Ching-Hsiang Wu

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EDUCATION

National Taiwan University Taipei, Taiwan
Master of Science, Automatic Control in Electrical Engineering Feb. 2025(expected)

- **Overall GPA: 4.30/4.30, Rank: 1/97**
- Relevant Courses: Optimal Control(**A+**), System Identification(**A+**), 3D Computer Vision with Deep Learning Applications(In progress)

National Taiwan University Taipei, Taiwan
Bachelor of Science, Biomechatronics Engineering Feb. 2022

- **Overall GPA: 3.39/4.30, Rank: 18/54**
- Relevant Courses: Dynamics and Control of Robots(**A**) Automatic Control (**A**), Digital Control Systems(**A**), Adaptive Control Systems(**A**), Neuro-control Systems(**A**), Digital Image Processing(**A-**)

SKILLS

Programming

- WebDev Languages, Python (Tensorflow2, OpenCV, NumPy, Matplotlib), C/C++, Qt, MATLAB.

Software

- SolidWorks, Simulink, **GAZEBO, Rviz,** Qt designer, QGroundControl, **ROS noetic.**

System & Controller

- Ubuntu18/20, Raspberry pi 4, Arduino, Nvidia TX2, Nvidia Xavier, Pixhawk series, PX4.

Hardware

- Soldering, 3D printing.

RESEARCH EXPERIENCE

Networked Control System Laboratory(NCSLab) Taipei, Taiwan
Graduate student Feb. 2023-Feb. 2025(expected)
Fixed-wing close formation control under wind disturbances

- Objective: Buliding Fixed-wing UAVs close formation system under strong wind environment(force 7-9) to complete the coastal defense missions(reconnaissance and rescue).
- Fixed-wing UAV modeling and control.
- Close formation controller design.
- Path following controller design.

Aiseed tech Inc. Taipei, Taiwan
Robotics AI engineer intern Oct. 2021-Aug. 2022
Building UAV systems

- Objective: Building a fully automatic VTOL system with ROS
- Connecting a variety of sensors, such as intel realsense d435i, T265, webcam with raspberry pi4
- Validating the automatic tracking algorithm with Gazebo.
- Studying the obstacle avoidance and slam techniques to be applied to UAV system.
- Precision landing function enabled with distance sensor and irlock beacon

Object detection and video streaming

- Streaming inferred video from UAV system to website or ground station through Gstreamer.

Robots and Medical Mechatronics Laboratory (RMML) Taipei, Taiwan
Undergraduate researcher Sept. 2019-Sept. 2021
Development of a platform for remote control robots for oral and nasal cavity specimen collection

- Objective: Building a automatic specimen collection robot with remote center motion(RCM) technique for the sake of higher security during the swabbing process.

- Designed the RCM linkage mechanism
- **Won sponsorship from the Ministry of Science and Technology (MOST)**

Participating in 2019 Bio-mechatronics Field Robot Competition

- Using open source tiny-yolov3 repository to train our model. Aiming at grabbing the apples with a 4-axis manipulator automatically by obtaining apples' 3-D coordinates.

HONORS AND ACHIEVEMENTS

2020 Taoyuan ROS SUMMER SCHOOL

Integrating NeronBot provided by the ADLINK with ROS/ROS2 and the other self-defined algorithm to achieve the assigned mission automatically.

- Advanced group second runner-up

LEADERSHIP EXPERIENCE

2020 Country Youth Life Study Club

Taipei, Taiwan

Leader of activities department

Sept. 2020-Feb. 2021

Conducting a summer/winter camp in the rural junior high school for a week. The responsibility of activities department is to hold an evening party and bring the laughter and tears to the children.

- Effectively assigning work to every member of activity department.
- Good time management to ensure each work will be in place in time.

2020 Azalea Festival Project

Taipei, Taiwan

Team leader

Feb. 2020-Mar. 2020

- Led the team to build an **Automatic sensing and catching apple truck system**
- In charge of image recognition and the transportation between the Arduino and the laptop
- Filmed a recruit video to promote Biomechatronics Engineering Department