



Technische Universität München



Technical University Munich, Department of Mobility Systems Engineering
Professorship for Travel Behavior

University of Kentucky, Department of Civil Engineering
Transportation Engineering and Data Science Lab

Two Doctoral Candidates in Transit Network Design

Position Summary: As part of a collaboration between the Technical University Munich (TUM) and the University of Kentucky (UK), funding is available for two doctoral candidates in Transit Network Design. One candidate will be based in Munich, Germany and spend a portion of their time in Lexington, Kentucky, USA. The second will be based in Lexington and spend a portion of their time in Munich. The candidates will be co-supervised by Profs. Greg Erhardt (UK) and Rolf Moeckel (TUM) as a part of an exciting collaboration to conduct research studying how transit networks can be redesigned to accommodate changing demand. The ideal candidates brings an interest in public transit, knowledge of either optimization or simulation models, and programming skills.

Primary Responsibility: The successful applicants will work in the Department of Mobility Systems Engineering at TUM and with the Department of Civil Engineering at UK. The main task involves integrating and applying three related computer models: an activity-based simulation of travel demand (ABIT), an agent-based transport network simulation (MATSim), and an optimization model to solve the transit network design problem. This work involves applying these models to evaluate how transit agencies might change their operations in response to changing demand, such as from competition with ride-hailing or the increase in teleworking, and how networks can be re-imagined to be responsive to changing conditions. In addition to research, the successful applicant will also be involved in preparing scientific papers for publication and conferences and writing research proposals.

Minimum Qualifications: The candidates should have a MS in civil engineering, urban planning, operations research, or a related field. Knowledge in one or more of the following areas is desired: transportation modeling, applied optimization, or transit operations. Programming skills will be necessary to the successful completion of the project, so the candidate should either demonstrate those skills or be willing to invest the time to learn (Java is preferred). The ability to speak, read and write in English is also required (German is not required). An enthusiasm for improving public transit and for research to serve the public good is essential.

About us: The successful candidates will join two active research groups. The Professorship of Travel Behavior at TUM (<https://www.mos.ed.tum.de/en/tb/start-page/>) focuses on the development and application of transportation and land-use models to assess the impact of infrastructure investments and planning policies before they are implemented. The Transportation Engineering and Data Science Lab at UK (<http://transportlab.net/>) uses models and data analysis to support evidence-based decisions on how to best incorporate new technology into the existing transportation system.

Funding Details: The successful applicant at TUM can begin as soon as possible. The candidate will receive a salary in accordance to the Public Sector Collective Agreement of Länder (TV-L). There is no tuition to pay. The wage classification will be carried out after presenting the personal requirements as

pay grade TV-L E 13. The position is initially funded for three years. TUM is an equal opportunity employer. Funding is available for travel to the US and to conferences.

The successful applicant at UK will begin in August 2023. The candidate will receive a salary at the standard department rate and a full tuition scholarship. Funding is available for a minimum of three years. UK is an equal opportunity employer. Funding is available for travel to Germany and to conferences.

Qualified women and minorities are particularly encouraged to apply. Applicants with disabilities are treated with preference given comparable qualification.

Application requirements and deadlines: Applicants should submit

- A letter of interest (max. 2 pages), outlining research interests and relevant experience. The letter should indicate which position the applicant is interested in, or if the applicant is interested in both.
- A curriculum vitae, and
- The names and contact information of three references

Please send these documents in pdf format to applications.tb@ed.tum.de. Review of applications will begin immediately and continue until position is filled.

Questions? Please contact Prof. Greg Erhardt (greg.erhardt@uky.edu) or Prof. Rolf Moeckel (rolf.moeckel@tum.de) for any further questions about this exciting position.