

HiWi (m/f/d) – Computational Solid Mechanics

1 About us and the position

The (Chair of Computational Solid Mechanics) is seeking a motivated Student Assistant (m/f/d) to support our ongoing and future research projects. Our research group develops new knowledge and innovative strategies for computational mechanics. Our projects are characterized by interdisciplinary and transdisciplinary approaches that address challenges across different levels and scales.

Current research topics include:

- Model Order Reduction
- Topology Optimization
- Multiscale Simulation
- Machine Learning
- Graph Neural Networks
- Uncertainty Quantification

As a student assistant, you will contribute to cutting-edge research activities and support the development and implementation of computational methods for engineering applications. You will have the opportunity to work on innovative research projects in a collaborative and dynamic academic environment.

2 Student Profile

We are seeking a motivated master's student who possesses an interest in model order reduction, machine learning, and finite element methods in computational mechanics. The candidate should be able to work independently and maintain a systematic approach to their work. A fundamental understanding of finite elements and neural networks is required, and any prior experience with Python and AI is highly valued.

Required Qualifications

- Completed Bachelor's degree in Mechanical Engineering, Civil Engineering, or a related field
- Currently enrolled as a Master's student at TUM
- Strong programming skills, particularly in Python
- Ability to work independently and proactively
- Very good command of English (written and spoken)
- Strong interest in finite element methods (FEM) and machine learning approaches

Nice to Have

- Git

- Machine Learning algorithms
- Model Order Reduction
- PyTorch

3 Your Tasks

- Support ongoing and future research projects of the chair
- Develop and maintain research code, primarily in Python
- Assist with numerical simulations and data analysis
- Contribute to the implementation and evaluation of machine learning and computational mechanics methods
- Support scientific documentation and research activities

4 Employment details

- Starting date: As soon as possible
- A flexible student assistant contract:
 - 12 hours per week for one month, or
 - 8 hours per week for six weeks

5 Application

If you are interested in this project or have further questions, please email juan.vargas@tum.de with only your **CV** and **transcript of records**.

6 Supervision

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