Claudia Olivares Cabello

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Data Scientist | Machine Learning | Geospatial & Environmental Data

PROFESSIONAL SUMMARY

Data Scientist with **8+ years** of combined professional and research experience in geospatial, climate and energy data. Applies **Python**, statistical analysis and machine learning methods to satellite time series and complex spatial datasets. Led technical teams, built a **250+** layer global data product and automated processing from approximately **one day to a few hours** per layer.

TECHNICAL SKILLS

Programming & data analysis: Python, SQL, pandas, NumPy, SciPy; statistical and time-series analysis.

Statistics & machine learning: scikit-learn; PCA, regression, K-means clustering; model evaluation (RMSE, R-squared, Pearson correlation).

Data engineering & cloud: Raster/vector pipelines, data harmonisation, QA/QC, ML-ready data preparation; GCP, Docker, Git; PostgreSQL/PostGIS.

Geospatial & remote sensing: GeoPandas, rasterio, QGIS, ArcGIS Pro, Google Earth Engine; optical and passive microwave remote sensing; ISO 19115 metadata.

Visualisation & applications: Streamlit, Plotly, Folium, matplotlib, Seaborn; interactive charts and maps.

PROFESSIONAL EXPERIENCE

Geospatial Data Analyst

Project InnerSpace | Remote, US-based organisation · September 2024 – October 2026

• Led a **team of 3** on global geothermal and subsurface opportunity analysis, coordinating priorities and analytical workflows.
• Built and maintained **GeoMap**, an internal product containing **250+** global geospatial layers, with ISO 19115 metadata.
• Developed **Python** raster/vector pipelines for harmonisation and QA/QC, reducing processing time per layer from approximately **one day to a few hours**.
• Prepared quality-controlled, ML-ready datasets and explored and implemented geospatial retrieval-augmented generation (RAG) workflows.
• Built internal **Streamlit** applications to automate processes and expose analytical tools; used Google Cloud Platform for data processing.

Development Engineer & GIS Analyst

Youwind Renewables | Barcelona, Spain · December 2021 – September 2024

• Analysed **IPCC CMIP6** projections in **Python** to assess climate change impacts on wind resources, comparing statistical trends across scenarios and future periods.
• Applied bias correction and downscaling to climate model outputs; analysed existing wind energy forecast time series for project evaluation.
• Led a **team of 2** delivering spatial analyses for offshore wind development and climate risk assessment, supporting project and investment decisions.
• Automated data validation, processing and mapping with **Python**; contributed to published conference research on offshore wind and climate change.

Research Assistant, Passive Remote Sensing

Polytechnic University of Catalonia (UPC) | Barcelona, Spain · May 2020 – Nov 2021

• Processed and analysed passive microwave satellite time series for environmental monitoring, applying statistical analysis and machine learning techniques to extract meaningful patterns from geospatial data.
• Applied Principal Component Analysis (**PCA**) and regression models to investigate relationships within satellite-derived datasets and support environmental analysis.
• Developed and evaluated supervised classification models, using quantitative performance metrics such as **RMSE** to assess model accuracy and prediction errors.
• Conducted geospatial data processing and model evaluation workflows to support the analysis and interpretation of remote sensing observations.

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EARLIER PROFESSIONAL EXPERIENCE

Geographic Data Analyst (Internship)

HEMAV S.L. (ESA Business Incubation Centre) | Barcelona, Spain · January – September 2019

• Processed geomatic data and produced 3D visualisations for ESA BIC projects.

Research Assistant, Soil Moisture from Remote Sensing

Universidad de Chile, Biosphere Analysis Laboratory | Chile · May 2015 – May 2016

• Estimated regional surface soil moisture using optical and passive microwave remote sensing for a FONDECYT research project; collected and processed soil moisture, radiometric temperature and vegetation cover data.

SELECTED PROJECTS

Geothermal Monte Carlo Calculator

Built a **Python** resource calculator using rasterio, NumPy and SciPy: correlated sampling via Cholesky decomposition, **P10/P50/P90** estimates, raster alignment checks and a **Streamlit** application.

Data Center Weighted Overlay Analysis

Ranked data-centre sites in pure **Python** using groundwater availability (85%) and fibre proximity (15%), with distance normalisation and smoothing.

Industrial Network Clustering

Implemented constrained spatial clustering, calculating minimum spanning tree cost and cluster diameter; generated automated PowerPoint map slides.

EDUCATION

Doctoral Studies in Signal Theory and Communications (not completed)
Universitat Politecnica de Catalunya | 2020 - 2022

MSc in Remote Sensing and Geographic Information Systems
Universitat Autonoma de Barcelona | 2018 - 2019
Thesis: Analysis of crop yield in Argentina by remote sensing (RSLab, UPC).

Engineer in Renewable Natural Resources
Universidad de Chile | 2011 - 2016

SELECTED PUBLICATIONS

Olivares-Cabello, C. et al. (2023). Global unsupervised assessment of multifrequency vegetation optical depth sensitivity to vegetation cover. IEEE JSTARS, 16.
https://doi.org/10.1109/JSTARS.2022.3226001

Olivares-Cabello, C. et al. (2021). Monitoring forest above-ground biomass from multifrequency vegetation optical depth: a preliminary study. IEEE IGARSS.
https://doi.org/10.1109/IGARSS47720.2021.9553770

Olivares-Cabello, C. et al. (2024). The impacts of climate change on offshore wind park projects: from changes in resource to project profitability. Journal of Physics: Conference Series, 2767, 092085.
https://doi.org/10.1088/1742-6596/2767/9/092085

LANGUAGES

Spanish: Native · English: C1 · Catalan: B2

CERTIFICATIONS

Advanced Methods for Remote Sensing Information Extraction | IEEE GRSS School | November 2020

Web Mapping | MappingGIS | February 2023