Zhaolan Huang

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Experience

Freie Universität Berlin — **Berlin, Germany**
Research Assistant — *01/2023 - 09/2026*

- Developed msf-CNN, a novel CNN fusion technique for neural network inference on MCUs with ultra-low memory footprint, reducing RAM usage by **up to 23×** (**NeurIPS 2025**).
- Developed TinyDéjàVu, an efficient inference technique for real-time streaming data, achieving up to **20× faster inference** and **90% lower RAM usage** for overlapping sliding-window workloads.
- Developed Ariel-ML, a Rust-based TinyML framework featuring multi-core inference scheduling on MCUs, delivering up to **1.6× speedup** on Raspberry Pi Pico devices.
- Designed TinyChirp, a TinyML pipeline to record, recognize and store specific bird songs, extending sensor life-time from **2 to 18 weeks (9×)**. Extended the system to support detection of up to **10 bird species** (PolyChirp) and NPU-accelerated deployment.
- Developed RIOT-ML, a TinyMLOps framework enabling ML model deployment, benchmarking, and secure over-the-air (OTA) updates across heterogeneous MCUs (Arm, Xtensa, RISC-V), with support for TensorFlow Lite Micro, PyTorch, and ONNX model formats.

MedRhein GmbH — **Berlin, Germany**
Product Manager & SAP Consultant — *11/2021 - 12/2022*

- **Led and coordinated** the implementation of SAP Business One.
- Designed prototypes of internal tools for ERP system and website.

Guangdong University of Technology — **Guangzhou, China**
Embedded Systems Engineer (freelancer) — *10/2014 - 08/2018*

- **Led** software development for bedside multiparameter monitor and anesthesia monitor
- Developed cardiopulmonary resuscitation (CPR) training system.

Education

Freie Universität Berlin — **Berlin, Germany**
PhD in Computer Science — *01/2023 - 09/2026*
Efficient Operation of Edge AI and Tiny Machine Learning on Heterogeneous Resource-Constrained Devices
For publications please see google scholar.

Technische Universität Darmstadt — **Darmstadt, Germany**
M.Sc. Electrical Engineering and Information Technology (Automatic Systems) — *10/2019–11/2021*

Guangdong University of Technology — **Guangzhou, China**
B.Eng. Automation — *09/2013–07/2017*

Technical Skills

Machine Learning Framework: Tensorflow, Pytorch, etc.
Machine Learning Compiler: IREE, LLVM & MLIR, TVM
Embedded OS: Ariel OS, RIOT, Zephyr, Linux
Programming: **C/C++, Rust**, Python, C#, Matlab, Qt

Languages

English: Professional working proficiency
German: C1, Professional working proficiency
Chinese: Native