Yu Zhou

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- More information and auxiliary documents can be found on my homepage `https://yuzhou42.github.io/`

Education

Joint Master between Northeastern University and the Chinese Academy of Sciences (CAS), Shenyang, China
MEng, Control Engineering. Sep. 2014 — Jan. 2017
GPA: 3.59/4.00; Rank: 1/168.

Northeastern University, Qinhuangdao, China
BEng, Automation. Sep. 2010 — Jun. 2014
GPA: 4.10/4.33; Rank: 4/196.

Work Experience

Associate Scientist Mar. 2018 — present
Temasek Laboraties, Singapore

Research Engineer Mar. 2017 — Mar. 2018
Advanced Robotics Center, National University of Singapore

Research Assistant Sep. 2014 — Jan. 2017
State Key Laboratory of Robotics, Chinese Academy of Science, China

Engineering Intern Jul. 2014 — Aug. 2014
DJI, Shenzhen, China

Relevant Projects

Dog-Drone Project Mar. 2018 — Jun. 2018
Intelligent Unmanned System Group, Temasek Laboraties, National University of Singapore

Immobilize suspicious individuals in an indoor environment by flying multiple drones aggressively around them.

- Indoor localization with visual inertial odometry;
- Trajectories generation with Reflexxes;
- Tasks management with a state machine.

GPS-Denied Vision Control of UAV Mar. 2017 — Jan. 2018
Advanced Robotics Centre, National University of Singapore, Singapore

Autonomous launch, tracking and landing of UAV on a moving platform under GPS-Denied environment.

- Visual detection of designed markers;
- Software design and implementation;
- System integration.

Unmanned Ground Systems Challenge Apr. 2016 — Sep 2016
Autonomous Robot Group, State Key Laboratory of Robotics, CAS, China

Environment map building and localization under GPS signal lost situation.

- Integrated 64-line, 32-line, single-line laser data and vision for obstacle detection, built obstacle layer environment map information;
- Integrated laser and vision data, and added vision color information to the laser point cloud for segmentation;
- Implemented laser odometry methods to achieve the UGV localization without GPS.

Research on VIO-based localization algorithms Dec. 2015 — Oct. 2016
Northeastern University, China

Localization algorithm research based on the integration of visual, inertial and magnetic data. Algorithms include vision odometry, inertial navigation and sensor fusion.

- Integrated the IMU and magnetic data with an error state Kalman filter to obtain attitude estimation;
- Implemented visual odometry based on the feature method;

- Pose estimation obtained with vision and IMU integration via a multi-state Kalman filter simulation.

The 3rd International UAV Innovation Grand Prix Dec. 2015 — Oct. 2016
Autonomous Robot Group, State Key Laboratory of Robotics, CAS, China

Supervised the visual guidance program development.

- Achieved the detection and recognition of ellipses and 2D binary code markers;
- Achieved the acquisition of relative pose between mobile markers and the aircraft;
- Used the Pixhawk autopilot to control the UAV with visual information.

UAV GCS for Agriculture Irrigation October. 2014 — Jan. 2015
Autonomous Robot Group, State Key Laboratory of Robotics, CAS, China

Designed a UAV ground station software for agriculture irrigation with functions such as information monitoring, parameter setup and sensor calibration.

DJI Internship Jul. 2014 — Aug. 2014
DJI, Shenzhen, China

Designed and conducted a series of reliability testing for MEMS IMUs applied to vibrating, extreme working temperature and strong electromagnetic interference environments.

Publications

Development of nano UAV platform for navigation in a GPS-denied environment using Snapdragon. **Yu Zhou**, Geng Qin, Feng Lin. IEEE IECON 2018.

Decentralized robust exact tracking control for 2-DOF planar robot manipulator. Zhenxing Sun, **Yu Zhou**, Xinghua Zhang, Haoyong Yu. IEEE ICARM 2018.

Visual Target Detection and Tracking Framework Using Deep Convolutional Neural Networks for Micro Aerial Vehicles. Mingjie Lao, Xudong Chen, Feng Lin, Geng Qin, Wenqi Liu, **Yu Zhou**. IEEE ICCA 2018.

A robust real-time vision based GPS-denied navigation system of UAV. Liying Yang, Bin Xiao, **Yu Zhou**, Yuqing He, Hongzhi Zhang, Jianda Han. IEEE CYBER 2016.

Honors & Activities

The 3rd International UAV Innovation Grand Prix — *2nd prize*	Oct. 2015
Northeastern University Scholarship — *1st prize*	Sep. 2015
Outstanding Graduates	Jun. 2014
Outstanding Bachelor Paper Award	Jun. 2014
National Undergraduate Electronic Design Contest — *2nd prize*	Oct. 2013
Northeastern University Scholarship — *1st prize*	2010-2013

Skills

Languages: C++/C, MATLAB, Python.
Frameworks/Libraries/Tools: ROS, OpenCV, PCL, TensorFlow, Qt, Linux, Git, CMake.
Sensors: Vision, IMU, LASER, LIDAR.

Languages

Mandarin (native); English (full professional proficiency).