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THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

SEMINAR ON STATISTICS AND DATA SCIENCE

Spectral methods for latent variable models

By

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Abstract

Latent variable models lay the statistical foundation for data science problems with unstructured, incomplete and heterogeneous information. Spectral methods extract low-dimensional geometric structures for downstream tasks in a computationally efficient way. Despite their conceptual simplicity and wide applicability, theoretical understanding is lagging far behind and that hinders development of principled approaches. In this talk, I will first talk about the bias and variance of PCA, and apply the results to distributed estimation of principal eigenspaces. Then I will present an ℓ_p theory of eigenvector analysis that yields optimal recovery guarantees for spectral metnods in many challenging problems. The results find applications in dimensionality reduction, mixture models, network analysis, recommendation systems, ranking and beyond.

Biography: *Kaizheng Wang is a fifth-year PhD student in Operations Research and Financial Engineering at Princeton University. His research interests lie at the intersection of statistics, machine learning and optimization, with special focus on development and analysis of efficient algorithms for unsupervised learning.*

Date : 20 March, 2020 (Friday)
Time : 9:30am – 10:30am
Zoom Meeting : https://hkust.zoom.com.cn/j/5616960008

All are Welcome!