

Seokju Lee

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EDUCATION

Korea Advanced Institute of Science and Technology (KAIST)

*Ph.D. Candidate - Mechanical Engineering; Advisor: Prof. Kyung-Soo Kim
Mechatronics, Systems and Control (MSC) Lab*

Daejeon, South Korea

Mar 2025 – Present

Korea Advanced Institute of Science and Technology (KAIST)

*M.S. - Mechanical Engineering; Advisor: Prof. Kyung-Soo Kim
Mechatronics, Systems and Control (MSC) Lab*

M.S. Thesis: Slip-Compensated Legged Robot State Estimation Using Latent Space Attention Mechanisms

Daejeon, South Korea

Mar 2023 – Feb 2025

Ulsan National Institute of Science and Technology (UNIST)

*B.S. - Electrical Engineering; GPA: 4.07/4.3; Major GPA: 4.13/4.3
Summa Cum Laude, Three-Year Early Graduation, Graduate Representative*

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)

Robotics and Artificial Intelligence Lab, Research Intern

Daejeon, South Korea

Jun 2022 – Aug 2022

- Learning legged mobile manipulation using reinforcement learning (Advisor: Prof. Jemin Hwangbo)

Teaching Assistant

- Linear System Control, Multidisciplinary Capstone Design, Mechanism Design

Mar 2025 – Dec 2025

Aalto University

Exchange Student

Esopo, Finland

Jan 2022 – Feb 2022

- Studying big data and machine learning

Ulsan National Institute of Science and Technology (UNIST)

Robotics and Mobility Lab, Research Intern

Ulsan, South Korea

Dec 2021 – Nov 2022

- Develop the Autonomous Platform to deliver service using sensor fusing (Advisor: Prof. Jeong hwan Jeon)

AI Graduate School Creative Self-Challenge Contest

May 2021 – Feb 2022

- Team Leader; Lead 3D modeling and control research for quadrotor

Teaching Assistant

Sep 2021 – Nov 2022

- Calculus I, Calculus II

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