

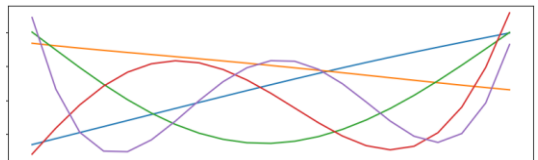
Low rank tensor decomposition techniques for model order reduction

Study Project | Master Thesis

Low rank tensor decomposition methods are recently gaining popularity as a powerful data-driven tool to perform feature extraction from high-dimensional data. Some of the many applications include surrogate modelling, machine learning and computer vision. As a result of compressed tensor representation, one obtains a low-dimensional representation approximating the higher-order tensor which can be used as a reduced order model to perform prediction at any desired parameter point. In addition, the method suits applications to a large number of parameters and can reduce the exponentially increasing computational complexity due to the curse of dimensionality.

Tasks:

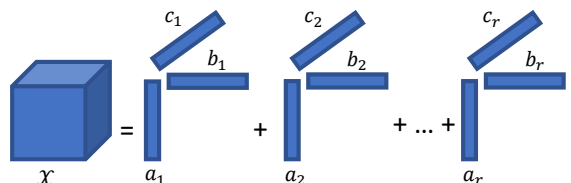
- Fundamental study on tensor decomposition techniques like CP, Tucker and tensor train methods
- Application to interesting problems from structural mechanics



Requirements:

Strong affinity towards advanced numerical methods and a basic understanding of FEM is a plus

Begin: As soon as possible



Contact

Harikrishnan Sreekumar, M.Sc.
Langer Kamp 19, Room 201
Tel: 0531 / 391 – 8780
hk.sreekumar@tu-braunschweig.de