Technische Universität Braunschweig - The Institute of Transportation and Urban Engineering

Technische Universität Braunschweig

TU Braunschweig is the academic center in the middle of one of the most active research regions in Europe and has a renowned Faculty of Architecture, Engineering and Environmental Sciences. We work successfully with over 20 research institutions in our neighborhood as well as with our international partner universities. Our university's core research areas are mobility, engineering for health, future city and metrology. TU Braunschweig is part of TU9 - the association of Germany's leading Institutes of Technology. The cooperating institutes stand for relevant research, strategic and results-driven thinking and action, committed teaching and successful transfer of knowledge and technologies to society and industry. The IVS is a small, research-oriented institute with a strong focus on integrated transport planning, traffic engineering, and sustainable mobility. Our size fosters a collaborative and supportive environment with close interaction between students, researchers, and faculty. IVS offers a practice-based curriculum in areas such as traffic simulation, public transport planning, mobility data analysis, and street space design. In research, the institute develops data-driven methods for traffic analysis, travel demand forecasting, and the simulation of innovative mobility solutions, with a particular emphasis on agent-based models and the use of floating car data. Close cooperation with cities, public authorities, and industry ensures both practical relevance and real-world impact.

The Institute of Transportation and Urban Engineering (IVS) offers a position as Research Associate (PhD) (m/f/d)

(EG 13 TV-L, full-time, fixed-term for 3 years, with possible extension)

City: Braunschweig; Starting date (earliest): At the earliest possible; Duration: 3 years; Remuneration: EG 13 TV-L; Closing date: 24/08/25

Working field

• Contribute to the SEED research project by developing and applying innovative approaches for data-driven travel demand estimation and model calibration
• Analyze and process large-scale movement data to derive traffic-relevant indicators such as route choice, travel times, and traffic volumes
• Explore and implement methodological approaches for the estimation of OD matrices using single source movement data (FCD)
• Support the calibration and validation of travel demand models by integrating results from data-driven analyses
• Collaborate with academic and non-academic project partners and contribute to interdiscipli-nary exchange
• Support teaching and supervision of student projects
• Experience in one or more of these research areas is an advantage.

Requirements

• Completed university degree (Master’s or Diploma) in traffic engineering, urban planning, computer science, data science or related disciplines

• Programming skills in Python and/or other comparable programming languages relevant to data processing or simulation
• Very good knowledge of English is required; knowledge of German is desirable
• Strong interest in mobility data analysis, travel demand estimation, and data-driven transport research
• Familiarity with methods for estimating origin-destination matrices, such as entropy maximiza-tion or information minimization (e.g., after Van Zuylen & Willumsen), is an advantage
• Knowledge of transport models or traffic analysis tools (e.g., OD matrix estimation frame-works, GIS-based traffic analysis, or network assignment models) is beneficial but not man-datory
• Ability to work independently and as part of a collaborative team
• Experience in research, methodological knowledge and passion for scientific writing
• Interest in pursuing a PhD in the fields of FCD analysis, OD matrix estimation, and data-driven calibration of travel demand models

What we offer

• A research position in an interdisciplinary and internationally networked project
• Flexible work hours and remote work options
• Excellent academic supervision and support for your PhD
• Access to real-world traffic datasets and a strong research infrastructure
• Opportunities for professional development and training programs
• Support for active participation in national and international scientific conferences

Application

We welcome applicants of all nationalities. At the same time, we encourage people with severe disabilities to apply. Applications from severely disabled persons will be given preference if they are equally qualified. Please attach a proof of disability to your application. We are also working on the fulfilment of the Central Equality Plan based on the Lower Saxony Equal Rights Act (Niedersächsisches Gleichberechtigungsgesetz—NGG) and strive to reduce under-representation in all areas and positions as defined by the NGG. Therefore, applications from women are particularly welcome in this case.

The personal data will be stored for the purpose of processing the application. By submitting your application, you agree that your data may be stored and processed electronically for application purposes in compliance with the provisions of data protection law. Further information on data protection can be found in our data protection regulations at https://www.tu-braunschweig.de/datenschutzerklaerung-bewerbungen .
Application costs cannot be reimbursed.

Questions and Answers
For more information, please send an email to Prof. Dr.-Ing. Bernhard Friedrich: friedrich@tu-braunschweig.de.

Deadline for applications is August 24, 2025

As part of your application, please submit a short proposal (1–3 pages, plus references) outlining a research idea, or potential publication topic related to the goals of the SEED project. This could include, for example, a conceptual approach for estimating an OD matrix from FCD, the integration of route choice proportions, or a novel idea for improving estimation accuracy using data-driven techniques.
Interviews scheduled for September 2025. The expected start date is October, 2025.

Are you interested? Please send your complete application as a single PDF file to friedrich@tu-braunschweig.de.

Contact
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More information at https://stellenticket.de/196584/LUH/
Offer visible until 24/08/25