Chair for Computation in Engineering
Chair of Computational Modeling and Simulation

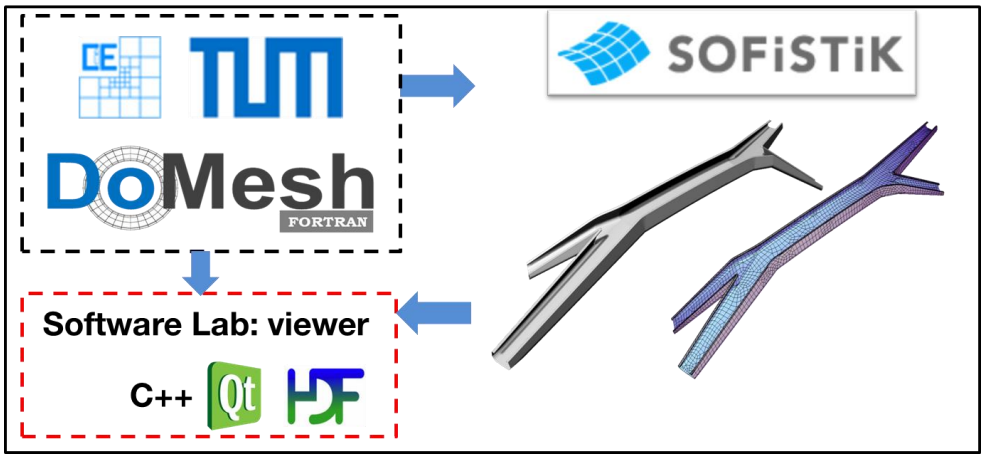
Software Lab:

Modeling: ★★☆☆☆
Programming: ★★★★☆

High Performance viewer for FEM mesh generator
In Cooperation with SOFiSTiK

Setting

The generation of Finite Element Meshes (FEM meshing) is a crucial step in the engineering pipeline. Our industry partner SOFiSTiK AG with their solutions for structural analysis and FEA in the building sector uses for this purpose the DoMesh meshing library. This FEM surface meshing toolbox is developed and maintained by the chair of Computation of Engineering.
Stability, robustness and mesh quality plays a very important role for the industrial application. Thus, powerful and efficient debugging and testing tools are required for development and maintenance of this meshing kernel. The scope of this software lab covers the development of a simple, tailored but very efficient viewer application for the DoMesh kernel to allow checking and visually validating FE meshes and the corresponding geometric input for the kernel developers.



Task

The task is to create a fast, lightweight and efficient viewer application, which...

- …is tailored for the DoMesh FE mesh generation library
- ...can visualize geometric input and FE meshes fast and interactively
- ...can operate minimal invasive concerning the existing code basis
- ...is cross-platform compatible for Windows and Linux using CMake

Supervisors

Felix Frischmann, frischmann@tum.de
Benjamin Wassermann, benjamin.wassermann@tum.de