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

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

- Built a scalable ETL pipeline using Python and VBA to process 400k+ energy storage data points, reducing data processing time by 20% and enabling real-time Tableau dashboards.
- Automated report generation for the Energy Storage Technology Database (ESTD), accelerating ETL cycles by 15% and delivering actionable insights on grid optimization trends.

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

- Developed a diagnostic early-warning model using time-series forecasting on 100k+ DCS sensor data points, improving operational efficiency by 15% through real-time anomaly detection.
- Optimized resource allocation by 10% via predictive diagnostics, contributing to the patent CN116929758A publication for turbine temperature management.

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

- Engineered a data-driven evaluation framework for autonomous vehicle safety, integrating sensor fusion and failure mode analysis (paper in preparation for Prof. Trivedi's book).

Academic Experience

GenAI-Enhanced NLP Sentiment Analysis of Movie Reviews Nov. 2023 – Dec. 2023
Team Leader *Duke University, NC*

- Led a sentiment analysis project on a 50k IMDB reviews dataset, employing GenAI techniques such as tokenization and data augmentation for pre-processing, achieving an overall accuracy rate of 88% in gauging public opinion.
- Deployed a GenAI-enhanced Naive Bayes model with 92% accuracy, and collaborated with the neural network team to optimize model performance, reducing sentiment analysis processing time to 5 seconds.

License Plate Recognition: Traditional and Deep Learning Oct. 2023 – Dec. 2023
Team Leader *Duke University, NC*

- Led the development and comparison of traditional OCR methods and convolutional neural networks (CNN) for license plate recognition, achieving over 95% accuracy in 130 seconds on a test dataset of 100k images.
- Directed a team to design and implement four unique approaches to recognize license plates, delivering a detailed final report and optimizing processing efficiency by 35% through method refinements.

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
Data Pipeline & System Design: Microservices, REST API, Distributed Systems, IoT Protocols, ETL
Cloud & DevOps: AWS, Docker, Kubernetes, CI/CD
Tools & Frameworks: Git, Linux, Tableau