Yuhong Zhou

+86 15198058859 rainbowz17@163.com Chengdu, Sichuan Province, China

Education

Southwest Jiaotong University **Sep. 2018 – May 2022**

Bachelor of Science in Mechanical Engineering *SWJTU-Leeds Joint School*

- Core Curriculum: Vibration and Control, Engineering Mechanics, Solid Mechanics, Design and Manufacture, Vehicle Design & Analysis, Finite Element Methods of Analysis, Thermalfluids, Economics and Management, Mechatronics and Measurement Systems, Additive Manufacturing.
- Average Score: 87.23/100 GPA: 3.47/4 Honour Class I

University of Electronic Science and Technology of China **Sep. 2022 – May 2025**

Master of Science in Electrical Engineering *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

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.

Research Experience

Distributed tracking control of the multiple unmanned aerial system under external disturbance.

- Researched the finite-time method and the prescribed performance function, and combined the two methods (FTPPF) to make the controlled errors converge within a constrained boundary in a predefined time.
- Designed a distributed controller with the FTPPF strategy with the backstepping law to achieve the cooperative tracking control of the multiple small unmanned aerial systems.
- Used the adaptive law and filter-based saturation compensation method to approximate and compensate for the adverse effects, taking the multiple unmanned aerial systems under the existence of the external wind disturbances and input saturation problem into consideration.

Distributed tracking control of the multiple unmanned aerial vehicles system under cyber attacks.

- Researched the finite-time prescribed performance function (FTPPF) to constrain the controlled errors to converge within a limited boundary in a predefined time.
- Designed a distributed controller with the FTPPF strategy with the backstepping law to achieve the cooperative tracking control of multiple small unmanned aerial systems.
- Developed an adaptive neural network approximation method to approximate the cyber attack and alleviate the adverse effects of the cyber attack, considering the potential attack problems of the information communication in the open network.

Experience / Extracurricular

The Daring Dash Autonomous Vehicle Project | *BEng Project* **2021**

- Designed the small buggy with an aluminum framework, suspension supports, two motor drivers, and four plastic tires.
- Designed a PI controller to control the buggy to travel for a certain distance and stop at the desired position.
- Draw a scientific poster to show the theory and computational results of the design strategy.

The Classy Colonoscopy Simulation Project | *BEng Project* **2021**

- Simulated the occasion of the classy colonoscopy by using a robotic arm as a testing tool and a 3D-printed colon-shaped path as the realistic colon.
- Designed the robotic arm with two aluminum rods, a stepper motor, a motor mount, a penholder, and a magnetic pen, NI myRIO 1900 controller, and PLA bases are given as the simulated colon.
- Wrote the control program into the motor of the robotic arm to force it to move along the given path on the 3D-printed board. Debugged the program and advised on rod structure adjustments.

Finite Element Analysis | *BEng Project* **Apr 2022**

- Utilized a composite material to design a horizontal stabilizer of a small drone with a fixed structure and given loads.
- Reduced the weight of the stabilizer to obtain better performance with lower stress, strain, and tip deflection outputs, compared to the aluminum stabilizer.
- Adjusted the thickness and layer structure of the stabilizer to make it stronger with less weights.

Chongqing Changan New energy vehicle Technology Co., LTD | *Internship* **July 2021 – Aug 2021**

- Learned the basic knowledge of the noise, vibration, and harshness(NVH) phenomenon.
- Researched the NVH problem of the rear wheel drive module, and the simulation optimization experiments are conducted.
- Investigated the gear clearance between the electric motor driver, and some optimization suggestions are given through the experiments.

Delphi Technology (Suzhou) Co., LTD | *Internship* **Aug 2021 – Sep 2021**

- Used "Hypermesh" to mesh pipeline and fluids in the electric driver water-cooled pipe section.
- Conducted simulation experiments of the fluid pressure by "Fluent" in the condensing pipe, the utility of the water-cooled pipe was analyzed, and the rationality of the product was verified.

Southwest Jiaotong University Student Union | *Undergraduate Club* **Oct 2018 – June 2019**

- Entered the Southwest Jiaotong University Student Union publicity Department as a member.
- Participated in the poster, advertising, and invitation letter design of student union activities, and the invitation letter design scheme was also adopted.

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)
- Academic Young Graduate Student Award (2024)

Technical Skills

Languages: Proficient in Matlab/Simulink.
Modelling Tools: Abaqus for optimized analysis, Solidworks for 3D modelling and design.
Documentation and Visualisation Tools: Skilled in Photoshop for picture processing, LATEX for documents, Visio for workflow charts and complex concepts.