Jungsoo Lee

Ph.D. Student in Robotics

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Research Interests

Jungsoo Lee is a Ph.D. student in the Department of Robotics at Hanyang University, where he received his B.S. degree in Robotics Engineering and Master of Artificial Intelligence. His research focuses on **human-robot interaction (HRI)**, **human intent recognition**, and **robot learning**, investigating real-time human intent estimation frameworks for safe and intuitive human-robot collaboration. He also explores the integration of robot dynamics into learning frameworks to improve training data quality and model learning efficiency.

- **Human-Robot Interaction:** Development of interaction frameworks that enable safe and intuitive collaboration between humans and robotic systems through real-time human state understanding.
- **Intent Recognition Model:** Design and implementation of learning-based models for estimating human intent from multimodal sensor data to enhance robot responsiveness and adaptability.
- **Natural Language-based HRI:** Integration of large language models into robot control pipelines, enabling natural language commanding and bidirectional communication between humans and robots.
- **Robot Learning:** Integration of robot dynamics into learning frameworks to improve training data quality and learning efficiency, enabling more sample-efficient and physically consistent skill acquisition for robotic manipulation tasks.

Scientific Education

Hanyang University   Seoul, Republic of Korea
Ph.D. in Robotics   *Mar. 2026 – Present*

Hanyang University   Seoul, Republic of Korea
Master of Artificial Intelligence   *Sep. 2023 – Aug. 2025*

- Thesis: *Towards Robust Human-Robot Interaction: Bidirectional Intent Recognition for Intuitive Control and Efficient Perception*

Hanyang University (ERICA)   Ansan, Republic of Korea
B.S. in Robotics Engineering, GPA: 3.95 / 4.5   *Mar. 2017 – Feb. 2023*

Publications

Conference Papers

[1] J. Kim, J. Lee, and W. Kim, "An intuitive framework to minimize cognitive load in robotic control: A comparative evaluation of body parts," in *2024 21st International Conference on Ubiquitous Robots (UR)*, 2024, pp. 35–38.

[2] J. Kim, J. Lee, and W. Kim, "Transferable convolutional neural networks for imu-based motion gesture recognition in human-machine interaction," in *2024 24th International Conference on Control, Automation and Systems (ICCAS)*, 2024, pp. 61–66.

Research & Development Projects

Dual-arm and Hand Robot Project
Research Developer   *Jun. 2024 – Present*

- Development of a VR Hand Teleoperation System for Manipulation Skill Learning of Dual-Arm/Hand Robots, and Construction of Skill Learning Datasets.
- Development of a Collision-Aware Teleoperation System, Human Demonstration Dataset Construction, and Imitation Learning Model Training and Inference for Dual-Arm and Hand Robots.
- Responsible for dual-arm robot system development, model training, and inference.

Robot MCP Open Source Project

Software Developer   *Aug. 2025 – Feb. 2026*

- Development of Robot MCP, enabling bidirectional integration between AI systems and robots without modifying existing robot source code.
- Initial proposer and core developer of the project, responsible for overall code development and demonstrations across multiple robot platforms.

Digital Twin Information Model Project

Simulation Developer   *Sep. 2024 – Nov. 2024*

- Standardized information modeling for robot manipulation in digital twin–based indoor logistics environments.
- Implementation of indoor logistics robotics simulation pipeline utilizing the standardized information model in a simulation environment.

Undergraduate Coursework Projects

Pose Estimation for Interactive Metaverse Fitness   Hanyang University ERICA

Capstone Design Project   *Jul. 2021 – Jun. 2022*

- Development of Yoroke, a distributed system combining a remote imaging device and a handset device, enabling real-time human pose estimation in an interactive metaverse.
- Project outcome was presented and evaluated at the College of Engineering Capstone Fair, earning a Gold Award (Nov. 2022).
- Undergraduate Paper (in Korean): Human Pose Estimation for Interactive Metaverse System

Skills

- **Languages:** Korean (Native), English (Professional working proficiency), Japanese (Elementary proficiency)
- **Tools:** Python, C++, ROS 1/2, Isaac Sim, Isaac Lab