



# AvioSE'23



5<sup>th</sup> Workshop on Avionics Systems and Software Engineering  
February 21, 2023, Paderborn, Germany

Björn Annighöfer\*, Andreas Schweiger\*\*, Stéphane Poulain\*\*  
\*University of Stuttgart, \*\*Airbus

Software development in the aerospace domain is driven by demanding fault tolerance, increasing complexity, new application potentials, rising certification effort, and increasing cost pressure. New software development methodologies are required for future applications such as e.g. Advanced Air Mobility (AAM), aircrew (workload) reduction, and further enhancement of existing functionality. At the same time, there are challenges in communication and navigation in airspace, certification for multi-core processors, artificial intelligence (AI) as well as security of software, hardware, and connectivity.

## Topics (but not limited to):

- **Development technologies** (e.g. model-based systems and software engineering): Requirements engineering; Modelling languages and tools; Model-based systems and software engineering (MBSE); Transfer of modelling techniques to industrial application and their scalability; Cyber-security and safety; Algorithm-based sizing, layout, design, and automation of development and certification artifacts
- **Development methods** (e.g. deployment of AI): Avionics-specific languages, compilers, checkers or tools; Agile development vs. certification; Interaction with other domains (e.g. electrical engineering, physics, psychology); Deployment of artificial intelligence for enhancing development processes; Automated and/or digital engineering workflows
- **Quality assurance methods** (e.g. model-based tests, formal methods): Model-based tests as well as safety and security assessment; Verification via testing and formal methods and their scalability; Qualification simplification methods; Alternative certification strategies
- **Product technologies** (e.g. applications of AI): Applications of AI (including verification, certification, and explainability); Autonomous systems (e.g. UAS, Remotely Piloted Aircraft System (RPAS)); Sensors, sensor fusion, and sensor management; Integrated Modular Avionics (IMA) and other avionics platforms; Human-Machine-Interface (HMI); Safty-critical middleware and operating systems
- **Short vision papers** on upcoming challenges, technologies or regulations

## Modalities:

- Language: English
- Short paper or full paper
- Peer-review by international experts
- dl.gi.de publication
- Excellent papers can be proposed for the *CEAS Aeronautical Journal*
- Keynotes and panel session

## Dates:

- Dec 02, 2022 → Paper submission
- Jan 16, 2023 → Paper acceptance
- Jan 30, 2023 → Final manuscript

Further information and registration:

<https://aviose-workshop.github.io/>

Co-located with:



20.-24. of February 2023, <https://se-2023.gi.de/>

Supported by:

