



virtual  **vehicle**

VIRTUAL VEHICLE is a leading international R&D center for the automotive and rail industries. The center focuses on advanced virtualization of vehicle development. This linking of numerical simulations and hardware testing leads to a powerful HW-SW system design. About 300 people are now employed at our site in Graz - their expertise enables the efficient development of affordable, safe and environmentally friendly vehicles.

Master Thesis

“Development of generic failure models for crash simulations ”

Ref.Nr. R_022

Master Thesis

The simulation of crash scenarios by means of the Explicit Finite Element Method is one of the most important cornerstones in the vehicle development process. To achieve the vision of a prototype-free development, the CAE-tools must be continuously improved. This master thesis contributes to this goal by using modern machine learning approaches to develop efficient surrogate models for the local failure of connection techniques and other critical points in the vehicle structure.

Your Tasks

- Getting started with crash simulation.
- Analysis of existing model approaches.
- Test and evaluation of different machine learning approaches (LOLIMOT, ANFIS, SVM etc.) on existing data.
- Implementation of suitable approaches in the L2-Failure Assessment Framework developed at Virtual Vehicle Research Center.

What we expect from you

- Master studies in mechanical engineering, physics, mathematics, electrical engineering or similar.
- Knowledge of Python, Matlab, Fortran or C++.
- Good knowledge of statistics and data analysis.
- Passion for simulation and programming.

What we offer

- Work on a current international research project.
- Support from a dedicated team.
- Interesting work in an internationally active research center.
- **Paid** diploma thesis.
- Mentoring program for new employees.
- Diverse sports and health activities regularly.
- Corporate Events.

For technical questions please contact:

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If you consent that your submitted data is also stored in our talent pool for up to 1 year after the last contact with you, please let us know by E-mail. You may withdraw your consent at any time.

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