Professorship for Design and Operation of Public Rail Transport Systems
TUM School of Engineering and Design
Technical University of Munich

Research Associate (Doctoral Student) (m/f/x) for Modelling Service Quality of Rail Transportation Systems

About us
The Professorship for Planning and Operation of Public Rail Transport Systems develops and implements innovative methods for design and optimized control of efficient and user-friendly rail transportation systems. In our research we deal with questions in network and traffic planning, capacity analysis, as well as traffic management. We are looking for people who are interested in working towards strengthening rail transportation as the backbone of our mobility systems, and would like to contribute to building up our research group at TU Munich.

Your responsibilities
You will work with us at the interface between fundamental research and practical application in railway engineering. You will support our team in research and teaching, being responsible for the following key areas:

- Research projects in rail transportation with a focus on network analysis and traffic planning with respect to, e.g., accessibility, reliability, traffic and disruption management.
- Developing and evaluating methods and metrics for quality assessment of railway systems on the network level
- Stochastic delay prognosis using (max,+-)-based approaches and integration and optimization of feedback loops to timetabling
- Contributing in academic teaching, and supervision of student projects in railway engineering

Your profile
- Very good university degree in engineering or natural sciences
- Ability to work independently on scientific problems
- Willingness to actively contribute in building up our young research group and establishing rail traffic research at TU Munich
- Proven knowledge and skills in mathematical modelling and implementation of prototypical software tools
- Prior experience in one or more of the following areas or willingness to acquire the corresponding skills: network analysis, combinatorial optimization/mixed integer programming, stochastic processes, discrete event simulation, parametric statistics, (max,+-)-algebra, ML-based model calibration
- Very good programming skills, preferably in Python or C++
- Good command of both English and German
- Prior knowledge in railway engineering and railway operations are an asset, but not mandatory

What we offer
- Position as a PhD student (remuneration according to TV-L E13), initially limited to two years.
- Interesting research field with high practical and social relevance
- Modern, international working environment and infrastructure
- Working in a young and dynamic team in a vibrant and highly liveable city
The position is suitable for disabled persons. Disabled applicants will be given preference in the case of otherwise essentially equal suitability, ability and professional performance. As an equal opportunity employer, TUM explicitly encourages applications from women as well as from all others who would bring additional diversity dimensions to the university. The position can also be filled as a part-time position.

Application
Please send your application including a cover letter, your CV, and relevant university and work certificates until August, 25, 2024 via e-mail to:

Technical University of Munich
Professorship for Design and Operation of Public Rail Transport Systems (RTS)
Prof. Dr. Norman Weik
Parkring 35, D-85748 Garching, Germany
application.rts@ed.tum.de
www.mos.ed.tum.de/rts
www.tum.de

For further information about this position please contact Prof. Dr. Norman Weik (norman.weik@tum.de).

Privacy notice
As part of your application, you provide personal data to the Technical University of Munich (TUM). Please view our privacy policy on collecting and processing personal data in the course of the application process pursuant to Art. 13 of the General Data Protection Regulation of the European Union (GDPR) at https://portal.my-tum.de/kompass/datenschutz/Bewerbung/. By submitting your application, you confirm to have read and understood the data protection information provided by TUM.