Chae Young Sim

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Research Interests

Dynamic Thermal Management, Thermal Modeling

Education

Korea University Mar 2025 – Feb 2030 (Expected)
Ph.D. in Computer Science and Engineering *Seoul, Korea*

- Advised by Professor Sung Woo Chung
- GPA: 4.5 / 4.5
- Coursework: Computer Architecture and Systems, High-Performance Computing Systems, etc.

Korea University Mar 2021 – Feb 2024
B.S. in Computer Science and Engineering *Seoul, Korea*

- GPA: 4.04 / 4.5
- Coursework: Computer Architecture and Systems, Operating Systems, Computer Network, Machine Learning, Deep Learning, etc.

Publications

Jae Yoon Lee*, **Chae Young Sim***, Seung Hun Choi, and Sung Woo Chung, **"Thermal Challenges and Opportunities for Off-the-shelf 3D-stacked CPUs,"** *IEEE/ACM International Symposium on Low Power Electronics and Design (ISLPED)*, 2025. *These authors contributed equally to this work.

(Domestic) **Chae Young Sim**, Jae Yoon Lee, and Sung Woo Chung, **"Performance Comparison of Heterogeneous Cores in Mobile APs under Thermal Constraints,"** *Korea Computer Congress (KCC)*, 2025.

Jihyun Kim, Chaeyeon Lee, Jisoo Song, **Chae Young Sim**, and Seongbin Park, **"Teaching an Elective Course about Quantum Computing,"** *16th International Conference on Informatics in Schools: Situation, Evolution, and Perspectives (ISSEP),* 2023.

Experience

Research Assistant Mar 2025 – Current
SoC & Microprocessor Research Lab. (Advisor: Prof. Sung Woo Chung) *Seoul, Korea*

- Designed a dynamic thermal and power management technique for heterogeneous core systems (e.g., CPU, GPU, and NPU), exploiting instruction complexity in software-defined robotics (SDR) workloads. (Supported by IITP)
- Developed OS-level thermal-aware task scheduling techniques for high-performance CPUs, leveraging floorplan and adaptive voltage scaling (AVS). (Supported by IITP)

Undergraduate Researcher Mar 2024 – Feb 2025
SoC & Microprocessor Research Lab. (Advisor: Prof. Sung Woo Chung) *Seoul, Korea*

- Analyzed performance differences between big core and middle core in mobile APs under thermal constraints, highlighting the need for thermal-aware SoC design especially in big core. (Supported by IITP)

Undergraduate Researcher Jul 2023 – Jan 2024
Machine Learning & Vision Lab. (Advisor: Prof. Hyunwoo J. Kim) *Seoul, Korea*

- Studied artificial general intelligence (AGI), generative models, diffusion.

AI Software Developer Jan 2023 – Feb 2023
Doctorstech, under NICE *Seoul, Korea*

- Developed a beauty trend identifying service using Python.
- Helped develop a game device, an acoustically responsive vest.

Undergraduate Researcher Jul 2021 – May 2023
Algorithm Lab. (Advisor: Prof. Seongbin Park)

- Studied theory of computation, quantum computing algorithms.
- Inspected the upcoming book, *Algorithm And Hyperlinks*.

Patents

(Domestic) Sung Woo Chung, Jae Yoon Lee, and **Chae Young Sim**, **"Thermal-aware Scheduling Technique for heterogeneous cores,"** Korea Patent Application, Application Pending.

Professional Experience

Reviewer 2025
IEEE/ACM International Conference on Computer-Aided Design (ICCAD)

Teaching Assistant Fall 2025
Computer Architecture (Instructor: Prof. Sung Woo Chung) *COSE222*

- Undergraduate course (50+ students).
- Delivered six 1.25 hour lectures covering Verilog HDL fundamentals, logic synthesis, and functional/timing simulation using an Altera DE2 FPGA board.
- Designed Verilog HDL programming assignments, including combinational/sequential circuits, a RISC-V single-cycle processor, and RISC-V pipeline processor.

Awards and Honors

Best Teamwork Aug 2024
Google Datacenter Hardware Hackathon *Seoul, Korea*

Skills and Techniques

Programming
Python, PyTorch, C, C++, OCaml, PHP, ARM Assembly, RISC-V Assembly

Languages
Native Korean, Conversational English

References

Sung Woo Chung
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Department of Computer Science and Engineering
College of Informatics
Korea University

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