Alejandro Leonardo García Navarro

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SKILLS

Programming Languages: Python, R, SQL, NoSQL, HTML/XHTML, CSS, JavaScript
Big Data and Machine Learning: Spark, Python (eg. numpy, pandas, scikit-learn, matplotlib)
Miscellaneous Technologies: Excel, Git
Languages: Spanish, English (Certificate in Advanced English), French

EDUCATION

Concordia University 2023 – 2024
Bachelor's degree in Data Science and Engineering *Montreal, Canada*

- Exchange student under the *Concordia Student Exchange Program (CSEP)*
- **Relevant Coursework:** Artificial Intelligence, Computer Vision, Web Programming, Operations Research
- "Santander Estudios" Scholarship recipient (Awarded highest economic endowment based on my academic performance)

Universidad Carlos III de Madrid Expected May 2025
Bachelor's degree in Data Science and Engineering *Madrid, Spain*

- **Relevant Coursework:** Programming, Probability and Data Analysis, Data structures and algorithms, Introduction to Statistical Modeling, Data Base, Statistical Learning, Machine Learning I, Predictive Modeling, Massive computing
- MEC Scholarship recipient (Awarded with academic excellence in all academic years)
- Additional information: class subdelegate (2022 – 2023)

PROFESSIONAL EXPERIENCE

Universidad Carlos III de Madrid September 2023 – Present
Research Assistant *Madrid, Spain*

- Developed an algorithm based on Reinforcement Learning for the control of communication networks using R.
- Applied prompt engineering in researching the boundaries of artificial intelligence by analyzing and adapting queries for LLMs (ChatGPT, Bard, Mistral, LLaMA).
- Evaluated ChatGPT (versions 3.5 and 4) with Wolfram Mathematica for mathematical problem-solving, focusing on the AI's response accuracy under different instruction levels.

VOLUNTEERING

Universidad Carlos III de Madrid October 2022 – May 2023
Mentor *Madrid, Spain*

- Mentored students in visualizing and interpreting data related to climate change.
- Prepared didactic material on databases and big data techniques and oversaw mentor-student communication.

WWF August 2022 – September 2022
Environmental volunteer *Canary Islands, Spain*

- Contributed to the conservation of the natural values of the Chinijo Archipelago.
- Volunteering tasks: restoration of the coast of the island of La Graciosa, environmental awareness activities for visitors and studies on the state of conservation of natural resources.

RECENT PROJECTS

AI Incident Classification (in collaboration with Hewlett-Packard Enterprise

- Developed a system capable of categorizing incidents based on different taxonomies using textual descriptions of the events.

PageRankAlgorithm

- Implemented the PageRank algorithm by Brin and Page, using Apache Spark to assign weights to web pages on the English version of Wikipedia, based on the number of external links pointing towards them.

- Analyzed and processed a Wikipedia dataset with more than 5.8 million entries, using Spark DataFrames for efficient data manipulation and the creation of link matrices for the calculation of PageRank.
- Optimized the code to ensure its scalability and effectiveness in a distributed environment, testing it on a cluster capable of managing databases ten times larger.

ExperimentsWordEmbeddings

- Perfomed experiments with word embeddings to solve a synonym test automatically.
- Compared the performance of different pretrained embedding models on different data sets.
- Achieved an accuracy of 92.50%, comparable to the average human accuracy.

ExperimentMachineLearning

- Engaged in a detailed analysis and preparation of two diverse datasets using Python and the scikit-learn library. Responsibilities included loading and transforming data, ensuring accurate conversion of categorical data to numerical format, and analyzing class distribution to understand dataset balance.
- Successfully trained and evaluated four distinct machine learning classifiers (Base-DT, Top-DT, Base-MLP, Top-MLP).