

Sungjun Heo

📍 Ulsan, Republic of Korea 🔗 <https://rml.unist.ac.kr/> in Sungjun Heo

Education

Integrated M.S.-Ph.D.	Ulsan National Institute of Science and Technology (UNIST) - Graduate School of Artificial Intelligence - Robotics & Mobility Laboratory of Prof.J Jeon - Research Field : End-to-End Autonomous Driving, Reinforcement Learning based Planning, Robotics. - GPA : 4.0 / 4.3	Mar 2024 -
B.S	Ulsan National Institute of Science and Technology (UNIST) - Department of Electrical Engineering - Early Graduation(by one year) - GPA : 3.6 / 4.3 , Total credits : 127	Mar 2021 - Fed 2024

Research Interest

Autonomous Driving(AD)

- RGB based End-to-End (E2E) driving, Trajectory planning, Spatiotemporal fusion model

Robot manipulation

- Learning based manipulation, Multi-Agent, Data aggregation

Reinforcement Learning(RL)

- Hierarchical RL, Curriculum RL, Offline data optimization

Publications

Sungjun Heo and J. Jeon, " Predicted State-Based Hierarchical Reinforcement Learning for Long-Term Decision Making in Urban Dynamic Scenarios " - Proceeding in IEEE Int. Veh. Sym. (Flagship Conference of IEEE ITSS - IV 2025), pp. 1164–1170.	Fed 2025
H. Jeong, E. Kim, Sungjun Heo , S. Kim, S. Lee, J. Shin at el., " Deployment-Oriented End-to-End Autonomous Driving: Enhancing Closed-Loop Stability with a Lightweight Framework " - Accepted in IEEE Int. Veh. Sym. (Flagship Conference of IEEE ITSS - IV 2026) / (Oral Presentation, Top 8.5% paper)	Oct 2025
Sungjun Heo and J. Jeon, " SHIFT-RL: Sensor-driven Hierarchical Information Fusion Transformer for BEV-based Maneuvering in Dense Multi-lane Environments " - Accepted; to be presented at IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), (Major Conference of IEEE RAS - IROS 2026)	Mar 2026
Sungjun Heo , H. Jeong, E. Kim, H. Lee, J. Lee, S. Lee, at el., " Capacity-Controlled Enforcement of Sparse Traffic-Light Cues for Rule-Conformant End-to-End Driving " - Accepted; to be presented at IEEE International Conference on Systems, Man, and Cybernetics (SMC), (Flagship conference of the IEEE SMC Society - 2026 SMC)	April 2026
Sungjun Heo and J. Jeon, " Decoupling Actor and Critic Replay for Offline Reinforcement Learning with Three-Factor Selection " - Accepted; to be presented at IEEE International Conference on Systems, Man, and Cybernetics (SMC), (Flagship conference of the IEEE SMC Society - 2026 SMC)	May 2026

Awards and Achievements

Academic Achievement Award	2021
Undergraduate academic achievement excellence award in 2021	
Undergraduate Research Award (Top 5 / All graduation students)	Dec 2023
Research Title : Autonomous Driving Waypoint-generation based on Vehicle Kinematics.	
3rd place in Preliminary Round (3 / 16 teams) - Awarded \$3,600	Mar 2025
- Preliminary Round of 2025 Hyundai Motor Group's Autonomous Driving Challenge - RGB camera based End-to-End Mission-based Autonomous driving challenge in K-City	
1st place in 2025 Hyundai Motor Group's Autonomous Driving Challenge (1 / 16 teams) - Awarded \$22,000 + (Special privilege) Autonomous driving field trip	Sep 2025
- Final 2025 Hyundai Motor Group's Autonomous Driving Challenge - RGB camera based End-to-End Full-Self-Driving in K-City	
Excellence Award AI Tech Open Workshop	Oct 2025
- UNIST AI Tech Open Workshop Team FAST - Research title : Development of an End-to-End Autonomous Driving Model Based on a High-Dimensional Simulator	
Grand Prize - Brain To Society, U-Challenge Festival (1 / 96 teams) - Awarded \$3,600	Dec 2025
- Brain To Society : Future Mobility part - Title : Sensor-driven Hierarchical Information Fusion Transformer for BEV-based Maneuvering in Dense Multi-lane Environments	
IEEE SMC 2026 Student and Young Professional Travel Grant - Awarded \$600	Aug 2026
IEEE Systems, Man, and Cybernetics Society	

Work Experience

Paper Reviewer	
3 Papers in 2025 IEEE INTELLIGENT VEHICLES SYMPOSIUM 2 Papers in 2025 IEEE International Conference on Intelligent Transportation Systems 2 Papers in 2026 IEEE INTELLIGENT VEHICLES SYMPOSIUM 2 Paper in 2026 IEEE/RSJ International Conference on INTELLIGENT ROBOTS & SYSTEMS	
AI Innovation Park Internship	Jul - Sep 2024
Development of a time-series-based AI model for power prediction	

Project

Major Projects & Challenge	
Preliminary Round : 2025 Hyundai Motor Group's Autonomous Driving Challenge	Sep 2024 - Mar 2025
- Position : Team Member(model framework, dataset) - RGB camera based End-to-End Mission-based Autonomous driving challenge in K-City	
Final Round : 2025 Hyundai Motor Group's Autonomous Driving Challenge	Apr 2025 - Oct 2025
Position : Team Member(rule-based expert driving dataset, model framework)	

- RGB camera based End-to-End Full-Self-Driving in K-City

2025 Brain to Society : Future mobility

Jul - Dec 2025

- Position : Team Leader
- Project Title : Sensor-driven Hierarchical Information Fusion Transformer for BEV-based Maneuvering in Dense Multi-lane Environments

2026 Brain to Society : Future mobility

Jun - Dec 2026

- Position : Team Leader
- Project Title : Capacity-Controlled Enforcement of Sparse Traffic-Light Cues for Rule-Conformant End-to-End Driving

• Academic Projects

Low-cost Robot Manipulation (Robotics: Science and Systems)

Dec 2024

- Position : Team Member
- Paper Title : Demonstrating a Vision-Based AI Robot for Strategic Board Games
- Project page: [link](#) 

3D Vision and Machine Cognition

Jun 2025

- Position : Team Member
- Project Title : Traffic-Light and Boundary-Aware BEV Learning from Multi-Camera Images

2D Vision: Human Pose Estimation

Jun 2025

- Title : SoftEdge-PoseContrast View Conditioned Human-Pose Classifier with Contrastive Learning