

6 February 2025

The Zuse Institute Berlin (ZIB) is a non-university research institute under the public law of the state of Berlin. Within the research group “Computational Diagnosis and Therapy Planning” of the department “Visual- and Data-centric Computing” we are offering a

## **Student (f/m/d) Research Assistant Position**

### **Reference Code: SH 01/25**

#### **Background**

The position is part of a DFG-funded project ([DFG-Forschergruppe 2804 "InterDent"](#)), which focuses on the 3D morphological analysis of the human root canal system. The project fosters close collaboration between computer science, dental science, and materials science, in partnership with [Charité – Universitätsmedizin Berlin](#) and [Universitätsmedizin Halle](#).

We are looking for a highly motivated student research assistant to join this interdisciplinary project. Your work will involve applying computational methods such as image processing, morphological analysis, deep learning, and statistical modeling to help uncover how specific morphological features of the root canal system affect the success or failure of root canal treatments. As part of the team, you will work with 3D micro-CT scans, X-ray images, and other clinical data, contributing to the development of predictive models and strategies to optimize treatment outcomes.

#### **Your tasks**

- Support the annotation, segmentation, and processing of medical images (X-ray, micro-CT)
- Extract and analyze morphological features of the root canal system
- Identify and classify defects in root canal treatments based on 3D micro-CT data
- Contribute to the development of predictive models that link the morphological complexity of the root canal system to treatment defects and failures
- Assist in coding, academic writing, and documentation of research results

#### **Your profile**

- Bachelor's degree in Computer Science, Bioinformatics, Mathematics, or a related field and currently enrolled in a Master's program in a relevant discipline
- Strong interest in interdisciplinary research at the intersection of medicine and computer science
- Solid programming skills in Python and/or C++
- Experience with 3D image and geometry processing, as well as data visualization
- Familiarity with version control systems, especially Git
- Hands-on experience with deep learning frameworks (e.g., PyTorch) and working with large datasets
- Excellent communication and teamwork skills, along with a high level of motivation and commitment

**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, cooperative and international team;
- 41 working hours per month;
- payment according to TV Stud II Berlin in line with current minimum wage of the State of Berlin;
- a 1.5-year contract with the possibility of extension;
- the possibility to combine this work with a master's thesis.

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 **SH 01/25**, including a cover letter, your CV and transcripts, as well as other supporting documents as **one PDF file** by March 21, 2025 (date of receipt) to: [jobs@zib.de](mailto:jobs@zib.de).

For further information about this position, please refer to our website [www.zib.de](http://www.zib.de) or contact Dr. Jianning Li ([li@zib.de](mailto:li@zib.de)) and 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).

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