# Minseo Kwon

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## Research Interests

Robotics, Task and Motion Planning, Foundation Models

## 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: 4.3/4.3

**B.S., Computer Science and Engineering & Mathematics**　　*Mar 2020 – Aug 2024*

- Graduated with Honors: Magna Cum Laude (GPA: 3.82/4.3)

## Publications

### Conference Papers

[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 (accepted) 🔗

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

### Journal Papers

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

## Research Experience

### Ewha Womans University, Seoul, Korea

**Computer Graphics Lab**, **Research Assistant** (Advisor: Dr. Young. J. Kim)　　*Sept 2024 – Present*

- **TAMP:** Working on robotic hierarchical task-and-motion planning for robotic manipulation using multimodal LLM.
- **Dining Table Service:** Developing a hierarchical planning framework for bimanual mobile manipulators, enabling VLMs for high-level planning and Model Predictive Control(MPC) as low-level skill execution for dining table operations. This work was selected as a finalist in the ICRA 2025 WBCD Competition among 78 teams.

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

- **Task Planning:** Developed a neuro-symbolic task planner for large-scale robotic tasks, reducing planning time and improving accuracy in various PDDL domains by generating subgoals with multimodal LLM. [C02] [J01]
- **Cloth Manipulation:** Developed a robotic cloth unfolding pipeline leveraging a point cloud–based edge detection method for grasp pose localization, winning 3rd place at the ICRA 2024 Cloth Competition. [H03] ⌨

**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]

## Teaching Experience

**Altu-Bitu**, Algorithm Tutoring Program, *Ewha*                                         *Fall 2022*

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

## Honors & Awards

[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** | Undergrad Research Paper Contest, Autumn Annual Conference of IEIE, 2023

## Scholarships & Academic Awards

[S03] **Admissions Scholarship (full tuition for one year)** | Ewha, 2024 - 2025

[S02] **Dean's List (7 semesters)** | Ewha, Fall 2020 - Spring 2024

[S01] **Admissions Scholarship (full tuition for four years)** | Ewha, 2020 - 2023

- Admitted as the top-ranked student and received a full tuition for four years.

## Skills

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

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

**Robot HW:** UR5e, Robotiq 3F adaptive gripper

**Languages:** Korean (Native), English (Advanced)

## Other Activities

**EDOC (Ewha Do Coding), Club President**                                                *Jan 2022 - Dec 2022*

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