



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 Electrical Engineering, Computer Science and Mathematics at the Departments of Automatic Control and Data Science for Engineering there are two open positions as

### **Scientific Co-Worker (f/m/d) for Modelling and Data-Driven Control of Decentralized Energy Systems**

(pay-grade 13 TV-L)

with 100% of the regular working hours. The position is based on a funding provided by the Federal Ministry of Education and Research of Germany. The position is initially limited to two 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:**

- Be part of the research team "Training, validation and benchmarking tools for developing data-driven control methods for smart decentralized energy systems".
- Development of a modularized, open-source simulation framework for decentralized electrical energy networks focusing on the dynamic system response.
- Modeling of power engineering components (e.g., power electronic converters for battery systems) within the above framework.
- Advancing data-driven, learning control algorithms addressing safety-critical system limits for power engineering applications.
- Work on automated test scenarios and evaluation metrics using adversarial machine learning techniques for robustifying above mentioned control techniques.
- 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, computer science, mathematics or similar
- Profound knowledge of optimal control of dynamic systems in particular using data-driven approaches (e.g., reinforcement learning)
- Profound knowledge of modelling and simulating dynamical systems based on differential-algebraic equations
- Profound knowledge of software-related engineering tools and programming languages (e.g., Python, Matlab/Simulink, Julia, C/C++,...)
- Desirable: experience in team-based software development including usage of typical tools from the domain of version control, continuous integration, etc.
- Desirable: experience in modeling and control of electrical energy systems
- Independent and team-oriented approach to work
- Very good command of written and spoken English or German

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. The application of suitable severely disabled persons and persons with equal rights within the meaning of Book IX of the Social Code (SGB IX) is also welcome.

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

Applications with complete documents (cover letter, CV, references in a single PDF file) should be send via e-mail under the **reference number 4871** to:

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