Jiwoo Kim

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Durham, NC, U.S.A.

RESEARCH INTERESTS

Robotics, Reinforcement Learning, Geometric Deep Learning

EDUCATION

Duke University, Ph.D. Aug. 2024 - Present
Major in Electrical and Computer Engineering NC, U.S.A.
advised by Prof. Miroslav Pajic

Yonsei University, B.S. Mar. 2021 - Feb. 2024
Major in Electrical and Electronic Engineering Seoul, South Korea

PUBLICATIONS

[1] Hyunwoo Ryu, Jiwoo Kim, Junwoo Chang, Hyun Seok Ahn, Joohwan Seo, Taehan Kim, Yubin Kim, Jongeun Choi, Roberto Horowitz. **"Diffusion-EDFs: Bi-equivariant Denoising Generative Modeling on SE(3) for Visual Robotic Manipulation."** CVPR, 2024 ***(Spotlight)***

[2] Junwoo Chang*, Hyunwoo Ryu*, Jiwoo Kim, Soochul Yoo, Joohwan Seo, Nikhil Prakash, Jongeun Choi, Roberto Horowitz. **"Denoising Heat-inspired Diffusion with Insulators for Collision Free Motion Planning."** NeurIPS Workshop on Diffusion Models, 2023 (*Equal Contribution)

[3] Jiwoo Kim*, Hyunwoo Ryu*, Jongeun Choi, Joohwan Seo, Nikhil Prakash, Ruolin Li, Roberto Horowitz. **"Robotic Manipulation Learning with Equivariant Descriptor Fields: Generative Modeling, Bi-equivariance, Steerability, and Locality."** RSS Workshop on Symmetries in Robot Learning, 2023 (*Equal Contribution) ***(Oral, Best Paper Award)***

[4] Sarmad Idrees, Jiwoo Kim, Jongeun Choi, Soekman Son. **"Human Motion Prediction: Assessing Direct and Geometry-Aware Approaches in 3D Space."**, IEEE Access

AWARDS & SCHOLARSHIPS

Best technical demo presentation at the 5th Yonsei Univ. M.E Grad. Student Academic Conference — Oct. 2023

Best paper at RSS Workshop on Symmetries in Robot Learning — Jul. 2023

Excellent Academic Performance Scholarship by Yonsei Univ. — Jun., Dec. 2022

Samhwajibong Scholarship Foundation Scholarship — Jun.2022

RESEARCH EXPERIENCE

MLCS lab, Yonsei Univ. Jul. 2022 - Feb. 2024
Advised by Prof. Jongeun Choi
Undergraduate Research Intern

- Real-world Diffusion-EDF experiment using Franka Emika Panda showcased live.

  - Designed the end-to-end pick and place experiment code, engineered with ROS, C++, and Python for Franka Emika Panda, achieving an 85% success rate.
  - Applied RTAB-Map and point cloud reconstruction techniques for visual point cloud data.
  - Led a team of 4 interns during the project.
- Reinforcement Learning (RL) project using Mujoco for custom mobile manipulation.
  - Engineered an interface with Gym, Mujoco, and customized URDF files for our custom robot.
  - Implemented Soft Actor-Critic (SAC) algorithm enabling the robot to move and pick the object with high manipulability.

TEACHING EXPERIENCE

Engineering Information Processing (ENG1108) Sep. 2023 - Dec. 2023
Teaching Assistant

RESEARCH SKILLS

Computer Languages	Python, ROS, C++, C
Simulations	Mujoco, Sapien, Pybullet, Gazebo
Modeling	Meshlab, Blender, AutoDesk360
Tools	MATLAB, Moveit, Latex

LANGUAGE

English	Native
Korean	Native
Spanish	Intermediate

OTHER EXPERIENCE

Electrical and Electronic Engineering Honor Society 2022 - 2024

Served in the Republic of Korea Air force 2018 - 2020

Korean Red Cross Youth (RCY) 2017 - 2018