

Ziyuan HUANG

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EDUCATION

National University of Singapore (Current)

*Doctor of Philosophy in Advanced Robotics Centre (ARC)
Specialize in computer vision and robotics*

Singapore
Aug 2019 - May 2024

Tongji University

*Bachelor of Engineering in Vehicle engineering (Automobile)
GPA: 4.72 / 5.00 (16/229, 7%)
Graduated with honor: Outstanding Graduate of Shanghai*

Shanghai, China
Sep 2014 - Jul 2019

University of Stuttgart (Exchange program)

*Non-degree in Automobile and engine technology
GPA: 1.91 / 1.00 (No official ranking)*

Stuttgart, Germany
Mar 2018 - Sep 2018

PROJECTS

DIAN Racing (Formula student racing team)

Mar 2015 - Dec 2018

As group member of Electronic Control Group (Season 2015 - 2016)

- Designed and prototyped software and hardware of the **dashboard unit** and **wireless data transfer unit** based on STM32 using Altium Designer and KEIL, programmed in C/C++
- Designed **software structure** of vehicle management unit (VMU) on Simulink

As group leader of Electronic Control Group (Season 2016 - 2017)

- Designed the **architecture and topology** of the distributed electronic control system
- Designed the **application layer communication protocol** based on CAN
- Implemented **V-Model development process** so that electronic systems functioned faultlessly in the FSEC competition

As project director of driver-less project (Season 2017 - 2018)

- Designed **architecture of software and hardware** of the driver-less system based on ROS
- Established **simulation environment based on GAZEBO and ROS**

Vehicle mounted UAV

Mar 2017 - Dec 2017

Financed by Pan Asia Technical Automotive Center Co., Ltd

As project director (supervised by Prof. Zaimin Zhong)

- Led a research team of 5 peers to realize following functions: use buttons in android app to control unmanned aerial vehicle to **take off, follow vehicle and land in Cargo-box autonomously**.
- Designed system structure of software and hardware (incl. data flow, control flow, etc.)
- Wrote android UI program to act as general user interface in JAVA
- Built image recognition and tracking program to **exploit and match ORB feature** to recognize and track the target platform to land on, programmed in C/C++
- Designed cargo-box control system based on STM32, programmed in C/C++

PROFESIONAL ACTIVITIES

Peer reviewer in 2019 IEEE International Conference on Advanced Robotics and Mechatronics (ICARM), July 3-5, 2019, Sigma Hall, Osaka Univeristy, Japan.

PUBLICATIONS AND CONFERENCES

Ziyuan Huang, Changhong Fu, Yiming Li, Fuling Lin, and Peng Lu. Learning aberrance repressed correlation filters for real-time uav tracking. In *Proceedings of the IEEE International Conference on Computer Vision (ICCV)*, 2019.

Changhong Fu, **Ziyuan Huang**, Yiming Li, Ran Duan, and Peng Lu. Boundary effect-aware visual tracking for uav with online enhanced background learning and multi-frame consensus verification. In *2019 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2019.

Changhong Fu, Yinqiang Zhang, **Ziyuan Huang**, Ran Duan, and Zongwu Xie. Part-based background-aware tracking for uav with convolutional features. *IEEE Access*, 7:79997–80010, 2019.

AWARDS AND ACHIEVEMENTS

Awards

- Awarded Entrance Scholarship of Tongji University (2014)
- Awarded First Prize of Tongji Scholarship of Excellence (2015)
- Awarded Second Prize of Tongji Scholarship of Excellence (2016)
- Awarded STMicroelectronics Scholarship (2017, 2/229)
- Awarded Second Prize of Tongji Scholarship of Excellence for Exchange (2018)
- Awarded Tongji Scholarship for Practice (2018)
- Awarded Outstanding Graduate of Shanghai (2019)

Achievements

- Achieved the 3rd place of total 40 teams in 2016 Formula Student Electric China (FSEC)
- Achieved the 3rd place of total 40 teams in Design Report in 2016 FSEC
- Achieved the 4th place of total 40 teams in 2017 FSEC
- Achieved the 1st place of total 40 teams in Design Report in 2017 FSEC
- Achieved the 1st place of total 92 teams in Acceleration in Student Formula Japan (SFJ)
- Achieved the 4th place of total 16 electric racing teams in SFJ

INTERNSHIP

NIO Co., Ltd

Software engineer in Autonomous Driving Department China

Shanghai, China

Sep 2018 – Mar 2019

- Integrated RTK service SDK and IMU calculation SDK into GPSD
- Designed **real-time application layer communication protocol** based on UDP to transfer data from gateway to monitoring computer, programmed in C/C++
- Designed **human machine interface (HMI) demo** based on Qt and C++ for L2 self-driving project demonstration