

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 E13 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.

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 field of innovative quasi-optical wireless communications systems to enable energy-efficient wireless links with terabit/sec capacities. Special focus will be on the digital baseband design for novel receivers with energy-efficient oversampled 1-bit quantization including the study of optimal modulation and signaling schemes, the design of channel estimation and receiver synchronization algorithms, and the investigation of the baseband design for quasi-optical MIMO channels. The performance of the derived concepts should be evaluated based on simulations and compared against theoretical limits, including the analysis of the impact of distortions by the analog frontend. Moreover, the performance of the baseband design should be evaluated based on measurements of the hardware demonstrator in corporation with project partners. You will closely interact with European project partners from science and industry. The results shall be published at international conferences and distinguished journals.

**Requirements:** 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 and information theory; excellent mathematical skills to analyze and solve complex tasks in the field of wireless communications; experience in modelling and simulation of communication systems; a strong interest to pursue theoretical research; sound experience in programming with Matlab, Python or C++; outstanding academic performance in previous studies and some research experience; 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 **October 6, 2023** (stamped arrival date of the university central mail service applies), preferably as a single PDF file to [jobs@ifn.et.tu-dresden.de](mailto: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.

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**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>.