THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

DEPARTMENT OF APPLIED MATHEMATICS
應 用 數 學 系

The Hong Kong Polytechnic University
Department of Applied Mathematics

Colloquium Series on Young Scholars in Optimization and Data Science

Non-convex Factorization and Manifold Formulations in Low-rank Matrix Optimization

By

Dr. Xudong LI
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Abstract

In this talk, we consider the geometric landscape connection of the widely studied manifold and factorization formulations in low-rank positive semidefinite (PSD) and general matrix optimization. We establish an equivalence on the set of first-order stationary points (FOSPs) and second-order stationary points (SOSPs) between the manifold and the factorization formulations. We further give a sandwich inequality on the spectrum of Riemannian and Euclidean Hessians at FOSPs, which can be used to transfer more geometric properties from one formulation to another. We also discuss applications of our findings to some machine learning problems.

Click to join

Date: 6 May 2022 (Friday)
Time: 10:00-11:00 (Hong Kong Standard Time GMT +8)
Venue: Online Talk via Zoom (Meeting ID: 968 5976 1474)
Speaker: Dr. Xudong Li, Fudan University
Host: Dr. Yancheng Yuan, The Hong Kong Polytechnic University
Click to join:
https://polyu.zoom.us/j/96859761474?pwd=SEl3YmE4bjJJU3FWU1NKNHZLVzRLZz09

*** * * ALL ARE WELCOME * * ***

For enrolment, please send your name and email to wai-yan.moon@polyu.edu.hk on or before 5 May 2022