

# Mingyu Park

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## Education

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### 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<sup>1</sup>

## Research Experiences

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### Undergraduate Research Assistant

Seoul, South Korea

*Advanced Robot Control Lab*<sup>2</sup>, 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)*<sup>3</sup>, 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)*<sup>4</sup>,

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

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**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<sup>5</sup>, Mar. 2022

Jongchan Park, **Mingyu Park**, Donghwan Lee, *Pretraining A Shared Q-Network for Data-Efficient Offline Reinforcement Learning*, under review at ICML 2025<sup>6</sup>

**Mingyu Park**, Donghwan Lee, *Improving Visual Generalization in Model-Based Reinforcement Learning*, under review at ICML 2025<sup>7</sup>

## Extracurricular Activities

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### Coordinator (2022), Participant (2020-2021)

*Seoul, South Korea*

*BARAM*<sup>8</sup> (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*<sup>9</sup>

*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

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### QP-based MPC for Differential-Drive Mobile Robot<sup>10</sup>

*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<sup>11</sup>

*2022*

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

## Awards & Honors

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### 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

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**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)

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<sup>1</sup>[https://mngupark.github.io/data/mingyupark\\_master\\_thesis.pdf](https://mngupark.github.io/data/mingyupark_master_thesis.pdf)

<sup>2</sup><https://sites.google.com/view/kist-arc/home>

<sup>3</sup><http://dyros.snu.ac.kr/>

<sup>4</sup><https://sites.google.com/site/donghwanleehome>

<sup>5</sup><https://doi.org/10.7746/jkros.2022.17.1.016>

<sup>6</sup><https://openreview.net/forum?id=p5o0sbE5kY>

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<sup>8</sup><https://cafe.naver.com/roboticsbaram>

<sup>9</sup><https://robotelite.sdu.dk/>

<sup>10</sup>[https://mngupark.github.io/personal\\_projects/#baram](https://mngupark.github.io/personal_projects/#baram)

<sup>11</sup>[https://mngupark.github.io/personal\\_projects/#dyros](https://mngupark.github.io/personal_projects/#dyros)