YOSHIKI FUJIWARA

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RESEARCH INTEREST

Deep Learning Accelerators / Algorithm-Hardware Co-design / Safe Deep Learning Systems

EDUCATION

The University of Tokyo *April 2021 - Present*
M.S. in Computer Science. GPA: -
Graduate School of Information Science and Technology
Advisor: Shinya Takamaeda-Yamazaki

The University of Tokyo *April 2017 - March 2021*
Bachelor of Science in Information Science. GPA: 3.9 (Note that GPA of last two years is 4.0)
Department of Information Science, Faculty of Science
Advisor: Shinya Takamaeda-Yamazaki

RESEARCH JOBS

The University of Tokyo *April 2021 - Present*
Research Assistant

- **Algorithm/hardware Co-design for Bayesian Neural Networks**: In this project, I focused on algorithm/hardware co-design for Bayesian Convolutional Neural Networks. I found a bottleneck of the computations and proposed a new approximation method for the computation. To support the approximation algorithm efficiently on hardware, I proposed a novel hardware design.

The University of Tokyo & Toyo University *February 2019 - Present*
Research Assistant

- **Malicious Information Sharing Systems**: As a research assistant, I started a project related with computer security. I built a system that can share malicious information among companies and automatically include it in the network configuration and evaluated its performance.

TEACHING JOBS

The University of Tokyo *April 2021 - Present*
Teaching Assistant

- **Hardware Laboratory**: I support a class for undergraduates covering circuit design using breadboards and implementation of FPU and communications using Verilog HDL.

The University of Tokyo & Toyo University *February 2019 - Present*
Teaching Assistant

- **Industrial Control Systems**: As a teaching assistant, I am involved in ICS security. Our team provides lectures and hands-on training to deepen the understanding of ICS security. In hands-on training, we attack pump systems that mimic factory systems connected to the Internet. The security lectures and training were provided not only for the university but also for the electric power companies in various countries through the Ministry of Economy, Trade and Industry in Japan. I was involved in the construction of the hands-on training and technical support for the lecture.

INTERNSHIP EXPERIENCE

NTT Data *September 2019*
Development

- I participated in a project to create a system that uses the newly introduced national system called "my number." My contribution to the project was to propose a safe system for handling the "my number" information and involve in its development.

Amazon Web Services Japan *August 2019*
Solution Architect

- I participated in a project to manage a large web page with huge traffic using AWS and find the optimal configuration and modification for their requirements. My contribution to the project was to propose the system configuration and created a mock for the proposal.

PUBLICATION

1. **Fujiwara, Y.** & Shinya, T.
   "ASBNN: Acceleration of Bayesian Convolutional Neural Networks by Algorithm-hardware Co-design"
   Under peer review process in Application-Specific Systems, Architectures and Processors 2021.

QUALIFICATION & AWARD

Applied Information Technology Engineer *December 2020*

- Japanese qualification that qualifies that I have applied knowledge and skills as an IT engineer.

Sugaku Koshien Final Round *September 2016*

- The Japanese event for selecting top high school students in mathematics. I was in the final round (top 50).

GRANT PROGRAM

Education Network for Practical Information Technologies (enPiT) *March 2021*

- Japanese program that qualifies the students who have enough knowledge about "Big Data Analysis", "Security", "Embedded Systems", and "System Designs."

NICT Quantum Camp *March 2021*

- NICT's human resource development program to foster quantum information specialists

Deloitte & The University of Tokyo SiSOC Cyber Security Training *September 2018*

- A Course to learn the basic of the cyber security through competition called CTF. I was top 10 of the competition.

TECHNICAL SKILLS

GitHub	https://github.com/yoshi-ki
My coding experience	https://github.com/yoshi-ki/BACHELOR
Language	C, C++, Python, Verilog HDL
Software tools	PyTorch, Vitis HLS