Yongcan Huang

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INDUSTRY EXPERIENCE

Stantec Consulting Services Inc. – *Lake Mary, Florida* *Jan 2025 – May 2025*

Traffic Engineer

Supported safety and traffic engineering projects in New Jersey and Florida, including network screening and diagnosis, traffic operations analysis, and travel demand modeling.

- Cleaned, analyzed, and mapped crash data to roadway profiles; performed high-injury network (HIN) analyses to identify crash hotspots using Excel and EasyHIN.
- Conducted geospatial analysis of HIN data and generated layouts using ArcGIS Pro.
- Applied engineering judgment to recommend targeted safety countermeasures and developed multi-tiered strategies for Comprehensive Safety Action Plans (CSAP) based on the Safe System Approach.
- Authored road safety audit reports and delivered data-driven insights and actionable recommendations to municipal and regional stakeholders.
- Performed corridor operational analyses under various alternatives using Synchro and Highway Capacity Manual (HCM).
- Updated network and input files for travel demand models (TDM) in Cube Voyager to evaluate traffic impacts under multiple improvement scenarios.

Arcadis – *Atlanta, Georgia* *May 2024 – Aug 2024*

Traffic Engineer Intern

- Conducted safety and operational analysis for intersections and corridors.
- Provided Regional/Corridor level performance measures for various alternatives.
- Visualized and analyzed performance results under different alternatives and no-built conditions with ArcGIS Pro, Excel, Python.
- Created a web application using Streamlit and Python for transforming Synchro traffic files, improving engineering efficiency.

RESEARCH AND PROFESSIONAL EXPERIENCE

University of Georgia -Athens, Georgia (Smart Mobility & Infrastructure Laboratory) *Jan 2021 – Dec 2024*

Graduate Research Assistant (Advisor: Dr. Jidong James Yang)

- Worked alongside advisor to lead the charge on the development of a new research lab in Intelligent Traffic Systems and Mobility. This included identifying a location, resources, equipment, and infrastructure required
- Led in conducting research in three Georgia Department of Transportation funded projects and assisted in preparing the progress reports and final submittals.
- Published multiple papers on highly ranked journals while also supporting junior graduate students in learning academic writing
- Presented at multiple conferences in front of leading researchers from across the world at ASCE International Conference on Transportation & Development (ICTD) and Transportation Research Board Annual Meeting
- Mentored junior lab members as they pursued their M.S., provided them with advice concerning work-life balance, expectations, research guidance, and fundamentally taught them how to become researchers
- Served as a paper reviewer for multiple journals and conferences based on areas of AI in Transportation, Traffic Safety and Data Analytics
- Supported PI with GDOT and TRB proposal preparation by contributing to research ideas and drafting supporting contents
- Led a writing week at the end of the semester where graduate students focused on writing papers
- Organized and hosted seminars for Center for Regional and Rural Connected Communities (CR2C2)

Graduate Teaching Assistant (Part Time)

- Updated the curriculum and syllabus, and delivered lectures for ENGR 8140: Advanced Deep Learning and Engineering Application, a 3-credit course focused on cutting-edge AI applications in transportation, engaging an average of over 50 students per class
- Designed and graded assignments, exams, and course projects, providing detailed feedback to students
- Held regular office hours and supervised lab sessions, offering guidance and support to students

Clemson University-Clemson, South Carolina *Jan 2020 – Dec 2021*

Graduate Research Assistant (Advisor: Dr. Tuyen Le)

- Led in conducting researches in an NSF-funded projects and assisted in preparing the progress reports and final submittals.
- Published multiple papers on highly ranked journals
- Presented at multiple conferences in front of leading researchers from across the world at International Symposium on Automation and Robotics in Construction (ISARC)

Shibaura Institute of Technology-Tokyo, Japan *Jan 2018 – Dec 2018*

Research Intern (Advisor: Dr. Nakagawa Mafasumi)

- Obtained the point cloud data set (Laser scanning data & SfM data) of Hachimanbashi bridge
- Preprocessed the raw point cloud data like registration, data alignment, data cutting, down sample and data merge
- Extracted geometric features from point cloud and generated geometrics models to depict the present state of the bridge
- Generated as-built building models and conducted quality assurance reviews to verify the accuracy
- Summarized a framework of creating iron bowstring arch-truss bridges as-built BIMs

GRAND EXPERIENCE

Georgia Department of Transportation (GDOT)-Funded Projects:

- Cluster-Based Context-Sensitive Quality Control Process for Improved Data Quality, Jidong Yang (PI), Yongcan Huang (Co-PI), $146,000 (Pending)
- Feasibility Assessment of Alternative Power Options for Roundabout Lighting in Georgia, Jidong Yang (PI), $100,000 (Funded)

EDUCATION

University of Georgia, Athens, Georgia

Ph.D. in Engineering, Resilient Infrastructure Systems Emphasis *Graduated: Dec 2024*

Dissertation: "AI-Empowered Frameworks for Fault Detection in Traffic Sensor Networks"

Changsha University of Science and Technology, Changsha, China

M.S. in Traffic and Transportation Engineering *Sep 2017 - Dec 2019*

Thesis: "Research on Feature Extraction of Road Facility Based on LiDAR Data"

