

## **Adaptive low-rank approximations: a subspace point of view**

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Tensor-based methods are receiving a growing interest for the numerical solution of parametric and stochastic equations with functional approaches. In many practical situations, the approximation of functions of multiple random variables is made computationally tractable by using suitable low-rank tensor formats. Here, we discuss the connection between best approximation problems in tree-based low-rank tensor subsets and the problem of finding optimal tensor subspaces for the projection of a tensor. Then, we present algorithms that adopt a subspace point of view for the computation of sub-optimal low-rank approximations with respect to a given norm. These algorithms are based on the construction of sequences of suboptimal but nested subspaces. Adaptive enrichments of subspaces based on heuristic criteria allow for the construction of anisotropic tensor subspaces.