TUD Dresden University of Technology, as a University of Excellence, is one of the leading and most dynamic research institutions in the country. Founded in 1828, today it is a globally oriented, regionally anchored top university as it focuses on the grand challenges of the 21st century. It develops innovative solutions for the world's most pressing issues. In research and academic programs, the university unites the natural and engineering sciences with the humanities, social sciences and medicine. This wide range of disciplines is a special feature, facilitating interdisciplinarity and transfer of science to society. As a modern employer, it offers attractive working conditions to all employees in teaching, research, technology and administration. The goal is to promote and develop their individual abilities while empowering everyone to reach their full potential. TUD embodies a university culture that is characterized by cosmopolitanism, mutual appreciation, thriving innovation and active participation. For TUD diversity is an essential feature and a quality criterion of an excellent university. Accordingly, we welcome all applicants who would like to commit themselves, their achievements and productivity to the success of the whole institution.

At the "Friedrich List" Faculty of Transport and Traffic Sciences, Institute of Logistics and Aviation, the Chair of Air Transport Technology and Logistics offers, subject to the availability of resources, a position as

Research Associate (m/f/x)  
Control of Airlines with the Help of Machine Learning

(subject to personal qualification employees are remunerated according to salary group E 13 TV-L)

starting as soon as possible. The position is limited to 36 months and offers the chance to obtain further academic qualification (usually PhD). The period of employment is governed by the Fixed Term Research Contracts Act (Wissenschaftszeitvertragsgesetz - WissZeitVG).

**Tasks:** You will support our team in an innovative project to optimize airline operations. The aim of this project is to detect and resolve disruptions and reactionary delays in the operational business of an airline in its network. For this purpose, common optimization approaches are combined with machine learning methods to enable real-time and robust flight schedule disruption detection. Airline, airport and air traffic control restrictions will have to be taken into account in a combined approach. Your tasks essentially include:

1. development and application of machine learning models for mobility applications:
   - design and implementation of suitable machine learning models to address the planning and control requirements of airline operations
   - efficiently process a wide range of large-scale data, including airline operational data, airport information and air traffic control data
   - use of deep learning, neural networks and other advanced ML techniques to predict system states (disruptions and delays).

2. real-time, optimized solution finding by means of machine learning:
   - comparison of current and strategically planned system states
   - derivation of recommended actions for resource allocation or constraints in airline operations and prioritization based on cost assessments
   - implementation of machine learning algorithms.

**Requirements:**
- university degree with interfaces to the fields of data science, machine learning or comparable qualifications
- proven expertise in the application of machine learning methods, especially in the modelling and optimization of complex processes
• programming skills in Python or similar languages
• experience in dealing with large data sets and their processing
• strong communication skills, ability to work in a team and analytical thinking skills
• command of the English language.
• Knowledge of optimization algorithms and operations research is an advantage.

We offer you a challenging job in a highly motivated interdisciplinary team, the opportunity for professional and personal development as well as appropriate remuneration.

TUD strives to employ more women in academia and research. We therefore expressly encourage women to apply. The University is a certified family-friendly university and offers a Dual Career Service. We welcome applications from candidates with disabilities. If multiple candidates prove to be equally qualified, those with disabilities or with equivalent status pursuant to the German Social Code IX (SGB IX) will receive priority for employment.

Please submit your detailed application with the usual documents by October 30, 2023 (stamped arrival date of the university central mail service or the time stamp on the email server of TUD applies), preferably via the TUD SecureMail Portal https://securemail.tu-dresden.de by sending it as a single pdf file to sekretariat-ifl@tu-dresden.de or to: TU Dresden, Fakultät Verkehrswissenschaften „Friedrich List“, Institut für Luftfahrt und Logistik, Professur für Technologie und Logistik des Luftverkehrs, Herrn Prof. Dr.-Ing. Hartmut Fricke, Helmholtzstr. 10, 01069 Dresden, Germany.

Please submit copies only, as your application will not be returned to you. Expenses incurred in attending interviews cannot be reimbursed.

Reference to data protection: Your data protection rights, the purpose for which your data will be processed, as well as further information about data protection is available to you on the website: https://tu-dresden.de/karriere/datenschutzhinweis