

JACK YI YANG

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EDUCATION

Carnegie Mellon University, School of Computer Science

Master of Science in Robotics, QPA: 3.89 / 4.33

Pittsburgh, PA

Expected, August 2019

Harvey Mudd College

Bachelor of Science in Engineering, GPA: 3.79 / 4.00

Claremont, CA

May 2017

Relevant Coursework

• Robot Localization and Mapping • Machine Learning • Geometry-based Computer Vision • Robotic Manipulation • Advanced System Engineering in Signals and Control • Computer System and Microcontrollers

EXPERIENCE

Robot Perception Lab, Robotics Institute, Carnegie Mellon University,

Fall 2017-Present

Advisor: Prof. Michael Kaess

- Developing state-of-the-art dense mapping, visual odometry, and SLAM algorithms.
- Conducting research that focuses on improving the quality of dense 3D map reconstructed from RGB-D camera, lidar, and IMU.

Lab for Autonomous and Intelligent Robotics, Harvey Mudd College

Fall 2014-Spring 2017

Advisor: Prof. Christopher Clark

- Designed and implemented a 3D traffic simulation environment in multi-robot motion planning.
- Built a multi-robot platform for testing and verification.

System Engineer, Zenith Robotics, Hong Kong

Summer 2017

- Developed aerial camera localization and planning systems using DJI Phantom 4 drones.

Software Engineer Intern, Apple Inc., Team CoreMotion, Cupertino

Summer 2016

- Developed systems for gesture state estimation from inertial sensors on wearable devices.

PUBLICATIONS

Surfel-Based Dense RGB-D Reconstruction with Global and Local Consistency

- IEEE International Conference on Robotics and Automation (ICRA) 2019, submitted under review, Yi Yang, Wei Dong, and Michael Kaess

Highway In The Sky: 3D Path Planning for High Traffic Flow

- Southern California Robotics (SCR) Symposium 2016, Yi Yang, Nicholas Gonzalez, Fabiha Hannan, and Christopher Clark

PROJECTS

Improving Feature Extraction in SLAM using Semantic Segmentation

Spring 2018

- Implemented an ORB feature weighting scheme in bundle adjustment using semantic information.
- Improved the absolute trajectory error on KITTI dataset by 5% comparing to monocular ORB-SLAM.

Rooftop Inspection: Mapping and Damage Detection

Fall 2017 - Fall 2018

- Applied dense mapping algorithms to construct accurate 3D map of the rooftops using flying drones.
- Implemented a convolutional neural network using PyTorch to automatically detect roof hail damages.

Rapid Bottle Thickness Detection on Production Line

Spring 2016

Sponsored by Niagara Bottling Company. 7-person team.

- Implemented a driver program to efficiently extract IR image from a high speed camera.
- Designed a fast image processing algorithm for production line bottle edge and thickness detection.

SKILLS

- **Programming Languages:** C/C++, Python, Matlab, Java
- **Tools:** Linux, ROS, OpenCV, PyTorch, NumPy
- **Languages:** Fluent in English, Chinese and Japanese