THE UNIVERSITY   **OF HONG KONG**

Department of Mathematics

One World Mathematics of INformation, Data, and Signals (1W-MINDS) Seminar

Low Rank Tensor Completion with Poisson Observations

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Abstract

Poisson observations for videos are important models in video processing and computer vision. In this talk, we study the third-order tensor completion problem with Poisson observations. The main aim is to recover a tensor based on a small number of its Poisson observation entries. An existing matrix-based method may be applied to this problem via the matricized version of the tensor. However, this method does not leverage on the global low-rankness of a tensor and may be substantially suboptimal. We employ a transformed tensor nuclear norm ball constraint and a bounded constraint of each entry, where the transformed tensor nuclear norm is used to get a lower transformed multi-rank tensor with suitable unitary transformation matrices. We show that the upper bound of the error of the estimator of the proposed model is less than that of the existing matrix-based method. Numerical experiments on synthetic data and real-world datasets are presented to demonstrate the effectiveness of our proposed model compared with existing tensor completion methods.

Date:	May 6, 2021 (Thursday)
Time:	4:30 pm (Hong Kong Time)
	10:30 am (Paris Time)
Venue:	https://sites.google.com/view/minds-seminar/home

All are welcome