YuanHang Zhang

800 Dongchuan RD. MinHang District, Shanghai, China
131-6237-2866 harveyzhang0610@163.com github.com/SJTU-ZYH

Education

Shanghai Jiao Tong University **Sep. 2019 – June 2023**
***Major**: Automation, **Grade**: 88.5/100, **Rank**: 21/85, **English Levels**: TOEFL - 107* *Shanghai, China*

- The SJTU Outstanding Graduate, June 2023
- The SJTU Merit Student, October 2021
- The SJTU Merit Scholarship, 2020
- The SJTU Academic Progress Scholarship,2021

Research & Projects

Perception-constrained visual servoing based NMPC for quadrotor flight **March 2023 – June 2023**
Graduation Project *Shanghai*

- Address the Perception-Constrain problem in Image-Based Visual Servo Control (IBVS) for autonomous flight.
- Propose a NMPC approach with a quadrotor dynamics model, incorporating visual feature constraints for enhanced control performance.
- Demonstrate the scheme's robustness through successful position tracking and smooth traversal of circular trajectories in simulations and physical experiments.

Global localization algorithm based on field-side barcode **March 2021 – April 2022**
Student Innovation and Entrepreneurship Project *Shanghai*

- Locate barcodes by image gradient filtering.
- Match barcodes using fuzzy matching algorithm.
- Invert camera external parameters for machine localization using the transformation relationship of each coordinate system in monocular vision.

Competitions & Awards

UAV Intelligent Perception Technology Competition | *C++, Python* **Sep. 2022 – Nov. 2022**
*National Third Prize(**Team Leader**)*

- Use SE(3) controller to control the quadrotor under the PX4-Autopilot
- Deploy YOLOv5 algorithm with TensorRT for object detection and implement P3P to estimate the relative pose.
- Use RAPPIDS to generate the trajectory for quadrotor.

National University IOT Design Competition | *C++, Python, JAVA* **June 2022 – September 2022**
*National First Prize & Harmony Innovation Award(**Team leader**)*

- Design "HarClass" based on the distributed features of HarmonyOS.
- Use Bearpi for environment awareness and write your own protocols to communicate with the cloud.
- Create a website for data visualization based on the data received from the cloud server.

National University ICT Competition (Innovation Track) | *Python* **September 2021 – January 2022**
*National Second Prize(**Team leader**)*

- Data set collection for edge devices using Socket.
- Deploy models of target detection and patrolling based on MindSpore deep learning framework and Ascend chip.

National University Unmanned Vehicle Competition(Huawei) | *Python* **June 2021 – September 2021**
*National Top 20(**Team leader**)*

- Deploy YOLOv3, v5 Target Detection Algorithms in TensorFlow Framework on Hilens Hardware Platform.
- Fusion of vision, distance sensors and LIDAR sensors for decision planning.

Leadership / Extracurricular

SJTU VEX Club **Spring 2020 – Present**
Program Team Leader *Shanghai Jiao Tong University*

- Lead a group of 10+ people in the development of automatic and manual algorithms for self-designed vehicles as well as own a complete GIT project management system and Top VEX program level among universities in China.
- Lead the development of the AI automation system of SJTU VEX, including the three modules of full-field positioning, visual recognition and underlying communication, and finally served as a presenter to communicate and share the results with various universities, and gave a presentation to the Chinese representative of IFI.

Miscellaneous

Programming Languages: C++, Python, Java, Matlab
Technologies/Frameworks: ROS, g2o, OpenCV, Pytorch, Tensorflow