

TUD Dresden University of Technology, as a University of Excellence, is one of the leading and most dynamic research institutions in the country. Founded in 1828, today it is a globally oriented, regionally anchored top university as it focuses on the grand challenges of the 21st century. It develops innovative solutions for the world's most pressing issues. In research and academic programs, the university unites the natural and engineering sciences with the humanities, social sciences and medicine. This wide range of disciplines is a special feature, facilitating interdisciplinarity and transfer of science to society. As a modern employer, it offers attractive working conditions to all employees in teaching, research, technology and administration. The goal is to promote and develop their individual abilities while empowering everyone to reach their full potential. TUD embodies a university culture that is characterized by cosmopolitanism, mutual appreciation, thriving innovation and active participation. For TUD diversity is an essential feature and a quality criterion of an excellent university. Accordingly, we welcome all applicants who would like to commit themselves, their achievements and productivity to the success of the whole institution.

At the **Faculty of Environmental Sciences, Department of Geosciences, Institute of Photogrammetry and Remote Sensing**, the **CRC/TRR 280 "Design strategies for material-minimized carbon-reinforced concrete structures"** offers a position as

Research Associate / PhD Student (m/f/x)

(subject to personal qualification employees are remunerated according to salary group E 13 TV-L)

starting at the **earliest possible date**. The position is limited until June 30, 2028. The period of employment is governed by the Fixed Term Research Contracts Act (Wissenschaftszeitvertragsgesetz - WissZeitVG). The position aims at obtaining further academic qualification (usually PhD) and is to be filled as a part of the sub-project "*Voxel data analysis: Development of algorithms for segmentation and crack detection of computed tomography data*" (Head Jun.-Prof. Dr A. Eltner and Prof. Dr H.-G. Maas).

Task-specific 3D image analysis methods are to be developed, implemented and applied to analyse microtomography data with the aim of quantitatively recording the internal structure of material-minimized mineral structures in three dimensions. Algorithms for change detection in time series are to be developed for the deformation analysis of test specimens in the context of load tests. Recent machine learning methods are to be applied to the analysis of 3D and 4D data and further developed. The acquisition and processing of microtomography data and the development of the methods is carried out in close cooperation with experimental sub-projects in the CRC and provides them with powerful measurement methods for analyzing 3D and 4D data.

Tasks: The successful candidate will support experimentally orientated subprojects of the CRC with the acquisition and processing of computed tomography data. He/she will design, implement and validate voxel processing strategies for automatic information extraction from tomography data based on machine learning techniques.

Requirements: university degree (Master) in geodesy, computer science or related disciplines; experience in optical 3D measurement methods; strong interest in computed tomography issues; good knowledge of algorithms for data analysis with neural networks (experience with regard to implementation desirable); good programming skills (Python); good command of English.

We offer: An interesting job in a ambitious and social research group.

For further information, please contact the project manager Jun.-Prof. Dr Anette Eltner (anette.eltner@tu-dresden.de).

TUD strives to employ more women in academia and research. We therefore expressly encourage women to apply. The University is a certified family-friendly university and offers a Dual Career Service. We welcome applications from candidates with disabilities. If multiple candidates prove to be equally qualified, those with disabilities or with equivalent status pursuant to the German Social Code IX (SGB IX) will receive priority for employment.

Please submit your complete application documents (including CV and a short statement on your qualifications and research interests) by **August 30, 2024** (stamped arrival date of the university central mail service or the time stamp on the email server of TUD applies) with the **subject 'APPLICATION CRC/TRR280 D3'**, preferably via the TUD SecureMail Portal <https://securemail.tu-dresden.de> by sending it as a single pdf file to anette.eltner@tu-dresden.de or to: **TU Dresden, Fakultät Umweltwissenschaften, Fachrichtung Geowissenschaften, Institut für Photogrammetrie und Fernerkundung, Frau Jun.-Prof. Dr. A. Eltner, Helmholtzstr. 10, 01069 Dresden, Germany**. Please submit copies only, as your application will not be returned to you. Expenses incurred in attending interviews cannot be reimbursed.

Reference to data protection: Your data protection rights, the purpose for which your data will be processed, as well as further information about data protection is available to you on the website: <https://tu-dresden.de/karriere/datenschutzhinweis>.