

Faculty of Computer Science

At the **Institute of Computer Engineering** the **Chair of Compiler Construction** offers a fixed-term project position as

PhD or Postdoc researcher

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

starting **01.02.2022**.

Research areas: **Programming languages, source-to-source compilation, code optimization, emerging computing systems.**

Terms: The position is limited to **31.12.2024** (with the option to be extended). The period of employment is governed by the Fixed Term Research Contracts Act (Wissenschaftszeitvertragsgesetz – WissZeitVG).

Position and Requirements

At the Chair of Compiler Construction, we have the long-term vision of shaping how future electronic systems are programmed. This includes defining novel programming abstractions through domain-specific languages and associated compiler infrastructures to enable optimizing software for heterogeneous computing systems in the embedded and high-performance computing domains. In this context, we are looking for a highly motivated researcher to work on high-level optimizations for systems with emerging technologies (non-volatile memories (NVMs), near-memory and in-memory computing, and post-CMOS accelerators). This involves working on high-level compiler frameworks (like MLIR) and optimization for data and computation mapping onto highly heterogeneous systems with mainstream CPUs, FPGAs, SRAM and DRAM, as well as emerging NVMs and accelerators. The selected candidate will work with memory and system simulators to evaluate the optimizations; a good knowledge in computer architecture is therefore desirable. The long-term goal is to create abstractions and tools that can be extended and reused across systems.

We aim at attracting the best talent in the respective research fields and expect the following:

Basic Requirements:

- an outstanding university master's/ diploma/PhD degree (or equivalent) in computer science, mathematics, electrical engineering or a relevant area;
- an independent, target- and solution-driven work attitude;
- an integrative and cooperative personality with excellent communication and social skills;
- fluency in English - written and oral.

Preferred Qualification:

- knowledge of LLVM, Clang and MLIR;
- knowledge of programming languages and methods;
- strong background in computer architecture;
- an excellent record of creative research (for postdoc applicants).

Informal enquiries can be submitted to Prof. Dr.-Ing. Jeronimo Castrillon, Tel +49 (351) 463 42716; Email: jeronimo.castrillon@tu-dresden.de
Applications from women are particularly welcome. The same applies to people with disabilities.

What we offer

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

Application Procedure

Complete applications (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 should be submitted preferably via the TU Dresden SecureMail Portal <https://securemail.tu-dresden.de> by sending it as a single pdf document quoting the reference number **PhD2108-CCC** in the subject header to recruiting.cfaed@tu-dresden.de or alternatively by post to: **TU Dresden, cfaed, Professur für Compilerbau, Herrn Prof. Jeronimo Castrillon, Helmholtzstr. 10, 01069 Dresden, Germany.** The closing date for applications is **15.11.2021** (stamped arrival date of the university central mail service applies). 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 cluster which brings together 200 researchers from TU Dresden 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



About TU Dresden

The TU Dresden is among the top universities in Germany and Europe and one of the eleven German universities that were identified as an 'elite university' since 2012. As a modern full-status university with 17 faculties it offers a wide academic range making it one of a very few in Germany.