JeongHun Park

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Research Interests

Multimodal Perception, Commensense Reasoning, Computer-Use Agent, Self-Improving Agent, Physical AI

Education

Seoul National University Mar. 2026 – Present
Integrated MS / Ph.D in Computer Science and Engineering

- Physical & Interactive Intelligence Lab (Advisor: Youngjae Yu)

Seoul National University Mar. 2020 – Feb. 2026
B.S. in Computer Science and Engineering

- GPA: **4.09/4.3 (≈ 4.28/4.5) (Major)** | 3.93/4.3 (≈ 4.13/4.5) (Overall, *Summa cum laude*)
- 2022-2024, Compulsory Military Service. Served in R.O.K Air Force.

Experience

Research Intern, Human-Centered Computer System Lab, SNU Apr. 2025 – Dec. 2025

- Proposed and implemented an agent using **Code-Text Action (CoTA)**, unifying textual reasoning with syntactic code execution; achieved a **1.6× accuracy improvement** over the ReAct baseline.
- Contributed to the *Lumo* project by developing AI agents and improving **API-based tool-calling**.

Software Engineering Intern, FADU Jul. 2024 – Aug. 2024

- Built a scalable RAG pipeline over company-wide technical documents, using multi-level chunking and robust document parsing (Upstage API) to improve retrieval quality and answer reliability.
- Implemented an abstraction layer for tool/provider integration, enabling flexible switching across multiple LLM providers and vector databases.

Projects

Open-Source Contribution, Samsung NNTrainer Oct. 2025 – Nov. 2025

- Implemented **gradient checkpointing**, reducing training memory usage by up to **46%**.
- Added lightweight optimizers: **Sophia** (**2**× faster convergence on MNIST) and **Lion** (**33%** lower training memory).

ARC-AGI (Abstraction & Reasoning Corpus) Solver Mar. 2025 – Jun. 2025

- Built an ARC-AGI solver for a Deep Learning course project; ranked **1st/35** on the hidden evaluation.
- Improved performance by fine-tuning **Qwen3-4B** with **LoRA**, curated augmentation, and a custom head; applied test-time scaling (test-time training, grid-wise majority voting) and a fine-grained loss for efficient few-shot learning.

Minimal Deep Learning Framework Jun. 2024 – Aug. 2024

- Built a PyTorch-like framework with define-by-run backpropagation and GPU support via CuPy.
- Implemented a dynamic computation graph and automatic differentiation engine from scratch.

Perspective-Switching RPG Game in Unity Sep. 2024 – Dec. 2024

- Led project architecture and pipeline setup with GitHub/Slack APIs and CI integration.
- Developed seamless perspective-switching mechanics between 2D and 3D in Unity.

Honors

- **YongWoon Foundation Scholarship (Full Undergraduate Tuition)** Mar 2020 – Dec 2026
- **Merit-based Scholarship** 2025

Leadership & Teaching

Teaching Assistant, Seoul National University Sep. 2022 -– Present

- Assisted in teaching the following courses:
  - Computer Programming (2022 Fall, Prof. Lee)
  - Logic Design (2024 Spring, Prof. Lee)
  - Programming Practice (2024 Fall, Prof. Jeon)
  - Basic Computing (2024 Fall, Prof. Kim; 2025 Spring, Prof. Yamada)

Skills

Programming Languages: Python, C/C++, Java, RISC-V

ML/AI: PyTorch, TensorFlow, LangChain, OpenAI Agents SDK

Others: Spring Boot, Django, ReAct