

Yuxiang Mao

+86 13306749809 tianchenmao@gmail.com

EDUCATION

Northwestern Polytechnical University

Sep 2019 - Jun 2023

Automation Bachelor

GPA : 3.65 / 4.10

SKILLS LIST

- Master C++ and Python Programing
- Familiar with Linux, Git, gRPC and Docker
- Familiar with ROS, Gazebo, PX4, CMAKE and other tools
- Control system simulation based on MATLAB and Simulink
- Master the basics of deep learning and machine learning

PROJECT EXPERIENCE

China Robot Competition UAV Challenge

Nov 2020 - Apr 2022

In the UAV competition, drones are expected to finish tasks like autonomous flight, target identification, localization, motion planning and delivery.

- I am in charge of flow control, mainly write a finite state machine, which constantly switches from different task. Common tasks like takeoff, navigation, searching for target, tracking target, unload object, which is built on basic actions like adjust position and velocity.
- I am in charge of motion planning of drone, mainly using navigation stack like move_base and ego-planner. I tune the parameter of planner, and add some additional behavior to gain better performance.
- I am responsible for building docker images to facilitate migration and deployment.

Drone control platform development

This is a web-side platform for assigning actions of the drone conveniently. Using web-side control panel to assign target, action, and parameter can speed up the test and tuning process.

I am responsible for encapsulating the underlying action of the drone for front-end calling, communicate with front-end through grpc, pass received messages to ROS node and return the state information to web-side.

Aircraft control system simulation and tuning

Using simulink to model control system of aircraft and design controller with simplified aircraft dynamics.

Tuning cascaded PID on real quadcopter platform .

HONORS & AWARDS

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| First prize in the National Championship Aerial Flight Robot Competition | 2021.10 |
| Second prize in the National Championship Aerial Flight Robot Competition | 2020.12 |
| Second prize of China Robot Competition UAV Challenge | 2020.11 |
| Second prize of China Robot Competition UAV Challenge | 2022.04 |

RESEARCH INTERESTS

Control and motion planning of UAV and mobile robots, Autonomous driving, SLAM