Sanggyu Lee

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Education

BS   **Seoul National University**, Computer Science and Engineering   Mar 2020 – Aug 2026
- GPA: **4.19 / 4.3**

    Georgia Institute of Technology, Computer Science   Jan 2025 – May 2025
- Exchange Student for Spring 2025

Experience

ROPAS (Programming Research Laboratory) ⬈ **(Prof. Kwangkeun Yi)**   Feb 2026 – present
Undergraduate Researcher
- Conducting a **Bachelor's thesis** on *programming systems for theatrical production* under the supervision of Prof. Kwangkeun Yi.

Jane Street Asia Limited ⬈   May 2025 – June 2025
Software Engineering Intern
- **Engineered** a *full-stack* internal tool using *open source graph visualization* library and *Bonsai* to visualize complex cash movements as an interactive graph, **reducing** the time required for data lineage analysis and debugging.
- *Contributed* to an *OCaml* codebase by applying *functional programming* principles and participating in peer *code reviews* to maintain code quality.

Architecture and Code Optimization Lab ⬈ **(Prof. Jae W. Lee)**   Apr 2024 – Aug 2024
Undergraduate Researcher
- Applied **HW-SW Co-Design** to build a *heterogeneous LLM inference system* using **CXL PNM**, achieving a **2x theoretical throughput gain**.
- Evaluated and optimized **fp8 rounding methods** on weight and activation parameters by analyzing *error expectations*.

Republic of Korea Army   Sept 2022 – Mar 2024
Soldier

FriendliAI Inc. ⬈   July 2022 – Aug 2022
Research Intern
- Expedited **NVIDIA CUDA GPU collective operations** running matrix multiplication in parallel, with a *speed comparable to the SOTA library*.

Whew-AI Inc.   July 2021 – June 2022
Director & **Co-Founder**
- Surpassed *SOTA scores* in **remote PPG** (heart rate estimation from facial video) through innovative research.
- Developed a **video chat application** with a built-in heart rate monitor, creating *a new avenue for remote communication*.

AI & Big Data Lab, Seoul National University Hospital (Prof. Du Hyun Ro)   Apr 2021 – Apr 2022
Researcher & Software Engineer
- Developed a **full-stack web service** for *surgical planning* by analyzing

AP X-ray images, streamlining the *pre-surgical workflow*.

- Enabled an *AI startup, Connecteve* ↗, to secure **seed funding** by delivering *core technologies and product demos*.

Projects

Hana Academy Seoul Timetable Optimization   July 2024 – Feb 2025

- Solved a **large-scale scheduling problem** for *600 students* with diverse course preferences, 60 teachers, and complex constraints using Google **OR-Tools** SAT solver
- Reduced computation time from **5000 CPU-hours to 12 CPU-hours** by applying advanced heuristics, making the solution feasible.

Awards

1st Place, 2024 Accelerator Programming Summer School

- Achieved **50,000x acceleration** of a *Variational Autoencoder (VAE) model*, demonstrating deep expertise in *optimization techniques*.

2nd Place, 2022 Cryptoanalysis Contest

- Successfully executed a **power analysis attack** on competition data.
- Awarded by the Director of Defense Intelligence Agency *(Lieutenant General)*.

2nd Place, 2021 SNU FastMRI Challenge

- Contributed ↗ to Facebook Research's *fastMRI repository* by researching *E2EVarNet* and *DFT techniques*.
- Awarded ₩5M (~USD 4K).

Gold Prize (2nd Place), 2021 International Student Car Competition (Autonomous Driving)

- Integrated **SLAM, vision, and path planning algorithms** to complete a real-world driving course with a *model car*.

Publications

A deep learning based automatic two-dimensional digital templating model for total knee arthroplasty.   Nov 2024

Park J, Kim S, Kim B, et al

10.1186/s43019-024-00240-7 ↗

Automated Detection of Surgical Implants on Plain Knee Radiographs Using a Deep Learning Algorithm   Nov 2022

Kim B, Lee DW, *Lee S*, et al

10.3390/medicina58111677 ↗

A Model Car for Autonomous Driving Education with Enhanced Perception and Maneuvering Ability   Sept 2020

J Moon, *S Lee*

Journal of Youth Engineering

Path Planning and Maneuvering Algorithm for Stable Rotation-Driving on Simple Solid Lanes   Sept 2019

S Lee, H Kim, J Byun, et al

Journal of Youth Engineering