Haotian Wang

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Education

Duke University Aug. 2022 – May 2024
Master of Engineering in Computer Engineering *Durham, NC*

North Carolina Agriculture and Technical State University Aug. 2019 – May 2021
Bachelor of Science in Electrical and Computer Engineering *Greensboro, NC*

Henan Polytechnic University Sept. 2016 – July 2019
Bachelor of Science in Electrical Engineering *Jiaozuo, China*

Professional Experience

Duke University May 2024 – Present
Research Assistant *Durham, NC*

- Developed an original analysis framework to evaluate current technologies for improving the safety and reliability of autonomous vehicles, currently drafting a paper to be featured in Professor Kishor Trivedi's upcoming book.

Electric Power Research Institute (EPRI) June 2023 – Aug. 2023
Assistant Engineer (Student Employee) *Charlotte, NC*

- Developed a VBA-based software tool to analyze over 400k data points from a large-scale energy storage pilot plant, increasing data processing efficiency by 20% and enabling enhanced data visualization capabilities.
- Independently researched and authored 3 comprehensive reports for the Energy Storage Technology Database (ESTD), accelerating ETL cycle by 15% and providing crucial insights into the latest trends.

Nuclear Power Operations Research (Shanghai) Co., Ltd. Dec. 2021 – Apr. 2022
Research Assistant *Shanghai, China*

- Developed a diagnostic early-warning model using 100k+ DCS sensor data points, improving operational efficiency by 15% .
- Contributed to patent CN116929758A publication for turbine temperature prediction and diagnostic, reducing resource consumption 10%.

Academic Experience

Intelligent Edge-Cloud Control System with RAG & NLP Mar. 2024 – May 2024
Team Leader *Duke University, NC*

- Designed a Rust/Qdrant-based real-time control system deployed on Kubernetes, achieving 99.8% uptime for edge device management.
- Reduced CI/CD deployment latency by 40% via automated GitLab/GKE pipelines with Docker containerization.

AI-Powered Intelligent Music Bot for Discord Chat Service Mar. 2023 – Sept. 2023
Project Leader *Duke University, NC*

- Developed a Discord music bot using Python and REST APIs, enabling dynamic playlist curation with under 200ms command latency.
- Prototyped ChatGPT integration for NLP-driven user interactions, enhancing bot response intelligence.

CAN to Middleware Connectivity Bridge Sept. 2020 – May 2021
Team Member *NCAT & John Deere Company, NC*

- Developed a prototype CAN bus system integrated with MQTT for IoT messaging, improving message delivery time by 15%, and implemented an automated visualization and control system for precise timing thresholds.
- Enhanced system functionality by improving data analytics and robotics capabilities, increasing operational time efficiency by 20%, and expanding cloud computing integration.

Technical Skills

Programming: Python, C/C++, Rust, SQL
System Design: Microservices, REST API, Distributed Systems, IoT Protocols
Cloud & DevOps: AWS, Docker, Kubernetes, CI/CD
Tools & Frameworks: Git, Linux, Arduino