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

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, leveraging statistical and machine learning techniques to improve operational efficiency by 15%.
- Contributed to the patent CN116929758A publication for turbine temperature prediction and diagnostic, reducing resource consumption by 10%.

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

- Developed a Python-VBA-based 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.
- Authored three comprehensive reports for the Energy Storage Technology Database (ESTD), accelerating ETL cycle by 15% and uncovering key industry trends.

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

- Developed an original analysis framework to evaluate emerging technologies for improving the safety and reliability of autonomous vehicles, incorporating predictive analytics and machine learning methodologies.

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 (tokenization, data augmentation) to extract key insights and achieve an 88% overall accuracy 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 comparative evaluation of traditional OCR methods and CNN-based approaches 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 innovative recognition strategies, delivering a detailed final report and optimizing processing efficiency by 35% through method refinements.

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

- Designed a real-time control system using Rust and Qdrant, deployed on Kubernetes, to achieve 99.8% uptime for edge device management while integrating advanced NLP capabilities.
- Optimized the CI/CD pipeline by automating GitLab/GKE deployments with Docker containerization, reducing deployment latency by 40%.

Technical Skills

Programming: Python, C/C++, Rust, SQL
Machine Learning & AI:PyTorch, TensorFlow, Hugging Face, GenAI
Cloud & DevOps: AWS, Docker, Kubernetes, CI/CD
Tools & Libraries: Git, Linux, Pandas, Numpy