

Ignacio J. Lizama

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EDUCATION

Cornell University

B.S. Computer Science & Applied Physics (Double Major)

Ithaca, NY

Expected May 2027

Relevant Coursework: Object-Oriented Programming & Data Structures, Functional Programming, Discrete Math, Linear Algebra, Probability & Statistics, Differential Equations, Electronic Circuits, Intro Quantum Mechanics, Mechanics of Particles & Solid Bodies, Intermediate Mathematical Physics

EXPERIENCE

Juli AI LLC

CEO & Co-Founder

Miami, FL

May 2025 – Present

- Architected Juli's agentic marketplace by pairing **NetworkX**-based **Graph of Thoughts** planning with **MCP-Zero** routing to orchestrate 300+ tools, earning a top-9% finish in Y Combinator's Fall 2025 batch with direct encouragement from partners to reapply.
- Directed a 2-engineer pod while shipping 60% of production code, implementing a stateful LLM execution pipeline that minimized redundant context serialization to reduce token overhead by 30% and **Temporal** workflows for asynchronous fault tolerance.
- Open-sourced **Juli-Calendar** and **Juli-Email** agents ([Juli-Calendar](#), [Juli-Email](#)) to demonstrate **Model Context Protocol (MCP)** integration patterns, accelerating developer adoption of the orchestration-first architecture. juli-ai.com

Cornell University Earth & Atmospheric Sciences Department

Research Assistant, Mahowald Lab

Ithaca, NY

Jan 2025 – May 2025

- Designed and trained a **ConvLSTM** neural network in **PyTorch** to forecast global Aerosol Optical Depth (AOD), modeling complex spatiotemporal atmospheric dynamics across multi-year satellite observations under the supervision of Professor Natalie Mahowald.
- Architected a scalable ETL pipeline for MERRA-2 reanalysis satellite data using **Xarray**, **Dask**, and **Zarr**, with automated ingestion from **NASA Earthdata APIs** to handle authentication, rate limiting, retries, and parallel chunk downloads.
- Automated hyperparameter optimization using **Optuna** to minimize RMSE loss and improve forecast accuracy on geospatial datasets.

Cornell Mars Rover

Software Engineer

Ithaca, NY

Aug 2023 – May 2025

- Implemented obstacle detection using ZED stereo camera point clouds and surface normal analysis in the **ZED SDK**, boosting autonomous path-finding efficiency by 25% in University Rover Challenge field simulations competing against 36 international teams.
- Developed costmap generation and finite state machine logic in **ROS2** to coordinate autonomous navigation behaviors.

LULA (now GAIL)

Software Engineering Intern (Summers 2023 & 2024)

Miami, FL

May 2023 – Aug 2024

- Built a FastAPI call-intelligence platform on **Google Cloud Platform** (Cloud Run + Cloud SQL) with **ElevenLabs** voice synthesis, **DeepGram** sentiment analysis, and **Honeycomb** tracing to surface post-call metrics while trimming backend costs by 10%.
- Led SQL and BigQuery analytics tying call visibility metrics to client KPIs, producing data-driven insights that directly secured GAIL's first enterprise banking contract and contributed to the company's successful \$8.2M seed funding round.
- Shipped a RAG-based document QA service using OpenAI and vector search, cutting security questionnaire time by 4 hours weekly.

PROJECTS

Fourier Forecast Newsletter

Aug 2025 – Oct 2025

- Created an AI-powered daily newsletter inspired by Fourier analysis, transforming internet content into intellectual "signal" using a multi-stage **Python** pipeline with **Gemini 2.5-Flash**, **Voyage AI** embeddings, and **Exa Websets** discovery.
- Designed a 7-axis content ranking system and 4-layer semantic deduplication framework filtering 80+ sources daily.

Precision Measurement of Eddy Current Braking

Mar 2025 – May 2025

- Designed a custom optical encoder circuit (LED photodiode, BJT amplification, Schmitt trigger) for RPM measurements.
- Collected and analyzed velocity-time data in **Python**/Arduino to model eddy current braking forces using exponential decay fits, systematically deriving and validating material resistivity of an aluminum disk against theoretical predictions.
- Achieved $R^2 = 0.98$ correlation between theoretical model and experimental data, accounting for frictional forces.

TECHNICAL SKILLS & INTERESTS

Languages: Python, Java, SQL, OCaml

Frameworks & Tools: NumPy/Pandas, FastAPI, Flask, Docker, AWS, Google Cloud, Redis, Auth0, WebSockets, Git.

Concepts: Backend Engineering, Full-Stack Application Design, Agentic Systems, Data Analysis.

Interests: Golf, Autonomous Robotics, Tutoring (Algebra II, Calculus), Human-Centered AI Applications, Science Fiction, Catan