



Johann Christensen

Curriculum vitæ

Objective

Multidisciplinary AI researcher with a strong background in aircraft systems, (autonomous) flight control, and robotics. Pursuing my Ph.D. (Dr.-Ing.) at the Institute for AI Safety and Security at the German Aerospace Center. Proven problem-solving skills and the ability to familiarize myself quickly with new topics and tasks.

Work experience

- 10/23 – today **Research Associate**, *Institute for AI Safety and Security, German Aerospace Center, Sankt Augustin, Germany (remote)*.
Researching and developing novel safe and resilient AI systems for the aviation domain. Pursuing my Ph.D. (Dr.-Ing.) in the field of artificial intelligence.
- 10/19 – 08/23 **Development Engineer for AI and robotics**, *ZAL Center of Applied Aeronautical Research, Hamburg, Germany*.
Bringing AI into the industry. Working on research and development for research projects as well as contract research and support of industrial customers. Focusing on reinforcement learning and (simulated) robotic systems in hard- and software. Managing governmental funded research projects and representing them at conferences. Building an internal workflow to speed up the training of machine learning algorithms and streamline the deployment of trained models to the edge. Also responsible for writing proposals for government funded projects.
- 12/16 – 06/18 **Working Student**, *Cabin Supply Modules A350 – Airbus, Hamburg, Germany*.
Primarily worked as Project Management support for R&D projects concerning new developments within the cabin focusing on galleys. Especially managing a project which aimed to develop a replacement for the state-of-the-art honeycomb panels. Lastly, finished the project by passing TRL 6, hence, allowing Entry-into-Service.
- 09/16 – 01/18 **Teamleader**, *HAMBURG – a REXUS/BEXUS project, German Aerospace Center, and European Space Agency, Hamburg, Germany; Bremen, Germany; Kiruna, Sweden*.
Led a student experiment for a REXUS/BEXUS project, a German-Swedish student programme in cooperation with DLR and ESA. Been responsible for the entire project, but mostly focused on hard- and software development. Finally, led and managed a trip to Kiruna, Sweden, on which the experiment was again fully tested and mounted to a balloon, reaching an altitude of 25 000 m.

Course of Education

- 02/21 – 08/23 **External Ph. D. (Dr.-Ing.) candidate**, *Hamburg University of Technology*, Hamburg, Germany.
Research in the field of reinforcement learning for mechatronic systems. Focusing on the development of novel reinforcement learning algorithms for linear-parameter varying systems to approximate real mechatronic systems to speed up training.
- 10/16 – 09/19 **Aircraft Systems Engineering, M. Sc.**, *Hamburg University of Technology*, Hamburg, Germany.
Pursuing a Master's degree in Aircraft Systems Engineering focusing on Aircraft Systems, and moreover specializing on Control Systems, Robotics and Machine Learning.
- 11/18 – 04/19 **Visiting Research Scholar**, *University of California, Berkeley*, Berkeley (CA), United States.
Researcher at the Hybrid Robotics Lab of Asst. Prof. Koushil Sreenath. Working on autonomous flight control of aerial quadrotors. Focusing on developing and implementing novice obstacle avoidance technology for enhanced path planning.

Qualifications

	Skill	Level	Comment
Spoken:	German	■■■■■	Native.
	English	■■■■■	Fluent, C1, studied abroad for six months.
Languages:	Python	■■■■■	Used for open-sources projects, machine learning, and ROS.
	MATLAB/Simulink	■■■■■	Extensive knowledge through multiple projects.
	C++	■■■■■	Mostly for working with ROS and PX4 flight controllers.
	Java	■■■■■	Basic knowledge from my undergraduate studies.
	Frameworks:	ROS	■■■■■
PyTorch		■■■■■	Preferred framework for machine learning solutions.
PX4		■■■■■	Developed custom modules for different applications.
git		■■■■■	Using git as the go-to solution for versioning in all my projects.
Keras/TensorFlow		■■■■■	Used for smaller projects.
TensorRT		■■■■■	Bringing machine learning models to the edge.
Others:	CI/CD	■■■■■	Based on GitLab's CI/CD pipelines and GitHub Actions.
	CAD	■■■■■	Experienced with Inventor and SolidWorks.

Notable publications

For a full list of my publications, please visit my ORCID profile at <https://orcid.org/0000-0001-9871-122X>.

- [1] Wallace M. Bessa, Edwin Kreuzer, Johann Lange, Marc-Andre Pick, and Eugen Solowjow. Design and Adaptive Depth Control of a Micro Diving Agent. *IEEE Robotics and Automation Letters & IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2(4):1871–1877, 2017. doi.org/10.1109/LRA.2017.2714142.

Hamburg, Germany, February 13, 2024