

JUAN ALFONSO VEGA SOL

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Education

University of Washington | B.S. Computer Science, Paul G. Allen School | Expected June 2028 Seattle, WA

- **Coursework:** Data Structures & Parallelism, Hardware/Software Interface, Foundations of Computing, Systems Programming, Software Design & Implementation

Tecnológico de Monterrey | B.S. Computer Science and Technology | GPA: 4.0 | August 2023 - June 2026 Mexico City, Mexico

- **Coursework:** Data Structures and Algorithms, Operating Systems, Computer Networks, Databases, Computer Architecture, Object-Oriented Programming, Machine Learning
- **Certifications:** Machine Learning Specialization (Stanford / DeepLearning.AI, 100%); Deep Learning Specialization (DeepLearning.AI, 98%/96%/90%); PTE English C1+ (Pass with Merit)

Work Experience

Founder & Software Engineer | Answer | March 2025 - Present Bellevue, WA

- Built an AI voice and SMS agent that answers missed calls for local service businesses, cutting first-response time from hours to under 30 seconds and recovering leads that were previously lost.
- Architected an event-driven automation stack on n8n, Supabase and the Claude API, orchestrating 20+ webhook-triggered workflows across lead capture, qualification, booking and follow-up.
- Engineered a structured-JSON prompting layer with input sanitization and a post-booking state lock, eliminating malformed responses and duplicate outreach across the conversation pipeline.
- Designed and deployed the client-facing product site and interactive demo in Next.js on Vercel, plus a two-tier plan architecture and a repeatable onboarding checklist for new accounts.

AI Engineer | El Puerto de Liverpool AI Challenge, HackMx 6th Edition | 2025 Mexico City, Mexico

- Won **1st place out of 100+ competing teams** by developing a visual product-search platform that matches customer-uploaded images against the retailer's catalog with LLM-powered recommendations.
- Implemented an embedding-based retrieval service on Vertex AI with duplicate removal and vector storage, and delivered a React frontend backed by cloud microservices.

AI Engineer | Atrato Financial Hackathon, 1st Edition | 2024 Mexico City, Mexico

- Won **1st place** building a responsive problem-solving platform that routes user requests to matching experts, with real-time API metrics and light/dark dashboards.
- Reduced inference cost through embedding-based caching and hardened the service with SQL-injection protection, hate-speech filtering and TruLens feedback evaluation.

Projects

SkySAR | Autonomous Drone Swarm for Search & Rescue | Python, Gemini Vision, Computer Vision Community Impact Award

- Developed a computer-vision pipeline that detects people, vehicles and smoke in aerial imagery and prioritizes alerts on a real-time coordination dashboard; awarded at ThinkCity 2026 Smart City Hackathon.

Samla | Financial Web Platform | ASP.NET Core MVC, SQL Server, Stripe

- Engineered a financial management platform with inventory tracking, break-even and ROI/ROCE analytics, dynamic dashboards, Stripe payments, and role-based authentication.

Ambient-Detectors | IoT Environmental Monitoring Platform | ESP32, Python, PHP, MySQL

- Developed a multi-platform monitoring system streaming live data from 5+ sensors into a scalable MySQL backend, with configurable alert thresholds and Streamlit visualizations on a 3D-printed prototype.

Machine Learning Fundamentals Showcase | Python, TensorFlow/Keras, Streamlit

- Implemented logistic regression from scratch for heart-disease risk prediction, an MNIST neural-network classifier, and a collaborative-filtering recommender, all exposed through an interactive Streamlit app.

Technical Skills

- **Programming Languages:** Python, C++, C, C#, Java, JavaScript, TypeScript, SQL, HTML/CSS
- **Machine Learning & AI:** TensorFlow, Keras, Scikit-learn, NumPy, Pandas, Neural Networks, Deep Learning, Recommender Systems, Embeddings, Hyperparameter Tuning, Feature Engineering, Vertex AI, Gemini API, OpenAI API, Claude API, TruLens
- **Full-Stack & Cloud:** React, Next.js, Node.js, ASP.NET Core MVC, Flask, Streamlit, REST APIs, Microservices, AWS (EC2), Google Cloud, Vercel, Supabase, SQL Server, MySQL
- **Tools:** Git/GitHub, Docker basics, Postman, MySQL Workbench, Visual Studio, VS Code, n8n, Arduino/ESP32
- **Languages:** Spanish (Native), English (Fluent, C1+ certified), German (Basic)