Hyunwoo Park

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Room 401, 165, Seonyu-ro, Yeongdeungpo-gu, Seoul, Republic of Korea

EDUCATION

Yonsei University — Seoul, Korea
B.S. / Mechanical Engineering — Mar.2016 - Feb.2022*
Cumulative GPA: 3.60 / 4.00
Class Rank: 37 / 142

EXPERIENCES

ThorDrive — Seoul, Korea
Motion Planning Engineer — Jan.2022 - Present

Projects

Development of Open Space Planner (Jan.2022 - Aug.2022)
- Developed path planner for autonomous vehicles in open spaces, such as parking lots.
- Hybrid A*, and SQP were used.

Development of Motion Planner for Public Roads and Airport Apron (Aug.2022 - May.2024)
- Developed motion planning features such as avoiding static obstacles, overtaking parked cars, emergent collision avoidance, and handling general road scenarios.

Development of Driving Strategy in Occluded Areas (Dec.2022 - Jun.2023)
- Developed velocity planning technique for navigating through occluded areas while assessing occlusion risks.

Development of Reinforcement Learning-Based Trajectory Planner (Oct.2023 - Apr.2024)
- Developed a trajectory planning technique using deep reinforcement learning.

Programmers Co. — Seoul, Korea
Autonomous Driving Engineer Course — Mar.2021 - Sep.2021

Projects

Autonomous Driving Team Projects (Mar.2021 - Sep.2021)
- Learned how the autonomous vehicle works and developed software to execute various tasks, including static obstacle avoidance, parking, and lane following, using a 1/10 scale model car equipped with lidar and camera sensors.

Yonsei University — Seoul, Korea
Multi-Disciplinary, Multi-Physics, Multi-Scale Design and Optimization Lab — Aug.2020 - Dec.2020
Internship

Projects

Off-The-Ground Mobility, 2020 Alchemist project, Ministry of trade, Industry and Energy, Korea (Aug.2020 - Dec.2020)
- Designed a new concept of mobility that allows a person to board and control while floating above the ground surface. Designed an initial model and verified it using MATLAB Simulink.

* Including military service (Apr.2018 - Dec.2019)

PUBLICATIONS

- Park, H., 2024. Trajectory Planning for Autonomous Vehicle Using Iterative Reward Prediction in Reinforcement Learning. arXiv preprint arXiv:2404.12079. Submitted to IEEE Robotics and Automation Letters. (RA-L)
- Choi, J., Chin, H., Park, H., Kwon, D., Lee, S. and Baek, D., 2023. Safe and Efficient Trajectory Optimization for Autonomous Vehicles using B-spline with Incremental Path Flattening. arXiv preprint arXiv:2311.02957. Submitted to IEEE Transactions on Intelligent Transportation Systems (T-ITS)
- Park, H., Choi, J., Chin, H., Lee, S.H. and Baek, D., 2023. Occlusion-aware risk assessment and driving strategy for autonomous vehicles using simplified reachability quantification. IEEE Robotics and Automation Letters. (RA-L)

SKILL & KNOWLEDGE SET

Skill Set: C++, Python, ROS

Knowledge Set: Motion Planning(polynomial trajectory generation, Hybrid A*, A*, RRT), MPC, Optimization(QP, SQP), Reinforcement Learning, Kalman Filter

HONORS AND AWARDS

- Yonsei University, 1st semester, 2016 - HONORS
- Yonsei University, 1st semester, 2020 - HONORS

CERTIFICATION

Udacity Mentor Certification (Oct.2022 - Present)

- Motion Planning and Decision Making for Autonmous Vehicles