

Jiwoo Kim

kjacob9801@gmail.com || +82 10-8532-7447 || <https://indigoyeoma.github.io>
Seoul, Republic of Korea

RESEARCH INTERESTS

Robotics; Machine Learning; Reinforcement Learning

EDUCATION

Yonsei University, B.S.

Major in Electrical and Electronic Engineering

Mar.2021 - Present

Seoul, Republic of Korea

PUBLICATIONS

- [1] Hyunwoo Ryu, Jiwoo Kim, Junwoo Chang, Hyun S. Ahn, Joohwan Seo, Taehan Kim, Yubin Kim, Jongeun Choi, and Roberto Horowitz. **"Diffusion-EDFs: Bi-equivariant Denoising Generative Modeling on SE(3) for Visual Robotic Manipulation."** ArXiv, 2023
- [2] Jiwoo Kim*, Hyunwoo Ryu*, Jongeun Choi, Joohwan Seo, Nikhil Prakas, 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*)
- [3] Junwoo Chang*, Hyunwoo Ryu*, Jiwoo Kim, Soochul Yoo, Joohwan Seo, Nikhil Potu Surya Prakash, Jongeun Choi, Roberto Horowitz. **"Denoising Heat-inspired Diffusion with Insulators for Collision Free Motion Planning."** NeurIPS Workshop on Diffusion Models, 2023 (*Equal Contribution)

WORK IN PROGRESS

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

RESEARCH EXPERIENCE

MLCS lab, Yonsei

Advised by Prof. Jongeun Choi

Undergraduate Research Intern

Jul.2022 - Present

- Real-world Diffusion-EDF pick 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.
 - 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 frameworks, and customized URDF files for custom robot.
 - Implemented Soft Actor-Critic (SAC) enabling the robot to move and pick the object with high manipulability.

Capstone Project

Advised by Prof. Jong-Moon Chung

Team leader

Jan.2022 - Jun.2022

- Study on Azure MEC Computation Offloading Based on 5G massive Machine-Type Communications (mMTC) and Ultra-Reliable and Low Latency Communications (URLLC).
 - Experimented IoT and UE Popularity-based Energy Optimization (IPEO) for data transfers based on real-time load and traffic conditions, using MATLAB and the AWS server.

SCHOLARSHIP & AWARDS

Best Academic Presentation Award	Oct.2023
• The best demo presentation for the 5th Yonsei University Mechanical Engineering Graduate Student Academic Conference.	
Jil-li (High-Academic Performers) Scholarship × 2	Jun., Dec.2022
• Given to high-academic performers by Yonsei University.	
Samhwajibong Scholarship Foundation Scholarship	Jun.2022
Commendation Award for Social Service	May.2022

TEACHING EXPERIENCE

Engineering Information Processing (ENG1108)	Sep.2023 - present
<i>Teaching Assistant</i>	
• Facilitated interactive sessions on C programming fundamentals with Linux OS for undergraduate students.	

RESEARCH SKILLS

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

ENGLISH PROFICIENCY

TOEFL	Total score : 114 / 120 (Reading: 29, Listening: 30, Speaking: 29, Writing: 26)
-------	--

LANGUAGE

English	Native
Korean	Native
Spanish	Intermediate

OTHER EXPERIENCE

Electrical and Electronic Engineering Honor Society	2022 - present
• Led the study group on Reinforcement Learning (RL) and Digital Signal Processing (DSP) Class.	
Served in the Republic of Korea Air force	2018 - 2020
• Served in the Republic of Korean Air Force, 8th Fighter Wing, Information and Communication Battalion, as a Base Communication Control Office (B.C.C.O) soldier.	
Korean Red Cross Youth (RCY)	2017 - 2018
• Volunteered to help patients diagnosed with leprosy in the National Sorokdo Hospital, Republic of Korea.	

REFERENCE

Prof. Jongeun Choi School of Mechanical Engineering Yonsei University jongeunchoi@yonsei.ac.kr	Prof. Jong-Moon Chung Department of Electrical and Electronic Engineering Yonsei University jmc@yonsei.ac.kr	Prof. Roberto Horowitz Department of Mechanical Engineering UC Berkeley horowitz@berkeley.edu
---	---	--