

Wooseok Oh

Contact Information

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Research Interests

AI, Robotics, VLA, High-Level Planning, Humanoid

Education

- 2020 – Now **Ph.D. progress** in Electrical and Computer Engineering (expected Feb. 2027) at **SNU**
-GPA: 3.83 / 4.3
- 2016 – 2020 **Bachelor's degree** of Electrical and Computer Engineering at **SNU**
-GPA: 3.59 / 4.3

Research Experience

2020 - 2021	Biomimetic Recognition Technology, BMRR12 - Funded by Agency for Defense Development (ADD)
2020 - 2021	Development of Brain-Inspired AI with Human-Like Intelligence - Funded by the Institute of Information & communications Technology Planning & Evaluation(IITP)
2020 - present	[SW Star Lab] Robot Learning: Efficient, Safe, and Socially-Acceptable Machine Learning - Funded by the Institute of Information & communications Technology Planning & Evaluation(IITP)
2020 - 2022	Development of Brain-Inspired AI with Human-Like Intelligence - Funded by the Institute of Information & communications Technology Planning & Evaluation(IITP)
2022 - 2026	General-Purpose Deep Reinforcement Learning Using Metaverse for Real World Applications - Funded by National Research Foundation (NRF)
2023 - present	Development of Training and Inference Methods for Goal-Oriented Artificial Intelligent Agents - Funded by the Institute of Information & communications Technology Planning & Evaluation(IITP)
2024 - present	Development of Complex Task Planning Technologies for Autonomous Agents - Funded by the Institute of Information & communications Technology Planning & Evaluation(IITP)
2024 - 2025	Development of Exploration Technologies Using 3D Scene Graph - Funded by Hyundai Motor Group Robotics LAB
2026 - present	Embodiment-Agnostic Intelligence and Knowledge Transfer System for Autonomous Complex Task Execution in Heterogeneous Humanoids - Funded by National Research Foundation of Korea (NRF)

Publications

■ International Journals

- Hogun Kee, **Wooseok Oh**, Minjae Kang, Hyemin Ahn, and Songhwai Oh, "Tidiness Score-Guided Monte Carlo Tree Search for Visual Tabletop Rearrangement," IEEE Robotics and Automation Letters,

vol. 10, no. 10, pp.10090-10097, Oct. 2025.

- **Wooseok Oh**, Hwiyeon Yoo, Timothy Ha, and Songhwai Oh, "Local Selective Vision Transformer for Depth Estimation Using a Compound Eye Camera," Pattern Recognition Letters, vol. 167, pp. 82-29, Mar. 2023. (2022 IF: 5.1)

■ International Conference

- Hogun Kee*, **Wooseok Oh***, Jooyoung Kim, Jaeyeon Jeong, Hyewoo Jeong, Hyeondal Son, Ho Sung Lee, Minjae Kang and Songhwai Oh "Learning Humanoid Loco-Manipulation with Responsibility-Induced Specialized Experts for Vision-Language-Action Models." In Proc. of IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2026 ([Accepted](#))
- **Wooseok Oh**, Hogun Kee and Songhwai Oh "Language-Guided Hierarchical Planning with Scene Graphs for Tabletop Object Rearrangement," in Proc. of IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Oct. 2025.
- Gunmin Lee, **Wooseok Oh**, Jeongwoo Oh, Seungyoun Shin, Dohyeong Kim, Jaeyeon Jeong, Sungjoon Choi, and Songhwai Oh "Semi-Supervised Imitation Learning with Mixed Qualities of Demonstrations for Autonomous Driving," in Proc. of the International Conference on Control, Automation and Systems (ICCAS), Nov. 2022.
- Jeongwoo Oh, Gunmin Lee, Jeongeun Park, **Wooseok Oh**, Jaeseok Heo, Hojun Chung, Do Hyung Kim, Byungkyu Park, Chang-Gun Lee, Sungjoon Choi, and Songhwai Oh, "Towards Defensive Autonomous Driving: Collecting and Probing Driving Demonstrations of Mixed Qualities," in Proc. of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Oct. 2022.
- **Wooseok Oh**, Hwiyeon Yoo, Timothy Ha, and Songhwai Oh, "Vision-Based 3D Reconstruction Using a Compound Eye Camera," in Proc. of the International Conference on Control, Automation and Systems (ICCAS), Oct. 2021.
- Gunmin Lee, Dohyung Kim, **Wooseok Oh**, Kyungjae Lee, and Songhwai Oh, "MixGAIL: Autonomous Driving Using Demonstrations with Mixed Qualities," in Proc. of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Oct. 2020.

*equal contribution

■ Domestic Conference

- 오우석, 오성희, "Effective Ensemble Methods for Skeleton-Based Action Recognition Using Extended Hierarchically Decomposed Graphs", 한국인공지능학회 하계학술대회, Aug. 2024.
- 오우석, 오성희, "Does Vision-Language Transformers Learn Multimodal Representations for Object Detection?", 인공지능 하계학술대회, Aug. 2022.

Technical Skills

- Language : python,
- Framework/Libraries : PyTorch, Numpy, ROS
- Simulation Tools : Mujoco, Pybullet, Isaac Sim, Gazebo

Teaching

- Introduction to Intelligent Systems (430.457) Spring 2020 (Seoul National University, TA)