

# Marcial Alejandro Bernal Arredondo

**Python Backend Developer | AI Engineer (in training) | Generative AI**

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🌐 Portfolio: <https://marcial-bernal-portfolio-python.streamlit.app/>

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## Professional Profile

Python Backend Developer in training as an AI Engineer, with growing focus on Generative AI and applied machine learning systems. Autodidact professional experienced in building backend services, REST APIs, and data-driven applications, including the integration of AI models through external APIs and service-based architectures. Strong interest in machine learning, deep learning, and intelligent systems, with a practical, project-driven learning approach.

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## Technical Skills

**Backend & APIs:** Python, FastAPI, Django, REST APIs, SQL, CRUD services, Clean Architecture concepts, external API integration, manual & automated testing

**AI / Machine Learning / Generative AI:** scikit-learn, ML pipelines (data ingestion → preprocessing → training → evaluation → inference), feature engineering, model evaluation, OpenAI API (LLMs), prompt-based workflows, AI service integration

**Data & Visualization:** Pandas, data pipelines, Streamlit, Matplotlib, Plotly Express

**Tools & Deployment:** Git/GitHub, Linux (basic), Render, PythonAnywhere, AWS (basic)

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## Projects

### Bitcoin Price Direction Prediction API

Python · FastAPI · scikit-learn · Pandas · CoinGecko API · GitHub Actions

- Built an end-to-end ML pipeline to predict next-day Bitcoin price direction, focusing on real-world ML system design.
  - Implemented data ingestion, feature engineering, preprocessing, model training, evaluation, and REST-based inference.
  - Automated monthly model retraining using GitHub Actions and exposed predictions via backend endpoints.
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### AI Gym Virtual Assistant

Python · Streamlit · OpenAI API · SQL

- Built a backend-driven Generative AI assistant that generates personalized gym routines using OpenAI's API.
- Designed prompt workflows and skill-based interactions to control model behavior and response structure.
- Implemented persistent storage of user profiles and routines and enabled streaming frontend responses.

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## RAWG Video Games API Consumer

Python · FastAPI · Pandas · Streamlit

- Built backend services to consume the RAWG external API and expose structured video game data.
  - Processed data with Pandas and delivered frontend visualizations through streaming dashboards.
  - Adapted system design to API data constraints and availability.
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## Inventory Management System

Python · FastAPI · SQL · Streamlit

- Built a REST-based inventory backend with full CRUD operations and database persistence.
  - Designed API routes, schemas, and service layers following Clean Architecture concepts.
  - Integrated backend services with frontend dashboards.
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## Data Visualization Dashboard

Python · Streamlit · Pandas · Matplotlib · Plotly Express

- Built interactive dashboards to visualize CSV datasets using Pandas and Python plotting libraries.
  - Designed charts based on dataset structure and analytical use cases.
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## Books Web Scraper

Python · BeautifulSoup

- Built a web scraper to extract structured book data as an alternative to API-based data access.
  - Parsed HTML content and transformed raw data into analyzable datasets.
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## Full Stack E-commerce Web Application

Python · Django · HTML · CSS · Bootstrap · SQL

- Built a full-stack e-commerce application from scratch using Django, including backend logic and frontend templates.
  - Implemented CRUD operations, routing, and database models across multiple Django apps.
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## Backend-Driven Portfolio Platform

Python · FastAPI · Streamlit · REST APIs · Render · Streamlit Cloud

- Built a backend-driven portfolio platform to deploy and showcase production-ready services.
- Designed backend architecture using FastAPI and deployed services across cloud platforms.

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## Education

**Bachelor's Degree in Gastronomy** — Universidad Autónoma de Durango (2015)

**Software Development:** Self-directed learning through backend, AI, and ML projects.

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## Languages

English — Intermediate (technical reading and conversation)

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## Availability

Full-time · Remote · Immediate