

José Fernando Barrera De Plaza

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Education

Universidad de los Andes <i>M.A. in Economics (PEG)</i>	Aug 2020 – Oct 2022 <i>Bogotá, Colombia</i>
Universidad de los Andes <i>B.A. in Economics, Minor in Computational Mathematics</i>	Jan 2016 – Apr 2020 <i>Bogotá, Colombia</i>
Metropolia University of Applied Sciences – Open UAS <i>Non-degree computer-science coursework (in progress)</i> • C Programming; Data Structures and Algorithms with Python; Discrete Mathematics; Introduction to Operating Systems; Microprocessors; SQL and Relational Databases; Unix/Linux (Basics and Advanced).	2026 – Present <i>Online</i>

Research Experience

Research Assistant – Topic Modelling (freelance) <i>Doctoral research of Olivia Woldemikael, Harvard University</i> • Designed and ran the LDA topic-modelling analysis of mayoral candidates' government platforms in Colombian municipalities along the Venezuelan migrant route versus nearby control municipalities. • Output used as evidence that service- and governance-related topics were more prevalent along the route (Ch. 3 of <i>The Local Consequences of Migration Policies in Latin America, Africa, and North America</i>, Harvard, 2023); acknowledged for research assistance.	2022 <i>Remote</i>
Senior Analyst – Barómetro de Xenofobia (now El Barómetro) <i>Corporación Otraparte – El Derecho a No Obedecer</i> • Built end-to-end pipelines to collect and process social-media data (Facebook, Instagram, YouTube, TikTok, Twitter) with Python, Selenium and BeautifulSoup, reducing reliance on licensed tools. • Developed Spanish-language NLP models for xenophobia detection and topic modelling (TensorFlow, spaCy, gensim, NLTK), and new narrative-analysis methodologies and indicators. • Produced recurring indicators and monthly reports on online xenophobia, racism and gender-based political discrimination; combined ML with econometric analysis on migration; selected outputs were shared with international organizations. • Maintained a documented GitHub repository of 20+ reusable analytical functions for internal and external users.	Dec 2020 – May 2023 <i>Envigado, Colombia</i>
Master's Thesis – Safe Isolation: Ingreso Solidario and Bancarization <i>Universidad de los Andes, School of Economics</i> • Advisors: David Bardey and Manuel Fernández. • Studied heterogeneous compliance with Covid-19 isolation measures across Colombian municipalities after the first disbursement of Ingreso Solidario, an unconditional cash-transfer program. • Combined local mobility data with administrative program data from Prosperidad Social; difference-in-differences within an event-study design, contrasting poorer and richer municipalities. • Selected by the School of Economics for publication as Documento CEDE No. 42 (Estudiantes PEG series).	2021 – 2022 <i>Bogotá, Colombia</i>

Professional Experience

Data Engineer <i>Omnicom Global Solutions Colombia S.A.S (permanent contract)</i> • Design and orchestrate multi-stage ETL/ELT pipelines in Python with Dagster and dbt, delivering validated, analytics-ready datasets in Snowflake.	Oct 2024 – Present <i>Colombia</i>
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- Build and maintain production data applications integrating React front ends, Python services, Flask/Dash and AWS cloud infrastructure.
- Build agent-assisted (LLM) workflows that turn campaign taxonomies into structured, model-ready features.

Python Developer (contractor)

Sep 2023 – Apr 2024

Globalsoft Wigilabs S.A.S

Bogotá, Colombia

- Modelled telecommunications networks with graph theory and efficient tree-path methods to support frequency and signalling allocation under technical constraints.
- Developed backend features and automated API and multi-device tests (Django, DRF, PostgreSQL, unittest, Playwright) for high-traffic applications.

Teaching Assistant (part-time, recurring appointments)

Jan 2022 – Present

Universidad de los Andes, Dept. of Industrial Engineering

Bogotá (remote)

- Graduate Teaching Assistant at master's level (2022) and Teaching Assistant in analytics and programming courses of the MIAD/MIA master's programs, including Analytics Computational Lab and Visualization & Storytelling.
- Coordinated two editions of the Analytics Forum, an artificial-intelligence event at the university.

Project Assistant – IT Solutions

Oct 2020 – Mar 2021

Universidad de los Andes

Bogotá, Colombia

- Refined REST API endpoints for three applications (Java, Swagger/OpenAPI documentation).

Publications & Software

Barrera De Plaza, J. F. (2022). *Safe Isolation: Ingreso Solidario and Bancarization*. Documentos CEDE No. 42, Serie Estudiantes PEG, Universidad de los Andes. ISSN 1657-7191. SSRN 4268447.

tidyX: Python package for cleaning and preprocessing Spanish-language social-media text for NLP (lemmatization, emoji and Unicode handling, stop-word removal, tokenization). Co-author.
pypi.org/project/tidyX

Awards & Honors

Master's thesis selected for *Documentos CEDE – Estudiantes PEG*

Universidad de los Andes, School of Economics (faculty nomination)

2022

1st place, Youth Leadership and Innovation Award for Migration (team award)

Barómetro de Xenofobia; Migration Youth & Children Platform at the GFMD Summit

2021

Specialized Skills

Research methods: causal inference (difference-in-differences, event studies, panel data), econometrics, NLP and topic models (LDA), statistical modelling, graph-based modelling

Programming: Python, SQL, Java, JavaScript; Stata; $\LaTeX$

Data & ML: Snowflake, Dagster, dbt, Spark, AWS (Glue, Redshift), PostgreSQL, TensorFlow, spaCy, gensim, NLTK, RAG pipelines, vector databases, LLM/agent workflows

Software: React, Flask, Dash/Plotly, Django/DRF, FastAPI, Docker, Git/GitHub, REST APIs

Languages: Spanish (native), English (C1, TOEFL iBT 101/120), German (B2 in progress, Goethe-Institut)

Additional Coursework

Coursera (2020): Introduction to Deep Learning; Natural Language Processing; Bayesian Methods for Machine Learning (HSE University) · Python for Everybody Specialization (University of Michigan) · SQL for Data Science (UC Davis). Full list with certificates: terrok9.github.io/courses

Other Interests

Squash; home lab running locally hosted language models