PhD Fellowship

Model-Based Development Process for Safety Critical Flight Control Software

Background:
At the Institute of Flight System Dynamics, we are devoted to analyzing and modifying the dynamic characteristics of aerial platforms. Our passionate team is committed to mature cutting edge technologies that are required to incept the flight system behaviour 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 also focus on the development of flight control systems for air taxi and urban mobility vehicles.

Model-based development is one of the techniques to reduce the development effort and thus a main research focus at TUM-FSD. Here, we employ formal, executable models, facilitating model validation and verification tasks and enabling comprehensive automation of airborne software design. For that purpose, a consistent tool chain from the system to the software level is built up based on the MathWorks tool suite.

Currently, we are looking for a PhD candidate encouraged to continue researching toolchains model-based development of safety critical software in the scope of a four year scholarship sponsored by MathWorks.

Research Area:
In the field of model-based development of safety critical software. Potential research topics include:

- Integration of MathWorks tools in the project management and development landscape
- Application of formal methods in airborne software development
- Parallel computing on airborne hardware targets
- Simulink modelling and style guidelines to ensure high integrity source code and executable object code
- Extension and enhancement of the toolchain model-based software development

Required Profile of Qualifications:

- Excellent academic qualification
- M.Sc. degree from a university that is rated at least H+ by ANABIN allowing enrollment as PhD candidate at TUM
- Diligent and structured methodology and high level of commitment
- Strong MATLAB/Simulink skills
- At least one other programming language
- Initial experiences in aerospace development processes desirable

Interested? Please apply via email by sending the usual documents.

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