YONGCAN HUANG

Applied Scientist, Traffic Engineering

Website | Github | LinkedIn | royhuang0421@email.com | 8642019903

Experience

STANTEC CONSULTING SERVICES INC. | Data Scientist in Traffic Safety

Jan 2025 – May 2025 | Lake Mary, Florida

- Developed crash severity classification models using **GPT-3.5-turbo** and **LLaMA-3**, transforming structured data and contextual crash reports into enriched narrative inputs. Achieved **87.3% macro F1-score** on multi-class classification tasks and implemented model outputs via dashboards in support of **3+ regional CSAP initiatives**.
- Integrated LLM outputs into high-injury network (HIN) analysis workflows, reducing engineering review time by **40%** for identifying high-risk crash hotspots.
- Conducted near-miss analysis using intersection surveillance data, applying **YOLOv8** object detection to extract vehicle-pedestrian conflict patterns, supporting proactive safety interventions.

ARCADIS | Data Science Intern (Transportation Analytics)

May 2024 – Aug 2024 | Atlanta, Georgia

- Performed spatial analysis of intersection and corridor performance using **ArcGIS Python API** and **Pandas**, integrating crash and signal data to generate actionable visual insights for planners.
- Built a **Streamlit app** to automate Synchro output processing, reducing data handling time by **60%** and streamlining performance comparison across alternatives.

UNIVERSITY OF GEORGIA | Research Assistant

Jan 2021 – Dec 2024 | Athens, Georgia

- Developed a dual-encoding graph autoencoder (**CG-DGAE**) for traffic sensor clustering and data reconstruction and fault detection (overall accuracy of **99.09%**, a precision of **99.13%**, a recall of **99.53%**, and a F1 score of **99.53%**), leveraging spatio-temporal correlations. Deployed a real-time monitoring dashboard using Streamlit.
- Led a project based on **Contrastive Learning** on time series fault detection, proposing a symmetric framework and triplet network that significantly improved accuracy and training efficiency on large-scale GDOT sensor data (accuracy of **97.6%**, precision of **97.5%**, recall of **97.7%**, and an F1-score of **97.6%**).
- Applied **GPT-3.5-turbo** and **LLaMA-3** to predict crash severity by transforming tabular crash data into structured narratives. Achieved high multi-class classification accuracy using **Prompt Engineering** and **Chain-of-Thought** reasoning.

Selected Publications

- 1. **Huang, Yongcan**, Hao Zhen, and Jidong J. Yang. "Cluster-guided denoising graph auto-encoder for enhanced traffic data imputation and fault detection." Expert Systems with Applications 261 (2025): 125531.
- 2. **Huang, Yongcan,** and Jidong J. Yang. "Symmetric contrastive learning for robust fault detection in time-series traffic sensor data." International Journal of Data Science and Analytics (2024): 1-15.
- 3. Zhen, Hao, Yucheng Shi, **Yongcan Huang**, Jidong J. Yang, and Ninghao Liu. "Leveraging Large Language Models with Chain-of-Thought and Prompt Engineering for Traffic Crash Severity Analysis and Inference." Computers 13, no. 9 (2024): 232.

Skills

PROGRAMMING

Python • R • SQL • Git • CSS • HTML

ML FRAMEWORKS

Pytorch • Tensorflow • Scikit-Learn • Pandas • Numpy • Plotly • HuggingFace •

TOOLS/PLATFORMS

AWS• ArcGIS (Pro, Python API) • Spark • PowerBI •, Travel Demand Modeling tools

Education

UNIVERSITY OF GEORGIA

Ph.D. in Eng.

Dec 2024 | Athens, GA

selected as **Convocation Speaker**

CHANGSHA UNI OF SCI AND TECH

M.S. in Traffic Eng.

Dec 2019 | Changsha, CHN

WUHAN INSTITUTE OF TECH

M.S. in Civil Eng.

July 2017 | Wuhan, CHN

Services

-Program Committee Member of PAKDD 2025 -2025 and 2023 Lifesavers Traffic Safety Scholar
-Corresponding Member of ASCE AI in Trans committee
-Recipient of 2023 American Public Health Association ICEHS Presidents' Road Safety Scholarship