TECHNISCHE UNIVERSITÄT DRESDEN

Faculty of Environmental Sciences – Department of Geosciences
Institute of Photogrammetry and Remote Sensing

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PhD position in highspeed camera image sequence analysis

We are looking for a PhD candidate to work on a topic in photogrammetric stereo highspeed camera image sequence analysis within the DFG-funded Research Training Group "Mineral-bonded composites for enhanced structural impact safety", established at TU Dresden by the German Research Society. We have a full-time position available for three years, starting in May 2023.

Optical 3D measurement techniques using stereo highspeed camera systems offer the possibility of simultaneous 3D measurements in civil engineering material testing at a large number of points with at micrometer-level accuracy at a temporal resolution beyond 100 kHz in dynamic experiments. The PhD is expected to develop novel photogrammetric image sequence analysis techniques for the analysis of phenomena such as deformations, cracks or wave patterns on specimen surfaces. Applicants should have a strong background in image analysis / photogrammetry / geodesy, be familiar with image matching techniques, be interested in technical projects and have very good programming skills.

Detailed information on the research training group can be found on the GRK2250 homepage, more information on current work in image sequence analysis within GRK2250 here. Further requirements as well as the application procedure are described in the enclosed general announcement. Please note that the announced position in photogrammetric image sequence analysis is one out of eleven positions to be filled in the research training group.

We offer the integration into the technical and softskill programs of the research training group with the goal of pursuing a PhD, and a 100% employment with a salary according to the TV-L E13 scale. The successful candidate will work together with ca. 15 post-graduates in the photogrammetry group at TU Dresden, one of the German Universities of Excellence.

Further questions can be discussed with the supervisor, Prof. Dr. Hans-Gerd Maas (hans-gerd.maas@tu-dresden.de). Applications should be sent to grk2250@mailbox.tu-dresden.de before 15.12.2022, with cc to Prof. Maas.

Technische Universität Dresden (TUD), 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.

The **Research Training Group "Mineral-bonded composites for enhanced structural impact safety" (GRK 2250)**, funded by the German Research Foundation (DFG), is offering twelve positions starting from **May 1, 2023**, subject to resources being available, as

Research Associate / PhD student (m/f/x)
(Subject to personal qualification employees are remunerated according to salary group E 13 TV-L)

limited until April 30, 2026. The period of employment is governed by the Fixed Term Research Contracts Act (Wissenschaftszeitvertragsgesetz - WissZeitVG). The position aims at obtaining further academic qualification (e.g. PhD).

Tasks: independent and cooperative qualification through scientific research within one of the doctoral study projects on offer; training in the technical tasks of the individual dissertation topics through study of the literature and in making the objectives more precise; working on the individual doctoral study project with *experimental*, *numerical*, *metrological* or *empirical* focus in collaboration with other GRK members (fellow students and supervising professors); implementation of the planned research program, evaluation and interpretation of the results and transferring them to a GRK internal exchange platform, elaboration and presentation of the state-of-the-art in the respective research fields; participation in lectures, workshops and summer schools according to the guidelines of the GRK curriculum; supporting scientific graduation work (Bachelor/Master/Diploma) in the subject-specific research field; regular reporting on research progress to the supervising professors; publishing the results of the research work individually and in concert with others; cooperative maintenance of exchange platforms (database, information pages, etc.); summarizing the results of the individual doctoral study project in a dissertation within the due time of 3 years.

Requirements: very good university degree in one or more of the following areas: civil/structural engineering, materials science and engineering, chemistry, physics, mechanical engineering (in the textile or measuring technologies), geodesy (optical 3D measurement), AI (artificial intelligence) advanced methods. We are looking for first-class, graduates with excellent expertise in the GRK-addressed doctoral subjects, high interdisciplinary desire to learn and willingness to cooperate, very good verbal and written English communication skills as well as the absolute determination to submit the dissertation after only 3 years of research.

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 send your application, including a cover letter detailing your research interests and your preferred doctoral study subject in accordance with https://tu-dresden.de/bu/grk2250, along with your curriculum vitae, academic transcripts with marks, a letter of recommendation and your publications (if applicable) before **December 15, 2022** (stamped arrival date of the university central mail service applies) preferably via the TU Dresden SecureMail Portal https://securemail.tu-dresden.de by sending it as a single pdf document to: **grk2250@mailbox.tu-dresden.de** or by mail to **TU Dresden, GRK 2250, Herrn Prof. Mechtcherine, Helmholtzstr. 10, 01069 Dresden**. 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