

Hyun-Min Chang

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GitHub: github.com/Mocchibird

Languages

German (Native), English (Fluent), Korean (Advanced), Japanese (Basic)

Education

ETH Zurich **Zurich, Switzerland**
M.Sc. in Electrical Engineering and Information Technology *Feb 2023 – Jan 2026*
• Relevant coursework: Big Data for Engineers, Machine Learning on Microprocessors, Neural Network Theory

ETH Zurich **Zurich, Switzerland**
B.Sc. in Electrical Engineering and Information Technology *Sep 2018 – Sep 2023*
• Relevant coursework: Hands-on Deep Learning, Embedded Systems, Communication Networks

Work Experience

Huawei Research Center Switzerland **Zurich, Switzerland**
AI Research Intern *Jan 2026 – Jul 2026*
• Developed and optimized custom kernels for Huawei Ascend NPUs to improve the efficiency of compute-intensive machine learning workloads.
• Conducted benchmarking and performance analysis of quantized and fused operators, focusing on throughput, memory bandwidth, and memory efficiency.
• Used low-level software stacks and tools such as CANN, AscendC, and PTO-ISA to implement and evaluate hardware-aware optimizations.
• Built reproducible evaluation and benchmarking workflows to systematically compare optimization strategies on Ascend NPUs.

ETH Zurich **Zurich, Switzerland**
Teaching Assistant, “Machine Learning on Microcontrollers” *Feb 2025 – Jun 2025*
• Supported students in quantizing and optimizing machine learning models for deployment on microcontrollers.
• Revised and improved course materials related to quantization and deployment workflows.
• Collaborated with other teaching assistants to ensure efficient task distribution and course organization.

one • five **Hamburg, Germany**
Data Solutions Intern *Mar 2024 – Aug 2024*
• Developed and deployed a web application for visualizing more than 10,000 database entries, enabling 35% faster data analysis.
• Reviewed and cleaned SQL databases to improve data quality and support more effective visualizations.
• Implemented secure authentication on Google Cloud and integrated it into the existing website framework.

ETH Zurich **Zurich, Switzerland**
Teaching Assistant, “Hands-on Deep Learning” *Feb 2023 – Jun 2023*
• Supported students in using PyTorch, building neural networks, and solving common Python-related issues.
• Collaborated with other teaching assistants to ensure efficient task distribution and course organization.

Projects

Personal Health-Tracking Web Application

- Designed and implemented a full-stack web application for tracking pulse, blood pressure, weight, and free-text notes.
- Provisioned a Hetzner Cloud VPS, configured Nginx as a reverse proxy with HTTPS, and set up a custom DNS entry to make the service securely accessible under my domain.
- Added interactive charts and one-click CSV export to help users identify trends and share data with healthcare professionals.
- Modelled the data layer in Appwrite, including collections, access rules, and authentication, and connected it to a lightweight backend API.

MIPS Architecture Simulator in C

- Designed and implemented a MIPS simulator in C with support for custom instruction execution, instruction and data cache simulation, and memory hierarchy modelling.
- Integrated L1 and L2 caches, instruction prefetching, and a simulated processing-in-memory (PIM) architecture to study performance trade-offs.
- Developed configurable cache policies and stall handling to simulate realistic system-level behaviour.

Keyword Spotting on Microprocessor

- Developed and trained a keyword spotting model based on Google Speech Commands v2, achieving 93% accuracy.
- Reduced model size to 173 KB through 8-bit quantization for deployment on resource-constrained devices.
- Deployed the model on a MAX78000 microprocessor with an inference time of 1850 μ s.

Sentiment Analysis with Natural Language Processing

- Developed and trained a DistilBERT-based sentiment analysis model on the IMDb dataset, achieving 87% validation accuracy.
- Implemented tokenization and data preprocessing using the Hugging Face Transformers library.

Image Classification with Computer Vision

- Developed and trained an image classification model for the CIFAR-10 dataset, achieving 98% accuracy.
- Applied image preprocessing and data augmentation techniques to improve training quality and generalization performance.

Certifications

- AWS Certified Solutions Architect – Associate
- Lakera 101 AI Security Course

Skills

Programming: Python, C, C++, C#, SQL, R

ML / Systems: PyTorch, Quantization, Benchmarking, Performance Analysis, Custom Kernel Development

Tools / Platforms: Docker, CANN, AscendC, PTO-ISA, AWS

Interests

Data Science, Technology Infrastructure and Home Automation, Musicals, Bouldering, Robotics