

Yu Zhou

Github/LinkedIn

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RESEARCH INTERESTS 3D visual perception and navigation; machine learning; robotics.

EDUCATION **Northeastern University**, Shenyang, China
MEng, Control Engineering. Sep. 2014 — Jan. 2017

Northeastern University, Qinhuangdao, China
BEng, Automation. Sep. 2010 — Jun. 2014

WORK EXPERIENCE **Associate Scientist** Mar. 2018 — present

Intelligent Unmanned System Group, National University of 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 Sciences, China
Engineering Intern Jul. 2014 — Aug. 2014
DJI, Shenzhen, China

RELEVANT PROJECTS **Intelligent UAV System** Mar. 2018 — present

Intelligent Unmanned System Group, National University of Singapore
Developing a fully autonomous UAV framework in GPS-denied and cluttered environments.

- Built a UAV system with visual inertial odometry, target detection, mapping and motion planning modules;
- Implemented EKF-based indoor localization and graph-optimization-based visual-inertial odometry with a stereo fisheye camera;
- Helped design a neural network-based motion primitives generator and a Euclidean signed distance field mapping with depth image for motion planning.

GPS-denied Vision Control of UAV Mar. 2017 — Jan. 2018

Advanced Robotics Centre, National University of Singapore, Singapore
Developed the autonomous launch, tracking and landing of UAV on a moving platform under GPS-denied environment with designed visual markers.

Unmanned Systems Development Dec. 2015 — Oct. 2016

Northeastern University & State Key Laboratory of Robotics, China

- Designed and implemented a laser vision sensor calibration framework;
- Implemented laser odometry for unmanned ground vehicle localization;
- Supervised the visual guidance program development for the 3rd International UAV Innovation Grand Prix and won second prize.

PUBLICATIONS

- [1] Y. Zhou et al. "Towards Autonomy of Micro Aerial Vehicles in Unknown and GPS-denied Environments". In: *IEEE Transactions on Industrial Electronics* (2019). Accepted.
- [2] L. Yang et al. "A robust real-time vision based GPS-denied navigation system of UAV". In: *2016 IEEE International Conference on Cyber Technology in Automation, Control, and Intelligent Systems (CYBER)*. June 2016, pp. 321–326. DOI: 10.1109/CYBER.2016.7574843.

SKILLS

Relevant coursework: Machine Learning; Computer Vision; Probability and Statistics; Optimization; Multiview Geometry; Algorithms; Deep Learning.

Languages: C++/C, Python, JavaScript, MATLAB, HTML, CSS.

Frameworks/Libraries: ROS, Linux, Git, OpenCV, PCL, TensorFlow, CUDA