



MARIA FERNANDA VILLALBA

Advanced student pursuing a **dual degree in Data Science and Physics**. Passionate about scientific research, computational physics, and atmospheric sciences. Dedicated to applying geospatial analysis and rigorous mathematical modeling to solve environmental problems.

CONTACT



Location

Capital Federal
Buenos Aires, Arg.



E-Mail

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GitHub

github.com/FernandaVil



LinkedIn

Maria Villalba

PERSONAL



Date of birth

14/03/1997



Nationality

Colombian

LANGUAGES



Spanish

Native



English

Level C1

Cambridge Test



French

Level B2

Alliance Française

PROJECTS

Glacier Retreat Geospatial Analysis ↗

Python, Rasterio, GeoPandas, Sentinel-2

Developed a pipeline to process satellite imagery using NDSI indices and matrix algebra to quantify ice loss.

Volcanic Ash Simulation ↗

Python, Lagrangian Modeling, NumPy

Building a 2D simulation using Monte Carlo methods and Brownian motion to model particle dispersion under stochastic wind and turbulence conditions.

Drone Patrol Route Optimization (In Progress)

Python, NetworkX, OSMnx, Graph Theory

Optimizes drone paths in National Parks to target poaching activity, maximizing coverage under battery constraints.

ACADEMIC BACKGROUND

Ongoing

Universidad de Buenos Aires

Bachelor of Data Science (4th year)

Bachelor of Physical Sciences (3rd year)

Completed

Coursera

Google Data Analytics Cert. ↗

SKILLS

Prog. Python (Pandas, NumPy, Matplotlib, Scikit-learn, Rasterio, GeoPandas), SQL.

Tools Jupyter Notebooks, Tableau, Excel, Overleaf/LaTeX, Git.

Math Advanced Calculus, Linear Algebra, Probability & Stats.

RELEVANT EXPERIENCE

2025-Pres. **Freelance Private Tutor**

Delivered personalized lessons on Python for Data Science, covering data cleaning, algorithms (e.g., K-Means), and programming logic for technical students.

2023 **Vocational Guidance Office (FCEN- UBA)**

Tutor in the "Más Acompañamiento" program aimed at new students, providing guidance on university resources.

2018-23 **Tecnópolis (Ministry of Science & Technology)**

Exhibition Guide in charge of communicating scientific concepts to diverse audiences to stimulate interest in the field.