

Mario R. Ayala

With over 20 years of software engineering experience, I specialize in AI-assisted development and full-stack solutions. Architected multi-agent orchestration systems with Claude Code, managing concurrent projects while delivering innovative educational technology and digital transformation solutions.

EXPERIENCE

Independent Technology Consultant, Mayagüez, Puerto Rico — Self-Employed

SEPT 2021 - Present

- **AI & Agentic Development:** Designed and implemented a production-grade multi-agent orchestration system using Claude Code with custom MCP (Model Context Protocol) server. Built 4 specialized agent roles (Orchestrator, Supervisor, Workagent, Architect) with structured handoff protocols enabling context-preserving delegation across 7 active projects. Implemented enterprise patterns including session lifecycle management (start/pause/resume/continue states), protocol compliance scoring with automated validation, feature lifecycle tracking, and the "Judge & Jury" multi-agent consensus pattern for high-risk operations. Created 5 custom AI skills for domain-specific automation (academic reports, brand validation, Supabase workflows, project documentation). The system features background agent spawning, watchdog recovery for orphaned sessions, and automated billable hours tracking with JSONL audit logs.
- **Gespervis ASL/PRLS School:** Architected comprehensive online ASL learning platform using Next.js 15, TypeScript, and PostgreSQL, integrating AI for enrollment automation, predictive analytics, and intelligent reporting system. Implemented role-based authentication system, course management workflows, and real-time analytics serving 13+ active users. Achieved 70% reduction in development time and 65% in costs while accelerating delivery timeline by 7-8 weeks
- **Café Papamín LLC:** Developed full-stack e-commerce application using Next.js 15, TypeScript, and Tailwind CSS with WhatsApp Business integration and responsive catalog. Achieved total project cost of \$620 vs. \$3,000+ from traditional platforms, enabling 24/7 customer engagement for Puerto Rican artisanal coffee business.
- **Pabellón de la Fama del Deporte Humacaeño:** Led full-stack development of web platform using Next.js 15, TypeScript, and Tailwind CSS, implementing SOLID principles and functional programming. Delivered MVP with 8 core sections including searchable inductee directory, museum showcase, and activity calendar. Provided pro bono leadership enabling digital transformation for sports heritage preservation.
- **JAYEI Cultural Organization:** Developed bilingual website for Puerto Rican cultural organization using Next.js 15 and TypeScript, featuring interactive gallery, progressive loading, and responsive design. Implemented comprehensive SEO and accessibility features for improved community reach.
- **Blockchain Development:** Developed blockchain applications including NFT marketplace prototype using Solidity and React. Conducted technology workshops educating professionals and students on blockchain fundamentals and smart contract development.

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FRONT-END

AI-Assisted Dev

Next.js/React

TS/JavaScript

Tailwind CSS

BACKEND

Multi-Agent Orchestration

Node.js

API/REST

BLOCKCHAIN

Solidity

ERC Standards

DATABASES

MS SQL Server

PostgreSQL

CLOUD & DEVOPS

Claude Code

Github

Vercel

LANGUAGES

Spanish (Native)

English
(Professional)

ASL/LSPR
(Conversational)

MPA Consultants | Las Marías & Santurce, Puerto Rico — *Digital Transformation Program Designer / Leadership Instructor*

MARCH 2025 - May 2025

- **Las Marías Program** (May – July 2025): Developed a 150-hour intensive program transforming displaced adults into digital professionals. Pedagogical innovation used the OSI network model as educational framework, integrating AI, blockchain, and Microsoft tools. Results: executive CV, business plan, and entrepreneurial digital presence for each student, fostering local economic development and community multiplier effect.
- **Santurce Leadership Program** (March – May 2025): Designed and taught 70-hour intensive course on professional behavior and interviewing skills, enriching original curriculum with AI modules for job search. Created comprehensive course material including presentations, assessments, and practical exercises that promoted active discussion and student participation. Implemented methodology based on progressive knowledge sequencing, achieving 90%+ course completion rate.

Yukayeke Playa, Añasco, PR— *Digital Transformation Director*

MARCH 2024 - DECEMBER 2024

- Led comprehensive digital modernization initiatives, architecting and implementing a multilingual (ES/EN) web platform using *Next.js 14*, *TypeScript*, and *Tailwind CSS*, resulting in enhanced user experience and improved online presence.
- Spearheaded migration from legacy platform (Squarespace) to modern tech stack hosted on Vercel, implementing internationalization and responsive design principles.

