JESUS GUERRERO

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EDUCATION

Tecnológico de Monterrey   Monterrey, Mexico
B.S. in Robotics and Digital Systems Engineering | GPA: 95/100   *Expected graduation: Dec. 2026*

EXPERIENCE

VantTec   Monterrey, Mexico
Drone Swarm Development | vanttec.com | Github Organization   *Aug. 2025 – Present*
- Lead a team of 10 members coordinating hardware assembly, firmware deployment, and field testing for 36 drones.
- Operate as ground station operator coordinating real-time show sequencing and multi-drone orchestration.
- Delivered two successful drone light shows impacting over 150 spectators at each event.

Carnegie Mellon University   Pittsburgh, USA
Robotics Engineer Intern | RISS | Dr. Melisa Orta Martínez | SHRED Lab   *Jun. 2025 – Aug. 2025*
- Architected full-stack monitoring system for a underwater vehicle (submarine), including processed and streamed live sensor telemetry data using **C++**, enabling remote vehicle diagnostics and control. *Aquabotics PlatformIO*
- Developed **C++** control system mapping Xbox gamepad inputs to submarine motor commands using kinematics for 6-DOF motion (surge, heave, yaw). *Aquabotics ROS2*

Sostek   Monterrey, Mexico
Lead Software Engineer | sostek.tec.mx | Github Organization   *Mar. – Jun. 2025*
- Architected web-based sustainability chatbot by fine-tuning **GPT model** with custom training data, enabling 120+ students across 7 courses to integrate sustainability principles into academic projects.
- Engineered **Flask REST API** backend with context-aware conversation handling, delivering domain-specific AI responses through **LLM** integration.
- Designed responsive frontend using vanilla **JavaScript**, **HTML**, and **CSS**, ensuring seamless user experience across devices and improving student engagement with sustainability education.

Tecnológico de Monterrey   Monterrey, Mexico
Computer Vision Instructor | SMALC | SEIRS | Github Organization   *Feb. – Jun. 2025*
- Taught computer vision fundamentals for 20 students (ages 12-18), architecting progressive projects using **OpenCV**, **MediaPipe**, and **GoogleColab**, achieving 90%+ project completion.

PROJECTS

Split-It | *2nd Place, Capital One Fintech Challenge at HackMTY 2025 | Github repository*   Oct. 2025
- Built expense-splitting web app that calculates optimal debt settlements.
- Developed **React** frontend with real-time group management, expense tracking, and one-click payment settlement.
- Implemented receipt **OCR** using **Gemini API** to automatically extract and populate expense details from photos.

SWE-Training Platform | *Github repository*   Jul. 2025
- Contributed to LeetCode-style competitive programming platform built for RoBorregos robotics team.
- Implemented full-stack profile management system with **tRPC** API routes for CRUD operations on user data.
- Ensured end-to-end type safety between **React** frontend and **Prisma** ORM through **tRPC** mutations and queries.
- Platform adopted by 45 students during summer 2025, becoming the unique tool at the college.

IoT Smart Warehouse System   Apr. – May 2025
- Contributed to the development of a **IoT** inventory management system tracking components across lockers.
- Programmed **ESP32** firmware in **C/C++** for real-time locker control with open/close actuation commands.
- Implemented **WebSocket** communication layer enabling data exchange between microcontrollers and web server.

SKILLS

Programming Languages: C/C++, Python, TypeScript, JavaScript, MATLAB, Bash, C#, SQL, Lua, LaTeX.
Web Development: React, Next.js, Flask, tRPC, Prisma, REST APIs, WebSocket.
AI & Machine Learning: OpenAI GPT, Gemini API, LLM Fine-tuning, OCR, Prompt Engineering.
Developer Tools: Git, GitHub, Docker, Linux, VS Code, Neovim, Command Line, CI/CD.
Languages: Spanish (Native), English (B2+).

AWARDS AND SCHOLARSHIPS

Carnegie Mellon Summer Research Scholarship	1 of 40 selected worldwide	Summer 2025
ICPC Mexico National Finals	Competitive Programming Championship, Qualified	Fall 2024
RoboCup 2022 International Competition	Rescue Maze Category, National Qualifier	Summer 2022
The Gallagher Foundation Scholarship	Scholars with economically disadvantaged backgrounds	2022 – 2026