Dongwoo Son

ROBOTICS · REINFORCEMENT LEARNING

50 Pyeonghwa-ro 348beon-gil, Paju-si, Gyeonggi-do, Republic of Korea

📱 (+82) 10-4918-1275 | ✉ sondongwoo2024@gmail.com | 🗔 Son-Dongwoo

"Let's do something worthwhile."

Summary

With hands-on experience in deep reinforcement learning and robotics, I aim to develop innovative robotic systems capable of operating autonomously in complex environments.

Research Interests

Deep Reinforcement Learning   Mobile Robot

Education

KwangWoon University   *Seoul, S.Korea*

B.S. IN SCHOOL OF ROBOTICS   *Mar. 2021 - Present*

- **Total GPA** : 3.59 / 4.50, **Major GPA** : 3.61 / 4.50
- **Club** : BARAM Robotics (Robotics Academic Group) - [2023 Staff], Mar.2021 - Present

Work Experience

PLAYWELL KOREA   *Seoul, S.Korea*

INTERN, ROBOT EDUCATION INSTRUCTOR & MARKETING ASSISTANT   *Dec. 2021 - Present*

- Designed and taught robotics education programs.
- Participated as a coach in international and national robotics competitions.
- Created promotional materials and managed social media content.

Awards

2023   **The World Embedded Software Contest**, Encouragement Award   *Seoul, S.Korea*

Skills

Programming Languages   Python, C/C++, MATLAB
Development Tools   Git, Anaconda, Docker
Frameworks & Libraries   ROS2, Pytorch

Extracurricular Activity

DQN Based Omok Game   *BARAM Robotics*

PERSONAL PROJECT   *Sep. 2022 - Nov. 2022*

- Developed an Omok game using Deep Q-Learning (DQN) implemented with PyTorch.
- Achieved approximately a 50% win rate in matches against human players, validating the effectiveness of the agent.

Manipulator Continuous Control with Deep Reinforcement Learning   *BARAM Robotics*

PERSONAL PROJECT   *Mar. 2023 - Jun. 2023*

- Implemented Deep Deterministic Policy Gradient (DDPG) for continuous control of a 6-DoF manipulator.
- Used ROS2, Gazebo, and PyTorch to develop an integrated system combining simulation, control, and learning modules.
- Successfully achieved an upward-sloping reward graph, validating the training process.

2023 Open Source Contribution Academy   *Ministry of Science and ICT, NIPA*

MENTEE   *Jul. 2023 - Oct. 2023*

- Contributed to translating PyTorch Tutorial documents from English to Korean using Git.

Robot Challenge 2023 Beijing
ROBOTCHALLENGE CHINA

TEAM COACH
Jun. 2023 - Aug. 2023

- Coached a team in the Robot Sumo Junior and Robot Bowling Junior.

2024 RoboCup Korea Open
RoboCup Korea Association, RCKA

TEAM COACH
Dec. 2023 - Feb. 2024

- Coached a team in the RoboCupRescue Simulation Junior category.
- Taught mapping, path planning, and path tracking algorithms.
- Led the team to 3rd place in the competition.

User-Following and Transport Assistance Robot with E-Corner System
Kwangwoon Univ.

CAPSTONE DESIGN
Jan. 2024 - Jun. 2024

- Developed a user-following and transport assistance robot using ROS2, a Depth Camera, and YOLOv10n.
- Implemented communication systems for integrating various devices.

2024 WRO Korea
Green Human IT Association

TEAM COACH
Jun. 2024 - Aug. 2024

- Coached a team in the Future Innovators - Senior category to design a lithium-ion battery reuse system.
- Led the team to 1st place in Korea.

WRO International Final 2024 Türkiye - IZMIR
Science Heroes Association

TEAM COACH
Aug. 2024 - Nov. 2024

- Coached a team in the Future Innovators - Senior category to design a sustainable lithium-ion battery reuse system.
- Led the team to Bronze Award at the international competition.