



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.

Master Thesis

“Development of a process chain simulation framework for car bodies”

Ref.Nr. R_018

Master Thesis

High-strength steel and aluminium sheets are increasingly used in modern lightweight vehicle designs. Under crash conditions, these sheet materials tend to fail at material and geometric inhomogeneities in the body structure. To improve the prediction quality for these failure phenomena, the thermomechanical processes in the manufacturing chain must also be considered. This Master Thesis contributes to this goal.

TASKS

- Analysis of the process chain in car body construction
- Identification of the relevant influencing variables of the manufacturing process on the final mechanical material properties
- Design of a generic software framework for the mapping of geometry-based variables between individual process steps
- Implementation (Python) and embedding in the preprocessing environment Beta-CAE (ANSA)

PROFILE

- 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

OFFER

- Collaboration and contribution in an engaged, dynamic team
- Interesting work in an international research center
- **Paid** Thesis
- Mentoring program
- Diverse sports and health activities
- Corporate events

For technical questions, please contact

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