

Seonghyeon Lim

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Ph.D. Student in Electrical Engineering

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RESEARCH INTERESTS

My research focuses on building efficient and robust legged manipulation systems, including humanoids and quadruped manipulators. To this end, I develop humanoid whole-body controllers, reinforcement learning-based manipulation systems, and offline reinforcement learning algorithms. My recent work explores cross-embodiment learning, especially UMI-to-humanoid transfer, for more efficient data collection.

EDUCATION

Korea Advanced Institute of Science and Technology (KAIST) — Daejeon, South Korea
Ph.D. Student in Electrical Engineering — Sep. 2026 – Present
Advisors: Kimin Lee and Hyun Myung

Korea Advanced Institute of Science and Technology (KAIST) — Daejeon, South Korea
M.S. in Electrical Engineering — Sep. 2024 – Aug. 2026
Advisor: Hyun Myung

Sogang University — Seoul, South Korea
B.S. in Mechanical Engineering — Mar. 2018 – Aug. 2024

SELECTED PUBLICATIONS

[1] Seonghyeon Lim, K. Lee, and H. Myung. Adaptive Value Anchoring for Long-Horizon Stitching in Offline Reinforcement Learning. International Conference on Learning Representations **(ICLR)**, 2027, Under review.

[2] Seonghyeon Lim, H. Lee, M. Kim, K. Lee, and H. Myung. MAPO: Mixture of Experts with Alternating Policy Optimization for Universal Humanoid Motion Tracking. Conference on Robot Learning **(CoRL)**, 2026. **[Project]**

[3] Seonghyeon Lim, H. Lee, S. Lee, I. M. A. Nahrendra, and H. Myung. OpenHEART: Opening Heterogeneous Articulated Objects with a Legged Manipulator. IEEE International Conference on Robotics and Automation **(ICRA)**, 2026. **Oral Presentation (216 / 2,779 = 7.8%).** **[Project]**

COMPETITIONS

Quadruped Robot Challenges, ICRA 2025 — May 2025
Second Place — Atlanta, USA
Organizer: IEEE Robotics and Automation Society
Mission: Enable autonomous quadruped locomotion over challenging terrain.
Contributions:

- Developed an RL-based whole-body controller.
- Integrated electrical components.

International Genetically Engineered Machine Competition (iGEM 2022) — Nov. 2022
Gold Medal — Paris, France
Organizer: iGEM Foundation
Nominations: Best Software, Best Hardware, and Best Presentation.
Mission: Autonomous biological experiment system using a robotic arm.
Contributions:

- Manipulation skill design (e.g., pipetting and incubator operation).

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[2] Seonghyeon Lim, H. Lee, M. Kim, K. Lee, and H. Myung. MAPO: Mixture of Experts with Alternating Policy Optimization for Universal Humanoid Motion Tracking. Conference on Robot Learning **(CoRL)**, 2026. **[Project]**

[3] Seonghyeon Lim, H. Lee, S. Lee, I. M. A. Nahrendra, and H. Myung. OpenHEART: Opening Heterogeneous Articulated Objects with a Legged Manipulator. IEEE International Conference on Robotics and Automation **(ICRA)**, 2026. **Oral Presentation (216 / 2,779 = 7.8%).** **[Project]**

[4] S. Jang, D. Kim, Seonghyeon Lim, and H. Myung. Conservative Visual-Geometric Fusion for Off-Road Traversability Estimation. International Conference on Control, Automation and Systems **(ICCAS)**, 2026.

[5] S. Kwon*, Seonghyeon Lim*, H. Lee, and H. Myung. Reinforcement Learning-Based Inverse Kinematics Compensation for Robust Manipulation under Payload Variation and Singularity. International Conference on Control, Automation and Systems **(ICCAS)**, 2025.

[6] J. Shim, Seonghyeon Lim, and C. Nam. ST-CBS: Spatio-Temporal Conflict-Based Search in Continuous Space for Multi-Agent Pathfinding. ACM/SIGAPP Symposium on Applied Computing **(SAC)**, 2025.

[7] Seonghyeon Lim*, H. Lee*, S. Lee, and H. Myung. Learning Robust Whole-Body Control for Legged Manipulation via Learned Terrain Estimation. International Conference on Control, Automation and Systems **(ICCAS)**, 2024.

[8] J. Hamm*, Seonghyeon Lim*, J. Park, J. Kang, I. Lee, Y. Lee, J. Kang, Y. Jo, J. Lee, S. Lee, A. Brilian, S. Lee, and K. Shin. A Modular Robotic Platform for Automated and Remote Operation of Chemical and Biological Experiments in University Laboratories. Advanced Intelligent Systems, 2024. **Featured on the inside cover.** **[Project]**

[9] J. Jeong, I. Kim, Y. Choi, Seonghyeon Lim, S. Kim, H. Kang, D. Shah, R. Baines, J. Booth, R. Bottiglio, and S. Kim. Spikebot: A Multigait Tensegrity Robot with Linearly Extending Struts. Soft Robotics, 2023.

* Equal contribution.

ROBOT PLATFORM EXPERIENCE

Humanoids	G1 (29 DoF and 23 DoF)
Quadrupeds	Go2, A2
Manipulators	ViperX, Nero
Quadruped Manipulators	Go2 + ViperX, A2 + Nero