Wesley Meredith

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Education

North Carolina State University **Aug. 2023 – May 2025**
M.S. in Computer Science *Raleigh, NC*

Clemson University **Aug. 2018 – May 2022**
B.S. in Biochemistry *Clemson, SC*

Technical Skills

Programming Languages: Python (PySpark, Pandas, NumPy, scikit-learn, TensorFlow), C++, C, SQL, HTML, CSS
Machine Learning: NLP, Regression, Classification, Clustering
Developer Tools: Git, Azure, Databricks, Docker, Kubernetes, PowerBI, Python Visualization (seaborn, matplotlib)

Experience

Data Scientist Intern **Michelin**
Greenville, SC *May 2024 - August 2024*

- Improved the accuracy of North American tire market potential forecasts by integrating new weather and demographic data sources into existing predictive models. This enhancement resulted in 5% more accurate predictions, supporting B2B decision-making, and will save approximately $2 million in productive stocking.
- Engineered a retrieval-augmented generation (RAG) LLM tool that powers a conversational AI assistant for querying Michelin's knowledge base by embedding documents into vector databases and utilizing LangChain and Azure OpenAI tools, deployed to 50 test users across North and South America and France.

Research Analyst **North Carolina State University**
Raleigh, NC *September 2022 - January 2024*

- Ensured accurate and informative data analysis for experiments by utilizing linear regression, GraphPad, and Excel software, leading to clear and impactful presentations of research findings.
- Analyzed RNA sequencing data to reveal novel downstream targets of cellular proteins in skin cancer cells, leading to valuable insights for future research directions.

Computational Biology Research Assistant **Clemson University**
Clemson, SC *November 2019 - May 2022*

- Published a peer-reviewed paper on predicting cancer cell combination therapy outcomes using a Python and MATLAB based Markov model.
- Streamlined laboratory workflows by programming an Opentrons OT-2 robot via Python for automated tasks, saving researchers time and improving efficiency.

Projects

Housing Price Prediction Challenge | *Python, scikit-learn, TensorFlow, Keras* **Machine Learning**

- Conducted comprehensive exploratory data analysis (EDA) to gain insights into the Ames Housing dataset, identifying key patterns and trends, and communicating through insightful data visualizations via Seaborn and Matplotlib.
- Enhanced prediction accuracy by 15% through implementation and optimization of decision tree, random forest, XGBoost, and ANN models.
- Secured a top 12% ranking (among 24,000 participants) on Kaggle's housing price prediction challenge by applying machine learning algorithms, feature engineering, and hyperparameter tuning techniques via scikit-learn grid search.

Spotify 'Wrapped' Clone | *Python, Flask, Spotify API, HTML, CSS* **Full-Stack Development**

- Developed and deployed a Python-based Flask web application integrated with the Spotify API. Enabled users to visualize personalized Spotify 'wrapped' data, including top artists and tracks, enhancing the overall music discovery experience.
- Engineered a highly secure OAuth2 authentication mechanism using the Spotify Web API python library, resulting in a seamless and reliable user login experience; improved data privacy and protected sensitive user information.

Drowsiness Detector | *Python, OpenCV, dlib* **Computer Vision**

- Developed a real-time, webcam based drowsiness detection system utilizing computer vision techniques (OpenCV, dlib) with a focus on addressing Zoom meeting fatigue and enhancing personal productivity.
- Implemented a sophisticated EAR (Eye Aspect Ratio) threshold algorithm for accurate detection of drowsiness, allowing for personalized alerts tailored to individual drowsy patterns and preferences.