



THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

**SEMINAR ON APPLIED MATH
AND DATA SCIENCE**

**Accelerated Outlier Detection in Low-Rank and
Structured Data: Robust PCA and Extensions**

By

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Abstract

We study robust PCA for the fully observed setting, which is about separating a low rank matrix L and a sparse matrix S from their sum $D=L+S$. In this talk, a new algorithm, dubbed accelerated alternating projections, is introduced for robust PCA which significantly improves the computational efficiency of the existing non-convex algorithms. Exact recovery guarantee has been established which shows linear convergence of the proposed algorithm. Empirical performance evaluations confirm the advantage of our algorithm over other state-of-the-art algorithms for robust PCA. Furthermore, we extend our method to the low-rank Hankel matrix, with its application to the spectrally sparse signals.

Biography: *HanQin Cai is an Assistant Adjunct Professor in the Department of Math at UCLA. He earned his Ph.D. degree from the University of Iowa in 2018, under guidance of Professor Jian-Feng Cai and Prof. Weiyu Xu. His research interests lie at image processing, data analysis, optimization, and machine learning. Currently, he is focusing the projects of outlier detection and zero-order optimization.*

Date : 25 March, 2020 (Wednesday)

Time : 3:00pm – 4:00pm

Zoom Meeting : <https://hkust.zoom.com.cn/j/590198340>

All are Welcome!