

Research Associate (m/f/d) in Business Analytics – TUM School of Management (Pay group TV-L E13, 75%)

We are looking for a research associate (PhD candidate) (m/f/d) in the field of **sequential decision-making under uncertainty**, with a focus on healthcare operations and data-driven decision systems, in the School of Management, TUM Campus in Heilbronn, under the supervision of Prof. Jingui Xie. The candidate is expected to conduct research and advance knowledge in this topic using methodologies from the fields of stochastic modelling and control, optimization and data analytics. The position is available from September 2026 and is fixed for a term of 3 years, with the possibility of extension. As part of this role, candidates will have the opportunity – and are encouraged – to pursue a doctoral degree. In addition to research, the associate will also take on teaching responsibilities.

About us

The **Technical University of Munich (TUM)** is one of the top world universities. It is committed to excellence in research and teaching, interdisciplinary education and the active promotion of promising young scientists. The university also forges strong links with companies and scientific institutions across the world. TUM was one of the first universities in Germany to be named a University of Excellence. Moreover, TUM regularly ranks among the best European universities in international rankings. TUM School of Management is redesigning its teaching and research in the field of Business Administration at the TUM Campus in Heilbronn in the light of the digital transformation. This is a once-in-a-lifetime opportunity, a chance for us to bring together unique expertise in analytics, big data, AI, and digitalization. The TUM Campus Heilbronn is an open, flexible organization whose goal is to achieve excellence in research, teaching and impact.

Prof. Dr. Jingui Xie specializes in Business Analytics and Service Management. He explores how data analytics and stochastic models can enhance healthcare and service systems. His other research includes joint prediction and optimization, queueing game, and reinforcement learning. Prof. Jingui Xie has published his work in leading operations research journals, including Management Science, Manufacturing & Service Operations Management, Operations Research, and Production and Operations Management.

Research Focus

The position is part of ongoing research on optimal sequential decision-making in critical healthcare. The project aims to develop mathematical foundations for rigorous, interpretable, and data-driven decision models that integrate:

- Markov Decision Processes (MDPs) and stochastic dynamic programming
- Risk-sensitive and robust optimization
- Learning-based approaches (e.g., reinforcement learning, inverse learning)
- Numerical validation using real-world healthcare data

Your tasks...

- Developing novel models for sequential decision-making under uncertainty
- Conducting theoretical analysis (e.g., structural properties, optimal policies)
- Designing and implementing efficient algorithms for large-scale stochastic systems
- Integrating data-driven methods for model estimation, learning, and validation
- Collaborating with interdisciplinary partners in healthcare and data science
- Publishing research in leading journals (e.g., Management Science, MSOM, Operations Research)
- Presenting research findings at international conferences
- Teaching to the extent of 3.75 semester hours per week at TUM Campus Heilbronn
- Supervising Bachelor's and Master's students

Your profile...

We are looking for highly motivated candidates with strong analytical and technical skills. You should have:

- A master's degree in Operations Research, Applied Mathematics, Computer Science, Industrial Engineering, or a related field
- A solid background in dynamic programming, Markov decision processes, probability theory, stochastic modeling, optimization methods, and algorithm design
- A strong interest in mathematical modeling and theoretical analysis
- Programming skills (e.g., Python, Julia, or similar)
- Experience with data analysis / machine learning is a plus
- The ability to work independently and as part of a research team
- Proficiency in English, both written and spoken

We offer...

- A fully funded position as academic staff (TV-L E13, 75%) with the opportunity to pursue a doctoral degree
- Access to unique healthcare datasets and international collaborations
- A highly active and ambitious research environment with strong publication support
- Opportunities to collaborate with leading institutions worldwide
- Structured PhD training with a clear focus on high-impact research
- The prospect to create and teach knowledge about current issues within the framework of business analytics
- A welcoming, interdisciplinary research community at the Center for Digital Transformation, with 5 professors and an expanding team of PhD students
- Participation in international conferences

TUM is committed to increasing the representation of women in its workforce and strongly encourages applications from qualified female candidates. Candidates with disabilities will be given preference in the case of equivalent qualifications. The position can also be filled on a part-time basis. Remuneration is based on the collective wage agreement of the federal states (TV-L E13), depending on qualifications.

Application process

We look forward to receiving your detailed application by **29 April 2026**. Please submit the following documents as a **single PDF file** via e-mail to bewerbungen.cdt@mgt.tum.de, using the subject line: **"Business Analytics"**:

- A one-page cover letter outlining your motivation, interests, general qualifications, and academic goals
- Curriculum vitae (CV), including university rankings for all degrees (if available), a list of core courses relevant to the research project with corresponding grades, standardized test scores (IELTS, TOEFL, GRE), GPA and class ranking (if available), as well as any academic awards or distinctions.
- Academic transcripts and degree certificates
- IELTS/ TOEFL/GRE certificates (if available)
- Two reference letters from university professors (if available)

If you have any questions, please contact Ms. Corina Häußermann (bewerbungen.cdt@mgt.tum.de).

Data Protection

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.mytum.de/kompass/datenschutz/Bewerbung>. By submitting your application, you confirm to have read and understood the data protection information provided by TUM.