Marissa Llamas
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EDUCATION

The University of Texas at Austin, Austin, TX | GPA 3.99 **May 2025**
Bachelor of Science, Mathematics, Elements of Computing & Applied Statistical Modeling Certificates

Relevant Coursework: Elements of Data Science, Software Engineering I, Graphics, Software Design; Applied Statistics, Number Theory, Linear Algebra, Applied Regression & Time Series, Predictive Analytics, Mathematical Statistics

SKILLS

Technical: *Python, NumPy, PyTorch, TensorFlow, R, Linux, Git, Matplotlib, DSA, ggplot2, SQL, Plotly, Altair, Seaborn*
Modeling: Linear/Logistic *Regression, KNNs, Neural Networks, Random Forests, Decision Trees, Clustering, Classification*

RESEARCH/PROJECTS

Oden Institute of Computational Engineering and Sciences, Austin, TX **Aug. 2024 – Present**
Undergraduate Researcher

- Built 20+ high-resolution elevation maps of the lower Rio Grande Valley in ArcGis to analyze area topography.
- Simulated rainfall patterns and runoff in SMS to assess flood risks and inform mitigation strategies for farmers.

Texas Advanced Computing Center, Austin, TX **Jun. 2024 – Aug. 2024**
Undergraduate Researcher

- Reduced computational time of classification models by 80% through derivative-free optimization (DFO) algorithms using SciPy, sklearn, addressing challenges of high-dimensional data and lack of function information.
- Performed computational experiments using TACC's Frontera supercomputer to validate proposed methods.

Predictive Modeling of Atmospheric PM 2.5 Levels Using Machine Learning Algorithms **Nov. 2023**

- Engineered a comprehensive data pipeline in R, including data wrangling and feature selection for atmospheric PM 2.5 prediction, utilizing key predictors such as air quality and aerosol levels to enhance model precision.
- Designed predictive models (Linear Regression, KNN, Decision Trees, Random Forest) using the tidymodels package, optimizing hyperparameters through cross-validation and grid search to minimize RMSError.

National Science Foundation, University of Texas Rio Grande Valley **May 2023 – Aug. 2023**
Undergraduate Researcher

- Developed neural network using TensorFlow and PyTorch to predict the diffusion of pollutants in California from 20,000+ noisy data points, achieving a 98% accuracy and optimized model performance with low error.
- Adapted to latest advancements in deep learning techniques, participating in industry workshops/conferences.

Freshman Research Initiative, The University of Texas at Austin **Jan. 2022 – Dec. 2022**
Undergraduate Researcher

- Completed hands-on weekly labs and cleaned 1000+ picture frames of stars, considering factors like dust and bent light rays, to model the behavior of a star's luminosity and temperature over time with Python.
- Collaborated bi-weekly with peers to optimize Python code through learning modules and group programming.

LEADERSHIP & COMMUNITY INVOLVEMENT

Association for Women in Math UT Chapter **Feb. 2023 – Feb. 2024**
STEM Girl Day Volunteer

- Led interactive group stations for 250+ elementary school students, introducing them to inspiring women in Math and engaging topics like real-world applications of the Fibonacci series and Wi-Fi invention.
- Implemented visual aids and storytelling methods to ensure effective learning outcomes among participants.

Women in Natural Sciences Program Assistant, Austin, TX **Aug. 2022 – Aug. 2023**

- Mentored 75+ first-year students through their transition from high school to college and provided academic support by leading weekly meetings, facilitating career workshops, team-building socials, and career panels.

HONORS AND AWARDS

- Distinguished College Scholar College of Natural Sciences UT Austin 2023 & 2024
- Charles Butt Scholar | Michael & Susan Dell Scholar – UT Austin | Hispanic Scholarship Fund Scholar 2022
- Best Poster Presentation - TACCSTER Competition