

# Marlon Martin

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## Experience

### Backend Engineer | Freelance – Remote

June 2024 – Present

- Built a robust lending infrastructure using Domain-Driven Design (DDD) principles and patterns featuring idempotent transaction processing and an automated interest engine. Implemented a state-machine audit system ensuring 100% lifecycle traceability and high concurrency through a decoupled Service-Repository architecture.
- Engineered a secure, test-driven API infrastructure utilizing atomic transactions and a hybrid RBAC/PBAC security model, ensuring granular access control and system reliability through an automated testing suite for complex financial logic.
- Architected and automated CI/CD workflows using GitHub Actions and Turborepo, implementing remote caching to eliminate redundant build tasks. Optimized the global build-to-deployment pipeline from 41 minutes to under 5 minutes (an 87% reduction), ensuring zero-downtime releases to Cloudflare Workers and significantly reducing CI/CD compute overhead.
- Architected and deployed a specialized crochet e-commerce platform using TypeScript, Next.js, and Supabase, migrating the business from fragmented social media sales to a centralized, high-performance web solution.
- Built a disaster management system for a local Barangay, featuring centralized incident logging and optimized data workflows to ensure high availability and rapid information dispatch during disaster scenarios.

## Projects

### Haribon | TypeScript, Agentic AI, Deep Agents, LangGraph, Google GenAI, MCP, RAG

December 2025

- Developed an autonomous civic AI agent for BetterGov.ph leveraging RAG pipelines, Deep Agents, and multi-step agentic workflows to automate data aggregation, content summarization, and civic information retrieval while orchestrating complex tool use, web retrieval, and multi-step reasoning to deliver timely and reliable civic insights.

### Binspire | TypeScript, Python, IoT, MCP, PostgreSQL, AWS, HiveMQ, Nginx, Hono – [Live URL](#)

October 2023 – Present

- Engineered an IoT-enabled waste management system for Arcovia City featuring real-time monitoring, GPS tracking, and object detection via Raspberry Pi; optimized collection routes and reduced operational costs using MQTT and WebSockets.
- Reduced IoT module startup time by 90% (from several minutes to <10 seconds) by restructuring the boot sequence with async/await and threaded execution, significantly improving system uptime and hardware reliability.
- Architected a custom MCP (Model Context Protocol) Server that exposes Binspire API data as executable tools for LLMs, enabling automated auditing, issue resolution, and historical tracking.
- Integrated Binspire AI Agent with multi-model orchestration capabilities, leveraging the MCP server to perform autonomous data analysis and data-driven decision-making for waste management logistics.
- Implemented QR-code verification for collection logs, ensuring 100% accountability in waste retrieval activities through a secure, sensor-driven validation pipeline.

### Hiraya | TypeScript, Lexical Analysis, AST, Syntax Parsing, Compiler Design

December 2024

- Designed and implemented a Filipino-inspired programming language to explore language design, syntax parsing, and compiler construction, demonstrating solid expertise in compiler architecture, abstract machine design, and programming language theory.

## Activities

### 14<sup>th</sup> IT Skills Olympics | Participant (Team Leader)

November 2025

- Led the Binspire project, an IoT-enabled waste management system, which won 1st Runner-Up at the 14<sup>th</sup> IT Skills Olympics, demonstrating real-time data monitoring, route optimization, and backend scalability.

### CCS Academic Competition | Participant

February 2023

- Solved 3 out of 4 problem sets in my university Java programming contest during the first year.

### Open-Source | Developer & Contributor

January 2023 – Present

- Enhanced functionality, documentation, and accessibility for global and local projects, including [LangChain.js](#), [OSSPH](#), and [BetterGov.ph](#), by collaborating with community developers to scale and maintain mission-critical software.

## Skills

Languages: C++, Java, Python, SQL, JavaScript, TypeScript

Libraries & Frameworks: Express.js, Hono.js, Node.js, Bun, FastAPI, Flask, Drizzle ORM, Prisma, tRPC, MQTT

DevOps & Cloud: AWS, Docker, Nginx, Digital Ocean, Cloudflare Workers (Wrangler), Github Actions (CI/CD), Docker, Linux,

Databases & Messaging: PostgreSQL, MySQL, SQLite, InfluxDB, HiveMQ, Firebase, Firebase Cloud Messaging

AI & Agentic Systems: LangGraph, LangChain, MCP Server, RAG (Retrieval-Augmented Generation), OpenAI, Google GenAI, Ollama

## Education

### Pamantasan ng Lungsod ng Pasig

June 2022 – Present

Bachelor of Science in Information Technology

### Awards:

- President's List Academic Achievement Awardee
- Dean's List Academic Achievement Awardee

### Rizal High School

March 2020 – March 2022

ICT – Programming

### Awards (Case Study):

- Overall – Best System Presenter
- Overall – Best System Design
- Overall – Best System Functionality
- Overall – Best System