Technische Universität Berlin

Research Assistant - salary grade E13 TV-L Berliner Hochschulen
Part-time employment may be possible; under the reserve that funds are granted

Faculty IV - Electrical Engineering and Computer Science, Institute for Software Engineering and Theoretical Computer Science / Field of Software and Embedded Systems Engineering
Reference number: IV-388/25 (starting at 01/12/25 / until 30/11/26 / closing date for applications 10/10/25)

Your responsibility:

Participation in a national research project with six partners from industry and academia.The objective of the project is to create a formally verified stack, from the CPU and OS to the application, for running safety-critical applications in Rust.

The contribution of our research group is the design and implementation of a formally verified compiler for Rust to RISC-V. This task comprizes two subtasks:

1. Formally verified compilation from Rust to Web Assembly (WASM):

- Definition of a subset that comprizes all important concepts of Rust concerning safe and secure memory management, concurrency, and type safety.
- Definition and implementation of translations from the Rust subset to WASM
- Verification of the translations in Rocq

2. Formally verified compilation from Web Assembly to RISC-V assembly:

- Definition and implementation of translations from WASM to RISC-V assembly
- Verification of the translations in Rocq

Your profile:

- Successfully completed university degree (Master, Diplom or equivalent) in Computer Science or a closely related subject, with very good grades
- Documented in-depth knowledge in Theoretical Computer Science
- Good knowledge of German and/or English required; willingness to acquire the respective missing language skills
- Experience with Rocq or a comparable theorem prover desirable
- In-depth knowledge of logic and proof theory desirable
- Knowledge of compiler design desirable

How to apply:

Please send your application with the **reference number** and the usual documents only by email (in a single pdf file, max 5 MB) to Prof. Dr. Sabine Glesner at **team@sese.tu-berlin.de**.

By submitting your application via email you consent to having your data electronically processed and saved. Please note that we do not provide a guaranty 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/.

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.jobs.tu-berlin.de

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