

MUNICH AEROSPACE – NEW HORIZONS IN AVIATION AND SPACE

In 2010, through Munich Aerospace and its pooling of research, graduate programs and teaching an alliance has been formed between the **Technical University Munich (TUM)**, the **Bundeswehr University Munich (UniBwM)**, the **German Aerospace Center (DLR)**, as well as **Bauhaus Luftfahrt (BHL)**.

To promote excellent, scientific young academics, Munich Aerospace awards a PhD scholarship on

Intelligent fault-tolerant flight guidance

The research group “**Intelligent Control of Highly Over-Actuated Flight Systems**” is led by Dr. Gertjan Looye from the Institute of System Dynamics and Control at DLR and involves the Institute of Flight System Dynamics at TUM (Prof. Florian Holzapfel) and the Professorship of Aircraft Dynamics and Flight Guidance at UniBwM (Prof. Axel Schulte). The research aims at developing new key technologies pushing forward fully autonomous flight, with a focus on the design, validation and certification of intelligent flight guidance and control (G&C) systems. The group explicitly addresses challenges arising in modern flight systems such as air taxis or next generation transport aircraft which feature a large number of control inputs due to, e.g., distributed control surfaces or propulsion systems. Relying on a long-lasting and strong collaboration on several research topics, the researchers from DLR, TUM and UniBwM will bring together their expertise and tightly co-operate within this activity.

Your tasks

Specifically, the topic at the UniBwM addresses the design and development of an intelligent fault-tolerant flight guidance system leveraging methods in the field of artificial intelligence. On the one hand, the design focuses on an automated flight path planning module capable of considering the realistic dynamics of the aircraft, the operation environment and the flight mission objectives. On the other hand, the system also complies with human-centric design principles, answering thereby questions on the usability, explicability and interpretability of highly automated intelligent systems. This aspect is particularly important, in order to increase acceptance of such a system as part of future flight safety feature.

Furthermore, for the test and validation phase, close collaboration with other partners (i.e. DLR and TUM) in the research group is required, fostering thereby mutual learning with other experts of the field.

Your profile

- M.Sc. in Aerospace Engineering, Mechanical Engineering, Electrical Engineering or a related field (e.g. robotics or computer science).
- Background in flight dynamics.
- Keen interest in artificial intelligence.
- Self-motivated, enjoy working in a team and exchange with international researchers.
- Sufficient English proficiency for technical writing.
- Basic German.

The Professorship of Aircraft Dynamics and Flight Guidance at the Bundeswehr University Munich

The Professorship of Aircraft Dynamics and Flight Guidance at the UniBwM offers an excellent research environment with up-to-date laboratory equipment to realize your ideas. The group consists of a highly motivated and interdisciplinary team that will support you during your personal and scientific development.

The Scholarship

Munich Aerospace scholarship is awarded for a period of three years. The monthly scholarship according to the Munich Aerospace scholarship directives is € 1,575 per month (tax free upon § 3 no. 44 EStG). Munich Aerospace scholarship holders are entitled to attend the Munich Aerospace Graduate School, formed by the TUM Graduate School and the DLR_Graduate_Program, and have access to special events and trainings. An additional grant of up to € 6,100 per year will be available to cover expenses that are directly related to the PhD project (e.g. textbooks, laptop, travels for national/international conferences, public transport, housing subsidy, research stay abroad, etc.). Furthermore, the PhD is free to take up a mini-job. The scholarship holder is part of a Munich Aerospace research group and receives additional technical support from the research group head. The PhD can take place at UniBwM and the completion of the university degree should not be more than three years prior to the application for the scholarship.

Interested?

Please send us your application including relevant documents (cover letter, CV, diplomas, transcript of records) in PDF format to axel.schulte@unibw.de. The application deadline is March 15, 2021.

We are looking forward to your application!