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MinGyu Park

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EDUCATION

Georgia Institute of Technology

M.S., Ph.D in Electrical and Computer Engineering
Advisor : Dr. Sung Kyu Lim

Atlanta, GA, USA
Aug. 2023 - Present

Seoul National University

B.S. in Electrical and Computer Engineering (CGPA: 3.93/4.0, **Summa Cum Laude**)

Seoul, Korea
Mar. 2018 - Aug. 2023

RESEARCH EXPERIENCES

Research Interests: 3D ICs, EDA flow with ML, RL, and Graph Algorithm, Back-Side Power, Clock Delivery Network & Signal Routing.

Graduate Research Assistant at GTCAD Lab

- Advisor: Prof. Sung Kyu Lim
- **Samsung USA DTCO Project**
 - **ML-assisted Back-side Signal & Clock Routing for Advanced Technologies** Apr. 2024 - Current
- **Samsung Advanced Institute of Technology(SAIT) Project**
 - **Automated ML-Enhanced Tier Partitioning in 3nm 3D ICs** May. 2024 - Current
 - * Build Tier Partitioner for Pseudo-3D flow handling area balance, overlap, path detour and routing congestion.
 - **MIX-3D: ML-Assisted Optimizer for Architecting Mixed-Node, Mixed-Area 3D ICs** Aug. 2023 - May. 2024
 - * Enabled Design Space Exploration with PPA, runtime, energy, dynamic IR drop and thermal metrics.

Research Student at SOR Lab

Jun. 2022 - Feb. 2023

- Advisor: Prof. Yun-Heung Paek
- **Bachelor's Thesis:** "Hardware Logic-aware Design Space Exploration for DNN Accelerators"
 - Developed a reconfigurable accelerator on FPGA that can support any spatial/temporal unrolling.
 - Analyzed DSE frameworks and proposed a method that can achieve design automation with optimized hardware cost.

Research Student at VLSI Lab

Feb. 2022 - Oct. 2022

- Advisor: Prof. Jae-Joon Kim
 - Applied the current CNN binarization method on GNN and demonstrated incompatibility.
 - Suggested solutions to overcome the limited activation distribution and oversmoothing issue.

TEACHING EXPERIENCES

Undergraduate Student Tutor / Computer Organization, Seoul National University

Spring 2023

Undergraduate Student Tutor / Digital Logic Design and Lab, Seoul National University

Fall 2022

Lab Session Lecturer / Programming Methodology, Seoul National University

Summer 2022

PROFICIENCY IN SKILLS

Programming Languages

C, C++, Python, Tcl, bash

EDA Tools

Cadence Innovus, Cadence Virtuoso, Cadence Tempus, Cadence Voltus, ModelSim, Synopsys Design Compiler, Synopsys ICC2, Synopsys PrimeTime, Synopsys PrimePower Spectre, Calibre

Framework Library

PyTorch, PyG

Hardware Description Languages

Verilog, Chisel

Languages

Korean (Native), English (Proficient)

SELECTED COURSEWORK

Coursework at Georgia Institute of Technology

- Generative and Geometric Deep Learning *Fall 2023*
- Advanced VLSI Systems *Fall 2023*

Coursework at Seoul National University

- Digital Systems Design and Experiments *Fall 2022*
- Topics in Integrated Circuit Design (In-Memory Computing, audit) *Fall 2022*
- Topics in System Software *Fall 2022*
- Graph Convolution Network (Topics in Control and Automation) *Spring 2022*
- Machine Learning Fundamentals and Applications in Electrical and Computer Engineering *Spring 2022*

SCHOLARSHIPS

The Presidential Science Scholarship, Korea Student Aid Foundation

Spring 2020 - Spring 2023

Scholarship for top students in science and technology with exceptional creativity and strong potential.

Full tuition and stipend support; 140 students are competitively selected nationwide.

Alumni Association Scholarship, Kwanak Corporation

Spring 2019

Merit-Based Scholarship (60%), Seoul National University

Fall 2018