Frado Garcia

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Education

Tecnológico de Monterrey (ITESM) Expected graduation date: Jun. 2026
B.S. in Data Science and Mathematics Engineering | Link to all courses ***GPA: 95/100***
Relevant Courses: Modeling Learning with Artificial Intelligence, Data Structures and Algorithms, OOP, Neural Network Design and Deep Learning, Data Science Analysis.

Projects

Logistic PCA Nov. 2023
Article about classification with PCA-optimized logistic regression model *Python, LaTeX*

- Designed and implemented a **logistic regression** classification model using **scikit-learn**, optimizing performance through **Principal Component Analysis (PCA)** for effective dimensionality reduction of the target dataset.
- Successfully **reduced the dimensionality** of the dataset from **784 to 256** variables using **PCA**, while maintaining a model **accuracy of 85%**. Additionally, optimized the model by **reducing training time by 72%**.
- Authored a **scientific article** detailing the methodology and results with precision, ensuring clear and accurate reporting of the research process and findings.

Mars explorer Mar. 2024
Intelligent agent for planning optimal and safe navigation routes for movement on Mars *Python*

- Extracted data from a Mars terrain height map on the **HiRISE** website, converting it into a **numpy** matrix format with height values for each terrain segment.
- Developed a **routing system** using **SimpleAI**, implementing and evaluating four distinct **search algorithms**, with a focus on **A*** for its heuristic function potential. The system was designed to compare navigation algorithm performance across distances exceeding **10,000 meters**, incorporating height restrictions to ensure explorer safety.
- Developed a viable route search system using the **greedy search algorithm** and **simulated annealing**, focused on safely descending craters without prior knowledge of terrain beyond the explorer's immediate surroundings. Successfully applied the system to navigate and **descend a 160-meter-deep crater**.

Financial personal assistant Sep. 2024
Personal financial assistant linked to Capital One test API *Python*

- Collaborated in a cross-functional team to design an **intuitive interface** integrating **Capital One's Nessie API** and **OpenAI's GPT-3.5**, automating the generation of detailed and **realistic financial profiles**.
- **Simulated** multiple user accounts, transactions, loans, and bills, providing a comprehensive tool for **financial analysis** and modeling.
- Enhanced the platform's financial **data visualization** by integrating **Plotly Express**, creating interactive and visually appealing **charts and graphs** for clearer insights and better user experience.
- Generated tailored financial plans and answered **user queries**, optimizing the system for **quick response times** and dynamic updates based on user input and simulated market conditions.

Smile Detection with Deep Learning Nov. 2024
System for classifying smiling and non-smiling faces using CNNs and Autoencoders. *Python, TensorFlow*

- Developed a **CNN** achieving **95% accuracy** and an **Autoencoder** for anomaly detection, highlighting limitations in **binary classification** tasks.
- **Preprocessed** images by resizing, **normalizing pixel values**, and converting formats for training compatibility.
- Compared models' **accuracy**, **runtime**, and potential in **edge computing** applications.

Skills

Languages:
Python, R, C++, MATLAB

Technologies & Tools:
Jupyter, Git, VS Code, TensorFlow, SciPy, Scikit-Learn, Pandas, Numpy, LaTeX, RStudio, PowerBI