Mingyu Park

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Education

Kwangwoon University *Mar. 2017 – Feb. 2023*
BS in Robotics Engineering

- GPA: 4.18/4.5, Major GPA: 4.43/4.5
- **Coursework:** Control Engineering, Robot Control, Systemic Design of Robots

Korea Advanced Institute of Science and Technology (KAIST) *Feb. 2023 – Feb. 2025*
MS in the Robotics Program

- *Advisor: Prof. Donghwan Lee*
- GPA: 3.95/4.3
- **Coursework:** Deep Reinforcement Learning, Robot Learning
- **Thesis:** Model-based Reinforcement Learning with Improved Observational Generalization (draft)[1]

Research Experiences

Undergraduate Research Assistant *Seoul, South Korea*
Advanced Robot Control Lab[2], KIST (Korea Institute of Science and Technology) *Jun. 2021 – Dec. 2021*
Advisor: Dr. Yisoo Lee

- Implemented an optimal controller for the fixed-based redundant dual-arm manipulators in the real world
- Integrate a previous manipulator system with the ROS framework to interact with an external vision perception system
- Researched a method to reduce the expensive computational cost for real-time control of the optimal controller

Undergraduate Research Intern *Seoul, South Korea*
DYROS (Dynamics Robotics Systems Lab)[3], Seoul National University *Jan. 2022 – Oct. 2022*
Advisor: Prof. Jaeheung Park

- Implemented a navigation system for the mobile manipulator system using SLAM and Kalman filter
- Researched an efficient methodology to construct a map and navigate through the map on a single robot with multiple sensors
- Researched a whole-body controller using hierarchical quadratic programming for the mobile manipulator system

Graduate Student Researcher *Daejeon, South Korea*
MDILRG (Machine Decision Intelligence & Learning Research Group)[4], *Mar. 2023 – Feb. 2025*
KAIST (Korea Advanced Institute of Science and Technology)
Advisor: Prof. Donghwan Lee

- Investigated fields relevant to robot learning including deep reinforcement learning, generative models, and self-supervised learning
- Researched a model-based reinforcement learning generalizable to unseen visual input with superior sample efficiency
- Researched and published a paper regarding a pragmatic methodology for offline reinforcement learning to enable data-efficient learning

Publications

Mingyu Park, Dongwhan Kim, Yonghwan Oh, Yisoo Lee, *Computational Cost Reduction Method for HQP-based Hierarchical Controller for Articulated Robot*, 10.7746/jkros.2022.17.1.016[5], Mar. 2022

Jongchan Park, **Mingyu Park**, Donghwan Lee, *Pretraining A Shared Q-Network for Data-Efficient Offline Reinforcement Learning*, under review at ICLR 2025[6]

Extracurricular Activities

Coordinator (2022), Participant (2020-2021) *Seoul, South Korea*
BARAM[7] (Robotics Academic Group in Kwangwoon University) *Mar. 2020 – Dec. 2022*

- Designed and taught an academic seminar regarding robotics, including computer vision and control engineering
- Participated in a semester-long project that crafted a novel robot from scratch and oversaw each project for incoming Kwangwoon students
- Served as a club director for members by organizing an annual exhibition of hand-crafted robots

Summer School Participant *Odense, Denmark*
International Elite Summer School in Robotics & Entrepreneurship[8] *Aug. 2023*

- Participated in the summer school to have a better academic knowledge of robotics, regarding advanced techniques for designing robotic systems and entrepreneurship in robotic startup companies in Denmark
- Enlarged an international network with peer students engaging in robotic innovation from diverse countries

Projects

QP-based MPC for Differential-Drive Mobile Robot[9] *2021*

- Adopted quadratic programming (QP) based local controller for the differential-drive mobile robot navigation
- Tools Used: C++, ROS, qpOASES

Efficient map construction and navigation using multiple sensors on a single robot[10] *2022*

- Justify whether using multiple LiDAR sensors for mobile robots with SLAM would be efficient in localization
- Tools Used: C++, Python, ROS

Awards & Honors

Awards

- **Kwangwoon Dream**, *Admission Excellence Scholarship* *2017*
- **Quarter Tuition Scholarship**, *Academic Excellence Scholarship* *2020*
- **Full & Half Tuition Scholarship**, *Academic Excellence Scholarship* *2021*
- **Half Tuition Scholarship**, *Academic Excellence Scholarship* *2022*
- **KAIST Support Scholarship**, *Research Grant* *2023 - 2025*

Honors

- **Dean's List**, *Academic Excellence Honor* *2020*
- **Dean's List**, *Academic Excellence Honor* *2021*

Technologies

Programming Skills: Python, C, C++, HTML, CSS, JavaScript

Frameworks: Robot Operating System (ROS) 1&2, Matlab, Docker, Tensorflow, PyTorch, Jax

Simulators: MuJoCo, CoppeliaSim, Raisim, IsaacSim, Gazebo

Languages: Korean (Native), English (Advanced), Japanese (Intermediate)

[1] https://mngupark.github.io/data/mingyupark_master_thesis.pdf
[2] https://sites.google.com/view/kist-arc/home
[3] http://dyros.snu.ac.kr/
[4] https://sites.google.com/site/donghwanleehome
[5] https://doi.org/10.7746/jkros.2022.17.1.016
[6] https://openreview.net/forum?id=p5o0sbE5kY
[7] https://cafe.naver.com/roboticsbaram
[8] https://robotelite.sdu.dk/
[9] https://mngupark.github.io/personal_projects/#baram
[10] https://mngupark.github.io/personal_projects/#dyros