

Tong Qin

Contact Information

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Education & Work

04/2019-08/2019 **Facebook Reality Labs**, Redmond, US
(expected) Research internship, AR/VR

09/2015-09/2019 **Hong Kong University of Science and Technology**, Hong Kong
(expected) PhD at Aerial Robotics Group, Robotics Institute, Dept. ECE
Adviser: Shaojie Shen
Research Interests: visual SLAM, sensor fusion, visual-inertial system, autonomous driving, virtual reality and augmented reality
Citations: 180

09/2011-08/2015 **Zhejiang University**, Hangzhou, China
Bachelor at Dept. Control Science and Engineering
GPA: 3.93/4.0 (88.8/100)
Ranking: 4/132

Research Experience

Visual-inertial systems (VINS)

By assisting cameras with Inertial Measurement Unit (IMU), visual-inertial systems achieve high-accurate 6-DoF state estimations, which are of great importance for autonomous applications.

Multiple sensor fusion

Fusing global sensors (GPS, Magnetometer, barometer...) with local sensors (IMU, camera, Lidar, wheel odometry...), multi-sensor fusion can achieve robust and accurate pose estimation in various environment.

Stereo vision based 3D object detection

Using learning based method to detect 2D bounding box, then recovering objects' 3D location and movement by optimizing multiple-view observations.

Lidar-based localization and mapping

Laser Odometry and Mapping is a realtime method for state estimation and mapping using 3D point cloud from Velodyne. This algorithm is applied to autonomous navigation on ground vehicles.

Autonomous flight on unmanned aerial vehicle (UAV)

Equipping the UAV with various intelligent algorithm, it can achieve self-localization, environmental perception, obstacle avoidance and autonomous flight in complicated environment.

Honors

2018	IROS2018 Best Student Paper Award
2015	The first prize in International Aerial Robotics Competition
2014	National Scholarship of China (Top 2%)
2014	First-Class Scholarship for Outstanding Student, Zhejiang University (Top 3%)
2014	The second prize in Robot contest, Zhejiang University
2013 2012	Excellent Students Awards, Zhejiang University
2012	The first prize in Physical Innovation Contest, Zhejiang province

Teaching Experience

Teaching Assistant at Dept. ECE, HKUST
ELEC 1100: Introduction to Electro-Robot Design
ELEC 5660: Introduction to Aerial Robotics

Public Library

VINS-Mono: <https://github.com/HKUST-Aerial-Robotics/VINS-Mono> (1400 Star)
VINS-Mobile: <https://github.com/HKUST-Aerial-Robotics/VINS-Mobile> (800 Star)
VINS-Fusion: <https://github.com/HKUST-Aerial-Robotics/VINS-Fusion> (400 Star)

Journal Publications

[1] **Tong Qin**, Peiliang Li, and Shaojie Shen. "VINS-MONO: A Robust and Versatile Monocular Visual-Inertial State Estimator." IEEE Transactions on Robotics (TRO), 2018

[2] Lin Yi, Fei Gao, **Tong Qin**, Wenliang Gao, Tianbo Liu, William Wu, Zhenfei Yang, and Shaojie Shen. "Autonomous Aerial Navigation Using Monocular Visual-Inertial Fusion." Journal of Field Robotics (JFR), 2017

Conference Publications

[3] **Tong Qin** and Shaojie Shen. "Online Temporal Calibration for Monocular Visual-Inertial Systems." IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2018 (**Best Student Paper**)

[4] **Tong Qin**, Peiliang Li, and Shaojie Shen. "Relocalization, Global Optimization and Map Merging for Monocular Visual-Inertial SLAM." IEEE International Conference on Robotics and automation (ICRA), 2018

[5] **Tong Qin** and Shaojie Shen. "Robust Initialization of Monocular Visual-inertial Estimation on Aerial Robots." IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2017

[6] Peiliang Li, **Tong Qin**, and Shaojie Shen, “Stereo Vision-based Semantic 3D Object and Ego-motion Tracking for Autonomous Driving”, European Conference on Computer Vision (ECCV), 2018

[7] Kejie Qiu, **Tong Qin**, Hongwen Xie, and Shaojie Shen, “Estimating Metric Poses of Dynamic Objects Using Monocular Visual-Inertial Fusion.” IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2018

[8] Peiliang Li, **Tong Qin**, Botao Hu, Fengyuan Zhu, and Shaojie Shen, “Monocular Visual-Inertial State Estimation for Mobile Augmented Reality.” IEEE International Symposium on Mixed and Augmented Reality (ISMAR), 2017

[9] Haofei Wang, Jimin Pi, **Tong Qin**, Shaojie Shen, and, Bertram E Shi, “SLAM-based Localization of 3D Gaze Using a Mobile Eye Tracker”, ACM Symposium on Eye Tracking Research & Applications (ETRA), 2018