Project Characteristics

Modeling: ★★★☆☆
Mathematics: ★★★☆☆
Programming: ★★★★☆

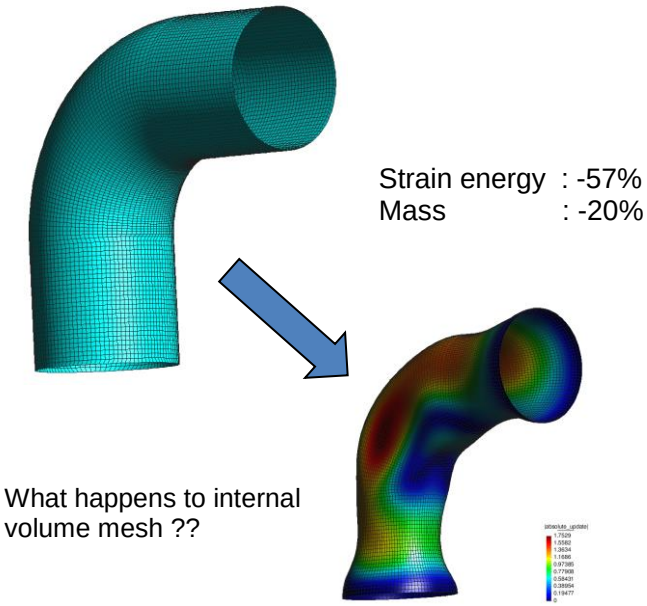
Software Lab:

Robust mesh quality improvement feature for Structural Shape optimization.

Setting

In Node based structural shape optimization usually the surface mesh is considered during optimization process and not the volume mesh. This means the surface nodal coordinates are updated and so the surface gets morphed. As this is done the internal volume mesh should also adapt to these changes to keep the quality of the mesh at an acceptable level. Though techniques for this exists, not all of them are suitable for all the software frameworks and problem types.

So it is necessary that a robust method for the volume mesh adaption is implemented for using the model further during structural analysis.



Tasks

- Investigate the possible methodologies and tools for mesh quality improvement.
- Integrate the tool into the optimization framework that exists at the chair.
- Provide an interface to this functionality.
- Test the functionality with real world problems.

Supervisors

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