

ALEJANDRO LOPEZ – SOFTWARE ENGINEER

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Results-driven Full-Stack Software Engineer with over 5 years of experience specializing in developing cloud-based web and mobile applications using Python, React, and AWS. Proven ability to lead projects from conception to deployment, with a strong focus on AI-powered solutions and cloud technologies like AWS and Azure.

HOBBIES & INTERESTS

- **Language:** Native in Spanish; Conversational in English; Elementary in German.
- **Activities:** Workout, Reading, Music Production, Photography, Hobby programming, Playing Piano.
- **Interests:** I like engineering and medical-related topics, understanding how things work, and studying and discovering new things daily.

WORK EXPERIENCE

HAMAL SOLUTIONS

Full-Stack Developer

Bogota, Col (Remote)

Jun 2022–Present

Hamal Solutions is a software development company specializing in artificial intelligence and cloud solutions. I have been involved in various projects as part of the development team.

Project: Sales Factory AI assistant chatbot

2024

Sales Factory wanted to implement a multi-step agent to feed a web app and allow their personnel to access up to date relevant information about Sales Factory Partners content and practices through a RAG tool, and also creative and actionable insights powered by gen AI, I had to adapt an Azure RAG template repository to integrate a Langchain Agent, and modify the frontend to include RBAC and subscription functionalities. I also had to deploy a B2C to manage the app users and modify the data ingestion function with custom enrichment skills for the data using embedding, document intelligence and other skills provided by Microsoft Cognitive Search service. I served here as a Full-stack Developer but given the limited size of the team I had full responsibility for the features developed.

Tools: Python, Azure Cognitive Search, Langchain, OpenAI, RAG, Embeddings, Semantic Search, React, B2C Tenant, CosmosDB.

Team size: 1 PM, 1 Product Owner, 1 Dev ops engineer, 1 Data scientist, 2 Full-stack developers (me), 1 UX Designer.

- Design and develop a Langchain Driven agent with RAG (Retrieval augmented generation) system for Sales Factory in Python deployed on an Azure function. The system is connected to an Azure Retriever SDK to generate the semantic search and retrieve the relevant documents to answer user queries.
- Design an Azure index, indexer, and skillset for Azure Cognitive Search service to generate embeddings and document enrichment for the RAG vector data source.
- Design and develop an embedding ingestion function in Python to generate embeddings and other relevant metadata for the Azure Cognitive Search index. The Python code is deployed in an Azure function consumed by the Microsoft Azure Cognitive Search skillset service.
- Develop a full-stack web application in React and FluenUI with a local backend in Flask to serve the chatbot UI and implement a payment gateway with Stripe. With a CosmosDB database to store app information and a SMTP service to send notification emails to users.
- Configure and deploy a Microsoft B2C tenant with an auth user flow with login, sign-in, and reset password custom pages.

Project: Sales Factory Marketing Campaign Orchestration Web App

2023

I had to develop a system for marketing campaign budget orchestration for Sales Factory. The app needed to have an integration with Google BigQuery API, because it's used by the marketing team to keep track of live marketing campaigns. I had to implement the solution to make the campaign budget

administration process easier for the marketing team. So they could have more time for creative tasks. My role actions included discussing the requirements with the marketing team and helping define tasks to develop a useful product. After the discussion, I had to develop and integrate the frontend and backend parts of the system. I had to follow the entire dev cycle process, from requirements discussion to deployment and maintenance.

Tools: React, Material UI, Postgres, Cypress, Jest, Sequelize, Amplify, Cognito, TDD, S3.

Team size: 1 PM, 1 Dev ops engineer, 2 Full-stack developers (me), 1 UX Designer.

- Develop and deploy an Express.js backend connected to a PostgreSQL database with Sequelize as the ORM and Jest automated tests for the API.
- Develop and deploy a React web application with Material UI following TDD practices with end-to-end automated tests in Cypress and AWS Cognito for authentication.
- Integrate the web app with Google Big Query API to check and maintain real-time synchronization with the marketing campaign data stored in the cloud.
- Deploy and configure an S3 bucket to store images and user information for the web application.
- Configure an SMTP service connected to the web app to send notification email to users about Marketing Campaigns.

Project: *Progressive Label administrative web app*

2022

Progressive Label Inc. As a worldwide branding solution company, wanted a web system to keep track of the label creation process throughout the entire cycle. That included a list of steps and quality checks. For that I worked as a part of the developing team defining requirements and designing technical solutions.

Tools: Remix, Postgres, Cypress, Jest, Cognito, S3.

Team size: 1 Product Owner, 1 PM, 1 Dev ops engineer, 2 Frontend developers, 2 backend developers, 3 Full-stack developers (me) 1 UX Designer.