WOTEC, Las Marías, PR — *Educational Technology Specialist*

APRIL 2024 - JUL 2024

- Designed and implemented a 400-hour technical literacy program transforming novices into digitally competent professionals.
- Developed a comprehensive curriculum integrating AI tools, productivity software, and collaboration platforms achieving 85% completion rate.
- Created custom learning modules for practical technology applications, including data analysis and automated workflows..
- Mentored diverse learners in essential digital competencies including cloud collaboration and web technologies.

Disney Parks, Experiences and Products, Orlando, FL— *Principal Software Engineer / Data Engineering Specialist*

NOVEMBER 2015 - SEPTEMBER 2021

- **Enterprise Architecture Leadership:** Led enterprise-wide technical initiatives as principal software architect and data engineering specialist, serving as sole software engineer for critical business intelligence projects across Disney's global operations.
- **Business Intelligence Portal:** Architected and delivered enterprise-scale portal unifying *SharePoint*, *Tableau*, and *MS SQL* data sources, implementing *MVC/REST* architecture with role-based access and NTLM authentication for executives worldwide.
- **Mobile Innovation:** Pioneered cross-platform mobile application with *Xamarin*

utilizing geolocation and barcode scanning technologies, integrating with **Tableau** dashboards for real-time store analytics and product information retrieval.

- **Project Management Solutions:** Designed and implemented comprehensive project portfolio management solution featuring custom **Gantt** visualizations for financial quarter comparison and gap analysis.

AVM L.P., Boca Raton, FL— Senior .NET Developer

APRIL 2011 - JUNE 2012

- **Financial Systems Architecture:** Architected and implemented mission-critical financial reporting systems for derivatives trading, achieving 100% accuracy in **OTC** transaction validation through robust real-time data verification.
- **Compliance & Security:** Designed and developed secure data export frameworks for **OTC** and *non-OTC* derivative products, ensuring compliance with industry standards while maintaining data integrity.
- **System Re-architecture:** Led re-architecture of middle-tier systems in **ASP.NET** and **C#** for swap-related financial instruments, implementing test-driven development practices with the **Moq** framework that significantly enhanced platform reliability.

ABB Concise, Coral Springs, FL— Senior Software Developer

JUNE 2007 - FEBRUARY 2011

- **E-commerce Development:** Developed and maintained **ASP.NET** e-commerce applications for eye care using **C#**, **SQL Server**, **Progress DB**, and **Visual Studio 2010**.
- **Integration Solutions:** Implemented **WCF Services**, **AJAX** controls with **jQuery** and JavaScript for seamless database and client-side communication.
- **Feature Enhancement:** Created new e-commerce features including tiered pricing, coupons, shipping rebates, and auto-reordering systems.

Office Depot, Delray Beach, FL— Senior Technical Lead / Developer III

NOVEMBER 1998 - JANUARY 2005

Enterprise Systems Architecture:

- **Merchandise Financial Planning:** Led architecture and implementation of **Oracle Retail MFP** platform, integrating predictive analytics with enterprise financial systems. Engineered automated data integration framework connecting disparate enterprise databases (**SQL Server**, **Oracle**, **DB2**, **Teradata**).
- **Real-time Monitoring:** Developed comprehensive **UNIX** process monitoring system utilizing early **AJAX** implementation for real-time system status.

Customer Experience Solutions:

- **Computer Telephony Integration:** Architected **ASP**-based integration between **Rockwell** telephony systems and intranet applications. Implemented **Genesys** libraries in **Visual Basic 6.0** for CTI functionality.
- **Document Management:** Developed **XML/XSLT** document management system for enterprise communications.

E-commerce & Order Management:

- **B2B Platform Development:** Led full lifecycle development of **XML**-based order entry intranet application with **COM+ / ActiveX** shopping cart and **JavaScript** frontend.

- **International E-commerce:** Served as Technical Consultant for Viking Direct UK e-commerce implementation, engineering integration between frontend ASP applications and AS/400 business rules through distributed Visual Basic 6.0 middleware.

United States Navy, East Coast, US— *Information Systems Specialist (RM2/E5)*

NOVEMBER 1987 - MARCH 1993

- **Process Automation:** Developed *DBase IV* program to automate equipment failure tracking and resolution, improving efficiency and saving time and resources.
- **Systems Management:** Program tracked failures, parts orders, repair reports, and generated automated reporting across fleet operations.
- **Security Leadership:** Served during *Operation Desert Shield/Desert Storm*, responsible for standalone computer security through installation and configuration of security software and policy development.

EDUCATION

Florida International University, Miami, FL — *Courses in Computer Science*

1994 - 1998

Dean List

New York Institute of Technology, Online — *Bachelor in Computer Science*

2006 - 2007

Cum Laude

Ellis University, Online — *Master in Computer Science*

2009 - 2010

Magna Cum Laude