

# Danilo Chamorro

Data professional

[dchamorro](#) | [dchamorro](#) | [danilochamorro.com](#) | [danilochamorro@gmail.com](#) | [+57 3014416418](#)

## SUMMARY

Highly responsible professional with advanced analytical skills in **machine learning, data analytics, and statistical modeling**. Seeking to apply these skills to drive financial insights. Experienced in transforming complex datasets into actionable business intelligence using **Python, SQL, and advanced visualization tools**. Proven track record of developing innovative data-driven solutions, including **feature engineering, time-series analysis, and dynamic dashboards**. Skilled at collaborating across teams, presenting technical findings to leadership, and translating complex data into clear narratives. Passionate about leveraging machine learning to optimize workflows and solve complex business challenges through data-driven approaches.

## SKILLS

Technical Skills **Programming & Tools** Python (NumPy, Pandas, PyTorch, Scikit-learn), SQL, Unix Shell scripting, RESTful APIs, Tableau, Git.  
**Machine Learning** Supervised learning, Deep learning, Neural networks, Computer vision, Explainable AI, Uncertainty Quantification.  
**Data Analysis** Data visualization, Feature engineering, Time-series analysis, Noise reduction.  
**Software & Visualization** Plotly, ArcGIS, QGIS, Matplotlib, Seaborn, Notion, Slack.

Soft Skills Team collaboration, Communication, Problem-solving, Leadership

## PROFESSIONAL EXPERIENCE

**Freelance Data Analyst** Jun 2023 - Present  
*Self-Employed* Remote

Provided data analytics solutions for clients in diverse industries, leveraging **Python, SQL, and data visualization tools** to transform raw data into actionable insights. Designed automated workflows for data cleaning, aggregation, and reporting using **Pandas** and **NumPy**. Created dynamic dashboards and visualizations with **Plotly** and **Tableau** to present findings effectively.

- Collaborated with a healthcare startup to build a patient trends dashboard using **SQL** and **Plotly**, reducing manual reporting time by 40%.
- Cleaned and processed large retail datasets for a supply chain analysis project, optimizing data preparation workflows with **Pandas** and **NumPy**.
- Developed a Python script for an e-commerce company to analyze sales performance, employing **Matplotlib** and **Seaborn** to generate automated visual reports.

**Graduate Researcher** Feb 2023 - May 2024  
*King Abdullah University of Science and Technology (KAUST)* Thuwal, Saudi Arabia

Led research on integrating **machine learning techniques into geophysical data analysis**. Developed ML-based models to predict surface wave dispersion curves from seismic shot-gathers, improving imaging accuracy. Applied **data aggregation, filtering, and denoising techniques** to enhance model performance. Investigated **explainable AI** and **uncertainty quantification** for reliable model deployment. Collaborated with industry leaders and academic experts to apply AI in geoscience workflows.

- Improved geophysical imaging through ML integration, reducing processing time and enhancing model robustness.
- Collaborated with Fugro R&D and Delft experts, driving innovation in shallow seabed profiling workflows.
- Presented findings at EAGE Subsurface Intelligence Workshop, earning recognition for advancing AI in geosciences.
- Authored a peer-reviewed publication in *Near-Surface Geophysics*, showcasing innovative AI applications [here](#).

## Assistant Geophysicist

Aug 2021 - Feb 2022

AGG – Applied Geology and Geophysics

Medellín, Colombia

Analyzed seismic data from engineering projects using **cross-borehole tomography** and Python. Enhanced geoelectrical resistivity model inversion with **ML-based clustering techniques** for noisy data. Developed Python scripts for **automated reporting and visualization** using Plotly, streamlining data presentation. Applied data aggregation and denoising techniques to refine data quality and improve model accuracy.

- Improved inverted resistivity models by combining advanced regularization and ML methods.
- Enhanced clustering of noisy features, providing actionable insights for mining exploration.

## Intern in Exploration and Geophysical Services

Jun 2021 - Jan 2022

Ecopetrol S.A.

Bogotá, Colombia

Applied **machine learning and image processing techniques** to exploration processes. Designed an automated circular feature classifier using Hough transform to detect near-surface alterations related to seeping oil fields. Built 2D shear-wave velocity and Young's modulus models using **data aggregation, filtering, and processing**. Leveraged Python libraries like **skimage** and **OpenCV** for ML workflows and used SQL for accessing and integrating diverse datasets. Constructed geological models to validate and interpret findings.

- Increased detection accuracy by automating **image processing workflows** for geological features.
- Integrated ML-based insights into exploration workflows, reducing manual effort and improving efficiency.
- Designed and implemented **SQL queries to extract and analyze operational data**, reducing error rates by 10%.
- Automated financial modeling tasks using Python, achieving a 25% efficiency gain in project workflows.
- Produced detailed **visual reports for management**, improving transparency and supporting executive decision-making.

## EDUCATION

---

### 2022 - 2024 **M.Sc. in Earth Sciences and Engineering with track in Machine Learning**

*King Abdullah University of Science and Technology*

Thesis topic: "Advancing Near-Surface Imaging with Deep Learning and Medical Imaging-based Techniques". Academic advisor: Matteo Ravasi

GPA: 3.76/4.0

### 2017 - 2022 **B.Sc. Summa cum laude with Major in Geological Engineering**

*Universidad Nacional de Colombia*

Thesis topic: "Geoelectrical Analysis for the Characterization of Saturated Areas in a Slope". Academic advisor: Gaspar Monsalve

GPA: 4.4/5.0

## PROJECTS

---

### **Optical flow regularization for time-lapse post stack seismic inversion**

[Link to repo](#)

A novel regularization operator for 4D seismic inversion was developed, utilizing temporal evolution within a spatio-temporal reconstruction scheme. This method, validated with synthetic models, demonstrated improved accuracy in subsurface property recovery and seismic imaging clarity.

### **RMS velocity prediction from CMP gathers using Deep Learning**

[Link to blog post](#)

An innovative method leveraging Convolutional Neural Networks (CNN) for estimating RMS velocity from CMP gathers was introduced, significantly enhancing seismic data processing precision. Demonstrated through synthetic data validation, this approach efficiently reduces exploration costs and timelines in hydrocarbon discovery.

## HONORS & AWARDS

---

First place winner of EAGE Hackaton on Explainable A.I.

2022

Dean's list recipient for 4 consecutive years during bachelor studies

2018-2022

Presenter at Second EAGE Subsurface Intelligence Workshop in Manama, Bahrain

2022

Chevron/SEG Student Leadership Symposium (SLS) recipient

2023