Yuhong Zhou

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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 cooperative controller with the backstepping law, and applied the controller to achieve tracking control of multiple unmanned aerial systems under the deception and injection cyber-attacks.
- Applied the finite-time prescribed performance function (FTPPF) in the controller design to achieve better tracking performance with a faster convergence time with smaller tracking errors.
- Developed the adaptive neural network approximation method to estimate the cyber-attacks and alleviate the adverse effects of the cyber-attack.
- Carried out the simulation experiment, analyzed and summarized the results, and wrote the paper independently.

Distributed consensus control of the multi-agents system under external disturbances.
Principal researcher **Sep. 2022 – Sep. 2023**

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

The Remote Monitoring Systems Design | *BEng Graduation Project* **Oct. 2021 – May. 2022**

- Designed the remote monitoring system of an intelligent window based on the Arduino board and Gizwits Cloud platform, enabling the window to move automatically or by user commands.

- Designed the circuit board with the control chip, motors, and ESP8266 chip. Wrote the control program.
- Made the framework of the window by cardboard. Integrated the software and hardware, then assembled the hardware to the window framework.

The Classy Colonoscopy Simulation Project | *BEng Project* **Mar. 2021 – Apr. 2021**

- Designed a planar robotic arm driven by step motors 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 moves 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 small buggy by Solidworks. Made and assembled the buggy with the aluminum rods and the independent suspension.
- Developed a PI controller through LabVIEW to control the buggy, forcing it to travel faster over bumpy terrain and stop at a specified zone.

Target Practice | *BEng Project* **Nov. 2019 – Dec. 2019**

- Designed a filter to remove the noise from the given hand trajectory data. Then, wrote program to determine the 8 target locations 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 electric powertrain system's noise, vibration and harshness (NVH) problems. 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 rotational 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), IELTS(6.5(6))
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.