A Hierarchical Partitioning Format for tensor compression

Damiano Lombardi (damiano.lombardi@inria.fr)
Inria Paris, 2 rue Simone Iff, 75012 Paris and LJLL, Sorbonne Université

In this work, a tensor method is proposed to deal with moderate order tensor compression. The key feature of the method is that, instead of considering a global tensor approximation, we build an adaptive piece-wise tensor approximation. Neither the partitioning nor the rank of each sub-tensor approximation are fixed *a priori*. Instead, they are computed to fulfill an error criterion and optimise the storage to some extent. This is achieved by introducing a greedy algorithm to perform an automatic error distribution and a hierarchical tree, to adapt the partitioning. Some examples and numerical experiments are shown to assess the properties of the method. This is a joint work with Virginie Ehrlacher et Laura Grigori.