



Online Seminar on Numerical Linear Algebra

Nonnegative Low Rank Matrix Approximation and its Applications

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Abstract

In this talk, we study low rank matrix approximation (NLRM) for nonnegative matrices arising from many data mining and pattern recognition applications. Our approach is different from classical nonnegative matrix factorization (NMF) which has been studied for some time. For a given nonnegative matrix, the usual NMF approach is to determine two nonnegative low rank matrices such that the distance between their product and the given nonnegative matrix is as small as possible. However, the proposed NLRM approach is to determine a nonnegative low rank matrix such that the distance between such matrix and the given nonnegative matrix is as small as possible. There are two advantages. (i) The minimized distance can be smaller. (ii) The proposed method can identify important singular basis vectors, while this information may not be obtained in the classical NMF. Numerical results are reported to demonstrate the performance of the proposed method. Several extensions and research works are also presented.

This talk describes joint work with Tai-Xiang Jiang (Southwestern University of Finance and Economics), JunJun Pan (Universite de Mons), Guang-Jing Song (Weifang University) and Hong Zhu (Jiangsu University).

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| Date: | July 22, 2020 (Wednesday) |
| Time: | 10:00 - 11:00 pm (Hong Kong Time) 4:00 - 5:00 pm (Central European Summer Time) |
| Venue: | https://sites.google.com/view/e-nla/home |