The mobility of people and goods is a central foundation of our modern society with increasingly global and diversely networked processes. It enables an efficient economy and represents a valuable asset that must be preserved and further developed. Mobility, especially with regard to road mobility and to road traffic, is currently confronted with global challenges, which urgently require fundamental solutions.

In the planned SFB/TRR 339, a spatially as well as temporally multidimensional, model of vehicle, tire and road surface (concrete and asphalt) will be developed and researched, taking into account the road pavements. The model combines all available and relevant information about the "road of the future" system from physical investigations and modeling as well as from informational and traffic-related data (sensor data, data models etc.). The approach enables and requires the interaction between the physical-engineering and the informational-traffic design levels. This interactive model in space and time is referred to as the digital twin of the road, subject to analysis, control and prediction of the physical road by means of common interfaces.


At the Faculty of Computer Science, Institute of Systems Architecture, the Chair of Databases offers in Subproject B06, subject to resources being available, a project position as

**Research Associate (m/f/x)**

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

starting January 1, 2022 initially to be filled by December 31, 2025, with the option of extension. The period of employment is governed by § 2 (2) Fixed Term Research Contracts Act (Wissenschaftszeitvertragsgesetz - WissZeitVG).

**Tasks:** Autonomous research on the topics of the chair is expected, especially in the area of management of huge databases and continuously changing data streams, as well as active involvement in the third-party funded project SFB 339. Tasks encompass developing methods and techniques for a needs-oriented matching of the real-world system with the digital representation of the concept “Street”, which will be computer-generated via simulation and prediction models. The adaptation of the required data - regarding amount, up-to-dateness, and quality - to the continuously changing requirements of data matching, classification, and description of the various models of the Digital Twin “Street” are crucial for this. Also, the registration of used sensors and their characteristics is of importance. Moreover, the notion of synchronization on the basis of model and sensor information is to be defined as well as the subsequent development of various data comparison- or matching methods.

**Requirements:** university degree (master/diploma or equivalent) in Computer Science and profound knowledge of the area of database systems are prerequisites. Applicants should dispose of theoretical and practical experience in the area of systems architecture, database and data stream systems, and in the development of matching models as an alternative query paradigm. The ability for independent and target-driven research within a team, high commitment, very good scientific writing and speaking skills in English language are necessary preconditions, as well as interest in interdisciplinary collaboration with all areas of Computer Science and especially with other subprojects of the SFB 339. Applications from women are particularly welcome. The same applies to people with disabilities.

Please submit your comprehensive application including the usual documents and the specification of the sub-project number B06 by December 16, 2021 (stamped arrival date of the university central mail service applies) by mail to: TU Dresden, Fakultät
Bauingenieurwesen, Institut für Statik und Dynamik der Tragwerke, Prof. Kaliske -persönlich-, Helmholtzstr. 10, 01069 Dresden, Germany, or via the SecureMail portal of the TU Dresden https://securemail.tu-dresden.de as a PDF document Bewerbung_SFB_339@tu-dresden.de. 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