

# YUHONG ZHOU

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Chengdu, Sichuan, China

## Education

### University of Electronic Science and Technology of China

Sep.2022 – Jun.2025

*Master of Engineering in Electronic Information*

*College of Automation*

- Core Curriculum: Optimization Theory and Applications, Adaptive Control, Graph Theory and its Application, Pattern Recognition & Machine Learning, Nonlinear System Theory.
- Average Score: 86.74/100    GPA: 3.85/4

### Southwest Jiaotong University

Sep.2018 – Jun.2022

*Bachelor of Engineering in Mechanical Engineering*

*SWJTU-Leeds Joint School*

- Core Curriculum: Vibration and Control, Engineering Mechanics, Solid Mechanics, Design and Manufacture, Vehicle Design & Analysis, Computers in Engineering Analysis, Economics and Management.
- Average Score: 87.23/100    Honour Class I

## Papers & Publication

Y. Zhou, Y. Chen, L. Zhang and C. Pan, "Distributed Finite-Time Prescribed Performance for Multiple Unmanned Aerial Vehicle With Time-Varying External Disturbance," in *IEEE Internet of Things Journal*, doi: 10.1109/JIOT.2024.3367172.

Y. Zhou, Y. Chen and L. Zhang, "Distributed Prescribed Performance Control based on Adaptive Neural Network Strategy for Multi-UAVs under Cyber-attacks," (Submitted)

## Research Experience

### Distributed consensus control of the multi-agents system under cyber-attacks.

*Principal researcher*

Oct.2023 – May.2024

- Designed a distributed controller with the backstepping law to achieve the cooperative tracking control of multiple unmanned aerial systems under the deception and injection cyber-attacks.
- Applied the finite-time prescribed performance function (FTPPF) to achieve a faster convergence time with smaller tracking errors.
- Developed an adaptive neural network approximation method to approximate the cyber-attacks to alleviate the adverse effects of the cyber-attack, which will destroy the information communication between the multiple UAVs.
- Carried out the simulation experiment, analyzed and summarized the results, and wrote the paper.

### Distributed consensus control of the multi-agents system under external disturbances.

*Principal researcher*

Sep.2022 – Sep.2023

- Designed a distributed controller with the backstepping law to achieve the cooperative tracking control of the multiple unmanned aerial vehicle systems under the time-varying external disturbances.
- Applied the finite-time prescribed performance function (FTPPF) in the controller design to achieve smaller convergence errors and a faster convergence time.
- Used the adaptive law to compensate for the adverse effects of the time-varying disturbances, acting on the targets. Used filter-based saturation compensatin method to handle the input saturation problem.
- Carried out the simulation experiment, analyzed and summarized the results, and wrote the paper.

### The Remote Monitoring Systems Design | BEng Graduation Project

Oct.2021 – May.2022

- Designed the remote monitoring system of an intelligent window based on Arduino board and Gizwits Cloud platform, enabling the window to move automatically or by user commands.
- Integrated the circuit board with the control chip, motors and ESP8266 chip, and write the control program.

- Made the framework of the window by cardboard. Integrated the software with hardware, then assembled the hardware with the window framework.

#### **The Classy Colonoscopy Simulation Project | *BEng Project***

**Mar.2021 – Apr.2021**

- Designed a planar robotic arm with two rotary joints by Solidworks. Then, made the arm with aluminum rods and a hinge that a permanent magnet attached to the end effector.
- Calculated the coordinates of the robotic arm, ensuring the arm to move along the given path on a 3D-printed board.

#### **The Daring Dash Autonomous Vehicle Project | *BEng Project***

**Jan.2021 – Mar.2021**

- Designed the framework of a controller buggy, forcing it to travel faster over bumpy terrain and stop at a specified zone. Made and assembled the buggy with the aluminum columns and the independent suspension.
- Developed a PI controller through LabVIEW to control the buggy.
- Designed an academic poster to show the theory, calculation and results of the design strategy.

#### **Target Practice | *BEng Project***

**Nov.2019 – Dec.2019**

- Designed a filter to remove the noise from the given hand trajectory data. Then, write program to determine the 8 target positions in the data by the Matlab.
- Designed a Graphical User Interface by Matlab, which ensures users to load, analyze and save the data and plot the final results.

## **Work Experience**

#### **Delphi Technology (Suzhou) Co., LTD | *Internship***

**Aug.2021 – Sep.2021**

- Used Hypermesh to mesh the shell of the electric driver for finite element analysis.
- Conducted simulation experiments of the fluid pressure by ANSYS/Fluid in the single and double hear sink. Carried out the finite element analysis, and verified the rationality of the product.

#### **Chongqing Changan New energy vehicle Technology Co., LTD | *Internship***

**Jul.2021 – Aug.2021**

- Researched the noise, vibration and harshness (NVH) problems of the electric powertrain system. Analyzed the sensitivities of different backlashes during vehicle braking.
- Carried out the simulation experiments to adjust the size of gear pairs, then examine the output of the rotate speed. Finally gave optimization suggestions on the improvement of gap sizes.

## **Honours & Awards**

- Third prize of comprehensive Scholarship for 2019-2020 academic year
- Third prize of Market Research and Analysis Competition of Southwest Jiaotong University in 2021
- First prize of graduate Scholarship in 2023-2024 academic year
- "Outstanding Graduate Student" Title Award (2023) (Three times)
- Academic Young Graduate Student Award (2024)
- Excellent Teaching Assistant Award (2024)

## **Technical Skills**

**Languages:** CET-4(556), CET-6(579), under preparation for IELTS

**Programming:** Proficient in Matlab/Simulink, Solidworks for 3D modelling and design, Python.

**Documentation and Visualisation Tools:** Skilled in Photoshop for picture processing, LATEX for documents, Visio for workflow charts and complex concept maps.