Technische Universität Braunschweig

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The **Institute for Mathematical Optimization (IMO)** at **Technische Universität Carolo-Wilhelmina zu Braunschweig** is looking to fill positions for

3 Doctoral Candidates (m/f/d) within the ERC Consolidator Grant project “SCARCE” in the field of mathematical optimization

Starting from **July 1, 2023 – full-time – fixed-term**

The positions are to be filled on a fixed-term basis for an initial period of 3 years, and are free of teaching duties. Successful applicants will be given the opportunity to pursue a doctorate in applied mathematics.

The Institute for Mathematical Optimization (IMO) at Technische Universität Braunschweig is a dynamic and innovative research institution that is devoted to developing and advancing optimization theory, algorithms, and applications. Our team of experts focuses on solving real-world optimization problems in fields such as logistics, energy, communications, and health & medicine, using state-of-the-art mathematical methods. Our research has significant implications for the improvement of global supply chains, energy systems, and transportation networks, and our collaborations with industry partners ensures that our work has practical applications. The institute provides a stimulating research environment, with modern facilities and a commitment to training the next generation of optimization experts. In addition to our research, IMO participates in a range of educational programs, including master's programs and a PhD program in mathematics.

Make a Difference:

- You will carry out top-notch research in the area of mathematical optimization.
- You will work in an academically excellent team on a high-profile EU-funded research project.
- You will publish research findings in international peer-reviewed journals and participate in national and international conferences.

Your Qualifications:

- You have recently completed an excellent degree (Master’s or equivalent) in applied mathematics, computer science, control engineering or a closely related discipline with a strong focus on mathematical aspects.
- You have a keen interest in one or more of the following topics that relate to your thesis work:

Nonlinear optimization
Optimal control of ODE and PDE systems
Mixed-Integer nonlinear optimization and control
Model predictive control
Parallel computing
Development of mathematical software

- You have very good command of both written and spoken English
- Previous experience in mathematical software development using a relevant language, such as Julia, Python, Matlab, or C/C++, is a plus.
- You are flexible, performant, and work well in a team.
- You are aiming for a successful doctorate in applied mathematics.

Our Benefits:

- Salary in accordance with the collective agreement TV-L, pay grade E13 (gross annual salary of ca. 50,260 EUR – ca. 56,980 EUR depending on applicable previous experience on record).
- A special payment at the end of the year as well as a supplementary benefit in the form of a company pension, comparable to a company pension in the private sector.
- Interesting and diverse tasks in a pleasant working atmosphere with a friendly and motivated team.
- A workplace that is suitable for part-time work, although the position is to be filled full-time, as well as flexible working and part-time options and a family-friendly university culture, awarded the "Family-friendly university" audit since 2007.
- A wide range of continuing education and company health care programmes as well as a vibrant campus life in an international atmosphere.
- Participation in GradTUBS graduate academy events and training courses for PhD candidates.

What's more to know:

With around 17,000 students and 3,800 employees, Technische Universität Braunschweig is the largest Institute of Technology in northern Germany. We are known for our strategic and performance-oriented thinking and acting, top-level research, highly committed lecturers and a successful transfer of knowledge and technologies into industry and society. We are dedicated to creating a family-friendly environment and advocate for equal opportunities.

Our core research areas are Mobility, Engineering for Health, Metrology, and the City of the Future. A strong focus is placed on engineering and the natural sciences, with a close link of our core disciplines to the economics, social and educational sciences as well as the humanities.

Our campus is located in the middle of one of Europe's research hotspots, where we have established a successful working relationship — both with the more than 20 research facilities in our neighbourhood and our international partner universities.

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 form of evidence of your handicap 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 underrepresentation in all areas and positions as defined by the NGG. Therefore, applications from underrepresented groups are particularly welcome to apply.

Your 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, visit us at **https://www.tu-braunschweig.de/en/mo/** or call **Prof. Dr. Christian Kirches** on +49 (0) 531 391-7552.

Closing date: open until filled

The earliest starting date is July 1, 2023. Are you interested? Your application should include a letter of motivation, CV, transcripts, and MSc thesis.
Please send your application as a single file via email to **c.kirches@tu-braunschweig.de** and include the tag [SCARCE] in the subject line.