Xizhe Hao

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EDUCATION

Southern University of Science and Technology **08/2020 – 07/2024**
Bachelor of Engineering in Automation Guangdong, China

- GPA: 3.51 / 4.0
- Honor: The Merit Student Scholarship (2022); Ruoshui Scholarship (Top 10 over 833 students)(2023)
- Core Modules: *Microprocessors and Microsystems, Artificial Intelligence and Machine Learning, Engineering Mathematics, Analog Circuit, Digital System Design, Robotic Motion and Control*

RESEARCH EXPERIENCE

Network Circuit Experiment System Based on Digital Twin, *Competition Project* **09/2022-06/2024**

- Led the circuit experiment segment, focusing on circuit construction and integrated relay control; used Raspberry Pi I/O interface for seamless hardware-software interaction, ensuring robust PC communication
- Collaborated in the implementation of a digital twin 3D model, enabling user interaction with circuit components via a web interface; facilitated real-time data manipulation and experiment data recording
- Awarded Second Prize in the South China Division of Industry Integration and Innovation Competition

Caterpillar-inspired Robot with Battery and PCB board, *Project for NCSU's Research Program* **01/2024-02/2024**

- Spearheaded the control segment of a pioneering caterpillar-inspired robot project, focusing on intricate circuit designs to facilitate multiple crawling modes through joule heating and friction manipulation
- Designed and executed control circuits on PCB board with NMOS switches for exact thermal-driven motion, integrating Wi-Fi and Bluetooth for dynamic robot control

Intelligent Fridge System, *Project for NUS's SOC Summer Workshop* **07/2023**

- Led a team of three to design an intelligent refrigerator system for food management and environmental monitoring, integrating AI for recipe suggestions and expiration alerts;
- Enhanced data accuracy by optimizing the YOLO-v8 model for precise food categorization
- Built a hybrid transmission system connecting Raspberry Pi and Micro:bit for real-time data capture and processing
- Developed a web portal on Huawei Cloud using GAUSS DB for dynamic recipe recommendations via SQL queries

Smart Watering System Based on Raspberry Pi, *Patent Project* **09/2022-05/2023**

- Created a plant digital twin on Alibaba Cloud IoT, enabling user-controlled remote monitoring and watering
- Integrated Raspberry Pi and environmental sensors for real-time plant monitoring and simulation
- Developed an algorithm for automated watering and critical level alerts based on data on air conditions and water levels; enabled proactive plant care through sensor-driven water pump activation
- Secured a patent from the China National Intellectual Property Administration (CN220441530U)

ENTREPRENEURSHIP

Shenzhen Suishi Technology Co, Ltd., *Founder* **04/2023-06/2024**

- ***Platform Development:*** Launched a comprehensive campus special offer platform, partnering with major platforms (Meituan, Taobao, Jingdong) to provide college students with exclusive discounts on food, entertainment, and online shopping; successfully expanded the platform to 3 universities and achieved 10,000+ user registrations
- ***User Experience & Interface Design:*** Mapped user journeys to understand user needs, designed and implemented the front end of a WeChat mini-program using JavaScript and Wechat Devtools
- ***Data Analysis & Strategic Planning:*** Used Tableau for data visualization, analyzing user trends and behaviors to inform financial management and company strategy; implemented UI enhancements and functionality optimizations in mini-programs to boost user engagement

ACTIVITY

Volunteer Association of Southern University of Science and Technology, *Volunteer* **09/2020-06/2024**

- Contributed 200+ hours across 50+ diverse events, enriching children's science literacy
- Awarded the "Top 10 Volunteer" from Southern University of Science and Technology in 2022

News Agency of Southern University of Science and Technology, *Director* **09/2021-09/2022**

- Coordinated 100+ members to manage the official social media accounts of the university and its magazine
- Won the "Most Impactful University News Work" from China Youth Daily

SKILLS & INTERESTS

Languages: Mandarin (native), English (IELTS 7)
Skills: Linux, VHDL, Python, Java, MATLAB, C, C++
Research Interest: Internet of Things, Artificial Intelligence & Machine Learning, Embedded Systems