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Alex Junho Lee

EDUCATION

Korea Advanced Institute of Science and Technology (KAIST)

Ph.D. candidate in Civil Engineering (Mar. 2017 ~ Current)

- Robotics Program, Smart City Program

B.S. in Mechanical Engineering (Feb. 2012 - Feb. 2017)

- Double Major in Business and Technology Management (BTM)

PUBLICATIONS

1. ViViD++: Vision for Visibility Dataset

In IEEE Robotics and Automation Letter (RA-L), 2022.

1. Disparity Image-based Place Recognition for Monocular Camera in 3D LiDAR Maps

Under Review at International Conference on Intelligent Robots and Systems (IROS), 2022.

1. Natural Language Representation as Features for Place Recognition

In Proc. of IEEE International Conference on Ubiquitous Robots (UR), 2022.

1. EventVLAD: Visual Place Recognition with Reconstructed Edges from Event Cameras

In Proc. of IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2021.

1. Event-based Real-time Optical Flow Estimation

In Proc. of IEEE International Conference on Control, Automation and Systems (ICCAS), 2017.

ACHIEVEMENTS

1. Co-Chair of *Localization II* Session, IROS2021.
2. Vision for Visibility Dataset (ViViD)

Best Paper, IEEE Int. Conf. Robotics and Automation (ICRA) Workshop: Dataset Generation and Benchmarking of SLAM Algorithms for Robotics and VR/AR, 2019.

FIELD OF INTEREST

Visual Simultaneous Localization and Mapping (SLAM), Multimodal sensor fusion, Place Recognition, Mobile robots, PGO-based LOAM & VO, Spatial AI

EXPERIENCES

* Robust visual place recognition for location authentication (Project, 2022)
  + Deep learning-based VPR, participated as project leader.
* Last-mile delivery robot in urban crowded areas (Project, 2021-2022)
  + LiDAR-based SLAM for UGV, participated as SLAM engineer.
* Visual SLAM on racing drones (Final Stage, 2021)
  + Korean DARPA Challenge, participated as SLAM part engineer.
  + Stereo VIO and LiDAR map building on embedded device (Jetson TX2)
* Outdoor SLAM in unstructured environment (Project, 2019-2021)
  + Autonomous map building in construction sites, participated as project leader.
  + Active SLAM, Long-term mapping, Sensor Integration
* Indoor SLAM with dynamic obstacles (Project, 2019)
  + Indoor service robot for general uses, participated as SLAM part engineer
  + SLAM in dynamic environment and obstacles, Obstacle avoidance.
* Encoder frame device and vehicle odometry measurement system (Patent, 2019)
  + High-resolution encoder frame for vehicle odometry, suggested and built hardware.
* Indoor SLAM under complex disaster (Project, 2018)
  + SLAM under environmental disturbances (Dust, Heat), participated as team member.
* 4th industrial revolution and autonomous driving (Project, 2017)
  + Investigation project for autonomous driving, participated as team member.
* Intern in Safety Design Dept. (Doosan Heavy Industries, 2016)
* International Student Exchange Program (National University of Singapore, 2016)

LANGUAGE

* Korean, English
* Python, MATLAB, C++