

The Hong Kong University of Science and Technology

Department of Mathematics

Mathematics Colloquium

Random perturbation of low-rank matrices

By

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<u>Abstract</u>

Computing the singular values and singular vectors of a large matrix is a basic task in high dimensional data analysis with many applications in computer science and statistics. In practice, however, data is often perturbed by noise. In this talk, we consider the matrix model Y=S+X where S is a low-rank deterministic matrix, representing the signal, and X is random noise. We give a precise description of the limiting distribution of the angles between the outlier singular vectors of Y with their counterparts, the leading singular vectors of S. It turns out that the limiting distribution depends on the structure of S and the distribution of X, and thus it is non-universal. This talk is based on joint work with Zhigang Bao and Xiucai Ding.

Date:Monday, 11 February 2019Time:3:00 p.m. – 4:00 p.m.Venue:Room 2303, Academic Building
(near Lifts 17-18), HKUST

All are welcome!