



Marc Schmitt

Master of Engineering (M.Eng.)

- ▶ 22.07.1985 in Erlenbach am Main
- ▶ German
- ▶ Unmarried

Contact

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Skills

Software design & development	12+ yrs
Agile PM + development (Scrum, Kanban)	5+ yrs
Distributed systems	6+ yrs
Computer vision / Image processing	10+ yrs
Artificial intelligence / Machine learning	10+ yrs
Manned-Unmanned-Teaming	8+ yrs
Safety critical software	3+ yrs

Profile + Status

PhD candidate, M.Eng. Electrical Engineering and Information Technology, Software Engineer and Architect

- Software engineer with a strong background in distributed systems and backend development with a passion OpenSource software.
- Focused on SW quality, efficiency, and maintainability, with a strong belief in KISS-principles.
- Strong advocate of agile mindsets und work environments.
- Customer-oriented and structured method of working.

Work experience

Lead Software Architect
HAT.tec GmbH

2019 – now

Lead development towards commercialisation and product development of AI-based human autonomy teaming technologies.

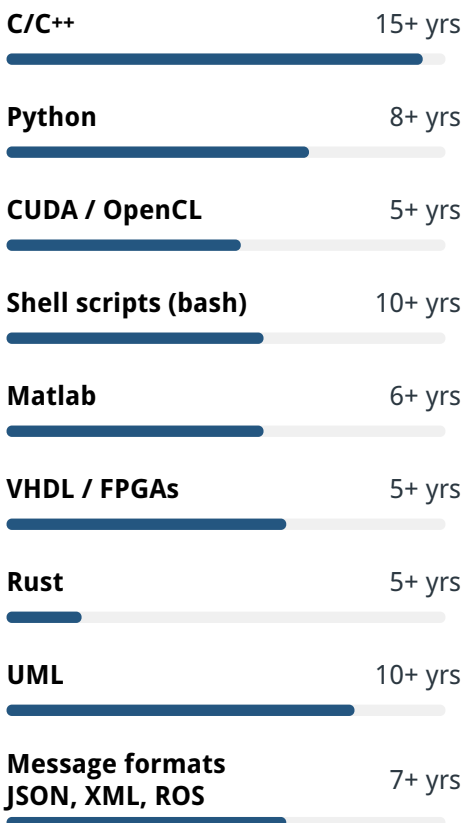
- System and software architecture design for human autonomy teaming and mission planning projects with national and international partners.
 - Design of th overall system and software architecture for the companies SW stack with the function specialists.
 - Designed an AI-integrated SW architecture for environmental perception with future scaling capabilities (Cloud, K8s).
 - Design of REST-APIs for platform-independent integration with partner software.
 - Supervision and review of the software development of the individual modules in the SW stack.
- Designed and developed a inter-process communication (IPC) shim, abstracting multiple IPC / middleware solutions (e.g. ROS2).
- Designed and developed several interface modules to interconnect with avionics and other third-party hardware modules.
- Adapted and launched (agile) software development and software lifecycle models to the company specifics and developed them towards ED-12C/DO-178C certifiable processes.
- Supervision of the AI-development team towards object detection, classification, and tracking.
- Ramping up the development team, technical suport in interviews etc.
- Part of the product strategy development team, outlining SW stack and architecture.

Research Associate & Systems Engineer
Institute of Flight Systems
Bundeswehr University Munich

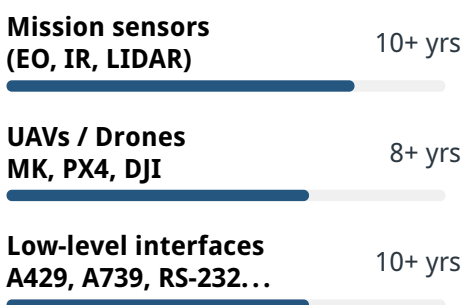
2012 – 2019

Research on cooperative system concepts for on-board environmental perception of teams of unmanned aerial vehicles (UAVs).

