Technische Universität Dresden

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 Computer Science, Institute of Computer Engineering,** the **Chair of Compiler Construction** offers a full-time project position in the context of the Skywalker Project (Skyrmionics-aware and Compiler-centric Racetrack Architecture) as

Research Associate (m/f/x)

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

starting **as soon as possible.** The position is funded by DFG and is limited to three years, with the possibility of extension, subject to further availability of funding. The period of employment is governed by § 2 (2) Fixed Term Research Contracts Act (Wissenschaftszeitvertragsgesetz – WissZeitVG).

Tasks: At the Chair of Compiler Construction, we pursue a long-term vision of shaping how future electronic systems are programmed. Our research includes definition of novel programming methods and compiler infrastructures for future computing systems across both the embedded and high-performance computing domains. Within the Skywalker project, we specifically focus on skyrmionics-racetrack memories (SK-RTMs), targeting cross-layer design and optimization opportunities. This is a joint project with Prof. Jian-Jia Chen from RWTH Aachen, alongside partner institutions from leading Taiwanese universities with extensive expertise in chip design and racetrack memory research. The successful candidate will focus on exploring and developing novel analysis and optimization techniques to fully exploit the potential of SK-RTM technologies across different system configurations, while simultaneously mitigating the impact of associated challenges — including sequentiality constraints and reliability concerns.

Requirements: We aim to attract the best talent in the respective research fields and expect the following:

- an outstanding university and, if applicable, PhD degree (or equivalent) in computer science, mathematics, electrical engineering, or a relevant area
- research experience, preferably in programming languages, compilers, applied mathematics, and optimization techniques
- a strong background in compiler, code generation, computer architecture and RTM physics would be beneficial
- an independent, target- and solution-driven work attitude
- inter- and multidisciplinary thinking
- an integrative and cooperative personality with excellent communication and social skills
- fluency in English (written and oral)
- knowledge of compiler frameworks such as LLVM IR, TVM, or MLIR is highly beneficial

We offer: You will join a team of enthusiastic scientists who creatively pursue their individual research agenda inspired by the Skywalker goals in particular and the overall chair's mission in general. The candidate will also benefit from the vibrant research community around machine learning of the SCADS.AI center (https://scads.ai), the active-3D cluster (https://active3d-trr404.de), the recently granted COMETH project (supported by the prestigious ERC consolidator grant) and the Excellence Cluster REC^2 (Responsible Electronics in the Climate Change Era).

TUD strives to employ more women in academia and research. We therefore expressly encourage women to apply. The University is a family-friendly university. 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.

Application: Please submit your detailed application (in English only) with a motivation letter, CV, copy of degree certificate, transcript of grades (i.e. the official list of coursework including your grades), and proof of English language skills by **May 15, 2026** (stamped arrival date of the university central mail service or the time stamp on the email server of TUD applies), preferably via the TUD SecureMail Portal https://securemail.tu-dresden.de by sending it as a single pdf file to **jeronimo.castrillon@tu-dresden.de** or to:

TU Dresden, Chair of Compiler Construction, Prof. Jeronimo Castrillon, 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.

TUD is a founding partner in the DRESDEN-concept alliance.

DRESDEN concept

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.