

TUD Dresden University of Technology, as a University of Excellence, is one of the leading and most dynamic research institutions in the country. Founded in 1828, today it is a globally oriented, regionally anchored top university as it focuses on the grand challenges of the 21st century. It develops innovative solutions for the world's most pressing issues. In research and academic programs, the university unites the natural and engineering sciences with the humanities, social sciences and medicine. This wide range of disciplines is a special feature, facilitating interdisciplinarity and transfer of science to society. As a modern employer, it offers attractive working conditions to all employees in teaching, research, technology and administration. The goal is to promote and develop their individual abilities while empowering everyone to reach their full potential. TUD embodies a university culture that is characterized by cosmopolitanism, mutual appreciation, thriving innovation and active participation. For TUD diversity is an essential feature and a quality criterion of an excellent university. Accordingly, we welcome all applicants who would like to commit themselves, their achievements and productivity to the success of the whole institution.

At the **Faculty of Electrical and Computer Engineering, Institute of Communication Technology**, the **Vodafone Chair of Mobile Communications Systems** offers a position as

Research Associate (m/f/x)

(subject to personal qualification employees are remunerated according to salary group E 13 TV-L)

Starting at the **earliest possible date**. The position is limited to 18 months with the option of extension. The period of employment is governed by the Fixed Term Research Contracts Act (Wissenschaftszeitvertragsgesetz - WissZeitVG). The position offers the chance to obtain further academic qualification. Balancing family and career is an important issue. The position is generally suitable for candidates seeking part-time employment. Please indicate the request in your application.

The Vodafone Chair for Mobile Communications Systems offers the opportunity to help shape the development of future mobile communication systems in a prosperous and dynamic environment, to gain valuable project experience and to establish and deepen contacts with innovative companies. Further information on the Vodafone Chair can be found at <https://mns.ifn.et.tu-dresden.de/>.

Tasks: You will conduct research in the realm of multi-antenna technologies, shaping the future of mobile communication systems. As a key contributor, you will delve into the investigation of cutting-edge algorithms tailored for beamforming and MIMO detection, with a primary emphasis on the following areas:

- The design and analysis of innovative MIMO precoding and detection schemes targeting 6G communications, focusing on effective and efficient approximative methodologies.
- Crafting models for the multi-antenna signal processing chain to provide a deeper understanding of system dynamics.
- Exploring efficient hardware and software implementations of the developed algorithms, ensuring seamless integration into real-world systems.
- Conducting rigorous performance-cost analyses to ascertain optimal trade-offs in MIMO precoding and detection solutions, catering to specific deployment scenarios.

Your role extends beyond theoretical exploration as you leverage simulations to assess the performance of proposed concepts against theoretical benchmarks. In addition to simulations, you will address efficient hardware solutions of developed algorithms. In your research, you collaborate closely with our scientific partners to translate theoretical advancements into tangible outcomes, showcasing algorithmic prowess through system hardware/software demonstrators. Furthermore, your contributions will find global recognition through publications in international conferences and journals, solidifying our position at the forefront of technological innovation in mobile communications.

Requirements: A very good university degree in electrical engineering, communications engineering, information systems engineering, physics or similar; profound knowledge of wireless communications, communications engineering, digital signal processing, communication theory; sound mathematical knowledge to analyze and solve tasks in the field of wireless communications; experience in modelling and simulation of communication systems; sound experience in programming with Matlab, Python or C++; experience in HW design; outstanding previous academic performance; independent, goal- and solution-oriented work attitude; inter- and multidisciplinary thinking; an integrative and cooperative personality with good communication and social skills; advanced in English – written and oral.

TUD strives to employ more women in academia and research. We therefore expressly encourage women to apply. The University is a certified family-friendly university and offers a Dual Career Service. We welcome applications from candidates with disabilities. If multiple candidates prove to be equally qualified, those with disabilities or with equivalent status pursuant to the German Social Code IX (SGB IX) will receive priority for employment.

Please submit your detailed application with the usual documents by **May 17, 2024** (stamped arrival date of the university central mail service of TUD applies), preferably by sending it as a single pdf file stating the **Job-ID: "w24-173"** to jobs@ifn.et.tu-dresden.de (Please note: We are currently not able to receive electronically signed and encrypted data.) or to: **TU Dresden, Fakultät Elektrotechnik und Informationstechnik, Institut für Nachrichtentechnik, Vodafone Stiftungsprofessur für Mobile Nachrichtensysteme, Herrn Prof. Gerhard Fettweis, Helmholtzstr. 10, 01069 Dresden, Germany**. Please submit copies only, as your application will not be returned to you. Expenses incurred in attending interviews cannot be reimbursed.

Reference to data protection: Your data protection rights, the purpose for which your data will be processed, as well as further information about data protection is available to you on the website: <https://tu-dresden.de/karriere/datenschutzhinweis>.