

Haesung Oh

[hae-sung-oh](#) | [hae-sung-oh.github.io](#) | ohs980111@postech.ac.kr | +82.10.3042.1478

RESEARCH INTEREST

Autonomous Vehicles/Robots

- Decision making with AI-Based Approach using Deep Learning
- Autonomy optimization using Multi Agent Reinforcement Learning

EDUCATION

POSTECH, Convergence IT Engineering , Bachelor's Degree (GPA: 3.15/4.3)	Feb 2016 - Feb 2023
UC Berkeley , Exchange Student	Jun 2017 - Dec 2017
Seoul Science Highschool	Feb 2013 - Feb 2016

RESEARCH EXPERIENCE

Metal-Organic Frameworks Property Regression *Advisor: Seungchul Lee* Sep 2022 - Dec 2022

- Development of a regression model for inverse design prediction of MOF properties
- Automatic hyperparameter tuning for optimized regression model performance
- *Keywords: Hyperparameter Tuning, Lazy Regression, Extra-tree Regression*

Autonomous Delivery Mobile Robot (SNU ARIL Internship) *Advisor: Sungwoo Kim* Dec 2021 - Feb 2022

- Contribution to the autonomy simulation and optimization of robot mobility for a 6-wheel, skid steering autonomous delivery robot on SNU campus
- *Keywords: ROS, Unity simulation, Embedded system, 3D CAD, Hardware assembly*

Autonomous Parking Simulation *Advisor: Suhee Han* Sep 2021 - Dec 2021

- Development of an autonomous parking simulator using Unity ML-Agent and RL techniques
- Trained and evaluated the model with 8 million episodes for front, parallel, and diagonal parking scenarios, respectively
- *Keywords: Reinforcement learning, AI-based autonomy, Autonomy simulation, Unity ML-Agent*

Autonomous Drone *Advisor: Suhee Han* Feb 2021 - Jun 2021

- Design and implementation of an autonomous drone system using ultrasonic sensors to avoid obstacles and navigate terrain safely
- Rule-based approach utilized for extreme environment exploration based on obstacle conditions
- *Keywords: Rule-based autonomy, Arduino, Obstacle detection, PID control, Drone system dynamics*

Auto Training Routine Recording System *Advisor: Chulhong Kim* Sep 2020 - Dec 2020

- Development of a computer vision-based system to detect human pose and automatically record exercise routines for weight training
- *Keywords: OpenPose, Pose estimation, Vector similarity*

Auto Strike Zone Detection *Advisor: Sungjun Jung* Feb 2018 - Jun 2018

- Development of an automated system for real-time detection of strike zones in baseball
- *Keywords: Computer vision, Real-time, Line detection, Object detection*

WORKING EXPERIENCE

Alley 3D reconstruction AI model for fire trucks (Dudaji Start-up Company) Apr 2023 - Jul 2023

- Developed an AI model that accurately detects and reconstructs 3D objects in alleys, providing real-time feedback to fire truck operators
- The AI model determines whether fire trucks can safely navigate through the alleyways or not
- Integrated the model with a mapping server, allowing it to create blocker events and share them in real-time

Autonomous Recycle Robot (Dudaji Start-up Company Internship) Jul 2022 - Aug 2022

- Contribution to the development of a 6-joint robot that uses ROS, Deep Learning, and computer vision to classify and perform pick-and-place tasks for recyclable items
- Involvement in robot detection via camera, optimization of robot movement using ROS, and logic development for pick-and-place operations
- *Keywords: Robotics, ROS, Computer vision, Yolo v5, Deep learning, Pick-and-place*

OTHER EXPERIENCE

Hyundai H-Mobility Class: Autonomous Car Class Jul 2022 - Jan 2023

Keywords: Recognition, Decision making, Machine learning, Vehicle system control, Vehicle network

HONORS AND AWARDS

Creative ICT Scholarship Feb 2016 - Dec 2021

MSIT(Ministry of Science and ICT), Korea, under the ICT Creative Consilience program

Korea Art Management Service: ART Hack-A-Thon May 2018

Excellence Prize: *Art and coding education using drones for the next generation*

SKILLS

Programming Language Python, ROS, C/C++, Git

2D/3D Graphic Unity, Fusion 360, AutoCAD

EXTRA-CURRICULAR EXPERIENCES

Military Service: Republic of Korea Airforce Nov 2018 - Sep 2020

Military residence management airman, A representative of airmen

Creative IT Camp Aug 2016, Aug 2018

Team leader, Instructor, and Photographer

POSTECH Baseball Club: Tachyons Feb 2016 - Dec 2022

Catcher, First-baseman, Cleanup hitter, and Team captain

POSTECH Musical Club: OPCA Feb 2016 - Jun 2016

Actor, Played a musical named 'Laundry' as the main character