XINJIE YAO

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EDUCATION

Carnegie Mellon University (CMU) Pittsburgh, PA
Master of Science in Robotics (Research Program) Sep 2020 - May 2022 (expected)

- Learning-based navigation and exploration advised by Dr. Jean Oh and Dr. Ji Zhang
- Relevant coursework: Computer Vision, Intro to Math for Robots

The Hong Kong University of Science and Technology (HKUST) Hong Kong SAR
B.Eng (Hons.) in Computer Engineering (Minor in Robotics) & B.BA in Business Management Sep 2015 - May 2020

- GPA = 4.06/4.3
- Relevant coursework: Intro to Aerial Robotics, Machine Learning, Computer Vision, Information Processing for Robotic, System Model, Analysis & Control, Robot Manipulation & Mobility

SKILLS

Programming languages	Python, C++, MATLAB, SQL, Java
Frameworks and tools	ROS, Pytorch, Tensorflow/Keras, OpenCV, Linux, Cmake, Eigen, PCL
Concepts	Localization, State Estimation, Navigation, Computer Vision, Lidar, Motion Planning

ACADEMIC RESEARCH EXPERIENCE

Following Social Groups: Socially Compliant Autonomous Navigation in Dense Crowds Pittsburgh, PA
Summer Research Assistant at **CMU Robotics Institute Bot Intelligent Group** Jun 2019 – Aug 2019

- Developed a perception and planning pipeline, deployed to a wheel-chair robot able to drive naturally in a densely populated area (10+ people in a 10mx20m area) [video] [code]
- Designed a pedestrian trajectory prediction model based on GAN, and achieved 8% accuracy improvement than the state-of-the-art model
- Published in the proceeding of IROS'19 workshop Towards Cognitive Vehicles [paper] [poster]

Robust Monocular Visual-Inertial Localization and Mapping Hong Kong SAR
Undergraduate Research Assistant at **HKUST-DJI Joint Innovation Laboratory** Jan 2019 – Apr 2020

- Developed an EKF-based Visual-Inertial state estimation approach, and implemented a minimum snap trajectory generator and a A* path planner with a model-based flight control stack [video] [code]
- Solved implementation problems in VINS-Fusion system, and improved its system robustness
- Assisted design and installation of UAV platform, and set up ground station

Wi-Fi Signal Strength-based Robot Indoor Localization Hong Kong SAR
Undergraduate Research Assistant at HKUST **Robotics and Multi-Perception Lab** Jan 2017 – Dec 2018

- Developed a robot to localize users with Android device using Wi-Fi signals and direct to ideal position
- Achieved localization accuracy of 3m modelled by Gaussian Process Regression and Bayes Filter [video] [code]
- Completed an Android app, tested the entire system in a 10mx5m cluttered area with 10+ guest visitors

PROFESSIONAL EXPERIENCE

DJI Technology Co. Shenzhen, China
Algorithm Engineer Intern, Department of L4 Autonomous Driving Nov 2019 – Jan 2020

- Implemented a relative state estimation framework for swarm UAVs with centimeter level precision for indoor localization using Vision-Inertial-UWB fusion
- Trained a drone detection network based on YOLOv3 with self-collected datasets, and tested up to 5 UAVs in the real-world environment
- Setup a decentralized Docker image distribution network

Beijing Aqrose Technology Co. Beijing, China
Algorithm Engineer Intern, Department of Robotics Jun 2018 – Aug 2018

- Designed a heuristic-based grasping strategy using vacuum and M2 grippers for industrial robots in RGB-D sensor inputs, and demonstrated the grasping system at China International Industry Fair
- Conducted research on data-driven grasping strategy with readings from point cloud

Baidu Venture San Francisco, CA
Investment Analyst Intern Jun 2017 – Aug 2017

- Published summaries of trends and applications in visual-SLAM and IMU, and received over 847 likes [report]
- Performed due diligence on potential investments, and secured two deals in robotic industry