JOSTIN MAURICIO LÓPEZ SOBALBARRO

Software Engineer — Backend, AI & Systems Architecture
C# · Python · TypeScript · Unity Engine · FastAPI

Montes de Oca, San Jose, Costa Rica | **+506 7261 8694** | <u>Email</u> | <u>LinkedIn</u> | <u>Github</u> | <u>Portafolio</u>

Summary

Backend & AI Systems Engineer with expertise in building **scalable**, **data-driven architectures** and **intelligent platforms**. Proficient in Python, TypeScript, and modern backend technologies with proven experience designing **multi-provider systems**, **REST APIs**, and **AI-integrated workflows**. Demonstrated ability to architect complex solutions from backend services to full-stack applications. Seeking to leverage **AI-assisted development skills** and **backend expertise** in building impactful, data-driven platforms.

Software Projects

Highlighted projects available for review at <u>portafolio page</u>.

<u>NebulaView: Provider-First Content Discovery System</u> – Full Stack Developer (Next.js, TypeScript, Consumet, Redis)

Advanced streaming platform with intelligent multi-provider architecture and AI-assisted development workflow.

- Designed **provider-first** architecture using **Consumet** extensions for **meta enrichment** and 10+ provider fallback chains
- Created **REST AP**I endpoints with health-aware routing, **TMDB** proxy services, and comprehensive caching strategies
- Implemented **AI skills** integration for automated testing (**Playwright**), design reviews, and code quality enforcement
- Built reactive particle system, dynamic theming, and multilingual support with **Supabase** auth persistence
- Demonstrated scalable backend patterns, performance optimization, and modern full-stack development practices

<u>Portfolio Platform V2.5</u> – Full Stack Developer (React, Vite, TailwindCSS)

Data-driven portfolio system with internationalization and design token architecture.

- Built **React 18 + Vite** portfolio with centralized **configuration management** and **JSON Schema** validation
- Implemented **design token system** for consistent theming across components with **TailwindCSS** integration
- Created custom **authoring interface** (**Ctrl+Shift+E**) for project content management and updates
- Added **i18next** internationalization with **English/Spanish** support and responsive animations using **Framer Motion**
- Developed **component-based** architecture with performance optimization and mobile-first design

Enterprise AI CRM: Human-in-the-Loop Orchestrator – System Architect (Python, FastAPI, React, Docker)

Production-grade orchestration system integrating **Local LLMs with WhatsApp** for compliant, observable, and human-supervised AI communication.

- Designed **deterministic Guardrail Engine** enforcing safety policies (political, medical, legal).
- Implemented **Human-in-the-Loop (HITL)** approval workflow via WebSocket channels.
- Built **intent-based orchestration** and configurable AI context pipeline for multi-tenant setups.
- Integrated **Prometheus observability** with latency histograms, token metrics, and violation counters.
- Deployed modular FastAPI + React + Docker architecture with real-time monitoring.

Local AI Companion Framework – Systems Architect *(C#, Python, Local LLMs)*

Offline, privacy-first AI companion system with contextual memory and dialogue capabilities.

- Developed modular architecture for dialogue flow, memory persistence, and persona modeling
- Integrated local LLM wrappers for offline inference and response generation
- Enabled persistent, contextual interactions without cloud dependency

ResourceManager – TypeScript Backend Toolkit *(Node.js, TypeScript)*

Modular backend architecture for scalable resource management in web services.

- Implemented controller–service–model structure with role-based middleware
- Emphasized clean design, decoupling, and type-safe data flow using TypeScript
- Demonstrated backend scalability patterns used in modern SaaS and microservice architectures

3D Learning Prototype – Modular Game Architecture & Persistence – Solo Developer *(Unity, C#)*

 Conceptual RPG framework demonstrating scalable systems for character progression and persistence.

- Designed an **Entity–Attribute–Progression (EAP)** system using Inversion of Control
- Built a robust, data-driven serialization and save/load framework
- Showcased runtime modularity suitable for large-scale RPGs

Echo-Location Maze System (ELMS) – Solo Developer *(Unity, C#)*

Procedural maze generator with echo-based reveal mechanics and designer debug tools.

- Built runtime generation logic using event-driven reveal systems
- Created editor tooling for maze preview and tuning
- Enabled rapid iteration for level designers

Custom HTML5 Video Playback & Control Plugin – Engine Integrator *(JavaScript, RPG Maker MZ)*

Extended RPG Maker MZ's engine for advanced video playback and cinematic control.

- Added DOM-level playback speed, looping, and fade transitions
- Integrated custom wait modes and skip input into the engine interpreter

Technical Summary

- **Languages:** C#, Python, TypeScript, JavaScript, Java, HTML, CSS, SQL
- **Frameworks & Tools:** Unity, Node.js, FastAPI, React, Docker, Git, REST APIs, Next.js, Supabase, Redis, Vite, TailwindCSS, Framer Motion, i18next
- **Concepts:** Software Architecture, Data-Driven Design, Runtime Systems, AI Integration, Multi-Provider Systems, Performance Optimization, Component Architecture, Design Token Systems
- **Soft Skills:** Dependability, Collaboration, Problem Solving, Adaptability, Time Management

Professional Experience

Independent Software Engineer / Systems Developer

Self-Employed / Personal Projects | 2021 – Present | Remote

- Designed and implemented **scalable modular systems** for games, backend tools, and AI systems.
- Integrated **local AI inference systems** using Python and C#.
- Delivered multiple **production-ready prototypes** demonstrating full-cycle development.
- Built advanced **streaming** platforms with **multi-provider architecture** and **AI integration**

Customer Support & Technical Advisor

ExtremeTech | 2023 – 2025 | Heredia, Costa Rica

- Provided technical support for computer hardware/software.
- Diagnosed and resolved customer issues with high satisfaction.
- Helped improve internal procedures for the support department.

Bar Operations & Service Lead

Caccio's Rock Bar-Restaurant | 2022 – 2023 | San José, Costa Rica

- Promoted from entry-level to bar lead.
- Managed operations, staff coordination, and training.
- Recognized for reliability and leadership under pressure.

General Support & Maintenance Assistant

Almacenes Siman | 2018 – 2020 | Curridabat & Escazú, Costa Rica

- Supported logistics, maintenance, and inventory operations.
- Assisted with electrical and air-conditioning upkeep.
- Built strong teamwork and work ethic in dynamic environments.

Education

Universidad Fidélitas — *Computer Systems Engineering (Paused)*
Focus: Software architecture and systems design.

Universidad Veritas — *Animation & Visual Design (Incomplete)*
Explored design and storytelling before transitioning to software development.

Independent Path: Ongoing self-study in **programming, game architecture, backend systems, and AI integration** through project-based learning.

Languages

Spanish: Native

English: Advanced (C1 – Professional Working Proficiency)

Personal Background & Motivation

Began programming at age 12 by recreating classic games like *Mario* and *Prince of Persia*.
Self-taught in programming, art, and music — passionate about building complete systems from scratch.
Despite financial challenges, continued learning through discipline and hands-on experimentation, developing a results-driven and creative engineering mindset.