

# 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*

Daejeon, South Korea

*Mar 2023 – Feb 2025*

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

### 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

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**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

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**Languages:** Python, C, C++, MATLAB, ROS

**Simulators:** Isaac Gym, Isaac Sim, Raisim, Gazebo

## PROFESSIONAL SERVICES

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