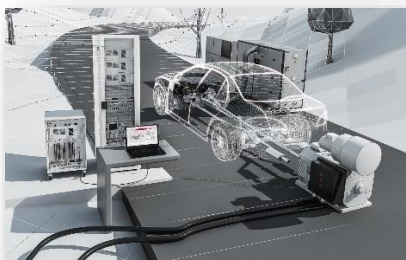




At the Institute for Combustion Engines (VKA) under the direction of Prof. Dr.-Ing. (USA) Stefan Pischinger, research on all topics concerning the vehicle powertrain is conducted.

Core focus is still the research on conventional combustion engine development like the implementation of innovative engine designs, fundamental research on more efficient combustion processes also in combination with alternative fuels or the improvement of the engine mechanics and aftertreatment systems. Additional research areas include virtual engine development, hybrid powertrains, electromobility as well as fuel cells and mechatronics for combustion engines. At any time, research is closely associated with the ongoing development of intelligent methods for test procedures and engine calibration.



Bachelor Thesis / Master Thesis

Start: from now

- Faculty 1 - Mathematics, Computer Science and Natural Sciences
- Faculty 4 - Mechanical Engineering
- Faculty 6 - Electrical Engineering and Information Technology

Advanced real-time modeling for X-in-the-Loop application

Vehicle virtualization requires high-quality models for concept, testing and validation purposes on X-in-the-Loop platforms with real components. The continuous improvement of model accuracy and extrapolation capability is constrained by the increasing complexity of powertrain introduced by electrification and autonomous driving. For these reasons, the potential of advanced powertrain modeling approaches to overcome the limitations of classic approaches needs to be investigated. In this study, next-level simulation tools will be used to carry out the following research tasks:

- Introduction of machine learning in plant modeling and control
- Set up of simulation and testing environment in different levels of virtualization
- Validation of model performance in closed-loop simulation with real powertrain components

Your profile:

- Interest in working for automotive applications
- Knowledge in MATLAB/Simulink
- First experiences in simulation and controls

Would you like to know more?

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