Jiyang Lee

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Research Interests

Robot Learning, Generative Robot Policies, Vision-Language-Action Models, World-Action Models

Research Experience

Seoul National University, Seoul, Korea *Mar 2024 – Present*
Graduate Researcher (Advisor: Prof. Seong-Woo Kim)

- Generative robot policies on real robots (with Prof. Roya Firoozi, University of Waterloo): fine-tuned and evaluated $\pi_{0.5}$ (full and LoRA), Diffusion Policy, and OpenVLA in LIBERO and on a Kinova Gen3 robot, with an end-to-end pipeline from VR-teleoperated demonstration collection (PICO, Meta Quest 3) to closed-loop deployment.
- Conducted controlled studies of generative policies in multi-object manipulation settings and implemented inference-time policy guidance using learned visual dynamics.
- Humanoid (Unitree G1) data generation, since Sep 2026: processed retargeted motion data (OMOMO, BONES-SEED), annotated eight indoor 3D Gaussian Splatting scenes, built egocentric rendering in Isaac Sim, and validated motions in MuJoCo.

Education

Seoul National University, Seoul, Korea *Mar 2024 – Present*
Ph.D. Candidate in Civil and Environmental Engineering
Advisor: Prof. Seong-Woo Kim
Expected graduation: 08/2028

University of Waterloo, Waterloo, Canada *Jan 2026 – Jul 2026*
International Visiting Graduate Student, Electrical and Computer Engineering
Advisor: Prof. Roya Firoozi

Sogang University, Seoul, Korea *Mar 2015 – Feb 2017*
Master of Science in Mechanical Engineering
Advisor: Prof. Cheol-soo Lee
Graduate Research Assistant, CAD/CAM Lab (03/2015–02/2017)

Sogang University, Seoul, Korea *Mar 2011 – Feb 2015*
Bachelor of Science in Mechanical Engineering
Undergraduate Research Assistant, CAD/CAM Lab (12/2013–02/2015)

Professional Experience

LG Display Co., Ltd., Paju, Korea *Dec 2020 – Mar 2024*
Research Engineer, Vision Algorithm Team

- Developed a few-shot classification model for OLED defect images.
- Built an AI-based automatic anomaly detection and alarm system.
- Accelerated legacy rule-based anomaly system with CUDA, improving speed by 7 times.

Korea Institute of Science and Technology (KIST), Seoul, Korea *Oct 2018 – Feb 2020*
Robotics Researcher

- Designed and assembled a quadruped robot.
- Developed a panoramic-view system for a firefighting armored robot.
- Conducted UWB-based robot swarm localization experiments.

CSCAM Co., Ltd., Gwangju, Korea *Jan 2017 – Sep 2018*
CNC Department

- Built vision and XRF inspection machines and OLED line loading equipment.

Publications

Under Review

- **Jiyang Lee**, Roya Firoozi, and Seong-Woo Kim, "Blind review," submitted to IEEE International Conference on Robotics and Automation (ICRA), 2027.

Journals

- **Lee, J.Y.** and Lee, C.S. (2018). *Path planning for SCARA robot based on marker detection using feature extraction and labelling.* International Journal of Computer Integrated Manufacturing, 31(8), 769-776.
- **Lee, J.Y.**, Lee, D.G., and Lee, C.S. (2017). *Development of Robotic Dispensing System for Radiopharmaceuticals using SCARA Robot.* Journal of the Korean Society of Manufacturing Technology Engineers, 26(5), 441-449. [Best Paper Award]

Conferences

- Chan Kim, Keonwoo Kim, Mintaek Oh, Hanbi Baek, **Jiyang Lee**, et al., "E2Map: Experience-and-Emotion Map for Self-Reflective Robot Navigation with Language Models," IEEE ICRA, Atlanta, USA, May 2025.
- Kim, M., **Lee, J.Y.**, et al., "A Robust Position Estimation Algorithm under Unusual Large Range Errors," IEEE ROMAN, New Delhi, India, 2019.
- **Lee, J.Y.** and Lee, C.S., "Path planning for SCARA robot based on marker detection using feature extraction, labeling, and inverse perspective transform" 26th International Conference on Flexible Automation and Intelligent Manufacturing, Seoul, 2016.

Awards

- Best Paper Award, Korean Society of Manufacturing Technology Engineers, 2017

Leadership and Service

Conference Reviewer *2026 – Present*
IEEE IROS 2026, IEEE ICRA 2027

SNU SOLO Solar Car Team, Seoul National University *2025*
Advisory Leader, 2025 Bridgestone World Solar Challenge, Australia

Additional Information

- **Robot Learning**: $\pi_{0.5}$ (openpi), Diffusion Policy, OpenVLA, LIBERO, MimicGen, Isaac Sim, MuJoCo
- **Programming / ML**: Python, C++, PyTorch, OpenCV, CUDA
- **Mechanical Design**: Autodesk AutoCAD, Inventor, SolidWorks