

# Mauricio Díaz Villarreal

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[GitHub](#) | [LinkedIn](#) | [Portfolio](#)

## Professional Experience

### Software Developer June 2025 - Present

*Deep Dive AI, Mexico City*

- Designed ML pipeline on AWS (Lambda, Glue, Step Functions) to forecast weekly bottle consumption in restaurants, improving inventory accuracy and cutting costs.
- Wrote and optimized analytical SQL queries; built RESTful endpoints with FastAPI and CI/CD via GitHub Actions on AWS ECS to power restaurant dashboards.
- Re-architected fintech database schema and delivered full onboarding API including file upload, data registration, and Firebase authentication.

### Data Science Intern January 2025 - June 2025

*Chubb, Mexico City*

- Created automated ML framework with MLflow & AutoGluon, greatly accelerating model lifecycle management.
- Optimized market-price prediction model, lowering RMSE from 1,800 to 1,100 and delivering tangible savings.
- Built cross-selling model to score existing clients and uncover upsell opportunities, enhancing commercial segmentation.
- Sales analysis revealed that strategic commission blend could boost revenue by 5%.

### Data Scientist June 2024 - September 2024

*GASPRE, Mexico City*

- Created predictive sales model for competitors using AutoGluon, reducing percentage error from 70% to 30%.
- Implemented traffic analysis process with Waze API, resulting in 7% increase in customer numbers.
- Optimized sales forecasting with custom time series models using Nixtla, reducing error from 13% to 8%.

### Research Assistant March 2024 - August 2024

*ITAM, Mexico City*

- Designed ETL pipelines integrating API data and web scraping for regression analysis.
- Implemented pipelines for BoardGameGeek data collection and Age of Empires tournament data via APIs and web scraping.

## Education

### B.S. Data Science

*Instituto Tecnológico Autónomo de México (ITAM), Mexico City*

- Relevant coursework: Linear models, relational and non-relational databases, machine learning, deep learning, Bayesian statistics.

### Exchange Semester

*University of New South Wales (UNSW), Sydney, Australia*

## Featured Projects

### Full Stack ML App with Next.js

- CatBoost model served by FastAPI backend; React/Next.js frontend; orchestrated with Docker Compose for seamless deployment.

### DQN Trading Bot

- Automated trading agent built with Deep Q-Learning, trained on Meta historical prices via Alpaca Markets API.

### ETL with Amazon Glue & Athena

- End-to-end ETL pipeline ingesting inflation, interest rate, and FX data from INEGI & Banxico APIs, transforming with Glue, querying via Athena, and visualizing with Streamlit.

## Technical Skills

**Languages:** Python, R, SQL, JavaScript, Java, C++, HTML, CSS

**Cloud & DevOps:** AWS (ECS, ECR, Lambda, EC2, Step Functions, Glue, S3, VPC, Kinesis-Data-Streams, Route 53, Bedrock AgentCore)

**Data Science:** Pandas, Scikit-learn, AutoGluon, CatBoost, MLflow, Nixtla, PySpark, Databricks

**Frameworks:** FastAPI, Next.js, React, Strands, Langraph, Docker, Git Actions

## Certifications & Courses

- AWS Cloud Quest: Cloud Practitioner (May 2024)
- Full Stack Development: Django & React (June 2024)
- AI Agent Fundamentals - Hugging Face (February 2025)
- Model Context Protocol Unit 1 - Hugging Face (June 2025)

## Languages

**Spanish** (Native) • **English** (Advanced)