AKIHO KAWADA

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Pronouns: she/her/hers ◇ Nationality: Japanese
Website: `https://akiho-kawada.github.io/`

EDUCATION

The University of Tokyo April 2021 – March 2026 (Expected)
Bachelor of Engineering in Systems Innovation *Tokyo, Japan*
Advisors: Prof. Yutaka Matsuo and Prof. Yusuke Iwasawa

EXPERIENCE

Cornell University – Cornell Tech June - November 2025 (Expected)
Research Assistant *Hybrid*

- Working as a research assistant at Cornell University Computer Systems Laboratory
- Supervisor: Prof. Udit Gupta

the University of Tokyo April - September 2024, January 2025
Thesis Student *Tokyo, Japan*

- Thesis student at Matsuo-Iwasawa Lab;
  One of the most renowned ML research labs in Japan
- Advisors: Prof. Yutaka Matsuo and Prof. Yusuke Iwasawa
- Explored training-free network pruning methods by identifying high-performing subnetworks with fixed initial weights.

University of California, Santa Barbara October - December 2024
Visiting Student Researcher *Santa Barbara, CA*

- Visiting Student Researcher at UCSB ArchLab
- Supervisor: Prof.Jonathan Balkind
- Project: Pengwing, A Novel Blended OS for Heterogeneous SoCs
- Implemented a hardware-based `malloc` in RTL for heterogeneous computing systems. Verified correct operation on FPGA in conjunction with a hardware garbage collector.

Google Summer of Code May - August 2024
GSoC Student / Contributor *Remote*

- Project: Transforming the OpenHW High Performance Data Cache into a High Performance Instruction Cache
- Organization: Free and Open Source Silicon Foundation
- Mentors: Dr.Jonathan Balkind, Dr.César Fuguet Tortolero and Ms.Noelia Oliete Escuín
- Extending the high-performance data cache (HPDC) integrated into the CVA6/Ariane core to also function as an instruction cache.
- Created and submitted multiple upstream pull requests to the openhwgroup/cva6 and openhwgroup/cv-hpdcache repositories

the University of Tokyo October 2023 - June 2024
Research Intern *Tokyo, Japan*

- Research intern at Kosuge Lab, Department of Electrical Engineering and Information Systems, Graduate School of Engineering, the University of Tokyo

- Supervisor: Prof. Atsutake Kosuge
- Conducted RTL design, evaluation, and FPGA validation of pre-processing hardware modules for energy-efficient DNNs.
  Worked on an ultra-low-power audio feature extractor chip for real-time sound recognition, focusing on FFT architecture and filter bank optimization.
- This research resulted in a first-author paper accepted at the IEEE Asia Pacific Conference on Circuits and Systems (APCCAS) 2024 and presented in Taipei, Taiwan.
  See lab coverage: Kawada-san presented her speech at IEEE APC-CAS 2024.
- This work was also presented to researchers from the Stanford AHA Agile Hardware Project, providing an opportunity to share the results internationally outside of the conference context.
  See lab coverage: Kickoff workshop about joint research collaboration with IBM and Stanford University.

AKARI, Inc August - September 2023, February 2024
Software Engineer Intern *Tokyo, Japan*

- One of the largest venture companies originating from the University of Tokyo
- Developed and maintained web applications using Typescript, React and NextJS.
- Developed an advanced application utilizing the OpenAI API for Retrieval Augmented Generation (RAG) to enhance backend data processing and user query responses.

AKARI, Inc December 2022 - January 2024
Machine Learning Engineer Intern *Tokyo, Japan*

- One of the largest venture companies originating from the University of Tokyo
- [Computer Vision Group] Containerized a cutting-edge segmentation model and its inference systems, and deployed them as a scalable microservice, making it accessible via a REST API for easy integration with existing and future applications.
- [LLM Group] Fine-tuned some large language models such as Llama 2 and Vicuna, using Kubernetes GPU clusters.
- [LLM Group] Developed some Retrieval Augmented Generation (RAG) services for several customers (algorithm side).

AWARDS

the University of Tokyo Musha Shugyo Program July 2024- December 2024
Granted two months of stipend and travel costs.
("Musha Shugyo" refers to the practice of traveling with the purpose of gaining skills.)

PUBLICATIONS

- **A 250.3mW Versatile Sound Feature Extractor Using 1024-Point FFT 64-ch LogMel Filter in 40nm CMOS**
  Akiho Kawada*, Kenji Kobayashi*, Jaewon Shin, Rei Sumikawa, Mototsugu Hamada, Atsutake Kosuge
  Accepted to the IEEE Asia Pacific Conference On Circuits and Systems (APCCAS) 2024

TECHNICAL SKILLS

Programming Languages / HDL	Verilog/SystemVerilog, Python3, Javascript/TypeScript, C/C++
Frameworks	PyTorch, React, NextJS
Hardware Tools	Verilator, Vivado, Synopsys VCS & Verdi
Devops / Tools	Docker, Kubernetes, Git