



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.

Analysis of the limitations by estimated sensitivities in the co-simulation

Ref.Nr. E_092

Bachelor-/Master Thesis

In the co-simulation of dynamic systems, the focus is on the comprehensive and networked simulation of domain-specific subsystems. The different dynamics of the subsystems typically lead to stiff overall systems and limit the performance of classical solution approaches. A way out is the use of input / output sensitivities of the subsystems, which, however, are usually not available and therefore have to be identified. In this work methods for determining the sensitivities and the influence of the estimation on the co-simulation are to be investigated. Based on examples, the limitations should be presented.

TASKS

- Introduction and literature research in the field of co-simulation
- Algorithms for the identification of the sensitivities
- Analysis of the limitations regarding co-simulation
- Prototype implementation in Matlab, as well as comparison with current solution
- Examples for the evaluation and evaluation of the results
- Possibly publication of a conference contribution

OFFER

- Professional support in the field of simulation in particular. Co-simulation
- Insight into current research areas in the field of co-simulation
- Paid Master thesis

PROFILE

- Master studies in Electrical Engineering, Telematics, Mathematics
- Interest in simulation of dynamic overall systems
- Programming skills in Matlab

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APPLY NOW and JOIN OUR TEAM

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