Mengqi Liu

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EDUCATION

University College London London, United Kingdom
- Distinction Degree; MSc, Computer Graphics, Vision and Imaging 09/2018 - 11/2019

University of Liverpool Liverpool, United Kingdom
- First Class Degree; B.Eng, Computer Science & Electronic Engineering 09/2016 - 07/2018

Xi'an Jiaotong-Liverpool University (XJTLU) Suzhou, China
- B.Eng, Computer Science and Technology 09/2014 - 07/2016

SKILLS

Languages: Matlab, Python, C/C++/STL, Java, SQL
Frameworks: OpenCV, OpenGL, Eigen, Ceres, g2o, Numpy , PyTorch
Environments & Tools: Linux, Anaconda, CMake, pangolin, ROS, CUDA, Latex
Knowledge: multiple-view geometry, computer graphics, state estimation, machine learning, linear algebra
Research Interests: Visual SLAM, Visual Inertial Odometry

PROJECTS

Semantic SLAM in dynamic outdoor environments **02/2019 – 09/2019**

- Accessed the performance of one of the existing dynamic SLAM system (DynSLAM), identified and improved the potential weaknesses.
- Proposed a method based on the assumption of constant velocity to predict the location of segmentation detections which provides compensation for missed detections and improves the results of data association.
- Used HSV color image to reduce the effect of external light changes in outdoor environments.
- Proposed a more robust method based on optical flow and template matching to track dynamic object in dynamic outdoor environments.
- Applied the Planar-translation constraint to remove outliers for dynamic object motion estimation.

RGB-D SLAM for Microsoft Kinect Sensor **09/2017 – 03/2018**

- Designed a RGB-D sparse SLAM system with C++ using Microsoft Kinect.
- Used ORB matches for tracking and construction of the sparse map.
- Used g2o for the optimization of camera poses and map points.

COURSEWORK

Bundle Adjustment

- Used Bundle Adjustment to optimize the BAL (Bundle Adjustment in large) dataset.

Iterative Closest Point (ICP)

- Used ICP to calculate the transformation between two trajectories that represented by different frame coordinates and then align the two trajectories.

Mixture of Gaussians

- Trained a mixture of Gaussians model for recognizing the apple.

Particle Filter

- Used Particle Filter to track a given template which moves in a sequence of frames.

Poisson Image Editing

- Used Poisson Image Editing to implement seamless editing of image regions.

Biomedical (MRI) Image Processing

- Estimated the distribution of the Arterial Spin Labelling (ASL) signal from different components by fitting some simple models to the measurements.

EXPERIENCE

Got award (Top 10%) in Shenlan online Visual Inertial Odometry Course	06/2019 – 09/2019
Participated in Shenlan online Visual SLAM Course	06/2018 - 09/2018
Served as a Beta Volunteer Tester for Coursera	06/2017 - 08/2017
Served as a volunteer for XJTLU Youth Volunteers Society	06/2015 - 09/2015
Member of XJTLU IT Society	09/2014 - 06/2015