Haoxiang WAN

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EDUCATION

- **University of Houston**, Houston, TX, USA *August 2025 - May 2029 (Expected)*
  Ph.D. in Electrical Engineering
  Advisor: Prof. Xingpeng Li
- **University of Illinois at Urbana-Champaign**, Urbana, IL, USA *August 2024 - May 2025*
  Master of Engineering in Energy Systems
- **The University of Sheffield**, Sheffield, UK *September 2022 - June 2024*
  Bachelor of Engineering in Electrical and Electronic Engineering (First Class Honours)
- **The Northern Consortium of UK Universities**, China *September 2020 - June 2022*
  Foundation Studies in Electrical and Electronic Engineering
  GPA: 77/100

RESEARCH EXPERIENCE

- **Design and Implementation of a Traffic Signal Control System Using a Microcontroller**
  Supervised by Dr. Kennedy Offor *09/2023-06/2024*
  Background: Developed a traffic management system using embedded design and Microcontroller-based control, programmed in C, to optimize urban traffic flow. The system featured an emergency lane protocol and dynamic signal modulation based on real-time data. Simulations were initially conducted to validate the control logic and optimize system parameters. After successful validation, a custom four-layer PCB was designed, integrating sensors and communication modules to meet performance and functionality requirements. The microcontroller was programmed and flashed to manage system operations.
  Result: The system improved traffic flow efficiency, reduced congestion, and ensured rapid emergency vehicle clearance, contributing to enhanced public safety. Dynamic signal control minimized intersection wait times, promoting smarter urban mobility and supporting sustainable city development.

- **Design and Implementation of a Dual-Level Access Control System Featuring Power Backup for Enhanced Security in Door Lock Management**
  Supervised by Dr. Luke Seed *02/2023-06/2023*
  Background: Developed a dual-level access control system using the MKL46Z CPU, designed for secure door-lock management. The system features two access levels, with flash memory for retaining access codes after power loss and a backup power supply to ensure 30 minutes of operation during outages. The software was implemented in C++ for efficient password management and system control.
  Result: The system met all key objectives, with the dual-level access and password management functioning as designed. The implementation of flash memory ensured passwords were securely retained after power shutdown. The power backup system exceeded expectations, operating for 180 minutes during outages.

PROFESSIONAL EXPERIENCE

- **Jiangxi Engineering Research Center of High-Power Electronics and Grid Smart Metering**
  Position: Intern *06/2023-08/2023*

  - Contributed to designing a specialized current detection device for power grid leakage identification.
  - Participated in multiple simulation experiments to validate the device's reliability under various conditions; utilised MATLAB for modelling and simulation.
- **Jiangxi Branch of China Comservice Supply Chain Management Co., Ltd.**
  Position: Engineering Assistant *08/02/2021-08/31/2021*

  - Involved in the maintenance and surveillance of Hikvision monitors, including diagnosing malfunctions, devising targeted repair strategies, and executing hands-on maintenance tasks to restore monitors to optimal functioning.
  - Actively engaged in the troubleshooting process; applied expertise in electronic circuitry and signal processing to pinpoint the root causes of issues, which in turn informed tailored repair plans for each monitor.

TECHNICAL SKILLS

- **Programming:** MATLAB, C, C++

HONORS AND AWARDS

- **2022-2023 Academic Year**
  - Awarded Engineering Excellence Scholarships of The University of Sheffield
  - Awarded NCUK Sheffield Scholarship of The University of Sheffield
- **2021-2022 Academic Year**
  - Awarded Engineering Excellence Scholarships of The University of Sheffield
  - Awarded NCUK Sheffield Scholarship of The University of Sheffield