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, Argentina

E-Mail
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GitHub
github.com/FernandaVil 🔗

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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
Designing a route optimization engine for aerial surveillance. The project models National Parks as graphs to solve a resource-constrained coverage problem, targeting hotspots (e.g., poaching activity) to maximize detection probability.

ACADEMIC BACKGROUND

Ongoing	**Universidad de Buenos Aires** Bachelor of Data Science (4th year) Bachelor of Physical Sciences (3rd year)
Completed	**Coursera** Google Data Analytics 🔗

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.