

Yu Zhou — Computer Science and Engineering

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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. GPA: 3.59/4.00; Rank: 1/168. Northeastern University , Qinhuangdao, China BEng, Automation. GPA: 4.10/4.33; Rank: 4/196.	Sep. 2014 — Jan. 2017 Sep. 2010 — Jun. 2014
WORK EXPERIENCE	Associate Scientist <i>Temasek Laboratories, Singapore</i> Research Engineer <i>Advanced Robotics Center, National University of Singapore</i> Research Assistant <i>State Key Laboratory of Robotics, Chinese Academy of Sciences, China</i> Engineering Intern <i>DJI, Shenzhen, China</i>	Mar. 2018 — present Mar. 2017 — Mar. 2018 Sep. 2014 — Jan. 2017 Jul. 2014 — Aug. 2014
RELEVANT PROJECTS	Dog-Drone Project <i>Intelligent Unmanned System Group, Temasek Laboratories, National University of Singapore</i> Swarm drones for suspect immobilization in indoor environments. <ul style="list-style-type: none">• Indoor localization with visual inertial odometry;• Trajectory generation with Reflexxes;• Tasks management with a state machine. GPS-denied Vision Control of UAV <i>Advanced Robotics Centre, National University of Singapore, Singapore</i> Autonomous launch, tracking and landing of UAV on a moving platform under GPS-denied environment. <ul style="list-style-type: none">• Visual detection of designed markers;• Software design and implementation;• System integration. Unmanned Ground Systems Challenge <i>Autonomous Robot Group, State Key Laboratory of Robotics, CAS, China</i> Environment map building and localization under GPS signal lost situation. <ul style="list-style-type: none">• 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 <i>Northeastern University, China</i> Localization algorithm research based on the integration of visual, inertial and magnetic data. Algorithms include vision odometry, inertial navigation and sensor fusion.	Mar. 2018 — present Mar. 2017 — Jan. 2018 Mar. 2016 — Sep. 2016 Dec. 2015 — Oct. 2016

- 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 Mar. 2015 — Oct. 2015
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 Oct. 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 tests for MEMS IMUs subject to vibrations, extreme working temperatures and strong electromagnetic interference.

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 — <i>2nd prize</i>	Oct. 2015
Northeastern University Scholarship — <i>1st prize</i>	Sep. 2015
Outstanding Graduates	Jun. 2014
Outstanding Undergraduate Thesis Award	Jun. 2014
National Undergraduate Electronic Design Contest — <i>2nd prize</i>	Oct. 2013
Northeastern University Scholarship — <i>1st prize</i>	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).

HOBBIES

Long-distance running, Photography, Solo travel, Volunteering