

Minseo Kwon

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Research Interests

Robotics, Task and Motion Planning, Robot Learning

Education

Ewha Womans University, Seoul, Korea

M.S., Artificial Intelligence and Software (Computer Science and Engineering)

Sept 2024 – Aug 2026

- Advisor: [Dr. Young. J. Kim](#)

- Current GPA: 4.0/4.0

B.S., Computer Science and Engineering & Mathematics

Mar 2020 – Aug 2024

- Graduated with Honors: Magna Cum Laude (GPA: 3.73/4.0)

Publications

Conference Papers

[C03] [M. Kwon](#) and Y. J. Kim, **Kinodynamic Task and Motion Planning using VLM-guided and Interleaved Sampling**, *IEEE International Conference on Robotics and Automation (ICRA)*, 2026, Under Review. [🔗](#)

[C02] [M. Kwon](#), Y. Kim, and Y. J. Kim, **Fast and Accurate Task Planning using Neuro-Symbolic Language Models and Multi-level Goal Decomposition**, *IEEE International Conference on Robotics and Automation (ICRA)*, 2025 [🔗](#) [📄](#)

[C01] S. Kwon*, [M. Kwon*](#), H. Kim* and J. Sim, **ToMato: Accelerating ViT via Token Merging**, *Autumn Annual Conference of Institute of Electronics and Information Engineers (IEIE)*, 2023. (* Equal Contribution) [🔗](#) [📄](#)

Journal Papers

[J02] Many Authors, **A Dataset and Benchmark for Robotic Cloth Unfolding Grasp Selection: The ICRA 2024 Cloth Competition**, *The International Journal of Robotics Research*, 2025, Under Review. [🔗](#)

[J01] [M. Kwon](#), and Y. J. Kim, **Neuro-Symbolic Task Replanning using Large Language Models**, *The Journal of Korea Robotics Society*, 2025. [🔗](#)

Workshop Papers

[W01] [M. Kwon](#), and Y. J. Kim, **Neuro-Symbolic Task Planning and Replanning using Large Language Models**, *ICRA 2025 Workshop on Foundation Models and Neuro-Symbolic AI for Robotics*, 2025. [🔗](#)

Research Experience

Ewha Womans University, Seoul, Korea

Computer Graphics Lab, Research Assistant (Advisor: [Dr. Young. J. Kim](#))

Sept 2024 – Present

- **Task and Motion Planning:** Developed a kinodynamic task and motion planning framework that leverages VLMs for guided exploration and strategic backtracking, improving success rates compared to traditional and LLM-based TAMP planners. [\[C03\]](#)

- **WBCD Challenge:** Ranked 4th place in the Table Service Operations track in [ICRA 2025 WBCD Challenge](#) by teleoperating a robot to perform cloth unfolding, food container opening, and item arrangement tasks. [\[H04\]](#)

Computer Graphics Lab, Undergraduate Researcher (Advisor: Dr. Young. J. Kim) Dec 2022 – Aug 2024

- **Task Planning:** Developed a neuro-symbolic task planner that leverages LLMs to decompose large-scale problems into smaller sub-problems, improving planning efficiency and accuracy. [\[C02\]](#) [\[J01\]](#) [\[W01\]](#)
- **Cloth Manipulation:** Developed a robotic cloth unfolding pipeline leveraging a point cloud-based sharp edge detection method for grasp localization, winning 3rd place at the [ICRA 2024 Cloth Competition](#). [\[H03\]](#) [\[J02\]](#) [\[C01\]](#)

Capstone Design Project (Advisor: Dr. Jaehyeong Sim) Jan 2023 – Dec 2023

- **Model Compression:** Accomplished a 22.19% reduction in inference latency for Vision Transformer-based models by recursively merging tokens at the early transformer block while preserving over 80% accuracy. [\[H01\]](#), [\[H02\]](#) [\[C01\]](#)

Honors & Awards

[H04] **4th Place** | What Bimanual Teleoperation and Learning from Demonstration Can Do (WBCD), ICRA, 2025

[H03] **3rd Place** | Robotic Grasping of Manipulation Competition (Cloth Manipulation Track), ICRA, 2024

[H02] **Silver Prize** | Ewha Engineering Capstone Design Contest, 2023

[H01] **3rd Place** | Undergraduate Research Paper Contest, Autumn Annual Conference of IEIE, 2023

Scholarships & Academic Awards

[S04] **Research Assistant Scholarship** | Ewha Womans Univ., 2025

[S03] **Graduate Admissions Scholarship (full tuition for 1 year)** | Ewha Womans Univ., 2024 - 2025

[S02] **Dean's List (6 semesters)** | Ewha Womans Univ., Fall 2020 - Fall 2023

[S01] **Undergraduate Admissions Scholarship (full tuition for 4 years)** | Ewha Womans Univ., 2020 - 2023

- Top-ranked entrant among all science and engineering applicants; received full tuition scholarship.

Skills

Programming Languages/Libraries: C++, C, Java, Python, Matlab, PyTorch, TensorFlow

Robot SW: ROS, OMPL, MoveIt!, Genesis, CoppeliaSim, Mujoco, Gazebo, Rviz

Robot HW: UR5e, Robotiq 3F adaptive gripper

Languages: Korean (Native), English (TOEFL iBT 105)

Teaching & Service

Altu-Bitu, Algorithm Tutoring Program, Ewha Womans Univ. Fall 2022

- Conducted lectures on data structures and computer algorithms for 40+ undergraduate students and provided feedback on assignment codes.

EDOC (Ewha Do Coding), Club President, Ewha Womans Univ. Jan 2022 - Dec 2022

- Led the on-campus algorithm club as president, organizing study sessions, inter-club collaborations, and programming competitions.

Reviewer since 2025

- IEEE ICRA (2026)