Jaeseok Park

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Summary

My main interest lies at SLAM(Visual-Inertial, LiDAR-Inertial), visual localization and robotics mathmetics. My favourite applications are autonomous driving and robotics.

Employment

- **Motion2AI** Seoul, South Korea
  Robotics Researcher (Full-time) *2023.01.02 - 2023.02.17*
  - **Improvement Pose Graph Optimize performance**
    Created algorithm to generate a pose to marker relative pose using local BA
  - **Maintenance of mass-production check application**
- **Motion2AI** Seoul, South Korea
  Robotics Researcher (Full-time) *2021.02.08 - 2022.08.31*
  - **Development server side graph optimization application using Ceres**
    Created a Pose graph optimizer application that runs on the server.
    Created a pose node addition/delete logic and conduct Covariance tuning to operate in general.
  - **Development LiDAR mapping backpack.**
    Building SLAM algorithms and applications that use LiDAR, IMU, and camera to estimate Apriltag's location.
    Create a GUI using Qt, and use openGL to allow users to view PointCloud and add Constraint (Point to plane) manually to Cost function.
  - **FAST feature extractor and FAST feature tracker using CUDA**
    Using CUDA, the VIO system can be operated on light edge devices such as Jetson Nano.
    Created the Feature Extraction Kernel, and use modules in the opencv-contribute repository for image to image feature matching using the sparse optical flow (KLT feature tracker).
  - **Development firmware and device management application**
    Maintenance of the power management board using the Coretex-m3 MCU (firmware).
  - **Maintenance C++ Application**
- **Helper Robotics** Seoul, South Korea
  Intern (Full-time) *2020.12.01 - 2021.02.05*
  - Development multi robot path planning using Dijkstra algorithm.

Personal Projects

- **SLAM Docker**
  Create Docker Image for SLAM Research
  - Make shell script for user
  - Writhe dockerfile and compose configuration
- **Wheel Detection for parking robot**
  Key Technology Development Project for Robot Industry in Korea(TUK)
  - Make vehicle wheel detection algorithm using image processing
  - Make measurement algorithm of vehicle wheel size using camera view geometry
- **Drowsiness Recognition Smart Stand**
  AI Makerthon 3rd Place
  - Drowsiness Recognition
  - LED brightness control using photo resistor
- **Mobile Robot Control**
  Mobile Robot Control uisng joy stick
  - BLDC Motor Control using MODBUS protocol based motor driver
  - Development joy stick controller
  - Development External PID Contoller for unstable driving of mobile robot
  - Mobile Robot Control Algorithm

Skills

- **Programming** - C++, Firmware side C, CUDA, Python
- **Libraries** - ROS, GTSAM, Ceres, Qt, OpenGL, HAL(Firmware)
- **Some skills** - SLAM(Visual-Inertial, Lidar-Inertial), MSCKF, Visual localization, Firmware, Nonlinear optimization

Education

- **Tech University Of Korea(TUK)** Siheung, South Korea
  Electrical Engineering [B.A] 3.14/4.5 *2016.03.01 - Present*
  - 2020 Second Semester Grade Scholarship D-1

Research Experiences

- **Inteligence Healthcare LAB(IH LAB), Tech University Of Korea(TUK)** Siheung, South Korea
  Undergraduate research student (Advisor: Eung-Hyuk Lee) *2019.01 - 2020.10*