Wuhan Institute of Technology, Wuhan, China

B.S. in Road Bridge and River Crossing Engineering *Sep 2013 - Jul 2017*

PUBLICATION

Journal Publications:

Published:

1. Huang, Y., Zhen, H., Yang, J.J., 2024. Cluster-guided Denoising Graph Auto-Encoder-based Traffic Data Imputation and Fault Detection. **Expert Systems with Applications**.
2. Huang, Y., Yang, J.J., 2024. Symmetric Contrastive Learning for Robust Fault Detection in Time-Series Traffic Sensor Data. **International Journal of Data Science and Analytics**.
3. Huang, Y., Yang, J.J., 2022. Semi-Supervised Multiscale Dual-Encoding Method for Faulty Traffic Data Detection. **Applied Computing and Intelligence**.
4. Zhen, H., Shi, Y., Huang, Y., Yang, J.J., Liu, N., 2024. Leveraging Large Language Models with Chain of Thought and Prompt Engineering for Traffic Crash Severity Analysis and Inference, **MPDI Computers**.
5. Huang, Y., Trinh, M.T., Le, T., 2021. Critical Factors Affecting Intention of Use of Augmented Hearing Protection Technology in Construction. **Journal of Construction and Management**.
6. Liu, H., Yang, G., Li, D., Huang, Y., 2019. JI YU WBS HE EBS DE GONGLU GONGCHENG BIM GONGXU JIAOYAN YANJIU [BIM Process Inspection of Highway Engineering Based on WBS And EBS, **Project Management Technology** (In Chinese).

Submitted:

1. Huang, Y., Zhen, H., Yang, J.J., 2024. Injury Severity Analysis of Fixed object Hitting Crashes Using Latent Class Clustering with Unobserved Heterogeneity. **Accident Analysis & Prevention.**
2. Huang, Y., Yu, G., Yang, J.J., 2024. Analysis of Traffic Accident Severity Under Extreme Weather Conditions Using Machine Learning Methods. **International Journal of Data Science and Analytics.**

In Preparation:

1. Huang, Y., Yang, J.J., 2024. Highway Scene Understanding Enhancement for Autonomous Vehicles with Data Fusion from Onboard and Highway Sensor Networks. **Accident Analysis & Prevention.**

Conference Proceedings:

1. Huang, Y., Le, T., 2020. Factors Affecting the Implementation of Ai-Based Hearing Protection Technology at Construction Workplace, **International Symposium on Automation and Robotics in Construction** (Tokyo, Japan). IAARC Publications

TEACHING EXPERIENCE

- ENGR 8140: Advanced Deep Learning and Engineering Application — University of Georgia
- 201809: Transportation Engineering — Changsha University of Science and Technology

RESEARCH SERVICE

Committee Service

- Voting Member of ASCE AI in Transportation Committee — *Mar 2024 - Present*
- Corresponding Member of ASCE Data Sensing Analytics Committee — *Mar 2024 - Present*
- Young Member of Institute of Transportation Engineers (ITE) Georgia Section — *Feb 2022 - Present*

Peer-Review Service

- Program Committee Member of Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD) 2025
- Reviewer of International Journal of Data Science and Analytics
- Reviewer of TRB Annual Meeting 2025
- Reviewer of American Public Health Association Annual Meeting 2024

Mentoring Experience

- Invited Judge for Drexel University's College of Computing Senior Project Competition — *Jun 2024*
- Engineering Boy Scout Coach for The Troop of Greenville, South Carolina Division — *Jan 2023*

AWARDS & SCHOLARSHIP

UGA Engineering School Travel Grand ($1000) — *Jan 2024*
2023 American Public Health Association ICEHS Presidents' Road Safety Scholarship ($500) — *Jun 2023*
2023 Lifesavers Traffic Safety Scholar ($1000) — *Apr 2023*
Construction Engineering & Management Ph.D. Fellowship, Clemson University ($5000 /year) — *Jan 2020*
Research Exchange Program (to Shibaura Institute of Technology in Japan) Scholarship (120,000 JPY) — *Jun 2018*
Best Study Abroad Scholar, Changsha University of Science and Technology (35,000 CNY) — *Oct 2019*
Best Master's Thesis Award, Changsha University of Science and Technology — *Dec 2019*

PRESENTATION

Poster Presenter at 2025 TRB Annual Meeting — *Jan 2025*
Poster Presenter at 2024 ASCE ICTD Conference — *Jun 2024*
Podium Presenter at 2023 ASCE ICTD Conference — *Jun 2023*
Poster Presenter at 2024 GDOT/GTI EXPO — *Sep 2024*
Poster Presenter at 2023 GDOT/GTI EXPO — *Sep 2023*
Poster Presenter at 2022 GDOT/GTI EXPO — *Sep 2022*
Podium Presenter at 2020 International Symposium on Automation and Robotics in Construction — *Nov 2020*

SKILLS

- **Languages:** Python, R, MATLAB.
- **Frameworks**: Pytorch, Tensorflow, Streamlit.
- **AEC Tools**: Arcgis, Qgis, MicroStation, HCS, VISSIM, Cube Voyager, Synchro, PowerBI, Google Earth, AutoCAD, Midas Civil, Cloudcompare, Meshlab, Excel analysis tools.
- **Developer Tools**: Linux, Git, AWS, Visual Studio Code, Jupyter Notebook.