



CNH Industrial is a global leader in the capital goods sector with established industrial experience, a wide range of products and a worldwide presence. Each of the CNH Industrial's brands is a major international player in its specific industry: Case IH, New Holland Agriculture and Steyr for tractors and agricultural machinery; Case and New Holland Construction for earth moving equipment; Iveco for commercial vehicles; Iveco Bus and Helieuz Bus for buses and coaches; Iveco Astra for quarry and construction vehicles; Magirus for firefighting vehicles; Iveco Defence Vehicles for defence and civil protection; and FPT Industrial for engines and transmissions. More information can be found on the corporate website: www.cnhindustrial.com

FPT Motorenforschung AG in Arbon has around 250 highly qualified employees working with commitment and acknowledged success. As the main innovation center for FPT Industrial, the site is involved in developing FPT Industrials' future powertrain solutions (not only in electrified powertrains, hybrids and fuel cells, but also novel engines concepts and alternative fuels) and is therefore at the forefront of a transition towards a future of alternative propulsion systems.

eDrives / Power Electronics Engineer

As a member of the Electric Drives Team in the Electrified Powertrain Engineering division of FPT Industrial, you will be part of a highly skilled team driven to design and engineer best-in-class electric machines and power electronics for FPT Industrial electrified powertrain product portfolio. You will design, develop and integrate power electronics into hybrid, full electric and fuel cell powertrains. You will work in a collaborative team environment. You will be contributing to the development of advanced concepts as well as their implementation for application to on-road vehicles and non-road applications.

Your tasks

- Working in a multidisciplinary team, develop and deliver best-in-class power electronics designs for FPT Industrial electrified powertrain product portfolio for hybrid, full electric and fuel cell powertrains, with a primary focus on inverters
- Perform design analysis using modelling and simulation techniques
- Develop tools, methods, algorithms to efficiently create new designs and predict component performance
- Connect the organization to the latest technology developments and trends in industry, also monitoring market and competitors' product portfolio
- Study, invent, and implement new power electronics solutions
- Technical liaison with system and subsystem suppliers in power electronics field
- Plan and supervise test series on rig (components), bench and vehicle (total system)
- Communicate results and make presentations that describe analysis and solutions
- Collaborate closely with various internal departments / laboratories and universities
- Specify component technical requirements (State of Requirements) and evaluate supplier technical proposals (Sourcing and technical reviews)
- Define, manage and supervise supplier and internal component development and validation activities: drawings and technical documentation release, virtual simulation, design and installation FMEA, test plans (DVP)
- Support problem solving and troubleshooting activities



Your profile

Basic Qualifications:

- You have a university degree in electrical engineering, minimum 7-8 years of experience in a similar role, ideally a PhD in the field of Power Electronics and Drives for traction applications
- Experienced with designing and releasing of Automotive electronics, from design to prototyping and release of fully functional and standard compliant Inverters.
- A good understanding of system and component interactions, specially to address challenges from eMotors and needed requirements (operations, safety modes, edge operations like hill hold, ..)
- Hands on experience in power electronics hardware development including design, debugging and validation of:
 - Power switching converter architectures and topologies
 - Semiconductor switching waveforms, loss estimation and thermal management
 - Magnetic components (high frequency inductors, transformers)
 - Voltage and current sensor technology and signal processing
 - Protection devices and safety issues
 - Signal and power printed circuit board layout, interconnection, packaging, EMC and EMI
- Circuit simulation and computer-aided design tools (Orcad-like CADs, PLECS, Matlab Simpowersystems ...)
- Background on digital electronics (Logic, FPGA, Microcontrollers)
- Background on analog electronics (signal conditioning, operational amplifiers)
- You are a highly motivated self-starter and team-player with very good (technical) communication skills

Preferred Qualifications:

- Strong technical understanding of inverters for AC drives mainly
- Working knowledge in one or more of the following areas: gate drive circuits, multi-level inverters (MLI), zero-voltage switching (ZVS), Resonant Circuits, motor controller design, circuit/layout optimisation for WBG devices.
- Effective background on switching mode power supply circuits
- Experience with safety critical electronic product development for automotive/commercial vehicle electrified applications
- Experience with FMEA, DVP, ISO 26262
- Design for manufacturing and reliability
- Design experience with Altium Designer
- Proficient coding skills with preference for MATLAB experience
- Control expertise and digital implementation for power converters controls
- Experience in HIL and SIL testing environments
- Experience with the CAN communication protocol and preferably CANalyzer SW/HW
- English fluency is mandatory, German skills appreciated.

Interested?

Please apply here: <https://cnhindustrial-emea.mua.hrdepartment.com/hr/ats/Posting/view/16069>

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