We are a young, innovative university in the heart of the Ruhr metropolis. Excellent in research and teaching, we think in terms of possibilities rather than limits and develop ideas with a future. We embrace diversity, promote potential and are committed to educational equality worthy of the name.

The University of Duisburg-Essen (UDE) at the Duisburg Campus in the Faculty of Engineering, Chair of Electronic Components and Circuits is looking for a

Research assistant (f/m/d)(salary group13 TV-L, 100 %)

The Chair of Electronic Devices and Circuits (EBS) at UDE is part of the Faculty of Engineering and one of the 13 chairs of the Department of Electrical Engineering and Information Technology. The wide-ranging research activities of EBS in the context of micro- and optoelectronic functional components, CMOS-compatible technologies and learning embedded systems are thematically closely linked to the activities of the Fraunhofer Institute for Microelectronic Circuits and Systems (FhG-IMS), whose institute director is also head of the department.

Your tasks

- You will carry out research tasks in the consortium project “FLOWSPACE - Free Solutions for the Open Space Radiation Problem as an Opportunity to Expand Space Research” with a focus on expanding the open-source circuit simulation environment ngspice in order to simulate and efficiently analyze properties of radiation-resistant circuits in the development of integrated circuits (ICs) up to high frequencies.
- You will develop and integrate specific solutions for implementing aging models and the harmonic balance method in the simulator, consider analytical as well as AI-based approaches and machine learning methods and evaluate these in cooperation with the consortium partners.
- Their special focus is on the consideration of the influence of radiation-based Single Event Upsets (SEU) and on the evaluation of radiation hardness in relation to TID (Total Ionizing Dose).
- You actively and timely support making the simulator available to the open source community by embedding it in the repository system at Sourceforge, the Docker environment at Github and maintaining the versioning, tracking and documentation mechanisms of ngspice.
- You responsibly manage the organizational and budgetary processes of the project and its further development in the research field.

Your profile

- Completed university degree (Master's or Diploma) in electrical engineering and information technology or computer science (preferably with a specialization in microelectronics) with a standard duration of at least 8 semesters
- Profound knowledge of the theory, technologies and modeling of electrical and electronic components, in particular of semiconductor components in CMOS technology and their analog and digital basic circuits
- Preferably knowledge of methods and algorithms for modeling and simulating mixed-signal circuits in the time and frequency domain
- Substantial experience in programming (preferably in C/C++) and experience in the implementation of software developments for different operating systems (MS Windows, Linux, macOS)
- Preferably knowledge and experience with the function and use of AI procedures and machine learning methods
- Experience with repository, versioning and tracking mechanisms and systems used for software development, maintenance, distribution and documentation
- High motivation to solve scientific challenges creatively and self-dependently
- Good knowledge of German and very good knowledge of written and spoken English

Opportunities for further scientific qualification will be offered as part of the job.

You can expect

- A varied, multifaceted area of responsibility that is decisive for key technologies of the future in a research-intensive environment
- An interesting, responsible job with great creative potential
- A non-discriminatory working environment with respectful, appreciative cooperation
- A stimulating working atmosphere in a dynamic team
- The opportunity for graduation with numerous support offers
- Family-friendliness by providing care for your children and assistance with your care responsibilities
- A wide range of training and development opportunities, individual induction training
- Excellent public transport connections and free parking spaces
- Attractive sports and health offers (university sports)
- The option of working from home

Date of occupation	at the earliest possible date
Contract duration	until 30.04.2027 (project duration)
Working time	100 percent of a full-time position (part-time employment is possible)
Application deadline	until 16.06.2024

Please send your application with the usual documents to Dr. Reinhard Viga, University of Duisburg-Essen, Faculty of Engineering, 47048 Duisburg, phone 0203/379-2820, with reference number 290-24, E-Mail reinhard.viga@uni-due.de

You can find information about the faculty and the office issuing the call for applications at: https://www.uni-due.de/iw

The University of Duisburg-Essen aims to foster the diversity of its members.

It strives to increase the quota of women among its academic staff and therefore strongly encourages relevantly qualified women to apply. In accordance with the NRW State Equal Opportunities Act, women with equal qualifications will be given preferential consideration.
Applications from suitable severely disabled persons and persons of equal status within the meaning of Section 2 (3) SGB IX are welcome.