



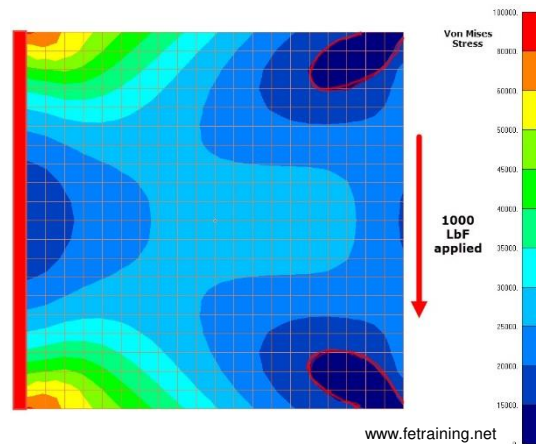
Technische Universität München



Master's Thesis

Stress Constraints in Gradient Node-Based Shape Optimization of Exterior Parts

In car body design various design constraints such as stiffness, crashworthiness and minimum weight need to be considered. An important family of design requirements is stress constraints such as minimum stress design, stress homogenization and prevention of stress singularities, minimization of maximum stress etc. The use of the design sensitivity information is an efficient approach for such optimization problems only if the obtained sensitivities are well-defined. Unfortunately, this is not always the case.



Our team is currently looking for a student to work on the following packages as a topic for their master's thesis:

- Investigation and development of different stress constraints both in a commercial FEM-Software and in prototype code.
- Validation of sensitivity information of a commercial FEM-Software.
- Sensitivity-based stress constrained structural optimization for exterior parts.

Required Skills:

- Programming experience in Python and C++
- Structural optimization
- Finite element method

Skills in commercial FEM-Tools is advantageous

Duration: 6 months

Place: FIZ, BMW Group, Munich

Language: English

Start date: From February 2019

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