Minseo Kwon

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Research Interests

Robotics, Task and Motion Planning, Artificial Intelligence

Education

Ewha Womans University, Seoul, Korea

M.S., Artificial Intelligence and Software (Computer Science and Engineering)   *Sept 2024 – Present*

- Advisor: Prof. Young. J. Kim

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

- Graduated with Honors: Magna Cum Laude

Research Experience

Ewha Womans University, Seoul, Korea

Computer Graphics Lab, **Research Assistant**   *Sept 2024 – Present*

- Advisor: Prof. Young. J. Kim
- **TAMP:** Working on robotic hierarchical task and motion planning using Vision Language Models.
- **Dining Table Service:** Developing a bimanual robot with a mobile base for dining table operations, including tablecloth unfolding and food serving, using a framework based on Vision-Language Models (VLMs) and Model Predictive Control (MPC). This work was selected as a finalist in the ICRA 2025 WBCD Competition.

Computer Graphics Lab, **Undergraduate Researcher**   *Dec 2022 – Aug 2024*

- Advisor: Prof. Young. J. Kim
- **Task Planning:** Worked on robotic task planning using Large Language Models and symbolic planners, focusing on reducing planning time and improving accuracy on large-scale tasks. [C02] [J01]
- **Cloth Manipulation:** Worked on grasp pose localization for robotic cloth unfolding as part of the ICRA 2024 Cloth Competition, winning 3rd place. [H04]
- **System Engineering:** Developed a ROS-based control pipeline for bimanual manipulation tasks with dual UR5e arms and Robotiq 3F grippers.

Capstone Design Project   *Jan 2023 – Dec 2023*

- Advisor: Prof. Jaehyeong Sim
- **Model Compression**: Worked on developing a framework that reduces latency in Vision Transformer-based models by recursively merging tokens at the first transformer block while maintaining high accuracy. [H02, H03] [C01]

Teaching Experience

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

- Conducted lectures on data structures and computer algorithms for more than 40 undergraduate software engineering students, provided feedback on assignment code, and supported their overall learning process.

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. 🔗

[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. 🔗

Scholarships, Honors and Awards

[H06] **Admissions Scholarship (full tuition for one year)** | Ewha Womans University, 2024 - 2025

[H05] **3rd Place** | Robotic Grasping of Manipulation Competition (Cloth Manipulation Track), ICRA, 2024

[H04] **Silver Prize** | Ewha Engineering Capstone Design Contest, 2023

[H03] **3rd Place** | Undergrad Research Paper Contest, Autumn Annual Conference of IEIE, 2023

[H02] **Dean's List (7 semesters)** | Ewha Womans University, Fall 2020 - Spring 2024

[H01] **Admissions Scholarship (full tuition for four years)** | Ewha Womans University, 2020 - 2023

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

Skills

Languages: C++, C, Java, Python, Matlab, Pytorch

Robot SW: ROS, OMPL, MoveIt!, CoppeliaSim, 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*

- Served as the president of the on-campus algorithm club, leading algorithm study sessions, organizing collaborations with external clubs, and hosting programming competitions.