Guillermo Lezama

Data Scientist - Causal Inference & Experimentation | Economics PhD

(412) 897-0180 | Los Angeles, CA (open to relocate) | guillelezama@gmail.com | [LinkedIn](#) | [Github](#) | [Personal Website](#)

PROFESSIONAL SUMMARY

Data Scientist and applied microeconomist (PhD) with over ten years of experience designing experiments, estimating causal effects, and analyzing large-scale experimental and observational data. Background spans industry and research environments, with hands-on work in RCT analysis, quasi-experimental methods, applied ML systems, NLP systems, and cloud-based analytics. Focused on translating empirical evidence into decision-relevant insights.

SKILLS AND TRAINING

Causal inference & experimentation: A/B testing; power/MDE via Monte Carlo; balance/SRM checks; diff-in-diff; RDD; IV
Programming & data: Python, SQL, PySpark, R, Stata; AWS (S3, EMR, SageMaker); Airflow;
ML / NLP / GenAI: scikit-learn (Naïve Bayes, Random Forest, K-Means) ; HuggingFace; text classification; OpenAI API; Claude API; RAG; prompt engineering; fine-tuning; LangChain
Visualization & communication: Streamlit, Tableau, Matplotlib, ArcGIS
Other: Spanish (native/fluent); [Summer Institute in Computational Social Science;](#) [Erdos Institute Data Science Boot Camp](#)

EXPERIENCE

Amazon, Seattle, WA 2024 – 2026
Economist (Intern 2024; rehired full-time 2025-2026) **– Reduced-Form Causal Analysis – Prime Economics**
- Backtested speed-elasticity models using experimental data from regional launches and shutdowns of same-day delivery (zip-code randomization) to calibrate demand response.
- Estimated causal lift of overnight delivery promises on sales; translated treatment effects into elasticity inputs used for finance-led delivery speed investment evaluation.
- Extended production pipelines to two international marketplaces; coordinated stakeholders and processed hundreds of millions of customer interactions.
- Built automated RCT analysis framework (ingestion, balance/SRM checks, and treatment effect estimation) to standardize experimentation readouts.
- Built SQL pipelines and an economics-based decision model to quantify the speed vs cost trade-off and identify optimal delivery promise for non-Prime customers.
- Explored the use of GenAI methods to support data analysis and modeling workflows, including preliminary assessments of how LLMs could be applied to customer level data.

Universidad de la República, Montevideo, Uruguay 2024– Present
Instructor of Exploratory Data Analysis ([Github Repository)](#)
- Teach applied Python/SQL for data science (NLP, clustering, time series) and mentor end-to-end projects.

Búsqueda (newspaper), Montevideo, Uruguay 2024
Data Analyst ([Dashboard 1](#) | [Dashboard 2](#) | [Github Repository](#) | [Slides)](#)
- Built Streamlit dashboards for public-facing election analysis and automated 20 years of electoral data processing in Python to enable scalable voter-behavior analysis.

University of Pittsburgh, Pittsburgh, PA 2019 – 2025
Research Assistant and Instructor
- Built and validated an OpenAI-powered NLP system for large-scale classification of **open-ended survey responses**, testing consistency and agreement with human annotations to ensure reliable measurement.
- Designed and taught an undergraduate economics course on international economics, producing asynchronous instructional content and assessments.

The Summer Institute in Computational Social Science, Montevideo, Uruguay 2024
Co-Organizer
- Secured funding to host a Spanish language institute for graduate students and professionals.

Legislator's Office, Montevideo, Uruguay 2015 – 2017
Economic Consultant to a Member of the Congress
- Provided economic analysis and briefing materials for a member of Congress, translating technical economic concepts into decision-relevant insights for non-specialist audiences.

PUBLICATIONS AND DATA PROJECTS

AI Voter Personas: Cluster-Grounded LLM Simulation System (ML + GenAI) ([Live App](#) | [Github](#))
- Built a cluster-grounded persona simulation system combining K-Means segmentation on 51 ANES policy variables with LLM-based response generation.
- Developed a pipeline that generates structured predictions for unseen policy questions using existing survey data.
- Implemented ML vs LLM comparison framework to benchmark predictive performance.
- Designed lightweight deployment architecture (Vercel + API-based inference) for scalable, low-cost user interaction.

Automating Large-Scale Political Text Analysis with OpenAI (LLMs, NLP & Causal Inference) ([Dissertation Chapter Draft](#) - submitted | [Published Paper](#) | [Job Market Paper](#) - submitted | [Github Repository](#) | [Slides for NLP part)](#)
- Engineered and fine-tuned OpenAI API prompts for 136K political statements (84% accuracy) and 13k political manifestos.
- Validated LLM classifications against human annotations, showing ChatGPT could reduce labeling costs from $12,000 to $197 per 122k texts.
- Presented findings at the World Bank-IFS-ODI Tax Conference, shaping discussions on how transparency influences electoral strategy and political discourse**.**

Testing Qualitative Effects with Experimenter Demand (A/B Testing & Causal Inference) ([Draft](#))
- Designed and ran controlled A/B experiments to test experimenter demand bias in surveys.

- Developed Monte Carlo simulations in Python, ensuring statistical power for robust experiment design.

Sanctions Analytics: Financial Impact of OFAC Enforcement ([Working Paper](#) -submitted)
- Used NLP to analyze OFAC enforcement data and merged with CRSP stock returns to study firm-level reputation loss.
- Showed how public enforcement signals shape market behavior and inform regulatory impact and compliance risk.

EDUCATION

University of Pittsburgh, Pittsburgh, PA   2025
PhD Economics

University of Pittsburgh, Pittsburgh, PA   2020
Master of Arts in Economics

Universidad de la República (Uruguay)   2019
Master of Science in International Economics

Universidad de la República (Uruguay),   2013
Bachelor of Arts in Economics