

The Institute of Flight System Dynamics is offering full-time vacancy for a

*Opportunities
for Talents*

Research Associate (Ph.D. Candidate) (m/f/d): Automation of Future Aerial Vehicle Operations

starting as soon as possible.



About Us

With TUM-FSD delivering innovative flight control solutions for manned and unmanned real world aircraft and eVTOL configurations, we realize novel mission scenarios for tomorrow's applications. Leveraging the automation of flight and mission execution to exploit the unique flight mechanics of these novel aircraft configurations plays a key role towards their future take off.

The functional development pursued at our institute for that purpose includes the automation of procedures with the objective of merging the human operator and the system for efficient and safe mission success. Understanding and explicitly considering the human operator's needs, capabilities and restrictions is thereby an essential task. Apart from the functions themselves, the system's operational environment requires specific care in the design. Aspects like system timing properties need to be considered, representing an area of research on its own. By using model-based design techniques and tool-chains for efficient reduction of manual design tasks like validation and testing, we aim at a lean development life cycle of tomorrow's flight control systems.

Your responsibilities

We are looking for a PhD candidate for the development of novel automation functions. The design, implementation and verification of innovative functional approaches and algorithms will be your responsibility. You will have the opportunity to gather hands-on experience throughout the entire development lifecycle. In close cooperation with our industrial and academic partners, you will start with the derivation of procedures that capture all aspects of the aircrafts mission. You will design and implement software and proceed with integration and testing in Model-in-the-loop Simulations and our experimental Flight Simulators. Finally, you will have the possibility to participate in flight test campaigns and see the results of your work take off.

Your tasks include:

- Function development and application in real-life research and development projects culminating in real flight tests on manned and large unmanned aerial vehicles (take-off weights above 500kg)
- Research in the field of System Automation. Possible research topics include:
 - Realization of novel applications in the context of highly automated flight and simplified vehicle operations.
 - Automation for aircraft configurations that combine conventional fixed-wing flight with VTOL capabilities.
 - Automation of redundancy management and contingency procedures within the scope of novel approaches for flight control system architecture design.
 - Design tools that support the development process
- Support in teaching, depending on your field of interest

Your qualifications

- Master's degree or Diploma in aerospace engineering, electrical engineering, computer science or a related field
- Excellent grades
- Diligent, structured and transparent methodology
- High level of commitment, with the ability to work in a team as well as autonomously
- Interest and initial experiences in flight control systems engineering and related processes desirable
- Strong MATLAB and Simulink skills required, Stateflow is also welcome
- Basic knowledge of Flight Mechanics and Flight Control is required
- Basic programming skills welcome
- Hobbies in the aviation or drone sector or a private pilot license are a plus

Our offer

We offer a young and dynamic environment and a competent and inter-disciplinary team of international researchers. As part of the Institute of Flight System Dynamics you have the possibility to work on state of the art and real-world research topics and shape the future of aviation. You are encouraged to take responsibility within your project as well as in the daily work at the institute and thereby acquire professional and interdisciplinary skills. The full-time position as academic staff gives you the opportunity to pursue a doctoral degree. Payment will be based on the Collective Agreement for the Civil Service of the Länder (TV-L E13).

TUM and the Institute of Flight System Dynamics strive to raise the proportion of women in its workforce and explicitly encourages applications from qualified women. Applications from disabled persons with essentially the same qualifications will be given preference.

Your application

We are looking forward to your detailed application, which should include at least:

- Your current CV
- High School Diploma,
- University Diploma or Transcript of Records,
- Extract of your ranking, if available,
- Your available Bachelor/Master/Diploma Theses.

If you are interested in joining our team, please send your application, preferably by email, to

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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 <http://go.tum.de/554159>. By submitting your application, you confirm to have read and understood the data protection information provided by TUM.