Technische Universität Berlin

Technische Universität Berlin offers an open position:

Research Assistant - salary grade E13 TV-L Berliner Hochschulen

part-time employment may be possible

Faculty V - Institute of Fluid Mechanics and Acoustics / Flow Instabilities and Dynamics
Reference number: V-134/25 (starting at 01/07/25 / limited until 31/12/2027 / closing date for applications 18/04/25)

Working field:

The position involves working on a project within the DFG Emmy-Noether Research Group IGNITION which contributes to the further development of numerical methods for flow control. The specific application within this subproject is the control of thermoacoustic instabilities in laminar and turbulent hydrogen burner configurations.

1. Development of a data assimilation method for the determination of mean fields from flame data using PINNs
2. Development of a data assimilation method for the determination of mean fields from flame data using the adjoint method
3. Further development of an internal numerical flow solver
4. Implementation of an inverse design-based algorithm for coping with thermoacoustic instabilities and flame noise
5. Publication of research results at international conferences
6. Preparation and publication of technical articles

Requirements:

- completed university degree (Master or comparable) in mathematics, scientific computing or physical engineering
- sound knowledge of numerical mathematics (e.g. numerical flow simulations), fluid mechanics, sound knowledge of physics-informed neural networks (PINNs), knowledge of the adjoint method for optimization, programming, sound knowledge of the finite element method
- good knowledge of German and/or English required; Willingness to acquire the language skills that are missing

Desirable:

- expertise in optimization of flow systems, experience with fenicsx/dolfinx software, programming experience in Python or Matlab
- very good communication skills, independent intrinsically motivated way of working

Please send your application with the **reference number** and the usual documents (in one PDF, max 5 MB) **by E-Mail** to Dr. Thomas Ludwig Kaiser über **office@hfi.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.

Technische Universität Berlin - Die Präsidentin - Fakultät V, Institut für Strömungsmechanik und Technische Akustik, FG Dynamik instabiler Strömungen, Dr. Thomas Ludwig Kaiser, Sekr. HF1, Müller-Breslau-Straße 8, 10623 Be

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