



Development engineer (m/f/d) – FPGA-based real-time electromobility simulation

Location: Paderborn / ID: RTDS-EED-DEVXSG

As a development engineer for FPGA-based real-time electromobility simulation, you will be responsible for the derivation, implementation, testing, and qualification of physical models under MATLAB®/Simulink® and the Xilinx® System Generator (XSG). Your development activity will focus on components of electric drive technology, which are an integral part of electromobility.

The models you develop will enable realistic closed-loop testing of ECUs at the signal and power levels. In addition to the central electric motor, this also requires model components such as drive converters and specific sensor simulations, for example, rotary encoders. Thanks to universally valid model interfaces, the real-time models you develop can be freely combined. This allows for flexible use, depending on the specific target application.

Your Tasks

- Deriving mathematical descriptions considering the requirements for real-time simulation
- Developing specific approaches for the low-resource and low-latency implementation of non-continuous properties in the model
- Designing and implementing new ideas for the real-time simulation of electrical drive components as prototypes in MATLAB®/Simulink® and the Xilinx® System Generator (XSG)
- Further developing and maintaining existing real-time models and contained algorithms
- Qualifying overarching concepts with the development team to bring the concepts to production maturity
- Intensively cooperating with users in the context of reference projects

Your Qualifications

- A degree in natural sciences or technical studies (Master's or Bachelor's degree in Electrical Engineering, Computer Engineering, or equivalent)
- Good knowledge in the field of electrical drive technology and power electronics
- Experience in working with model-based development in MATLAB®/Simulink®
- Systematic way of working as well as an analytical and conceptual approach
- Basic programming knowledge (M, Python, C, etc.) is required
- Experience in working with real-time systems is helpful
- Knowledge in working with programmable hardware (FPGA, ASIC, PLD) is advantageous
- Strong communication skills and ability to work in a team
- Good knowledge of German and English

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