Master Thesis (English)

Creation of a functional Inverter system model to support the AVL Model Based Systems Engineering development process (f/m/d)

Digitalization, advanced driver assistance systems and the electrification of the powertrain make a modern vehicle (car, truck etc.) a high complex system. Thus, the development of such vehicles is one of the most challenging ventures in industry. A multitude of people, information and other artifacts must be orchestrated along the development process to successfully create a product that meets all the requirements from customers, market, legislation and others. At the same time, the complexity of instrumentation and test systems to test these complex vehicles is increasing rapidly. New approaches are required to manage the technical and organizational complexity. Promising approaches are systems engineering (SE), model-based systems engineering (MBSE) and the functional modeling of the systems.
The main targets of this master thesis are to create a functional model of an Inverter and to integrate this model into the AVL Systems Engineering development process. In the development process, the functional model shall serve as a central hub for system information and relationships among artifacts.
For this thesis you will join an interdisciplinary, flexible and dynamic team of students who collaboratively work on SE and MBSE.

Your Responsibilities:

- Analysis of the Inverter Systems Engineering development process (as-is situation) with focus on the early phases (system specification) and identification of optimization possibilities (to-be situation)
- Creation of a functional model of an Inverter using the modeling language SysML to address optimization possibilities
- Analysis of the interaction of the functional model with Inverter development requirements and simulation models
- Recommendation for the integration of the functional model into the AVL Systems Engineering Inverter development process in cooperation with development engineers
- Training of engineers on the functional model, documentation and presentation of the results

Your Profile:

- Final year of studies in physics, electrical engineering or in a similar major
- You are interested in advanced electric propulsion technologies
- You are interested not only in technological aspects, but also other aspects (business, processes, etc.) required for successful product development and are keen to learn about them
- You are motivated to familiarize yourself with new topics
- You can perform well in a communicative, dynamic work environment

We would be happy to meet you!

Contact:

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