

YOUNGJIN HONG

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TECHNICAL FOCUS

Robotics, Deep Learning, and Vision-Language Systems: Developing scalable frameworks for multimodal perception and control.

EDUCATION

University of Minnesota (UMN)

Ph.D. Electrical Engineering

Minneapolis, MN, USA

Sep. 2024 – Present

Sungkyunkwan University (SKKU)

M.S. in Mechanical Engineering

B.S. in Mechanical Engineering

Suwon, Korea

Mar. 2022 – Feb. 2024

Mar. 2016 – Feb. 2022

WORK EXPERIENCE

Robot Research Assistant [[Website](#)]

Minneapolis, MN

Choice Robotics Lab, University of Minnesota

Sep. 2024 – Present

- Developed vision- and language-guided robotic manipulation pipelines integrating action and spatial reasoning.
- Designed a self-learning framework enabling robots to autonomously generate and refine training data.

Robot Research Engineer [[Website](#)]

Seoul, Korea

Hanwha Aerospace, Manned-Unmanned Teaming (MUM-T) Research Center

Jan. 2024 – Jul. 2024

- Built Unmanned Ground Vehicle (UGV) simulation environments with Isaac Sim for vision-based autonomy.
- Contributed to a defense proposal for next-generation unmanned ground vehicle technologies.

SELECTED PROJECTS

Learning to Describe Manipulation Tasks from Human Demonstrations

Jun. 2025 – Oct. 2025

- Proposed and implemented a self-improving Vision-Language-Action model integrating action-language cycles.
- Optimized multimodal fine-tuning pipelines to enhance robot task understanding and action grounding.

Development of Service Robot Technologies for Cleaning a Table

Jul. 2022 – Dec. 2024

- Developed a learning-based 2D dish push planner for dishware with unknown physical properties.
- Automated synthetic train data using Isaac Gym simulator to train the push planning network.

Development of Cloud Robot Intelligence Augmentation, Sharing, and Framework

Feb. 2022 – Dec. 2022

- Designed a cloud-based robot learning framework with ROS-SSH and Docker. [[Website](#)]

SELECTED PUBLICATIONS / PRESENTATIONS

Youngjin Hong*, Houjian Yu* (*equal contribution) et al., "LACY: A Vision-Language Model-based Language-Action Cycle for Self-Improving Robotic Manipulation", *under review at ICRA 2026*. [[Website](#)]

Mingen Li, Houjian Yu, Yixuan Huang, Youngjin Hong, Hantao Ye, Changhyun Choi. "Hierarchical DLO Routing with Reinforcement Learning and In-Context Vision-language Models", *under review at ICRA 2026*. [[Website](#)]

Youngjin Hong et al, "Vision-based Stable 2D Planar Pushing of Dishware with 6-DOF Manipulator," *ECCOMAS Thematic Conference on Multibody Dynamics*, 2023. [[Website](#)] [[Paper](#)] [[Demo](#)]

Youngjin Hong et al, "Stable Dishware Pushing via Convolutional Neural Networks," *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2023. (*Late Breaking Results*) [[Website](#)] [[Paper](#)] [[Demo](#)]

SKILLS

Programming: Python, MATLAB, C++

Deep Learning and Robotics: PyTorch, OpenCV, ROS, HuggingFace, Issac (Gym & Sim), Gym, MuJoCo, CoppeliaSim

Courses: Intelligent Robotics, Robot Vision, Deep Learning, Reinforcement Learning, Image Processing, Advanced Topics in Generative AI and Conditional Generation, Optimization Theory

ADDITIONAL INFORMATION

Patent: Multi-Modal Gripper with Foldable Suction Cup (KR 10-2023-0169750, published 2025)

Teaching: Teaching Assistant for **Robot Vision** (Fall 2025)