

# Haneul Park

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## Research Interests

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My research interest lies in computer architecture and adjacent areas. In particular, I am interested in processing-in-memory, domain-specific hardware, and scalable and efficient memory hierarchies.

## Education

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### Seoul National University

B.S. in Electrical and Computer Engineering

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

Seoul, Korea

Mar 2018 - Current

## Related Experience

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### Architecture and Code Optimization Lab

Undergraduate Researcher, Advised by Professor Jae W. Lee

Seoul National University, Korea

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

Senior Project, Advised by Professor Jangwoo Kim

Seoul National University, Korea

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

2nd Place, Nationwide Competition

Polaris, Korea

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

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

## Teaching Experience

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

## Extracurricular Activities

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- 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

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