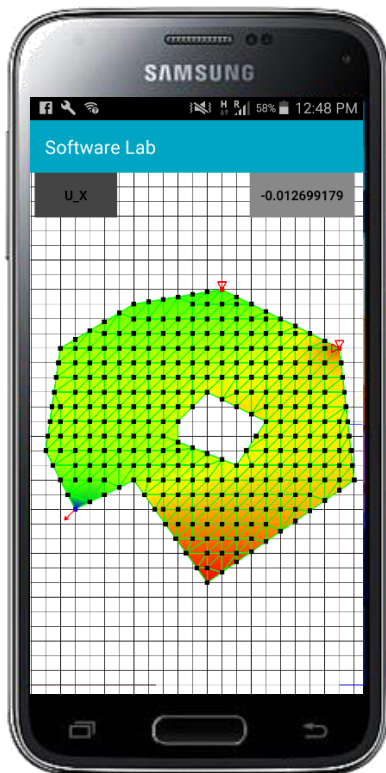
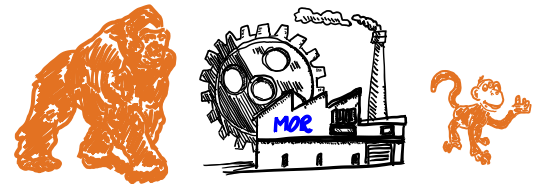


Software Lab

Development of a model order reduction library for an Android-based FEM app

Setting

When developing new ideas, it is vital to analyze and assess emerging problems as fast as possible and generate valid prototypes. In computational mechanics, e. g. in the scope of frequency response analyses in structural dynamics and vibroacoustics, different methods of model order reduction (MOR) emerged in the last decades. These methods allow reasonable computation times of large systems – even when computational power is limited – by obtaining the solution not from the original space, but by evaluating a problem-dependent subspace.



Your Tasks

The goal is to extend an Android-based FEM solver with various methods from the field of model order reduction for frequency response analysis.

- Optimize the existing FEM framework
 - Implement different MOR techniques
 - Represent the frequency response graphically
 - Validate the results using a commercial FEM software
- Programming language: Java

You will learn

- Object oriented programming with Java and the Android API
- Design patterns
- Model order reduction techniques
- Numerical linear algebra algorithms

Supervisors

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