR

Optimal Estimation and Computational Limit of Low-rank Gaussian Mixtures

By

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Abstract

In this seminar, we will briefly review the classical Gaussian mixture model. Then we will present our recent work on low-rank Gaussian mixture model (LrMM), which generalizes GMM to matrix case. In particular, we consider the maximum likelihood estimator under a minimal condition on signal strength, which is nonetheless computationally infeasible. We also design a computationally fast estimator based on spectral aggregation when the signal is stronger than a certain threshold, called the computational limit. Our results reveal intriguing multiple phase transitions in the minimax error rates and the statistical-to-computational gap.

Date : **12 July 2022 (Tuesday)**
Time : **8:00pm**
Zoom Meeting : https://hkust.zoom.us/j/93433705709 **(Passcode: hkust)**

All are Welcome!