

Faculty of Computer Science

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

Research Associate

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

starting **01.02.2021**.

Project: **“EVEREST: Design environment for extreme-scale big data analytics on heterogeneous platforms”** funded by the European Union’s Horizon 2020 research and innovation program under grant agreement no 957269.

Research area: **Domain-specific programming languages and compilers**

Terms: The position is limited to 30.09.2023 (with the option to be extended). The period of employment is governed by § 2 (2) Fixed Term Research Contracts Act (Wissenschaftszeitvertragsgesetz – WissZeitVG).

Position and Requirements

At the Chair of Compiler Construction we have the long-term vision of shaping the way future electronic systems are to be programmed. This includes defining novel programming abstractions by means of domain-specific languages and associated compiler infrastructures to enable optimising software for large-scale heterogeneous and distributed computing systems. EVEREST is a large-scale European project coordinated by IBM Research Zürich and with partners from the Czech Republic, Italy, France, Germany and Switzerland. The consortium combines world-leading experts in extreme-scale data analytics, cloud and edge-computing, machine learning for decision making, runtime systems, computer architectures and reconfigurable computing. EVEREST focuses on application domains of a high societal impact, like for instance climate and weather simulation for catastrophe prediction and planning of renewable energies. In this context, we are looking for a highly motivated researcher to extend existing domain-specific abstractions and develop new ones in order to support application partners. The abstractions shall be integrated into a larger-scale programming environment and shall be supported by a solid compiler infrastructure. The work on optimisations should interface with flows for high-level synthesis and with run-time optimisations in the run-time environment.

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

- an outstanding university master's/ diploma degree (or equivalent) and – if applicable- a PhD degree in computer science, mathematics, electrical engineering or a relevant area;
- first research experience, preferably in compilers, parallel programming, edge-computing, applied mathematics (e.g., graph algorithms), optimisation techniques;
- sound knowledge in software development;
- 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 LLVM IR and MLIR are beneficial.

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 pursue creatively their individual 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 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

PhD2010-CCC in the subject header to jeronimo.castrillon@tu-dresden.de or alternatively by post to: **TU Dresden, Fakultät Informatik, Institut für Technische Informatik, Professur für Compilerbau, Herrn Prof. Jeronimo Castrillon, Helmholtzstr. 10, 01069 Dresden, Germany.**

The closing date for applications is **30.11.2020** (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.