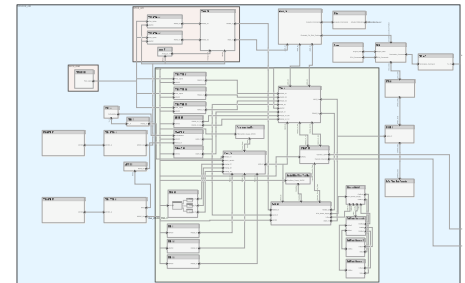
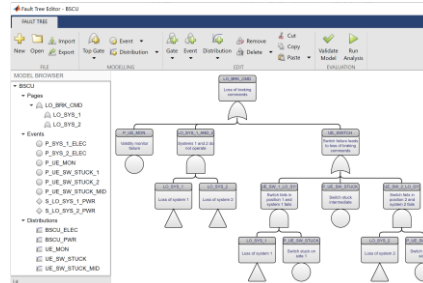


The Institute of Flight System Dynamics is looking for

Academic Staff to support the Model-Based Safety Assessment of Safety Critical Avionics Architectures

starting as soon as possible.



About Us

We make Visions Fly – As an application driven research institution, at the Institute of Flight System Dynamics we strive to apply the latest developments in research and technology to real-world platforms and demonstrate their application in flight. Our passionate team is committed to mature cutting-edge technologies that are required to incept the flight system behavior of tomorrow.

Current applications include flight control algorithms and a modular avionics platform for several CS-23 aircraft and a variety of unmanned airborne platforms. Recently, we are also working on the development of flight control systems for air taxi and urban air mobility vehicles in several projects.

Model-based development is one of the techniques to reduce the development effort and thus a main research focus at TUM-FSD. While model-based software development is widely used in flight control systems development, model-based safety assessment (MBSA) is an emerging methodology that complements classical safety assessment methods such as fault tree analysis. The idea is to describe system architectures using executable models, which are formulated in a suitable simulation environment. Those models can then automatically be analyzed by appropriate computational methods to produce results such as minimal cut-sets or failure probabilities. For that purpose, a rich tool chain for system architecture development and analysis is built up at our institute based on the MathWorks tool suite.

Your responsibilities

Currently, we are looking for a PhD candidate eager to continue the development and implementation of our model-based safety assessment toolchain. The development and implementation of novel modelling approaches and algorithms for the safety assessment of avionics architectures will be your responsibility. You will also have the opportunity to support the development of system architectures during the entire lifecycle: Starting with formulating the requirements, you will contribute to the design of software and hardware with a focus on safety aspects and redundancy, followed by integrating and testing both in our laboratory and in real flight. The results of your achievements will directly be applied in various ongoing projects with our industrial and academic partners. Finally, you will have the possibility to participate in flight test campaigns and see the results of your work take off.

Your specific tasks include:

- Development and extension of our model-based safety assessment toolchain using MATLAB and Simulink
- Development and assessment of avionics architectures for several ongoing projects
- Contribution to the entire systems development lifecycle, including requirements, design, integration, laboratory and flight tests
- Support lecturing the module on “Safety and Certification of Avionics and Flight Control Systems”
- Research in the field of model-based safety assessment. Possible research topics include:
 - Application of formal methods for model-based safety assessment
 - Automatic architecture synthesis and optimization
 - Integration of existing MBSA approaches with established modeling environments

Your qualifications

- Master's degree or Diploma in aerospace engineering, electrical engineering, computer science or a related field
- Excellent grades
- Diligent and structured methodology and high level of commitment, with the ability to work in a team as well as autonomously
- Strong MATLAB and Simulink skills, Stateflow and System Composer knowledge welcome
- Knowledge in C / C++ or Java welcome
- Experience in embedded systems, PCB design and electronic hardware welcome
- Interest and initial experiences in aerospace safety assessment processes and methods (e.g. FHA, FTA, etc.) are desirable
- High motivation to develop novel software tools and computational methods
- Fundamental knowledge of software engineering and systems engineering methods is a plus
- 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. The position will be limited to three years, with the possibility of extension. 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

Julian Rhein

Technische Universität München

Lehrstuhl für Flugsystemdynamik
Boltzmannstraße 15, 85748 München
julian.rhein@tum.de
+49 89 289 16051
www.fsd.ed.tum.de
www.tum.de

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.