JungyeonLee

ROBOTICS RESEARCHER • M.S. STUDENT

Seoul / Suwon, South Korea

✉ curieuxjy@gmail.com ⌂ curieuxjy in LinkedIn

Education

M.S. in Mechanical Engineering
Suwon, South Korea
"[Sungkyunkwan University](https://www.skku.edu/) (GPA: 4.28/4.5)"
Mar 2022 - Feb 2024

- "Quadrupedal Walking Robot Team Researcher at [Robotics Innovatory Lab](https://mecha.skku.ac.kr/roboticsinnovatory/index.do)"
- "TA 2022 Fall: Introduction to Electrical/Electronics for Mechanical Engineers"

Winter University Online Course
Berlin, Germany
"[TU Berlin](https://www.tu.berlin/) (Grade: 1.0/ECTS 5)"
2021

- "Course: Machine learning using Python - Theory and Application"
- Distinguished with the top grade and awarded official certification

B.S. in Mechanical Engineering & System Design Engineering
Seoul, South Korea
"[Hongik University](https://www.hongik.ac.kr/) (GPA: 3.97/4.5)"
Mar 2018 - Feb 2022

- "Undergraduate Research Student at [Autonomous Navigation Lab](https://sites.google.com/view/autonav/home)"

Skills

Programming
Python, C++, Matlab, LabVIEW, ROS2, Linux, Git, LaTeX

AI/Data Engineering
Pytorch, Tensorflow, Keras, Pandas, OpenCV

Simulators
IsaacGym, Pybullet, RaiSim

Languages
Korean (Native), English

Work Experience

AI Robotics Engineer
Advanced Technology Team
"[WONIK Robotics](https://www.wonikrobotics.com/)"
Aug 2024 - Present

- "[Allegro Hand](https://www.allegrohand.com/) AI Project and Vision AI Application Project"

Robotics Engineer
AI & Algorithm Team
"[CMES Robotics](https://www.cmesrobotics.ai/)"
Mar 2024 - Jul 2024

- Manipulation Pick and Place Project for High-level Task Planning using GPT4

Projects

Deep Reinforcement Learning for Fall-Recovery Control on Non-Flat Terrain of Quadruped Robots
"[Master Thesis](https://drive.google.com/file/d/15w3lyP6-iPsbEeknnkREIUeTPgZP8zsb/view?usp=sharing)"
Feb 2024

- Engineered a Fall-Recovery Controller for the AiDIN-VIII quadruped robot using Deep Reinforcement Learning, Generative Models, and Clustering Methods

- Tailored for complex Non-Flat terrains, emphasizing steep industrial staircases using IsaacGym and Pybullet Simulator environments

Robust Recovery for Quadrupedal Walking Robot using Massively Parallel Deep Reinforcement Learning

"[Research Project](https://www.researchgate.net/publication/369911372_Robust_Recovery_for_Quadruped_Robot_using_Massively_Parallel_Deep_Reinforcement_Learning2023_KRoC)"   *Feb 2023*

- Designed a Deep Reinforcement Learning Framework for the Recovery Controller of the AiDIN-VI Quadruped Walking Robot
- Utilized Proximal Policy Optimization Algorithm and IsaacGym Simulator for Massively Parallel Deep Reinforcement Learning

Self-driving Public Mobility Get-off Safety System

Capstone Design Competition   *Mar 2021 - Oct 2021*

- Team Leader and AI Software Developer
- Constructed a Self-Driving Public Mobility Drop-off Safety System using Deep Learning
- Applied Bi-LSTM Model to predict passengers' disembarkation intentions on city buses
- "Project Link: [Safe_Goodbye](https://github.com/curieuxjy/Safe_Goodbye)"

Hyundai Motors AI Research Competition

Active Learning Project   *Jul 2021 - Sep 2021*

- AI Software Developer for Active Learning to streamline labeling process
- Developed customized Learning Loss Function for Object Detection and Segmentation using KITTI Dataset
- "Project Link: [Active_Learning](https://github.com/Effithon-Project/Active_Learning)"

AWS DeepRacer Community League

2020 AWS AI Championship   *Oct 2020 - Nov 2020*

- Team Leader and Reinforcement Learning Engineer in BNM2h Team
- Secured 2nd Place (16.582s Lap Time) at the 2020 AWS AI Championship X DeepRacer Korea Final
- Developed Racing Agent through parameter tuning using PPO Deep Reinforcement Learning Algorithm

2020 International Student Car Competition

Traffic Sign Detection   *Sep 2020 - Nov 2020*

- Vision Sensor Team Member for Traffic Sign Detection and Recognition Task
- Implemented Single Shot MultiBox Detector (SSD) Model using Tensorflow, LabVIEW, and Python
- "Project Link: [traffic_sign_object_detection](https://github.com/curieuxjy/traffic_sign_object_detection)"

Awards

Best Paper Award

2022 Technology and Education KSME Journal (Volume C)   *Sep 2022*

- Self-driving Public Mobility Get-off Safety System

Best Paper Award

2020 Institute of Positioning, Navigation, and Timing Conference   *Nov 2020*

- A Study on Deep Reinforcement Learning Framework for DME Pulse Design

OPIc Intermediate Mid (IM2) Level

ACTFL   *Sep 2023*

Data Parallelism - How to Train Deep Learning Models on Multiple GPUs

NVIDIA DLI   *Mar 2023*

Self-driving Simulation Training Course using ROS and MORAI

Korea Association of Robot Industry   *Feb 2023*

Fundamentals of Deep Learning for Multi-GPUs

NVIDIA DLI   *Mar 2022*

Jetson AI Ambassador

NVIDIA DLI   *Feb 2022*

Publications

Robust Recovery for Quadruped Robot using Massively Parallel Deep Reinforcement Learning
"2023"

"[2023 KRoC (Korea Robotics Conference)](https://www.researchgate.net/publication/369911372_Robust_Recovery_for_Quadruped_Robot_using_Massively_Parallel_Deep_Reinforcement_Learning2023_KRoC)"
""

- "Authors: Jungyeon Lee, Hwangbo Jemin, Jaeheung Park"

Self-driving Public Mobility Get-off Safety System
"Sep 2022"

"2022 Technology and Education KSME Journal (Volume C)"
""

- "**Best Paper Award**"

A Study on Deep Reinforcement Learning Framework for DME Pulse Design
"Nov 2020"

"2020 Institute of Positioning, Navigation, and Timing Conference"
""

- "**Best Paper Award**"

A Method for Providing Safety in Getting On and Off, and an Apparatus and a System Therefor
"Mar 2023"

"[KR102514098B1](https://patents.google.com/patent/KR102514098B1/ko)"
""

- "Korean Patent Registration"