Mauricio Pastora

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Work Experience

Software Engineer, Vertex Labs **February 2025 - Present**

- Applied algorithmic optimization and efficient data structure design using AWS Lambda, DynamoDB, and vector databases to eliminate redundant embeddings and reprocessing, reducing storage costs by 50% and improving retrieval performance.
- Developed client-facing AI tools that synchronize frontend queries with MCP servers and vector databases, implementing structured data parsing and comparison logic to deliver accurate, low-latency user interactions.
- Built and deployed multiple MCP tools integrated into the Vinely.ai platform, enabling modular, reusable AI capabilities across workflows.
- Integrated advanced features including web scraping pipelines and secure third-party API authentication, enhancing platform functionality and data ingestion reliability.
- Collaborated within an agile engineering team, participating in code reviews, debugging, automated testing, and iterative feature delivery to maintain production quality standards.

Software Engineer, Client: IIJS **February 2025 - Present**

- Architected and delivered a production React and TypeScript application backed by Python and Flask APIs, supporting real-time data visualization and analytics.
- Designed secure, scalable AWS infrastructure (EC2, RDS PostgreSQL, S3, Lambda, Cognito, CloudFront) with best practices IAM roles and policies, supporting deployment, monitoring, and ongoing system support.
- Built CI/CD pipelines to automate testing and deployment, improving software quality and release reliability.
- Worked closely with stakeholders to translate business requirements into technical designs and implemented solutions.

Software Engineer, Arborea **June 2025 - Present**

- Leading the ongoing implementation of full-stack features, including building dynamic Next.js pages and components (e.g., a responsive map interface using the Google Maps API), secure authentication, and user profile management, and designing scalable SQL/DDL schemas to ship production enhancements on rapid release cycles.
- Engaging in ongoing client meetings to define and prioritize MVP features, actively translating non-technical business needs into actionable technical deliverables, maintaining rapid feature implementation.
- Collaborating with a development team for version control, code reviews, and seamless integration of contributions.

Inter-American Institute on Justice and Sustainability, Business Dev. Associate **September 2023 - February 2025**

- Leveraged Agile methodology and cloud-based systems during development alongside Python, SQLite, Tkinter, and front-end design, to build a data warehouse business solution that streamlined access to client and expert data, cutting retrieval time by 70%.
- Managed comprehensive IT operations, including onboarding subcontractors, configuring IAM roles and policies, and collaborating closely with senior leadership to align IT solutions with organizational goals.
- Spearheaded marketing campaigns using analytics from social media, external communications, and website management, increasing digital engagement metrics by 30%.

Skills

Frontend

- React, Next.js, Electron.js, TypeScript, Tailwind CSS, Vite, Component-Driven UI Development

Backend

- Python, Flask, RESTful API Design, PostgreSQL, SQLite3, Authentication, Supabase, Node.js, API Integration

AI/Machine Learning

- Model Context Protocol (MCP), RAG Application Development, LangChain, Vector Databases, LLMs, OpenAI SDK

Cloud / DevOps

- Amazon Web Services (EC2, Lambda, S3, RDS, CloudFront, Cognito), CI/CD, Nginx, Ubuntu, IAM, PowerShell

Certifications

- Amazon Web Services | AWS Certified AI Practitioner

Education

Virginia Commonwealth University, *Richmond, VA* **Graduated Spring 2023**

   B.S. Marketing