Oscar Lares

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OBJECTIVE

Graduate student with a background in engineering & research eager to apply my analytical & problem-solving skills in data science/machine learning to real-world business challenges & collaborate & learn from others

EDUCATION

Master of Science in Civil Engineering, ML Focus – University of Georgia **May 2024**
In progress – Cumulative GPA: 3.70

***Relevant Coursework**: Statistical Learning & Applications, Deep Learning & Applications, Machine Learning for Computer Vision, Statistical Methods for Research, Programming for Data Mining*

Bachelor of Science in Mechanical Engineering – Kennesaw State University **May 2019**
Cumulative GPA: 3.78, Magna Cum Laude

SKILLS & QUALITIES

Technical: Python, Jupyter, Pandas, Numpy, Sci-Kit Learn, PyTorch, Data Cleaning/Mining, Github, SQL
Personal: Teamwork, Self-Starter, Collaborative, Communicative, Project Management, Analytical, Bilingual

RELEVANT PROJECTS

Thesis – Traffic Crash Safety Analysis – UGA **May 2023 – Present**

- Scraped, cleaned, and compiled data from 4 different sources to be used in modeling to assess and analyze the trends and features associated with different types of car crash collisions
- Used Transformer & ensemble methods (Catboost, XGBoost, Random Forest) to predict crash types
- Interpreted ML results utilizing SHAP values to determine variables most associated with crashes

Multisource Traffic Data for QC - UGA **June 2022 – September 2022**

- Worked on time-series modeling using various methods such as RNNs & TCNs for making traffic volume predictions across traffic network
- Applied & tested various methods for dealing with erroneous data coming from various sensors

GDOT Lane Distribution Factor Project - UGA **March 2022 – July 2022**

- Cleaned and organized data spanning 4 years & applied various statistical modeling & machine learning methods for predicting pavement design factors (logistic regression, MLP models)
- Results led to updates in GDOT pavement design manual & were presented at 2024 TRB conference

Mechanical Lead, AFDS Program – L3Harris **January 2021 – December 2021**

- Led mechanical cost reduction initiatives & performed preliminary & critical design reviews
- Collaborated with electrical, systems, test & manufacturing engineering during all design phases to ensure producibility & manufacturability

WORK EXPERIENCE

Machine Learning Graduate Research Assistant **January 2022 – Present**
Smart Mobility & Infrastructure Lab, University of Georgia – Athens, GA

- Perform research related to mobility, traffic & transportation utilizing data provided by GDOT to improve their processes, forecasting, & predictions
- Perform data validation, cleaning, & analysis on a wide variety of private & open-source datasets
- Leverage statistical/machine learning methodologies to gain insights from traffic data
- Read, evaluate & write research papers & reports outlining research methods, findings & conclusions

Associate Mechanical Engineer **October 2019 – January 2022**
L3Harris Technologies – Alpharetta, GA

- Design military aircraft display systems with a focus on electronics packaging & structural design
- Led mechanical cost reduction initiatives on the LAD program resulting in a 15% savings from mechanical components on several circuit cards
- Collaborate on cross-functional teams on a variety of programs

RESEARCH EXPERIENCE

- *Revealing Traffic Collision Dynamics: A Feature-Grouped Transformer for Tabular Data* – Thesis
- *Revisiting & Modeling Lane Distribution Factors* – TRB Conference, TRBAM-24-02820
- *Updating Lane Distribution Factors for Pavement Design* – GDOT/GTI Expo, RP21-11