

**Are you looking for a new professional challenge?  
Then ZIB is the place to be!  
Become part of our international team!**



December 19, 2024

The Zuse Institute Berlin (ZIB) is a non-university research institute under public law of the state of Berlin. Within the research group “Computational Diagnosis and Therapy Planning” of the department “Modelling and Simulation of Complex Processes”, we are offering at the earliest possible date until December 31, 2028, a

**Research Position (m/f/d)**  
**Reference Code: WA 57/24**  
**Pay Grade 13 TV-L (100 %)**

## **Background**

The position is part of a project in a collaborative research center on bone healing and regeneration, funded by the German Research Foundation ([DFG SFB 1444](#)). In close collaboration with the [Charité Berlin](#) and the [Julius-Wolff Institute](#), we investigate interfragmentary motion between bone segments as well as forces and loading conditions in fracture treated patients.

The role involves conducting independent research with a focus on the specified project topic. It includes developing and applying appropriate methods for image and geometry processing. The position emphasizes active interdisciplinary collaboration with project partners from Charité and JWI, ensuring the integration of diverse expertise. The research findings are expected to be disseminated through publications in conference proceedings and journal articles. The work is characterized by a goal-oriented scientific approach, complemented by participation in project management and coordination tasks.

## **Your tasks**

- Geometric modeling of anatomical structures and bone fixation plates
- Medical image analysis and segmentation (CT, X-ray, video-fluoroscopy)
- Model-to-image registration and analysis of motion patterns
- Simulation of interfragmentary motion in bone models and evaluation of simulation results based on in-vivo measurements
- Development of software tools for analysis, treatment planning, and decision support

## **Your profile**

- Master’s degree in Computer Science, Computer Engineering, or Mathematics
- Strong interest in application-oriented research within the domain of medicine and biomechanics
- Excellent programming experience - preferably in Python and/or C++
- Experience in image analysis (2D, 3D + time)

- Knowledge of discrete geometry processing (surface and volume meshing)
- Knowledge of computational linear algebra and mathematical optimization
- Knowledge of software development tools, Git, and Integrated Development Environments (IDEs)
- Knowledge of GPU programming (OpenGL/CUDA) and CAD applications is a plus

Furthermore, we expect excellent communication and teamwork skills, a high level of independence and commitment, as well as the competence and willingness to write scientific publications on an international level. You will work in a team of scientists and can benefit from experience and scientific exchange. A connection between the project work and a doctoral project (PhD thesis) is desired and supported.

**We are offering** a friendly working atmosphere with flexible work and meeting times, excellent equipment, and a challenging professional environment

**as well as**

- comprehensive training in a competent and cooperative team,
- an additional pension scheme (VBL),
- 30 days annual leave, additionally free from work on December 24th and 31st,
- compatibility of work and family through flexible working hours, e.g. (flexitime),
- a salary in accordance with TV-L (Collective Agreement for the Public Service of the Federal States), taking into account the relevant professional experience,
- capital allowance of up to €150 per month, alternatively a discounted BVG (public transport) ticket + difference amount,
- an end-of-year bonus,
- the use of canteens and sports programs of the Freie Universität Berlin (FUB) at reduced rates.

Although this position advertised is full-time, a part-time agreement is also possible.

Female applicants are highly encouraged to apply. Since women are underrepresented in information technology, the ZIB is trying to increase the proportion of women in this research area.

Applicants with disabilities will be given preference if equally qualified.

Please send your application, quoting the reference code **IWA 50/24**, including a cover letter, your CV and the standard supporting documents as **one PDF file** by February 2, 2025 (date of receipt) to: [jobs@zib.de](mailto:jobs@zib.de).

For further information about this vacancy, please refer to our website [www.zib.de](http://www.zib.de) or contact Dr. Stefan Zachow ([zachow@zib.de](mailto:zachow@zib.de)).

Our private policy statement regarding application data is available at [www.zib.de/impressum](http://www.zib.de/impressum).

For further job offers please visit our website at <https://www.zib.de/jobadvertisement>.