

Technische Universität Dresden - Faculty of Computer Science, Institute of Computer Engineering, Chair of Compiler Construction



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.

Research Associate / Postdoc (m/f/x)

At the Faculty of Computer Science, Institute of Computer Engineering, the Chair of Compiler Construction offers a project position as Research Associate / Postdoc (m/f/x) (subject to personal qualification, employees are remunerated according to salary group E 13 TV-L) starting July 1, 2025. Research areas: Cross-domain/cross-platform transfer learning, ML-optimized code representations and self-adaptive cost modeling Terms: The position is limited to June 30, 2028 with the option of extension. The period of employment is governed by § 2 (2) Fixed Term Research Contracts Act (Wissenschaftszeitvertragsgesetz – WissZeitVG).

City: Dresden; Starting date (earliest): 01/07/25; Duration: limited to June 30, 2028 with the option of extension; Remuneration: subject to personal qualification, employees are remunerated according to salary group E 13 TV-L; Reference number: PhD2504-CCC; Closing date: 30/04/25

Working field

As the Chair of Compiler Construction, we have a long-term vision of shaping how future electronic systems are programmed. This includes defining novel programming methods and compiler infrastructures to deploy optimized software onto heterogeneous computing systems in both the embedded and high-performance computing domains. We seek a highly motivated researcher with a proven track record in areas relevant to auto-tuning, focusing on ML-driven compiler optimization, transfer learning, and programming for heterogeneous systems across CPUs, GPUs, and accelerators. The selected candidate will be able to work on cutting-edge innovations in cross-platform auto-tuning, adaptive code representations, and adaptable cost models. The candidate will profit from the vibrant research community around machine learning of the SCADS.AI center (<https://scads.ai>).

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, and machine learning 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.

What we offer

You will join a team of enthusiastic researchers who creatively pursue their research agenda. The chair is a part of the Center for Advancing Electronics Dresden, which offers plenty of resources and structures for career development.

Application

Informal enquiries can be submitted to Prof. Dr.-Ing. Jeronimo Castrillon, Tel +49 (351) 463 42716; Email: jeronimo.castrillon@tu-dresden.de.

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. 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 (in English only) including 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 April 30, 2025 (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 quoting the reference number "PhD2504-CCC" in the subject header to jeronimo.castrillon@tu-dresden.de or to: TU Dresden, Professur für Compilerbau, Herrn 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.

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>.

About cfaed:

The cfaed is a Central Academic Unit which brings together 200 researchers from TUD and ten other research institutions in the areas of Electrical and Computer Engineering, Computer Science, Materials Science, Physics, Chemistry, Biology, and Mathematics. The cfaed addresses the advancement of electronic information processing systems through exploring new technologies which overcome the limits of today's predominant CMOS technology. www.tu-dresden.de/cfaed

More information at <https://stellenticket.de/193279/TUBS/>

Offer visible until 30/04/25