- Develop and deploy a Remix web app with AWS Elastic Beanstalk with a PostgreSQL database and a AWS Cognito auth user flow.
- Develop Cypress and Jest end-to-end automated tests for the frontend and backend modules for the web application.
- Develop and bugfix React sections for the label administration web app.

Project: *Little bellies appointment web app*

2022

Little bellies, is a company focused on pregnancy services, and they needed an administrative web system to keep track of sales and appointments for their multiple sites across the US. I started in the project as a frontend developer developing some views for the API and connecting them to Mindbody API services. My role also included creating end-to-end tests and unit tests for every feature developed.

Tools: React, API, Cypress, S3, DynamoDB, Express.

Team size: 1 PM, 3 Frontend developers (me), 2 backend developers, 1 UX Designer.

- Develop and deploy a React web app with AWS Elastic Beanstalk that communicates mainly with Mindbody API.
- Develop Cypress and Jest end-to-end automated tests for the React web app and the Express backend.
- Bug fix and create unit tests for various functions of the app.

STIPE

Full-Stack Developer

Project: Stipe Mobile App Stack.

Tools: Flutter, Dart, React, EC2, Amplify, PostgreSQL, Sequelize, Route 53, Android, Caddy, SMTP

Ciudad de Guatemala, Guatemala (Remote)

June 2020–February 2024

Team size: 1 Software Engineer (me), 1 UX Designer.

Stipe is a Guatemalan startup focused on defining and optimizing oil palm processes by implementing mathematical and statistics algorithms that improve and optimize production time and personal distribution across the oil fields. I worked solo as a full-stack developer so I was responsible for every step in the development cycle. My functions included:

- Developed and launched a mobile app that improved production time by 15% for oil palm processes, reducing costs by 10%.
- Define and deploy a PostgreSQL database mounted on an AWS EC2 instance to store user information for authentication and other field indicators needed for the mobile application.
- Develop and deploy an Express.js backend with JWT authentication connected to the Postgres database to manage custom authentication methods for the mobile App and a SMTP service to send information emails to users.
- Configure domain routing with Amazon Route 53 and install and configure a reverse proxy with Caddy on the EC2 instance.
- Create a marketing site in React and Material UI deployed with AWS Amplify to promote the Mobile App and manage password reset functionality.

CERTIFICATIONS & TRAINING

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| • AWS CERTIFIED CLOUD PRACTITIONER (2022) | • AWS Partner: Technical Accredited(2022) |
| • AWS Partner: Cloud Economics Essentials(2022) | • EF SET Certificate 76/100 (C2 Proficient)(2023) |
| • AWS Certified AI Practitioner Early Adopter(2024) | • AWS CERTIFIED AI PRACTITIONER(2024) |

EDUCATION

UNIVERSIDAD NACIONAL EXPERIMENTAL DEL TÁCHIRA

San Cristobal, Tachira

Informatics Engineering - (Graduated)

2023

- Thesis: "Multi-objective Evolutive Algorithm for developing intelligent tourist recommendation systems"

SKILLS

- **Programming Languages:** JavaScript, Typescript, Python, Dart, Express, HTML, CSS.
- **Frameworks:** React, Cypress, Flutter, ThreeJS, Langchain, Flask, Jest.
- **Cloud Technologies:** AWS (EC2, S3, Amplify, Lambda), Azure(Functions, OpenAI) Firebase.
- **DB:** Vector database, PostgreSQL, CosmosDB, DynamoDB, MySQL, MongoDB, RDS, Semantic Search.
- **ORM:** Sequelize, Mongoose.
- **Soft Skills:** Project management, Agile methodologies, Team collaboration.

PERSONAL PROJECTS

- [Simulator Game](#) *A city construction simulator game. **React, HTML, CSS, JavaScript.***
A SimCity like construction game with game functions including: happiness simulation, basic services validation, pollution indicator and coverage areas and building construction system.
- [Chess Game](#) *A chess board with basic chess functionalities. **JavaScript, ThreeJs, HTML, CSS.***
A ThreeJs experiment with 3D model loading, board construction, piece selection and movement with some of chess basic rules in a three dimensional space with orbit controls and hover indicators.
- [Solar System Site](#) *A basic informative 3D website. **ThreeJs, HTML, JavaScript, CSS.***
A 3D immersive site utilizes ThreeJs as the WebGL framework with planets that orbit the camera.
- [Portfolio](#) *A website to show my latest updates and projects. **Svelte, ThreeJs, HTML, CSS.***
Is a 3D website with basic information about my latest projects and some other information about my job and my quality as a professional.