

# Luis Chavez

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## Python Developer & Machine Learning Engineer

Specialized Python Developer and Machine Learning Engineer with 4+ years of experience in AI/ML model development, LLM implementation, and cloud-native solutions. Currently focused on advanced NLP tasks, including LLM-based classification systems and predictive modeling with web scraping and data collection. Proven expertise in AWS ecosystem (EC2, S3, SageMaker, Lambda), PostgreSQL, and Docker with a track record of significantly improving model accuracy and system performance through innovative ML approaches.

To see more of my work and explore other projects, please visit my portfolio: <https://lfchavez.com/>

## SKILLS

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**Programming Languages:** Python, SQL, Bash/Shell Scripting, JavaScript, Java

**AI/ML Frameworks:** TensorFlow, PyTorch, Scikit-learn, Keras, OpenCV, NLTK, spaCy, DeepFace, Hugging Face

**Data Science Libraries:** Pandas, NumPy, Matplotlib, Seaborn, Plotly, SciPy

**Large Language Models:** LLM implementations (Open AI, Gemini), Fine-tuning, Classification Tasks, Prompt Engineering

**Web Development:** Django, Flask, FastAPI, HTML/CSS, Bootstrap, REST APIs

**Cloud Platforms:** WS (EC2, S3, SageMaker, Lambda, IAM, CloudWatch), GCP

**Databases:** PostgreSQL, MySQL, MongoDB, SQL Server, SQLAlchemy, DynamoDB

**DevOps & Infrastructure:** Docker, Containerization, Git, Linux, CI/CD

**Data Engineering:** Web scraping, Data collection, ETL pipelines (python based)

**Methodologies:** Scrum, Agile Development

## WORK EXPERIENCE

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### Willow Group • New York • 11/2024 - Present

Artificial intelligence, machine learning, and data science studio that builds core product with pre-seed startups, multimillion-dollar companies.

#### Machine Learning Engineer • Part-time

- Increased real-time classification accuracy by 60% within 2 months by designing and implementing a serverless carbon emissions backend using AWS Lambda and OpenAI integration.
- Improved code organization and maintainability within 1 month by refactoring the codebase, consolidating Lambda functions into a structured repository with clear folder divisions.
- **Implemented LLM-based classification systems** for advanced NLP tasks, utilizing custom model architectures and fine-tuning techniques to achieve superior accuracy in text classification and prediction tasks
- **Developed comprehensive data collection pipeline** combining web scraping, data preprocessing, and feature engineering to create robust training datasets for predictive models

### Cognizant • Remote • 06/2024 - 08/2024

#### Generative AI Extern • Internship

- Participated in a hands-on learning externship focused on the fundamentals of generative AI and its practical applications.
- Studied and applied deep learning concepts, including foundation models and parameter-efficient fine-tuning (PEFT).

- Customized pre-trained models for specific tasks using tools like PyTorch and Hugging Face.

#### **TheRocketCode • CDMX, Mexico • 01/2024 - 07/2024**

##### **Python Developer • Full-time**

- Designed and developed predictive models for a Telegram bot, focusing on improving user engagement and prediction accuracy.
- Implemented machine learning algorithms and optimized model performance.
- Managed the migration of the project infrastructure from Heroku to AWS, improving deployment efficiency and system scalability.

#### **Alldatum • CDMX • 11/2023 - 01/2024**

##### **Data Consultant Trainee**

- Created and documented data models, enhancing the efficiency of system architecture.
- Implemented data governance policies to ensure data integrity and compliance with industry standards.
- Conducted data profiling and quality assessment to identify and resolve discrepancies.

#### **AFDevelopment • Ciudad Guzman, Jalisco • 02/2020 - 10/2023**

##### **Full Stack Developer**

- Developed a full-stack Java application for cryptocurrency management, focusing on secure database connections and user authentication.
- Led the migration of the application to a Django-based platform, integrating real-time data analytics and deploying it on Azure containers.

## **EDUCATION**

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### **Bachelor of Computer Systems Engineering in Artificial Intelligence**

Tecnológico Nacional de México • Ciudad Guzmán, Jalisco

## **CERTIFICATIONS**

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### **Scrum Fundamentals Certified • 01/2024 - Present**

SCRUMstudy - CertiProf

### **Hadoop • 11/2023 - Present**

Cognitive Class, IBM

### **Spark Fundamentals 1 • 10/2023 - Present**

Cognitive Class, IBM

### **Docker Essentials • 10/2023 - Present**

Cognitive Class, IBM

### **Professional Git and GitHub Course • 08/2023 - Present**

Platzi

### **Advanced Python Course • 12/2021 - Present**

Formación TAE CANIETI Occidente

## **PROJECTS**

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### **Real Estate AI Prediction System**

Personal Project

Built production-ready machine learning system predicting real estate price returns using neural networks and 3.9M Zillow transactions. Achieved 61% R<sup>2</sup> accuracy for 1-month forecasts with ensemble of XGBoost, LightGBM, CatBoost, and deep neural networks. Engineered 82 sophisticated features including temporal patterns, market dynamics, and geographic clustering. Deployed live REST API on Render with rate limiting and professional web interface. Technologies: Python,

TensorFlow, FastAPI, MLflow, Optuna for hyperparameter optimization. Demonstrates expertise in end-to-end ML pipeline, feature engineering, model optimization, and production deployment.

LAST UPDATED July, 2025

### **Mini Compiler • 10/2022**

A modern, web-based compiler for the **Automata Language (.af)** featuring a complete compilation pipeline, from lexical analysis to x86 assembly generation. Built with **Python** and **Flask**, and designed for educational purposes and portfolio demonstration

LAST UPDATED July, 2025

### **Lightweight Fine-Tuning for Emotion Classification • 08/2024 - 08/2024**

Organization:

Applied Lightweight Fine-Tuning (PEFT) techniques, specifically Low-Rank Adaptation (LoRA), to adapt a DistilBERT model for an emotion classification task. Using the Hugging Face PEFT library and Emotion dataset, the model's accuracy was improved from **59.7%** to **79.95%** by increasing training epochs and adjusting LoRA parameters.

### **Emotion Analysis in the Classroom • 01/2023**

Pioneered real-time emotion analysis using computer vision and the DeepFace library to enhance classroom engagement. The project aimed to provide insights into student emotions to support better teaching strategies.

### **Architecture Firm Landing Page • 05/2025 - Present**

Freelance Client

- Designed and developed responsive landing page for architecture firm using modern web technologies
- Implemented clean, professional design with optimized user experience and mobile responsiveness
- Delivered complete solution from concept to deployment within project timeline