

Barkhausen Institut gGmbH - Internet of Things



The Barkhausen Institut performs research on the latest hardware, software and communication technologies and demonstrates their application in tomorrow's society. Our goal is to build a flexible and trustworthy IoT platform based on reliable electronics and secure communication methods. The Wireless Connectivity and Sensing (WiCon) group investigates future wireless systems with a focus on security, reliability and sustainability. You will develop adaptive transmission schemes that adjust waveforms, signal processing and hardware operation to changing communication requirements. The focus is on modelling, system simulation and algorithms for energy-efficient communications. Together with RF researchers, you will investigate the interaction between communication systems and components and validate the results through SDR-based experiments.

Research Associate “Adaptive and Energy-Efficient Wireless Communications” (m/f/d)

City: Dresden; Starting date (earliest): At the earliest possible; Duration: The position will initially be filled for a period of 2 years.; Remuneration: TV-L E-13; Reference number: Adaptive and Energy-Efficient Wireless Communications

Tasks

- Development of system simulations covering transmitter, receiver and wireless channel, including models of energy consumption in signal processing and RF hardware, and hardware impairments.
- Development and analysis of PHY algorithms, for example for modulation, synchronisation, channel estimation and adaptive operating mode selection, subject to data rate, latency and reliability requirements.
- Joint system and component optimisation: investigation of waveforms, bandwidth and hardware operation using simulated or measured component characteristics in close collaboration with RF researchers.
- Implementation of selected algorithms on a software-defined radio (SDR) platform and reproducible measurements to validate models and transmission schemes; quantitative evaluation of energy efficiency, link performance and implementation effort, and publication of results with research and industry partners.

The position aims at supporting further academic qualification (e.g. PhD).

Requirements

- An above-average university degree (Diplom/Master or PhD) in communications engineering, electrical engineering, computer science or a related field; strong knowledge of digital communications and signal processing, with a focus such as PHY algorithms, modelling or system simulation.
- Good programming skills in Python or MATLAB and an interest in modelling and simulating wireless systems, as well as experimentally validating algorithms.

- Experience with energy or hardware models, SDR or C/C++ is desirable. Experience in some of these topics is sufficient; you can develop your expertise in the others with us.
 - A collaborative and inclusive approach, excellent interpersonal and communication skills, and very good written and spoken English.
- You are interested, but you don't think you meet all the requirements of the job posting? Then you should know: We don't hire resumes, we hire people. We are looking for potential and want to actively foster it. That 's why we encourage you to apply!

What we offer

- An open and creative team
- Agile working hours and workflows
- Cross-disciplinary projects
- Work on future technologies
- Flat hierarchies for your ideas and flexible teams
- Competitive salary
- Our remuneration is based on the collective agreement for the federal states. If you meet all the professional requirements (diploma/master's degree or doctorate), this position is classified as TV-L E 13. Depending on your professional experience, the basic monthly salary ranges between €4.759,37 and €6.764,69. We will be happy to provide more details during the interview.

If you have passion for new technologies and the desire to develop the connected world of tomorrow with us, we are looking for you.

Life and science are compatible at our institute. We offer a range of recognised family-friendly measures, such as part-time work, mobile working and flexible working hours that take family needs into account. We also offer support for arriving in Dresden (all formalities, apartment etc.).

Application

- Your application should include: motivation letter, CV, copy of university degree certificate, short summary of Master thesis.
- Barkhausen Institute strives for gender and diversity equality. We welcome applications from all backgrounds. Severely disabled persons are given preference in the event of equal suitability.
- We only accept complete documents as one single PDF document by e-mail to careers@barkhauseninstitut.org. Please reference "Adaptive and Energy-Efficient Wireless Communications" in the subject line. Applications that contain other file formats (e.g. Word, Excel) will not be considered in the selection process. Informal inquiries can also be submitted to the same address.

The data submitted by you in the course of the application procedure will be processed by the Barkhausen Institut (BI). BI shall use the data for the purposes of the application procedure. No data shall be passed on to third parties.

More information at <https://stellenticket.de/207110/TUD/>
Offer visible until 08/10/26

