Sangwoo HAN

soonawg@gmail.com
Personal Website
Google Scholar
GitHub

Incoming Graduate Student, DGIST ROBIN Lab
Department of Robotics and Mechanical Engineering, DGIST, South Korea *(Incoming Spring 2027)*
Department of Artificial Intelligence Software, Cheongju University, South Korea

Objective

Incoming M.S./Ph.D. student in the Department of Robotics and Mechanical Engineering at DGIST (ROBIN Lab, Spring 2027), currently a senior undergraduate in Artificial Intelligence Software at Cheongju University. Broadly interested in robust embodied AI systems, with a core focus on robot learning through Offline RL, Model-Based RL (MBRL), and World Models, as well as Vision-Language-Action (VLA) models for manipulation, emphasizing effective Sim2Real transfer. Additionally, interested in sensor fusion for building robust and adaptive control and perception in robotic agents.

Education

Mar. 2027–Present **M.S./Ph.D. Student, Robotics and Mechanical Engineering**, DGIST, Republic of Korea.
ROBIN Lab Advisor: Prof. Yongseok Lee

2023–Feb. 2027 **B.S., Artificial Intelligence Software**, Cheongju University, Republic of Korea.
GPA: 4.38/4.50 Expected graduation: Feb. 2027

Research Interests

- Robot foundation models and Vision-Language-Action (VLA) models for dexterous manipulation and embodied intelligence
- Robot learning via Offline Reinforcement Learning (Offline RL), Model-Based RL (MBRL), and World Models
- Effective Sim-to-Real transfer for complex manipulation tasks
- Sensor fusion and adaptive control strategies for robust robot perception and action

Research Appointments

Mar. 2027–Present **Graduate Researcher**, ROBIN Lab, DGIST
Advisor: Prof. Yongseok Lee

Jun. 2026–Feb. 2027 **Research Intern**, ROBIN Lab, DGIST
Advisor: Prof. Yongseok Lee

Sep. 2025–Feb. 2027 **Undergraduate Researcher**, VICA Lab, Cheongju University
Advisor: Prof. Hyunguk Choi

Research Projects

Jul. 2026–Jan. 2027 **Development of AI Vision-Based Automatic Pattern and Defect Detection and Analysis Technology for Wafer Master Substrates**
Industry-Academic Project with KAPS & RISE Chungbuk AI Center

Nov. 2025–Feb. 2026 **Development of High-Performance OCR System for Industrial LOT Cards**
Industry-Academic Project with International Electric Co. & RISE Chungbuk AI Center
- Developed a robust OCR-to-table pipeline handling blur, glare, and skew in industrial LOT cards.
- Implemented layout-based region clustering, re-OCR, and rule-based validation to ensure reliable CSV/XLSX export.

Nov. 2025–Dec. 2025 **Real-time Physical Document Digitization for Video Conferencing**
Industry-Academic Project with Gooroome
- Built pre-/post-processing OCR pipelines for low-resolution webcam documents, reducing Levenshtein edit distance by 3.2× over baseline.

Skills

Programming	Python (Proficient), C++ (Familiar), JavaScript (Familiar)
Robot Platforms	Rainbow Robotics RB5, Elephant Robotics myCobot 630 Pro
End-effectors & Sensors	Robotiq 2F-85, myCobot Gripper F100, myCobot Air Compressor (pneumatic), AFT-200 F/T sensor, Intel RealSense
Robotics	ROS2, Nav2, MoveIt 2, Gazebo, Webots, Isaac Sim, Drake, MJX
AI/ML	PyTorch, JAX
Tools	Git, Linux (Ubuntu/WSL2), Docker
Languages	Korean (Native), English (Intermediate), Japanese (Intermediate), German (Beginner)

Publications & Manuscripts

Publication notation	
†	Corresponding author.
Sangwoo HAN	The CV author's name is shown in bold.

Peer-Reviewed Journal Articles

J1. **Sangwoo HAN**, and H. Choi†, "ROEP: A Robotics-Oriented Evaluation Protocol for Deployment-Facing Vision-Language-Action Manipulation Policies," *MDPI Sensors*, vol. 26, no. 15, p. 4757, 2026.
We propose a robotics-oriented evaluation protocol (ROEP) designed to systematically assess deployment-facing Vision-Language-Action (VLA) manipulation policies under real-world perturbations and operational conditions.

Submitted Manuscripts (Under Review)

S1. J. Lee, Y. Cheon, **Sangwoo HAN**, C. Yu, H. Lee, J. Lee, and Y. Lee†, "PIVOT: Part-Wise Identification of Volume-Aware Density for Articulated Objects," submitted to *IEEE International Conference on Robotics and Automation (ICRA 2027)*, 2026.

Honors, Awards & Scholarships

2023 – 2026	**Academic Excellence Scholarship (Dean's List)**, Cheongju University Merit-based tuition scholarship awarded for multiple consecutive semesters, including achieving highest academic standing (Ranked 1st in Department).
2026	**Excellence Award (1st Runner-up)**, Capstone Design Competition, Cheongju University Awarded for outstanding engineering design and implementation in senior capstone project.
2026	**Superiority Award**, AI-TeachUP Competition, Cheongju University Recognized for high-quality project implementation and demonstration in AI application development.
2026	**SW Talent Outstanding Achievement Scholarship**, Cheongju University Awarded by the SW Centered University Program for exceptional performance (Grant: 2,000,000 KRW / ≈$1,480 USD).
2026	**Academic Excellence Scholarship**, Chungbuk Institute for Talent & Lifelong Education Merit-based regional talent scholarship awarded by Chungbuk provincial government (Grant: 2,000,000 KRW / ≈$1,480 USD).

Academic Services

2026	**Workshop Reviewer**, Conference on Robot Learning (CoRL 2026) Workshop on Everything Beneath the Policy (WEBP)

Extracurricular Activities

Sep. 2025–Present	**Member**, CPR (AI Software Engineering Student Club), Cheongju University