Minwoo Cho

Department of Computer Science

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Personal Statement

Graduate researcher specializing in reinforcement learning and robotics, with expertise in inverse constraint learning and temporal logics. Passionate about developing scalable and trustable RL algorithms for real-world robotic systems.

Education

M.S. in Computer Science. *Sep 2023 ~ Present (Expected : Aug 2025)*

Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Republic of Korea

· Advisor : Prof. Daehyung Park

· GPA : 4.11 / 4.3

B.E. in Mechanical Engineering (Major), Mathematical Science (Minor). *Mar 2018 ~ Aug 2023*

Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Republic of Korea

· Advisor : Prof. Yongjin Yoon

· GPA : 3.94 / 4.3

Seoul Science High School, Seoul, Republic of Korea *Mar 2015 ~ Feb 2018*

Research Experiences

Graduate Research Assistant, KAIST *Sep 2023 ~ Present*

Department of Computer Science, Prof. Daehyung Park

· Developed a temporal logic constraint learning algorithm, which enables robots to learn logical constraints from temporally constrained demonstration.

Research Assistant, KAIST *Aug 2022 ~ Sep 2023*

Department of Mechanical Engineering, Prof. Daehyung Park

· Developed sensory system for RBQ-3 quadruped robot and implemented simulation of corresponding robot in Gazebo.

Individual Studies, KAIST *Apr 2022 ~ Jun 2022*

Department of Mechanical Engineering, Prof. Ikjin Lee

· Researched constrained optimization methods for optimal design.

Individual Studies, KAIST *Dec 2019 ~ Feb 2020*

Department of Mechanical Engineering, Prof. Kyungchul Kong

· Contributed experiments for Cybathlon 2020 with wearable robot WalkON suit.

Awards and Honors

Best Student Paper Award, The International Conference on Robot Intelligence Technology and Applications (RiTA) 2022

Presidential Science Scholarship in Engineering (대통령 과학 장학금), KOSAF *Mar 2020 ~ Aug 2023*

Academic achievement award, Department of Mechanical Engineering, KAIST *2020 Spring*

Dean's List, College of Engineering KAIST *2020 Spring*

Academic achievement award, Department of Mechanical Engineering, KAIST *2019 Spring*

Publications

[2] (*under review*) **M. Cho,** J. Jang, D. Park. "ILCL: Inverse Logic-Constraint Learning from Temporally Constrained Demonstration," *Robotics: Science and Systems*. RSS Foundation, 2025

[1] D. Kim, J. Kim, **M. Cho**, D. Park. "Natural language-guided semantic navigation using scene graph," *Int'l. Conf. on Robot Intelligence Technology and Applications (RiTA), 2022.* **[Best Student Paper Award]**

Teaching Experience

Graduate Teaching Assistant

Course #	Title	Affiliation	Term
CS477	Introduction to Intelligent Robotics	KAIST	2024 Spring
CS204	Discrete Mathematics	KAIST	2023 Fall

Projects

Manipulation skill learning for daily objects 2023 ~ 2024

· Lab research project granted by IITP and Samsung Electronics DS (Device Solutions).

· Developed a vision-based reinforcement learning framework for robotic manipulation using the Franka Emika Panda robot, including an IsaacSim environment and a real-world RL system (both physical and software).

Learning based Navigation Planning for Legged Robots in Challenging Terrain *Fall 2022*

· Team project of Introduction to Artificial Intelligence (CS470)

· Developed traversability prediction network for quadruped robot by gaining traversability data using pretrained RL policy from IsaacGym, and tested path planning from inferred traversability map.

Self-driving Hovercraft design *Spring 2022*

· Team project of Capstone Design 1 (ME400) under Prof. Dongsu Kwon.

· Developed feedback control system for a hovercraft navigation using ROS, C++, and Python, with mechatronics design using Raspberry Pi, LIDAR and IMU sensor, along with a role of a team leader.

Relevant Courseworks

Robotics

· Robot Learning and Interaction (CS577) *Fall 2023*

· Dynamics System Programming (ME454) *Spring 2022*

· Introduction to Robotics Engineering (ME453) *Fall 2018*

AI

· Bayesian Machine Learning (AI701) *Fall 2024*

· Reinforcement Learning (CS672) *Spring 2024*

· Computer Vision (CS576) *Spring 2024*

· Introduction to Artificial Intelligence (CS470) *Fall 2022*

Mathematics

· Probability and Statistics (CC511) *Fall 2023*

· Discrete Mathematics (MAS275) *Spring 2020*

· Linear Algebra (MAS212) *Fall 2019*

Control engineering

· Digital System Control (ME562) *Fall 2021*

· Automatic Control (ME460) *Spring 2020*

· Modeling and Control of Engineering Systems (ME361) *Fall 2019*

Languages

· Korean : Native

· English : Full Academic Proficiency (TOEIC 970)

Abilities

Robots : Franka Emika Panda, Boston Dynamics Spot, Rainbow robotics RBQ-3, ShadowHand Lite

Programming languages : Python (PyTorch, JAX), C, C++, MATLAB, LabVIEW

CAD : Solidworks, AutoCAD

Simulators : Mujoco, Box2D, PyBullet, IsaacSim, IsaacGym

RL Libraries : Stable-Baselines3, Tianshou, Rllab, SERL

Military service

KATUSA, Honorably Discharged *Sep 2020 ~ Mar 2022*

Additional Activities

World friends ICT volunteer, KAIST Global Leadership Center **Addis Ababa, Ethiopia**

· Teaching role of the course *"C++ Programming with Arduino" for AAIT students* *Jul 2018 ~ Aug 2018 (120hr)*

KAIST Environmental student organization, Green-in KAIST **Daejeon, Republic of Korea**

· Team leader of Eco-Facility Team/*Mar 2018 ~ Jun 2019*

Interests

KAIST Table Tennis Club, EDGE **Daejeon, Republic of Korea**

2018 ~ 2022

KAIST Fine Art Club, Grimijua **Daejeon, Republic of Korea**

2019 ~ 2023

KAIST Futsal Club, KFC **Daejeon, Republic of Korea**

2023 ~ 2025