

## **Faculty of Computer Science**

The Institute of Computer Engineering, **Chair for Compiler Construction** offers a fixed-term position of the **1st of March 2021** as

### **PhD or Post-doc researcher**

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

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.

<https://everest-h2020.eu>

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

*Terms:* 100% of the fulltime weekly hours, the position is limited to 30 September 2023 (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 for 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 optimizing 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 Italy, Switzerland, France, Germany, Czech Republic, and Slovakia. 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 optimizations should interface with flows for high-level synthesis and with run-time optimizations in the run-time environment.

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

- An outstanding master's/ diploma degree (or equivalent) 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), optimization techniques.
- Knowledge of LLVM IR and MLIR are beneficial.
- 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.

## 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

Applications from women are particularly welcome. The same applies to persons with disabilities.

Your application (**in English only**) should include: 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. Complete applications should be submitted preferably by e-mail as a single PDF-document quoting the reference number **PhD2010-CCC** in the subject header to [jeronimo.castrillon@tu-dresden.de](mailto:jeronimo.castrillon@tu-dresden.de) or alternatively by post to: **TU Dresden, Fakultät Informatik, Professur für Compilerbau, Herrn Prof. Jeronimo Castrillon, 01062 Dresden, Germany**. (Please note: We are currently not able to receive electronically signed and encrypted data). The closing date for applications is **05.01.2021** (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.

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

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## 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](http://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 14 departments it offers a wide academic range making it one of a very few in Germany.*