Sewon Kim

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Objective

Optimal Control and **Robot Learning**. My goal is to build a broad-sense control framework for robotic systems that exceeds biological behavior, inspired and enhanced by model-based and learning-based methods.

Education

University of Seoul — *Mar 2022 – Aug 2027 (Expected)*
B.E. in Electrical and Computer Engineering, Minor in Mathematics — Seoul, South Korea
Advisor: Gyunghoon Park, Dohyun Kwon

Experience

Drone Researcher at **Institute of Innovation for Future Army, Republic of Korea Army** — *Jan 2025 – Jul 2026*, Daejeon, South Korea

AI Lead Engineer at **InBody AI Scale Team, InBody** — *Jan 2024 – Jan 2025*, Seoul, South Korea
InBody AI Scale [A4]

F1tenth Lead Researcher at **Control and Dynamic System Lab, University of Seoul** — *Mar 2023 – Dec 2024*, Seoul, South Korea
F1tenth [A3], Advisor: Gyunghoon Park

Projects

[A1] **Robotic Collaborative Assembling for Human-Centered Manufacturing** — *Nov 2025 – Present*
RoCo Challenge @ AAAI 2026

[A2] **Autonomous air purifing robot agent** — *Aug 2025 – Sep 2026*
4th Place (/200) ($2,200) — SK NAMUHX A1: Autonomous Navigation Path Optimization
Independently implemented full-stack autonomous navigation for indoor air purifing robots purely in NumPy, without using open-source code, covering MCL, MPPI, and Traveling Salesman Problem.

[A3] **F1tenth** — *Mar 2024 – Dec 2024*
5th Place (/12) — 22nd F1tenth Autonomous Grand Prix at CDC Milan 2024
Led the project with 2 undergrads and implemented a full-stack physical autonomous navigation system for racing completely from scratch, covering SLAM, MCL, Raceline Trajectory Optimization, MPPI.

[A4] **Cart pole system design and control by PID and NMPC** — *Jul 2024 – Sep 2024*
3rd Place (/25) ($220) — UOS ECE Innovation Fair
Independently developed a physical Cart-Pole system for $272, covering modeling, motor control, sensor integration, state estimation, embedded systems, and MPC.

[A5] **InBody AI Scale** — *Jan 2024 – Jan 2025*
CES Las Vegas 2025
Developed height estimation model (accuracy 99.4%) and face recognition system of "InBody AI Scale", fully automated body composition analyzer that reduces measurement time from 2 min to 40 sec.

[A6] **ECG data-driven cardiovascular diagnosis device** — *Jul 2023 – Jul 2023*
3rd Place (/12) ($1450) — InBody Hackathon 2023
Developed a fast prototype.

[A7] **Autonomous mission mobile robot** — *Jul 2023 – Jul 2023*
3rd Place (/20) ($220) — Object Detection-Based Solar Tracking Robot Challenge, Korea University

[A8] **Sidaeting** — *Mar 2022 – Jun 2022*
1,700 User Base
Implemented a matching algorithm that combinatorially optimizes collective happiness from users' ideal type data and developed the frontend for "Sidaeting", a dating service launched by UOSLIFE.

Skills

- **Languages:** Korean, English
- **Technical Languages:** C, C++, Java, JavaScript, Julia, Python, SQL, HTML, CSS
- **Technical Frameworks:** Isaac Sim·Lab, ROS1·2 (Melodic, Noetic, Foxy, Humble, Jazzy), MuJoCo, PyTorch