Adrián Augusto Ferrer Orgaz

Data & Machine Learning Scientist / Software Engineer Mexico City Metropolitan Area

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I am a dynamic and adaptable Software Engineer and Data Analyst with a BS in Data Science and Mathematics Engineering from Tecnológico de Monterrey and experience in full-stack development, cloud computing, and data engineering. I'm passionate about applying my skills to innovative projects, especially within the gaming industry.

Experience

Software Engineer and Data Analyst @ Singular Beacon (Madrid, Spain) - Remote

May 2023 - September 2024

- Spearheaded the development of full stack web applications with React and Express. Solution was deployed on Azure Web App service. Integrated Azure Functions as complementary backend and setup seamless CRUD operations with Azure Blob Storage.
- Implemented end-to-end Hubspot API integrations across web applications, enabling synchronization between services and improved client workflow automation.
- Designed and developed Hubspot React UI extension with complementary Azure Functions backend, delivering scalable web apps for service integration.
- Engineered ETL pipelines in Azure Data Factory to ingest and process data from third-party APIs, which powered key web applications and business intelligence tools.
- Automated data workflows with Python, critical tasks were implemented via integrated web apps and Azure Functions, streamlining data operations.
- Developed and customized three Odoo custom modules to address unique client needs, enhancing platform functionality and flexibility.

Software Engineer and Data Analyst @ Pernexium - Mexico City

May 2024 - July 2024

- Developed the foundations of an admin panel using Next.js paired with AWS Amplify backend, simplifying CRUD operations through implementation of AWS authentication and storage services via Amplify backend.
- Architected the foundations of an SQL for a custom CRM solution, facilitating efficient data storage and retrieval for business operations..
- Created automated data reports using Python, enabling extraction of insights into key business metrics and decision making workflows.

Skills

Programming | Web Development | Data Analysis and ML | Autodidact | Flexibility and Adaptability

Programming Languages

Experienced: Python | JavaScript
Intermediate / Beginner: C# | C++

Frameworks / Software / Services

Cloud: Azure | AWS
Web development: React / Next.js | Tailwind

Machine Learning: Scikit-Learn | Keras | Torch

Languages: Spanish (native) | English (C1) | French (A1)

Education

Instituto Tecnológico y de Estudios Superiores de Monterrey, México

B.S. Data Science and Mathematics Engineering (August 2019 -2023)

- Beca al Talento Académico (Academic Talent Scholarship) (2019)

École Polytechnique Fédérale de Lausanne (EPFL), Switzerland

Exchange semester in Data Science and Computer Science Master program courses (Fall Semester 2022-2023

Research Experience

"Credit Scoring using Advanced Multivariate Linear Regression Analysis" (2021) (link)

Project developed under the supervision of Mexican corporation Pretmex. Tasked with expanding a previous empiric-developed credit score scale based on previous client data. The data was analyzed with the aid of the newly created scale and with advanced correlation and multivariate linear regression analysis. Separation and classification with these statistics and other machine learning techniques to predict client credit standing. Lead code developer and project designer.

"E-commerce vehicle capacity vehicle routing problem (CVRP) optimization" (2021) (link)

Project developed under the supervision of Mexican nationwide department store Coppel. An alternate solution methodology is proposed for NP-hard CVRP using clustering local optimization algorithms and regular traveling salesman problem.

"Multilayer Neural Network for death probability prediction in COVID-19 patients" (2020-2021) (link)

Presented in 51 Congreso de Investigación y Desarrollo, Tecnológico de Monterrey. Prediction of death probability for a patient based on certain comorbidities and other factors. Concept as an auxiliary tool to aid in prioritizing medical attention. Lead code architecture and web app development. A streamlit web app is presented with the results of the model iterations.

"Semi-supervised anomaly detection based on autoencoders" (2020-2021)

Supervision and evaluation of various trained models, development of code, Neural Network architectures, and code execution on several environments. Development under supervision of Ph.D. Miguel Ángel Medina Pérez.

Other Experience

"Hacking the Oscars data story" (2022) (link)

"Hacking the Oscars" is a project developed as part of the Applied Data Analysis EPFL course. Elaborate data wrangling performed on CMU movie summary corpus dataset along with IMDb datasets to understand movie success through data-driven approach. Statistical differences between highest rated and lower rated movies are explored. Use of unsupervised learning techniques such as Latent Dirichlet Allocation for movie summary plots for feature engineering and interpretation. Participated actively in code and analysis design, developed the presentation web page (data story).

Online Portfolio (2022-present) (link)

Web Portfolio developed with the purpose of learning HTML, CSS, JS, etc. and also complement my academic/professional profile while doing so. Here are more detailed write ups on more projects I have been involved with. Linked in header, also available at Portfolio.

"Digital Signature (DS) scheme implementation application" (2022) (link)

Project developed under the supervision of non-lucrative Mexican organization Teletón. A multidisciplinary project with the objective of making cryptographic technology accessible for non-technical users. Main designer of code, app functionality and user cycle. Developed the main logic and Python code blocks to be used in the final application, assisted in UI and app design. The final product consists of the app implementation of the DS algorithm and a promotion prototype web page.

"Topological Data Analysis (TDA) in gravitational wave data using time delay embedding" (2022) (link)

Analysis of clean and noisy gravitational wave data using time delay embeddings. Vietoris-Rips complex data persistence homology analysis. Classification of noisy and clean gravitational waves based on engineered features from persistence homology.

"Control Theory for building vibration control in earthquakes" (2022) (link)

Study of modern building LTI models, active and passive actuators concepts for vibration control during earthquakes. System modeled in Simulink and code in state space representation. Analysis of analytic and numeric solutions facing seismic excitation before and after the implementation of control techniques. Lead code developer and project designer.

Ruin Probability with Crammer-Lundberg Risk Model (2021) (link)

Project developed under the supervision of nationwide corporation AXA. Provided a dataset, based on monthly income, client claim amount distribution, and corporation reserve, ruin probability is computed. Results obtained via analytic solution of the Crammer-Lundberg model and simulation. Lead code developer and project designer.

Awards & Certifications

IELTS Band 8 CEFR C1 Level Certification (02/2022 - 02/2024)

Machine Learning Scientist with Python, Datacamp (2020)

3rd place in a NDS Cognitive Labs sponsored machine learning hackathon, HackMx (2021)

Fraud detection simulation in an e-commerce web application. Lead modeling and machine learning tasks (anomaly detection and classification algorithms).