TENSOR APPROXIMATION BY MATRIX TECHNIQUES

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Abstract

Tensor approximation is a rapidly developing topic due to many applications in data analysis and high-dimensional problems. Moreover, tensor is a very useful kind of nonlinear structure that can be successfully used in addition and in combination with conventional types of linear structure in matrices. We consider new approaches involving classical matrix techniques and demonstrate some applications to large-scale numerical problems. In particular, we present a sub-linear complexity algorithm for the approximate inversion of a two-level Toeplitz matrix of a small tensor rank.

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