# JOHANN CHRISTENSEN

**Expert for Safe AI Engineering | PhD Candidate**

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## EXPERIENCE

### Research Associate

**German Aerospace Center (DLR)**

October 2023 – Ongoing Germany

- Pioneering the development of resilient, safety-critical AI-based systems tailored for the aviation domain.
- Advancing Safety-by-Design frameworks to bridge the gap between AI theory and stringent aviation certification standards.
- Ensuring safety of AI-based systems through rigorous development of Operational Design Domains (ODDs) and ODD-aware training, both for limited data scenarios.
- Developing guardrails for using LLMs as air traffic controllers.
- Involved in the EUROCAE WG-114: Artificial Intelligence bringing safe AI into aviation through new rigorous regulations.
- Managing projects with a funding of up to 5 million euros.
- Acquiring funding on the national and European level.

### AI and Robotics Engineer

**ZAL Center of Applied Aeronautical Research**

October 2019 – August 2023 Hamburg, Germany

- Researching and developing reinforcement learning-based systems for industrial applications, comparing mainly PPO and SAC.
- Building robots in simulation and reality, developing the software-stack for a ROS-based digital twin of an UR10e.
- Architecting a robust MLOps pipeline to accelerate model training and automate CI/CD for edge-computing deployment.
- Acquiring a total of 8 million euros of funding for research projects.
- Managing government-funded research projects.

## SELECTED PUBLICATIONS

### Journal Articles

**J. M. Christensen** et al., "Formulating an Engineering Framework for Future AI Certification in Aviation," *Aerospace*, 2025.

### Conference Proceedings

**J. M. Christensen**, E. Hoemann, F. Köster, and S. Hallerbach, "Defining Operational Conditions for Safety-Critical AI-Based Systems from Data," in *Advances in Neural Information Processing Systems (NeurIPS)*, Sydney, Australia, 2026.

C. Berro et al., "Leveraging Large Language Models as an Interface to Conflict Resolution for Human-AI Alignment in Air Traffic Control," in *Digital Avionics Systems Conference (DASC)*, Montreal, QC, Canada, 2025.

**J. M. Christensen** et al., "Towards Certifiable AI in Aviation: A Framework for Neural Network Assurance Using Advanced Visualization and Safety Nets," in *Digital Avionics Systems Conference (DASC)*, San Diego, CA, USA, 2024.

## AWARDS

**Best of Session Paper Award**
Digital Avionics Systems Conference (DASC) 2024

## STRENGTHS

Fast learner | Quick to comprehend | Researcher | Motivator & Leader

## EDUCATION

### PhD (Dr.-Ing.) in Safe AI Engineering

**Ruhr University Bochum**

October 2024 – 2027 (expected)

Working Title: On the Development of Safety-by-Design AI-Based Systems in Safety-Critical Applications
Supervisor: Prof. Frank Köster

### M.Sc. in Aircraft Systems Engineering

**Hamburg University of Technology (TUHH)**

October 2017 – September 2019

### Master's Thesis

**UC Berkeley**

October 2018 – September 2019

Thesis: Obstacle Avoidance-Driven Controller for Safety-Critical Aerial Robots
Supervisor: Prof. Koushil Sreenath

## LANGUAGES

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|---|---|
| **German** | native |
| **English** | fluent, C2 |

## PROGRAMMING

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|---|---|
| **Python** | proficient |
| **PyTorch** | advanced |
| **MLOps** | advanced |
| **CI/CD** | advanced |