



Technische Universität Berlin offers an open position:

## Research Associate (PostDoc) - salary grade E13 TV-L Berliner Hochschulen

part-time employment may be possible

**Faculty IV - Institute for Software Engineering and Theoretical Computer Science / FG Programming Languages**

**Reference number:** IV-89/25 (starting at the earliest possible / until 31/01/27 / closing date for applications 04/04/25)

### Working field:

The Chair of Programming Languages is looking for a postdoctoral researcher who advances our research on the design and implementation of a novel programming language named Descend for graphics processing units (GPUs). The research topics include (but are not limited to):

- Design of an advanced type system and programming abstractions which reflect the hardware capabilities of GPUs and ensure their safe programming
- Design of semantic models, that describe the behavior of GPUs at different abstraction levels
- Correctness proof of the type system
- Design and implementation of a compiler, which realises the upper mentioned type systems and programming abstractions reflecting the behavior described by the semantic models
- Design and implementation of novel optimization methods

To conduct the research it is expected to:

- Cooperate with other team members and external researchers, with the ambition to advance the knowledge and practices of programming language design for GPUs significantly
- Preparation of scientific publications and presentations at workshops and conferences
- Participation in organizational tasks of the research group

We offer a modern, international, collaborative, and team-oriented working environment with a wide range of further training opportunities in the research.

### Requirements:

- Successfully completed university degree (Master, Diplom or equivalent), in computer science or similar fields (e.g., computer science, or related areas) and a completed (or concluded up to the time of signing the contract) PhD degree in the area of programming languages
- Research experience (as demonstrated via related scientific publications)
- Detailed theoretical knowledge and practical experience with the architecture and programming of GPUs, the theory of programming languages, and compiler construction
- Excellent programming skills in Rust and CUDA (demonstrated, e.g., via open source projects)
- Good knowledge of German and/or English required; willingness to acquire the respective missing language skills

### Desirable:

- Excellent communication skills

In case of questions, please feel free to contact Prof. Dr. Steuer ([michel.steuwer@tu-berlin.de](mailto:michel.steuwer@tu-berlin.de)).

Please send your written application with the **reference number** and the usual documents (cover letter, CV with final grades, certificates of degrees) **preferably by email** to [petra.dudakova@tu-berlin.de](mailto:petra.dudakova@tu-berlin.de) addressed to **Technische Universität Berlin – Die Präsidentin – Fakultät IV, Institut für Softwaretechnik und Theoretische Informatik, FG Programmiersprachen, Prof. Dr. Michel Steuer, Sekr. EN 21, Einsteinufer 17, 10587 Berlin**.

Please send copies only. Original documents will not be returned.

By submitting your application via email you consent to having your data electronically processed and saved. Please note that we do not provide a guarantee for the protection of your personal data when submitted as unprotected file. Please find our data protection notice acc. DSGVO (General Data Protection Regulation) at the TU staff department homepage: [https://www.abt2-t.tu-berlin.de/menue/themen\\_a\\_z/datenschutzerklaerung/](https://www.abt2-t.tu-berlin.de/menue/themen_a_z/datenschutzerklaerung/).

To ensure equal opportunities between women and men, applications by women with the required qualifications are explicitly desired. Qualified individuals with disabilities will be favored. The TU Berlin values the diversity of its members and is committed to the goals of equal opportunities. Applications from people of all nationalities and with a migration background are very welcome.

The vacancy is also available on the internet at <https://www.personalabteilung.tu-berlin.de/menue/jobs/>

