Tim Stadtmann

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Electrical engineer uniting FPGA design and embedded systems experience with strong analytical skills, a team-player mindset and the drive to innovate.

Professional Experience

10/2019–04/2025 **Research Assistant**, *Chair of Integrated Digital Systems and Circuit Design*, RWTH Aachen

PhD: Neuro-inspired Learning Mechanisms for Efficient and Robust Neural Networks

- Designed and implemented a cluster of 35 FPGAs for neuroscience simulations, developing AXI-based RTL modules (Xilinx toolchain, System Verilog) and embedded software (C/C++)
- Developed control scripts (TCL, Python, shell) and firmware (C++, Python), automating deployment, testing, and monitoring of the FPGA cluster (Linux, Git, CI)
- Project lead for the cluster project: Coordination of research staff and students, organization of workflows, weekly meetings, and liaising with suppliers
- Conducted research in the optimization of brain-inspired deep learning for efficient Edge AI and AI hardware acceleration

02/2018–07/2018 **Intern**, *European Space Operations Centre*, European Space Agency, Darmstadt

Feasibility Study for a Robotic Arm Simulator to Evaluate Operational Concepts

- Developed a ROS-based C++ simulation for studying man-machine interaction in a lunar mission
- Conducted user tests to derive input on both study and simulator design

10/2015–06/2017 **Student Research Assistant**, *Institute for Man-Machine-Interaction*, RWTH Aachen

- Developed a MATLAB toolbox for controlling Lego Mindstorms EV3 robots
- Participated in the organization of the annual lab 'MATLAB meets Mindstorms' where 400-600 electrical engineering students program EV3 robots

Education

Electrical Engineering, Information Technology and Computer Eng., *RWTH Aachen*

10/2016–07/2019 **Master of Science**

- Thesis: Mapping ANNs to Monadic Signed-Digit Operations (ANN FPGA accelerator design)
- Courses: Operating Systems | Embedded Systems | DSP Design | Microcontroller Systems
- Exchange semester at KTH Stockholm (2017)

10/2013–09/2016 **Bachelor of Science**

- Thesis: Automated Detection of Facial Regions for Stress Analyses in Mice

Skills

Programming	C/C++, System Verilog, Python, MATLAB, Bash, VHDL, Tcl, kotlin
Hardware & Tools	Xilinx Vivado & Vitis, Intel Quartus, ModelSim, Arduino IDE, Git, Docker, Linux
Languages	German (mother tongue), English (fluent–C2), French (basic–A2)

Extracurriculars

2022–present **Executive board and founding member**, *neuroAIx e.V.*, coordinated alumni meet-ups and developed the club website, fostering interdisciplinary networking

2020–2023 **Technical team lead**, *Engineers Without Borders, RG Aachen*, developed solutions to improve sanitation infrastructure and access to clean water wells in rural Cameroon

2020–2024 **Supervisor**, *Undergraduate Research Opportunities Program*, supervised undergraduates from USA and Canada in hands-on research and academic development