

## INTRODUCTION

---

**Euijun Chung** is a **first-year CS PhD student at Georgia Tech**, focusing on **GPU architecture and simulations**. His research interests lie on cycle-level GPU simulation and performance modeling, GPU memory safety, GPU + SSD architecture co-design, and distributed workloads on Multi-GPU systems.

## EDUCATION

---

### Georgia Institute of Technology

Ph.D. in Computer Science

Advisor: Hyesoon Kim

Atlanta, GA, USA

Jan. 2024 – Present

### Korea Advanced Institute of Science and Technology (KAIST)

B.S. Major in Electrical Engineering, Minor in Mathematical Sciences

GPA: 4.05/4.30 (*Summa Cum Laude*)

Daejeon, Korea

Feb. 2018 – Feb. 2024

### Georgia Institute of Technology

Student Exchange Program in Electrical and Computer Engineering

GPA: 4.0/4.0

Atlanta, GA, USA

Jan. 2023 – Aug. 2023

## RESEARCH EXPERIENCE

---

### Georgia Tech HPArch Lab

Graduate Research Assistant (Advisor: Hyesoon Kim)

Atlanta, GA, USA

Jan. 2023 – Present

- **GPU Simulation and Performance Modeling**: Proposed novel methodologies for accelerating cycle-level GPU simulations with statistical error bounds: STEM [1] and Allegro [2].
- **GPU Memory Safety**: Designed and evaluated LMI [3], a novel fine-grained hardware bounds-checking solution for GPUs, along with under 1% performance overhead in most GPU benchmarks.
- **GPU-SSD architecture co-design**: Developed a GPU-SSD integrated simulator [link] for evaluating co-designed architectures [4] such as adaptive GPU block scheduling and address mapping policies.
- **Open-source Cycle-level GPU Simulator project**: Added SASS-assembly trace support for Macsim to run latest CUDA workloads [link], utilized NVBit and CUDA Runtime APIs for the implementation.
- **Vortex 2.0**: Participated in designing and evaluating the next generation of Vortex: an open-source hardware and software project to support GPGPU based on RISC-V.

### KAIST INALab

Undergraduate Research Assistant (Advisor: Dongsu Han)

Daejeon, Korea

Jul. 2021 – Aug. 2022

- **Scene-clustered Superresolution network Training**: Developed and evaluated SR-Net, a content-aware video delivery algorithm using video scene clustering, achieving a +5.8dB PSNR gain over prior methods with the same resource usage.
- **4K support for LiveNAS**: Adapted LiveNAS system [link] for 4K videos by utilizing ONNX and TensorRT, achieved 3x speedup in end-to-end 4K video processing.

## PUBLICATIONS

---

- [1] **Euijun Chung**, Seonjin Na, Sung Ha Kang, and Hyesoon Kim, “STEM: Swift and trustworthy large-scale GPU simulation with fine-grained error modeling and sampling”, in *Under review at 2025 IEEE International Parallel & Distributed Processing Symposium (IPDPS)*.
- [2] **Euijun Chung**, Seonjin Na, and Hyesoon Kim, “Allegro: GPU simulation acceleration for machine learning workloads”, in *Machine Learning for Computer Architecture and Systems 2024 (MLArchSys workshop co-located with ISCA)*.
- [3] Jaewon Lee, **Euijun Chung**, Saurabh Singh, Seonjin Na, Yonghae Kim, Jaekyu Lee, and Hyesoon Kim, “Let-me-in: (still) employing in-pointer bounds metadata for fine-grained GPU memory safety”, in *Under review at 2025 IEEE International Symposium on High-Performance Computer Architecture (HPCA)*.
- [4] Xueyang Liu, Seonjin Na, Jiashen Cao, **Euijun Chung**, Jing Yang, and Hyesoon Kim, “Contention-aware gpu thread block scheduler for efficient GPU-SSD”, in *Under review at 2025 Asia and South Pacific Design Automation Conference (ASP-DAC)*.
- [5] Myoung Jae Lee and **Euijun Chung**, “Experimental analysis on the 0 dimensional plasma model in an inductively coupled plasma (ICP)”, in *2016 New Physics: Sae Mulli*, 66:1183–1189.

## TEACHING

---

- **Teaching Assistant for CS 8803 - GPU Hardware & Software** Summer 2024  
Developed a light-weight GPU architecture simulator used in two course programming assignments.
- **Tutor in Freshman Tutoring Program** Fall 2021, Spring 2022, Fall 2022, Fall 2023  
Tutored Calculus II (Vector Calculus) to KAIST freshmen through weekly lectures and office hours.

## SKILLS

---

- **Programming:** C/C++, CUDA, Python, LLVM, C#, Java
- **Architecture Simulators and HDL:** MQSim, Macsim, ASTRA-Sim, Verilator, SystemVerilog
- **Machine Learning & Data Science:** cuDNN, cuBLAS, Pytorch, Tensorflow, Pandas
- **Tools:** NVBit, MATLAB, ARM Mbed, Unity, GameMaker Studio, LabWindows/CVI, L<sup>A</sup>T<sub>E</sub>X
- **Languages:** English (Proficient), Korean (Native), Japanese (Proficient)

## SCHOLARSHIPS AND HONORS

---

- **ISCA 2023 uArch Workshop** Full Grant Recipient Jun. 2023  
Accepted as a full travel grant recipient for the 5th Undergrad Architecture Mentoring Workshop at ISCA 2023.
- **KOSAF** (Korea Student Aid Foundation) National Science & Technology Scholarship 2022 – 2024  
Awarded scholarship for being an outstanding undergraduate student in engineering.
- **Dean’s List** for KAIST EE Fall 2022  
Awarded academic honor to students who have achieved exceptional academic performance (top 3%).

## EXTRACURRICULAR ACTIVITIES & EXPERIENCES

---

- **AI Competition for Agricultural Commodity Price Prediction** Fall 2022  
Participated in Nongnet AI price prediction competition utilizing a comprehensive 10-year agricultural transaction database. Achieved a top 13% ranking out of 69 participating teams.
- **Republic of Korea Air Force (ROKAF)** Aug. 2019 – May 2021  
*Compulsory military service.* Served as a 24/7 TACAN (TACTical Air Navigation) Operator at KWJ Air Base.