Sungjae Park

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Education

Seoul National University: Mar. 2017 – Aug. 2023

Department of Mechanical Engineering (Double Major in Mathematics), **Total GPA: 4.23/4.3**
Graduated **1st place** in Mechanical Engineering Department, **2nd place** in Engineering Department among fall graduates.
* Leave of absence for military service: Apr. 2019 – Feb. 2021

Research Interests

My research goal is to develop robot with human-like abilities, including **physical capabilities** for manipulation tasks, and **cognitive capabilities** for intuitive understanding of the real world. Specifically, I am interested in:

- Complex manipulation tasks (e.g. dexterous, contact-rich, long-horizon tasks)
- Physical reasoning with interaction (e.g. inferring object properties with interaction)
- Physical reasoning for interaction (e.g. intuitive physics)

Research Experience

SNU Visual Computing Lab, Research Intern Feb. 2024 – Present
Advisor: Hanbyul Joo

• Developed a multi-view, real-time motion capture system which can reconstruct human hand and object motion.
• (In-Progress) Developing a robot learning algorithm for dexterous human robot interaction.

Cognitive Learning for Vision and Robotics Lab, Research Intern Jul. 2022 – Dec. 2023
Advisor: Joseph J. Lim

DROID: A Large-Scale In-the-Wild Robot Manipulation Dataset
• Parcitipcated in a research collaboration for large, divsere, high-quality robot manipulation datasets as a lab lead.
• Accepted to **Robotics: Science and Systems (RSS) 2024**

SNU Robotics Lab, Undergraduate Thesis Research Intern Mar. 2022 – Dec. 2022
Advisor: Frank C. Park, Joseph J. Lim

Efficient Cross-Embodiment Learning with Object-Centric Planner
• Developed cross-embodiment learning algorithm with object-centric motion planning.
• With an object-centric planner learned from offline demonstration data of another robot, the target robot can efficiently learn the same task.
• Awarded **Outstanding BS Thesis Presentation Award**

Dynamic Robotics Systems Lab, Research Intern Jul. 2021 – Aug. 2021, Jan. 2022 – June. 2022
Advisor: **Jaeheung Park**

Vision Guided Peg Insertion
• Developed vision-based peg-in-hole algorithm for dual robot arm with hole detection using hand-eye camera and YOLO.

Motion Planning under Constraint with Learned Reachable Manifold
• Developed motion planning algorithm under constraint with block neural autoregressive flow (BNAF) for Panda Franka robot arm. Density estimation model was used to determine the discontinuity of the manifold.

Scholarships

Presidential Science Scholarship Mar. 2021 – Dec. 2022
Gangwon-do Future Talent Natural Science Field Selection Scholarship Jan. 2018 – Dec. 2022
Full-funded scholarship for academic excellence Mar. 2018 – Feb. 2019, Mar.2021

Awards and Honors

Outstanding BS Thesis Presentation Award Dec. 2022
2nd place, International Design Contest Robocon Aug. 2018
Silver Prize in Math/Computation Field, Samsung Humantech Paper Award Feb. 2015

Services

Reviewer | NeurIPS 2023, ICLR 2024

Teaching Experience

Teaching Assistant | Introduction to Robotics Mar. 2022 – Jun. 2022
Undergraduate Tutoring | Linear Algebra 1 Mar. 2021 – Jun.2021
Undergraduate Tutoring | Physics 1,2 Mar. 2018 – Dec. 2018, Mar. 2021 – Dec.2021

Skills

Language: C++, Python, Java
Libraries/Frameworks: Pytorch, ROS, YOLO, SMACH
Modeling: SolidWorks

English Proficiency

GRE: Verbal Reasoning 160/170, Quantitative Reasoning 170/170, Analytical Writing 4.0/6.0
TOEFL: 114/120 (Reading 29/30, Listening 30/30, Speaking 27/30, Writing 28/30)