Juan Enrique Ayala Zapata

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Education

Monterrey's Institute of Technology and Higher Education (Tecnológico de Monterrey) Querétaro, MX
Bachelor of Science in Computer Science, Minor in Cybersecurity *Expected: June 2027*

- **GPA**: 96.35/100 (3.9/4.0) | **Academic Talent Scholarship Recipient**
- **Relevant Coursework**: Data Structures & Algorithms, Object-Oriented Programming, IoT Implementation, Computational Thinking

Experience

CTO & Co-Founder February 2025 – Present
Neural Harvest – AgTech Startup *Querétaro, MX*

- Selected for **Dedalus Break In Program** residency at The Residency and London Founder House in San Francisco, joining 20 founders from 13 countries in month-long AI startup accelerator
- Leading development of AI-powered precision agriculture platform combining satellite imagery analysis with proprietary ML crop simulation engines
- Architecting scalable microservices infrastructure processing multi-spectral satellite data with hybrid database systems and containerized deployment
- Managing cross-functional team implementing enterprise-grade RBAC, real-time IoT monitoring, and automated field communication systems

Back-End Developer March 2024 – May 2025
ceams.co – Digital Agency *Querétaro, MX*

- Developed scalable back-end infrastructure using **Node.js** and **MySQL**, optimizing data collection and storage systems for client web applications
- Improved website performance by 40% through server-side optimizations, efficient database query implementation, and caching strategies
- Enhanced SEO performance and search engine visibility through technical optimizations, schema markup implementation, and page speed improvements

Projects

Prometheus - AI-Powered Recruitment Platform | *Python, Flask, Next.js, Google Gemini 2.5, Firebase* October 2025

- Architected conversational AI recruitment system using **Google Gemini 2.5 Flash** with Agent Development Kit (ADK), implementing progressive filtering that maintains context across multi-turn dialogues for semantic candidate matching beyond simple keyword search
- Engineered full-stack platform with **Flask REST API**, **Next.js 15**, and **Firebase Firestore**, integrating **Twilio WhatsApp API** for 98% message open rates versus 20% email engagement, including CV parsing and automated job description generation
- Developed semantic matching algorithms with transferable skills analysis (Vue.js → React equivalence) achieving 0-100 compatibility scoring with detailed reasoning, reducing candidate discovery time from 3-5 days to 2 minutes

Bloombly - Wildflower Bloom Prediction Platform | *Python, Flask, TensorFlow, Google Earth Engine* October 2025

- Engineered ML-powered platform predicting wildflower blooms using **NASA satellite data** (MODIS, SMAP) with 31+ ecological features including spring phenology detection, growing degree days, and soil water stress analysis for biodiversity conservation and climate research
- Developed **Gradient Boosting classifier** achieving 0.72-0.85 ROC-AUC with advanced feature engineering combining spatial, temporal, and environmental variables across 73 years of historical climate data, including specialized cherry blossom model with ±3 days accuracy
- Built full-stack application with **Flask REST API**, **Google Earth Engine** integration, and interactive 3D globe visualization supporting global bloom predictions with 90-day forecasting capability for tourism and ecological planning

Via Alta - Academic Enrollment Management System | *Next.js, PostgreSQL, TypeScript* Feb – May 2025

- Developed comprehensive enrollment and schedule management system using **Next.js 15**, **React 19**, and **TypeScript** with automated course registration, built-in genetic algorithm for intelligent schedule generation with conflict resolution for professors, classrooms, and student schedules
- Designed **PostgreSQL** database with 10+ normalized tables and RESTful API architecture, deployed on **Heroku** with CI/CD pipeline, integrating multi-role authentication system with 80% reduction in manual processing time

2nd Place - NASA Space Apps Challenge | *Python, TensorFlow, NumPy, Matplotlib* October 2024

- Developed unsupervised ML model achieving 85% accuracy in identifying potential "Marsquakes" from NASA InSight Lander seismic data using energy optimization and advanced noise elimination techniques, competing against 400+ global teams and presenting solution to NASA scientists

Technical Skills

Languages: Python, C/C++, JavaScript, SQL/MySQL, HTML/CSS, R, MATLAB
Frameworks & Libraries: TensorFlow, Scikit-learn, Pandas, NumPy, Matplotlib, Flask, React, Node.js, Express.js, Bootstrap
Tools & Technologies: Git, Docker, Google Cloud Platform, AWS, Google Earth Engine, VS Code, PyCharm, GraphQL, Prisma, WordPress
Specializations: Machine Learning, AI/NLP, Full-Stack Development, Database Design, Cloud Architecture, Satellite Data Analysis, AgTech Solutions