



student
research
project

Tensor decomposition applied to Space-Time Reduced Order Modeling

Space-Time Reduced Order Models can help to simulate long-term processes with massive acceleration and memory savings. However, the identification of the space-time reduced basis is computationally intense and memory requirements are pronounced. The use of tensor decompositions, e.g. of the tensor train decomposition (TT) or hierarchical Tucker Tensors, can potentially lead to lower computational cost, less memory requirements and to better reduced bases.

Starting from existing space-time reduced bases the suitability of different tensor decompositions should be explored. Next, the basis computation and update (data assimilation) should be investigated.

Requirements

- MATLAB knowledge (additionally/alternatively: Python, C/C++)
- interest in data compression and data-intense numerics

Contact

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MATLAB
(Python, C/C++)

sparse data
representation

9 ECTS

SimTech