Haneul Park

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Research Interests

- High Performance, Energy-Efficient Computer Architecture
- System Modeling and Simulation
- Domain-Specific Hardware

Education

Seoul National University
Seoul, Korea

B.S. in Electrical and Computer Engineering
Mar 2018 - Current

- GPA: 4.16/4.3 (overall), 4.21/4.3 (major), 4.25/4.3 (upper division)

Related Experience

Architecture and Code Optimization Lab
Seoul National University, Korea

Undergraduate Researcher, Advised by Professor Jae W. Lee
Jul 2022 - Current

- Involved in a project proposing **OS transparent DRAM power management** for disaggregated memory
- Conducted experiment scheduling virtual machines running Cloudsuite 4.0 on an actual machine configuration that can sufficiently represent the major features of the suggested non-configurable system
- Proposed estimation methodology for performance and DRAM power metrics of suggested system, where metrics are obtained using PCM(Performance Counter Monitor)
- Fine-tuned Cloudsuite 4.0 workloads to work correctly on trace generation using binary instrumentation, INTEL PIN
- **Submitted** to the 50th ACM/IEEE International Symposium on Computer Architecture **(ISCA)**, June 2023

High-Performance Computer System Lab
Seoul National University, Korea

Senior Project, Advised by Professor Jangwoo Kim
Jan 2022 - Jul 2022

- Enabled multi-GPU performance modeling in system-emulated gem5 single-GPU simulator
- Extended existing gem5 GPU model by duplicating GPUs and rearranging Ruby memory interface
- Modified emulated kernel driver to distinguish GPU ID and doorbell region of each GPU from others

2022 Deep Learning Hardware Design Competition
Polaris, Korea

2nd Place, Nationwide Competition
Feb 2022 - Jul 2022

- Designed and implemented high-performance and power-efficient FPGA accelerator for CNN inference
- Designed an adder-tree-based computational unit tailored to Tiny-YOLO v3 model that computes convolutions in parallel and consumes minimal cycles
- Designed the datapath to minimize the buffer usage and maximize computational parallelism, achieving maximum performance with limited on-chip memory
- **Organized presentation**, IEEE International Conference on Artificial Intelligence Circuits and Systems **(AICAS)**, 2022

Honors & Awards

2022	**2/111**, 2022 Deep Learning Hardware Design Competition, won $2,000	*Polaris*
2019	**OK Bae & Jung Scholarship**, $20,000 over two years	*OK Foundation*
2018	**Presidential Science Scholarship**, $40,000 for undergraduate course	*Korea Student Aid Foundation*
2017	**Bronze Medalist**, 2017 Korean Young Physicists' Tournament	*Korean Physical Society*
2015, 2016	**Completion**, Winter Program for Korea Physics Olympiad	*Korean Physical Society*

Teaching Experience

Calculus 1 & Calculus 2	Peer tutor, Provided 30 hours of lecture for freshman (Spring 2019, Fall 2022)
Engineering Mathematics 1	Peer tutor, Provided 30 hours of lecture for sophomore/junior (Fall 2019)

Extracurricular Activities

Auxiliary Police	Network Maintenance Engineer, Seoul Mobile Police Headquarters (Feb 2019 - Aug 2021) Completed South Korea's mandatory military service taking a leave of absence from university
Volunteer Activity	Total 338 hours, consists mostly of teaching activities

Skills

Language & Tool	C/C++, Python, Bash, Verilog, HTML/CSS/JavaScript, Lex, Yacc, LaTex, Docker, MATLAB, R
English Proficiency	TOEFL (105/120), TOEIC (985/990)