

Seokju Lee

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EDUCATION

Korea Advanced Institute of Science and Technology (KAIST) <i>Ph.D. Candidate - Mechanical Engineering; Advisor: Prof. Kyung-Soo Kim</i> <i>Mechatronics, Systems and Control (MSC) Lab</i>	Daejeon, South Korea Mar 2025 – Present
Korea Advanced Institute of Science and Technology (KAIST) <i>M.S. - Mechanical Engineering; Advisor: Prof. Kyung-Soo Kim</i> <i>Mechatronics, Systems and Control (MSC) Lab</i> <i>M.S. Thesis: Slip-Compensated Legged Robot State Estimation Using Latent Space Attention Mechanisms</i>	Daejeon, South Korea Mar 2023 – Feb 2025
Ulsan National Institute of Science and Technology (UNIST) <i>B.S. - Electrical Engineering; GPA: 4.07/4.3; Major GPA: 4.13/4.3</i> <i>Summa Cum Laude, Three-Year Early Graduation, Graduate Representative</i>	Ulsan, South Korea Mar 2020 – Feb 2023

PUBLICATIONS

Journal Articles

- [1] **Seokju Lee** and Kyung-Soo Kim. Attention-Based Neural-Augmented Kalman Filter for Legged Robot State Estimation. *IEEE Robotics and Automation Letters (RA-L)*. (Under Review)
- [2] Yunji Jung, **Seokju Lee**, Tair Djanibekov, Jong Chul Ye, and Hyunjung Shim. Text Optimization with Latent Inversion for Non-Rigid Editing. *Pattern Recognition Letters*, 2025.
- [3] Hyun-Bin Kim, **Seokju Lee**, Byeong-Il Ham, Keun Ha Choi, and Kyung-Soo Kim. Temperature Compensation Method of Six-Axis Force/Torque Sensor Using Gated Recurrent Unit. *IEEE Sensors Journal*, 2025.

Conference Papers

- [1] **Seokju Lee**, Hyun-Bin Kim, and Kyung-Soo Kim. Legged Robot State Estimation Using Invariant Neural-Augmented Kalman Filter with a Neural Compensator. In *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*. pages 15445-15452. IEEE, 2025.
- [2] **Seokju Lee**, Seunghun Jeon, and Jemin Hwangbo. Learning Legged Mobile Manipulation Using Reinforcement Learning. In *International Conference on Robot Intelligence Technology and Applications*. pages 310-317. Cham: Springer International Publishing, 2022.

HONORS AND AWARDS

- First Place (Winner), Wheeled-Legged Robot Competition, IROS 2025 Workshop
- UNIST Best Students Awards (Minister of Science and ICT Award)
- Presidential Science Scholarship
- Social Venture Contest LG Sponsorship Award
- Daejeon Design Thinking Hackathon 1st Award (Minister of Environment Award)

EXPERIENCE

Korea Advanced Institute of Science and Technology (KAIST) <i>Robotics and Artificial Intelligence Lab, Research Intern</i> <ul style="list-style-type: none">◦ Learning legged mobile manipulation using reinforcement learning (Advisor: Prof. Jemin Hwangbo) <i>Teaching Assistant</i> <ul style="list-style-type: none">◦ Linear System Control, Multidisciplinary Capstone Design, Mechanism Design	Daejeon, South Korea Jun 2022 – Aug 2022 Mar 2025 – Dec 2025
Aalto University <i>Exchange Student</i> <ul style="list-style-type: none">◦ Studying big data and machine learning	Espoo, Finland Jan 2022 – Feb 2022
Ulsan National Institute of Science and Technology (UNIST) <i>Robotics and Mobility Lab, Research Intern</i> <ul style="list-style-type: none">◦ Develop the Autonomous Platform to deliver service using sensor fusing (Advisor: Prof. Jeong hwan Jeon) <i>AI Graduate School Creative Self-Challenge Contest</i> <ul style="list-style-type: none">◦ Team Leader; Lead 3D modeling and control research for quadrotor <i>Teaching Assistant</i> <ul style="list-style-type: none">◦ Calculus I, Calculus II	Ulsan, South Korea Dec 2021 – Nov 2022 May 2021 – Feb 2022 Sep 2021 – Nov 2022

PROJECTS

- Humanoid Locomotion:** (Work with Korea Institute of Machinery & Materials (KIMM)) Research on strategies for stable locomotion of humanoid robotic platforms in complex terrain using reinforcement learning (Jul 2025 – Sep 2025)
- Aerial Robot:** (Work with Agency for Defense Development (ADD)) Ultra-high Efficiency Surveillance Reconnaissance Autonomous Flying Robot based on Structural Battery (June 2023 – Nov 2025)
- Exoskeleton:** (Work with Korea Institute of Robotics and Technology Convergence (KIRO)) Mutually linked modular waist, shoulder, and knee muscle assist Exosuit technology (Jan 2024 – Dec 2024)

SKILLS SUMMARY

- Languages:** Python, C, C++, MATLAB, ROS
- Simulators:** Isaac Gym, Isaac Sim, Raisim, Gazebo

PROFESSIONAL SERVICES

- Reviewer:** ICRA (2024, 2025), IROS (2025), Artificial Intelligence Review