

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.
- Programmed the control code of the robotic arm, forcing 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.