Seonsoo Kim

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Working at Defense AI Center of Agency for Defense Development(ADD), South Korea, for military service (mandatory for South Korean)

I am planning to pursue a PhD in Robotics and AI, with the goal of beginning in Fall 2027, and I am currently exploring potential opportunities.

Research Interests

My research interests lie in **representation and context for robot learning**. I study what information robots need, how that information should be represented, and why particular representations make robot learning more effective.

Education

2020 - 2023 Bachelor's Degree at **Gwangju Institute of Science and Techonology(GIST)**
Mechanical Engineering major, **Intelligent Robotics** sub major
GPA: 4.37/4.5, (1st/97)

Publications

1. **Seonsoo Kim**, Seongil Hong, and Jun-Gill Kang. "Diffusion ReRoll: Revisable Denoising for Robotic Sequential Prediction." *Proceedings of the 10th Conference on Robot Learning (CoRL)*, 2026.
Spotlight (top 4.4% of submissions).
Project Page

2. **Seonsoo Kim***, Jun-Gill Kang*, Taehong Kim, and Seongil Hong. "Disentangled Multi-Context Meta-Learning: Unlocking Robust and Generalized Task Learning." *Proceedings of the 9th Conference on Robot Learning (CoRL)*, 2025.
Project Page arXiv

*Equal contribution.

Work Experience

Agency for Defense Development (ADD), Defense AI Center Jun. 2024 – Present
- Research Officer for National Defense, working on robot learning and embodied AI.
- Developed learning methods for **quadruped locomotion, robotic manipulation, and autonomous driving**.
- Developed **Disentangled Multi-Context Meta-Learning (DMCM)** for robust adaptation and sim-to-real transfer of quadruped policies.
- Developed **Diffusion ReRoll**, a diffusion-based framework for revisable sequential prediction.
- Conducted research on **vision-language-action models for autonomous driving** and previously developed multi-robot exploration methods for GPS-denied environments.

GIST MIC Lab, Gwangju Institute of Science and Technology Jan. 2023 – Feb. 2024
- Undergraduate Research Intern advised by Prof. Kyunghwan Choi.
- Studied **null-space control and reinforcement learning for a 7-DoF robotic manipulator**, with a focus on improving task-space impedance-control performance through redundant degrees of freedom.

Selected Robotics Experience

- **Legged Robotics:** Quadruped dynamics modeling, reinforcement learning, context-aware policy learning, and real-world sim-to-real deployment.
- **Manipulation:** Diffusion-based visuomotor policy learning and low level control of 7-DoF manipulator.
- **Navigation:** Long-horizon trajectory planning and multi-robot exploration in GPS-denied environments.
- **Autonomous Driving:** Vision-language(-action) modeling and learning from large-scale autonomous-driving data.

Awards and Honors

2023 **GIST Future Talent Award**
Selected as one of only two recipients among all graduates.

2022 **Korea Navy Academy President's Award**
2nd prize of MiliTECH Challenge hosted by KAIST.
Topic: Deep Learning-Powered System for Detecting and Countering Illegal Weapon Transportation

Technical Skills

Programming	Python, C++, MATLAB
Machine Learning	PyTorch, reinforcement learning, diffusion models, meta-learning, vision-language-action models
Robotics	ROS/ROS2, robot manipulation, quadruped locomotion, navigation, sim-to-real, autonomous driving
Simulation	Isaac Gym / Isaac Lab, MuJoCo, Gazebo

Academic Service

2026 **Reviewer, Conference on Robot Learning (CoRL)**