Researcher Position (m/f/d)
Discrete Optimization

Salary group
EG 13 TV-L

Employment
Full time (100 %), initially limited until end of 2025, with a possibility for extension

Starting date
As soon as possible

Institute for Mathematical Optimization

What is your task?

The decarbonization of aviation requires the development of new types of aircraft engines. Besides the engineering challenges, it is unclear how the transition period for the airline fleets would look like after a successful development. As part of the Cluster of Excellence SE^{2}A, an interdisciplinary team will model the air transport system. Your task is to develop and implement a suitable optimization model for fleet renewal strategies and improve corresponding MILP solution techniques.

Who are we?

The successful applicant will work in the Junior Research Group "Overall System Evaluation" with Dr. Imke Joormann. Our group consists of scientists from mathematics and economics, and is backed by the Institute for Mathematical Optimization and the Institute of Automotive Management and Industrial Production. As part of SE^{2}A, for the last years, we have worked on optimization and simulation models to understand the behavior of the air transport system to achieve long-term development goals for the air transport system. This frequently leads to models that are too large for current state-of-the-art solvers and our real work begins: pushing the boundaries of solvability.

Who are we looking for?

To strengthen our team, we are looking for a **Researcher (m/f/d) as soon as possible**, the duration is initially limited until the end of 2025. The opportunity to pursue a Ph.D. degree is given and encouraged. Your profil:

- Completed scientific higher education (master, university diploma) in Mathematics, Computer Science (or a closely related field)
- Solid knowledge in the area of Discrete Optimization
- Programming skills in C/C++ and/or Python
- Good command of written and spoken English
- Interest in working on topics with a real-world application, in cooperation with partners from engineering and air traffic management
- Experience with Scip/Gurobi/Cplex would be desirable

How to apply?

Applications should be sent by e-mail to i.joormann@tu-braunschweig.de and must contain the following documents: Motivation letter, curriculum vitae, copies of bachelor and master diploma and transcript of grades, copy of master thesis, contact information for at least two references. All documents should be in PDF format, preferably in a single file. The position will be filled as soon as a suitable candidate is found.

The average weekly working time is 39.8 hours. The payment is made according to task assignment and fulfillment of personal requirements to salary group 13 TV-L. In principal, the position is part-time suitable, but should be 100% occupied. At TU Braunschweig, we aim to increase the share of women in academic positions and therefore particularly welcome applications from women. Handicapped applicants will be preferred if equally qualified; a proof must be enclosed. Applications from international scientists are welcome. International applicants may have to successfully complete a visa process before hiring can take place. For the purpose of carrying out the application process, personal data will be stored. Application costs cannot be reimbursed.

For further inquiries, you can contact

Dr. Imke Joormann

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