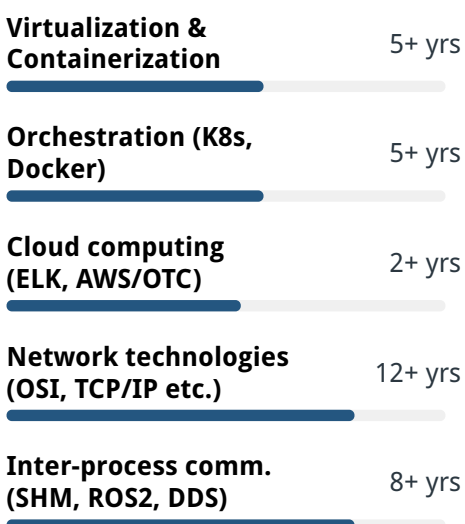
Programming



Hardware



Technologies




Research interests: Multi-UAV Cooperation, Multi-Sensor-Fusion, Aerial Computer Vision, Manned-Unmanned Teaming (MUM-T)

Teaching: mission sensor classes + labs; theses supervision (BA/MA)

CASIMUS

Researcher in the national research project CASIMUS which investigated the deployment of multiple UAVs to support a manned two-seated transport helicopter with up-to-date recce data during the course of mission.

- Designed and -developed a hard- and software framework for the environmental perception on-board (multiple) UAVs.
- Integrated the system in a full-mission simulator to automatically reconnoiter potentially unsafe helicopter landing points.
- Planned, performed and evaluated a multi-week operator-in-the-loop experimental campaign.
- Flight-tested the perception system on-board multiple UAV-demonstrators in a down-sized setup to showcase and demonstrate the systems real-life cooperation and coordination mechanisms as a proof-of-concept.
-  IFS Manned unmanned Teaming for Future Helicopter Missions

PROACTIVE

Researcher in the the EU-funded research project PROACTIVE which investigated the usage of multi-sensor networks as well as information fusion and reasoning mechanisms to detect and predict imminent terrorist attacks.

- Showcased the usage of Micro- and Mini-UAVs as deployable sensor platforms to be dynamically integrated in the multi-sensor network.
- Provided IPC and middleware mechanisms and supported international project partners during their sensor and system integration using that middleware.

Research Engineer (Part-time) TH Aschaffenburg

2010 – 2012

Development of a FPGA-based pedestrian detection system for smart intersections.

Worked on low-latency real-time pedestrian segmentation and intention detection on Full-HD-images with computer vision and machine learning methods on FPGAs for intersection assistance to detect vulnerable traffic participants as part of national automotive research project Ko-PER.

- Development of a combined GPU/FPGA/PC framework for real-time computer vision.
- Adaption and implementation of computer vision and machine learning algorithms on FPGAs.

Working Student / PLC-Programmer (Part-Time) LÖMI GmbH

2009 – 2012

- PLC-programming and automation of solvent recycling and PIM de-binding plants.
- In-house and customer-side start-up with domestic and international assignments.

Operating Systems

Linux 12+ yrs

Windows 12+ yrs

BSD 8+ yrs

Tools

VCS (GIT, HG, SVN) 12+ yrs

IT automation (Ansible, Vagrant,...) 7+ yrs

VS Code 3+ yrs

QtCreator 8+ yrs

LaTeX 12+ yrs

Microsoft Office 12+ yrs

Languages

German L1

English C1

Spanish A1

Interests

- ▶ Alpine sports
- ▶ Digitalization
- ▶ Traveling
- ▶ Guitarist (beginner)
- ▶ Festivals + Concerts

Working Student / Intern
Reis GmbH & Co. KG Maschinenfabrik

2008

Working student and internship as part of the Bachelor studies.

- Control hardware and power electronics development for industrial robots.
- EMC measurements of industrial robot systems and design of appropriate mitigation strategies.
- Programming and start-up of industrial robot systems for PV production plants.
- Test and evaluation of new CAE/CAD software solutions.

Working Student / PLC-Programmer (Part-Time)
LÖMI GmbH

2005 – 2008

PLC-programming and assembly of solvent recycling and PIM debinding plants with in-house startup.

Apprentice Electrician (Energieelektroniker)
Integronik GmbH

2002 – 2005

Building customized industrial computers with my own hands :-)

Education

PhD in Aerospace Engineering
Institute of Flight Systems (Prof. Stütz)
Bundeswehr University Munich

2012 - 2019

Working Title: „A Cooperative Multi-UAV Perception Management System for the Highly-Automated Reconnaissance of Helicopter Landing Zones“

Master of Engineering (M.Eng.), Grade 1.1
TH Aschaffenburg

2010 - 2012

Master's thesis: „Memory Management Concepts for Feature Extraction and Classification of Vulnerable Traffic Participants“

Focussed on real-time Computer Vision and Machine Learning

Bachelor of Engineering (B.Eng.), Grade 1.6
TH Aschaffenburg

2006 - 2010

Bachelor's thesis: „Implementation of a DDR-RAM Controller for Computer Vision Tasks on an FPGA“

Electrical engineering and information technology with a focus on automation technologies and programmable hardware.

Munich, May 2, 2021



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