

Randomized low-rank approximation for time- and parameter-dependent problems

Thursday, 4 April 2024 10:00 (30 minutes)

A variety of applications gives rise to matrices $A(t)$ that admit good low-rank approximation for each time (or parameter value) t , including dynamical systems, spectral density estimation, and Gaussian process regression. In this talk, we discuss the benefits of randomized methods for approximating $A(t)$ simultaneously for many values of t . We describe and analyze parameter-dependent extensions of two popular randomized algorithms, the randomized singular value decomposition and the generalized Nyström method. Both, the theoretical results and numerical experiments, show that these methods reliably return quasi-best low-rank approximations. This talk is based on joint work with Hysan Lam.

Presenter: KRESSNER, Daniel (EPFL)