Haotian Wang

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Education

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

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

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

Professional Experience

Duke University — May 2024 – Now
Research Assistant — *Durham, NC*
- Collaborating with Professor Kishor Trivedi on research focused on the application of AI and ML in enhancing the safety and reliability of autonomous vehicles.

Electric Power Research Institute (EPRI) — Jun 2023 – Aug 2023
Assistant Engineer — *Charlotte, NC*
- Developed a software tool for analyzing over 400,000 data points from a large-scale energy storage pilot plant, significantly boosting data processing efficiency and accuracy, and enabling advanced visualization capabilities.
- Independently researched and authored three comprehensive reports for the Energy Storage Technology Database (ESTD), providing crucial insights into the latest trends and developments in the field.

Nuclear Power Operations Research (Shanghai) Co., Ltd. — Dec 2021 – Apr 2022
Research Assistant — *Remote*
- Participated in the R&D of the "Method for predicting and diagnosing abnormal temperature of bearing bush of steam turbine generator unit" patent. The patent application has been officially published (CN116929758A).
- Led data analysis on power plant's DCS system, analyzing over 100,000 data points to create an early-warning diagnostic model incorporating integrated computational analysis, boosting efficiency and saving resources.

Academic Projects

GenAI-Enhanced NLP Sentiment Analysis of Movie Reviews | *Duke University, USA* Nov 2023 – Dec 2023
- Led an NLP sentiment analysis project on 50,000 IMDB reviews, using GenAI techniques for data pre-processing and model development to gauge public opinion accurately.
- Key contributor in deploying the GenAI-enhanced Naive Bayes model, achieving high accuracy rates (92%), while supporting the neural network team in realizing a 5-second analysis timeframe.

License Plate Recognition: Traditional and Deep Learning | *Duke University, USA* Oct 2023 – Dec 2023
- Developed a project aimed to analyze license plate recognition, focusing on accuracy and processing efficiency. Compared traditional methods with deep learning technique.
- Directed a team to devise 4 unique approaches for identifying a dataset of 100,000 license plates, resulting in an above 95% accuracy in 130 seconds for the test dataset and a detailed and insightful final report.

CAN to Middleware Connectivity Bridge | *NCAT & John Deere Company, USA* Sept 2020 – May 2021
- Developed a prototype CAN bus system with MQTT integration for IoT messaging and implemented an automated visualization and control system with precise timing thresholds.
- This innovation enhances user-friendly feedback, time efficiency, and expanded functionalities in data analytics, robotics, and cloud computing.

Swarm Control in Unmanned Aerial Vehicles | *NCAT, USA* May 2020 – Aug 2020
- Evaluated the MATLAB interface and Python interface for controlling a single DJI Tello quadcopter.
- Developed a Python interface controlling four DJI Tello quadcopter and improved the positioning accuracy of the drones by adjusting the Wi-Fi communication configurations.

Technical Skills

Programming: Python, C/C++, R, MATLAB, VBA, SQL, Rust
Developer Tools: MS, Git, Arduino, VS Code, PyCharm, Figma, Zola, AWS, MySQL, Tableau