



Paderborn University is a high-performance and internationally oriented university with approximately 20,000 students. Within interdisciplinary teams, we undertake forward-looking research, design innovative teaching concepts and actively transfer knowledge into society. As an important research and cooperation partner, the university also shapes regional development strategies. We offer our more than 2,500 employees in research, teaching, technology and administration a lively, family-friendly, equal opportunity environment, a lean management structure and diverse opportunities.

Join us to invent the future!

In the Faculty of Computer Science, Electrical Engineering and Mathematics at the **Department of Automated Control** there is a vacancy for the position of a

**Research Associate (f/m/d)
for Optimal Control of Electrical Drives based
on Reinforcement Learning**
(pay-grade 13 TV-L)

with 100 % of the regular working hours (full time position). The position is based on a basic research funding provided by the German Research Foundation (DFG). The position is initially limited to three years in accordance with the federal state Science Employment Law (WissZeitVG). The contract period corresponds to the approved project funding period - an extension is possible and intended. The possibility of a doctorate or post-doc qualification is given.

Project description and responsibilities:

- Contributing to a basic research project on the investigation of reinforcement learning control algorithms for electrical drives and power electronics
- Integration of state and safety constraints during learning with active exploration
- Solution approaches towards universal reinforcement learning, which can control a very wide range of different drive systems without manual expert intervention
- Development of asynchronous learning algorithms using remote edge computing resources for real-world laboratory systems
- Development of synchronous learning algorithms on embedded control hardware for real-world laboratory systems
- Contributing to open-source software repositories in the context of electrical drive system simulation and data-driven controller testing
- Writing scientific papers for journals and conferences

Your qualifications:

- Very good university degree (master, Ph.D. or similar) in the field of control engineering, electrical engineering, mechatronics, computer science or similar
- Profound knowledge of optimal control of dynamic systems in particular using reinforcement learning
- Profound knowledge of software-related engineering tools and programming languages (in particular Python, Matlab/Simulink, dSPACE RCP, VHDL, C/C++,...)
- Desirable: knowledge of power electronic and electrical drive systems
- Desirable: practical experience in working at laboratory test benches for embedded systems (using microprocessors, FPGAs or rapid-control-prototyping hardware)
- Desirable: practical experience using high performance computing clusters
- Independent and team-oriented approach to work
- Very good command of written and spoken English

Applications from women are expressly welcome and will be given preferential consideration in accordance with the LGG in the event of equal suitability, qualifications and professional performance, unless reasons relating to the person of a competitor prevail. Part-time employment is generally possible. Qualified disabled people (in the sense of the German social law SGB IX) are also encouraged to apply.

Applications with complete documents (cover letter, CV, references in a single PDF file) should be send via e-mail under the reference number 4677 to:

Information regarding the processing of your person data can be located at: <https://www.uni-paderborn.de/en/zv/personaldatenschutz>

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