Gyubeom Edward Im

RESEARCH INTEREST

SLAM, Visual(-inertial) Odometry, LiDAR(-inertial) Odometry

WORK EXPERIENCE

2020-Present   **Samsung Electronics Co., Ltd.**, *SLAM Research Engineer*, System LSI Business

2019-2020   **Atlas Rotoics Co., Ltd.**, *Visual SLAM Engineer*

EDUCATION

2018-2020   **Seoul National University**, *M.S.*, Department of Transdisciplinary Studies, The Graduate School of Convergence Science and Technology
Lab: Dynamic Robotic System Lab (DYROS Lab, https://dyros.snu.ac.kr)
Advisor: Prof. Jaeheung Park (park73@snu.ac.kr)
Thesis: Parking Line Based SLAM Approach for Localization and Parking Space Detection

2010-2018   **Kookmin University**, *B.S.*, Automotive Engineering
Activity: Team Member of Student Formula Racing Team and Participated in FSAE 2014 Competition.

ACTIVITY

2024-Present   **KETI**, *SLAM Instructor*, Korea Electronics Technology Institute

2023-Present   **Youtube**, *SLAM-related Contents*, Channel Name: ALIDA

2020-Present   **ALIDA Tech Blog**, *SLAM-related Contents*, alida.tistory.com

2018   **Robotics Boot Camp**, *ROS Instructor*, Seoul National University, DYROS Laboratory

2017   **CATIA and CAD**, *Instructor*, Kookmin University

2016-2020   **Tech Blog**, *Engineering-related Contents*, blog.naver.com/gyurse

PUBLICATIONS

2024   **Gyubeom Im**. "Notes on Various Errors and Jacobian Derivations for SLAM" arXiv preprint arXiv:2406.06422 (2024).

2024   **Gyubeom Im**. "Notes on Kalman Filter (KF, EKF, ESKF, IEKF, IESKF)" arXiv preprint arXiv:2406.06427 (2024).

2023   **Gyubeom Im**, Keunjoo Park, Junseok Kim, Bongki Son, Seungchul Shin, Haechang Lee. "Live Demonstration: PINK: Polarity-based Anti-flicker for Event Cameras." Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops. 2023.

2019   **Gyubeom Im**, Minsung Kim, Jaeheung Park, "Parking Line Based SLAM Approach Using AVM/LiDAR Sensor Fusion for Rapid and Accurate Loop Closing and Parking Space Detection", Sensors, 19 (21), pp. 4811, 2019, ISSN: 1424-8220.

2019   Kyujin Park, **Gyubeom Im**, Minsung Kim, Jaeheung Park, "Parking Space Detection based on Camera and LIDAR Sensor Fusion", Journal of Korea Robotics Society, 14 (3), pp. 170-178, 2019, ISBN: 1975-6291.

2018   **Gyubeom Im**, Minsung Kim, Joonwoo Ahn, Minsoo Kim, Jaeheung Park, "V-Rep Simulator for Autonomous Vehicle Research in Parking lot Environment", The Korean Society of Automotive Engineers Annual Autumn Conference, Kangwon, Korea, 14.11.2018.

2018   Minsung Kim, **Gyubeom Im**, Joonwoo Ahn, Minsoo Kim, Jaeheung Park, "Autonomous parking algorithm using automatic selection of forward and backward switching points via model predictive control", The Korean Society of Automotive Engineers Annual Autumn Conference, Kangwon, Korea, 14.11.2018.

2018   Joonwoo Ahn, Minsoo Kim, **Gyubeom Im**, Minsung Kim, Jaeheung Park, "Development of Autonomous Valet Parking System and Simulation Result", The Korean Society of Automotive Engineers Annual Autumn Conference, Kangwon , Korea, 14.11.2018.

SKILLS

Expertise   SLAM, Visual(-inertial) Odometry, LiDAR(-inertial) Odometry

Programming   Modern C++, Python

Libraries   ROS, OpenCV, Eigen3, Ceres, g2o, PCL, OpenMP, TBB

AWARDS

2023   Samsung Software Certification: Professional

2020   Best Paper Award of Master Thesis in Graduate School, Seoul National University

2017   Kookmin University Scholarship

2017   Kookmin University Scholarship

2016   Kookmin University Scholarship

2015   Kookmin University Scholarship

2014   2nd Place in Cost Section, FSAE 2014

2014   18th Place (1st Prize among the Asia Teams) in Total Performance, FSAE 2014