Diego Gerardo Sánchez Moreno

Robotics/Embedded Systems Engineer (in training)
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Summary

Robotics and embedded systems engineer in training focused on control, soft robotics, and perception. Experienced in micro-ROS on ESP32, closed-loop control, telemetry, and reproducible experiments. Seeking robotics/embedded roles and graduate studies in Autonomous Systems.

Education

B.S. in Robotics and Digital Systems Engineering
Tecnológico de Monterrey, Campus Querétaro
2022 – Jun 2026 (expected)

Research & Engineering Experience

Hybrid Soft Robotics Lab (Tec de Monterrey, Qro.)
Soft Robotics Control Platform — 2024 – Present

- Built a bi-stable pneumatic driver with closed-loop pressure/vacuum control, safety interlocks, and real-time telemetry.
- Implemented micro-ROS on ESP32 (UART) with pressure sensing over I2C (ADS1115).
- Delivered a Python SDK + GUI and MATLAB-based analysis for reproducible experiments.

PuzzleBot Autonomous Mobile Robot (ROS 2)
Team Project — Jan–Jun 2025

- Integrated micro-ROS, encoder-based odometry, and YOLOv8 perception on Jetson Nano for autonomous driving.
- Validated autonomous motion with real-time telemetry and perception pipeline.

Line-Maze Solver (Pololu 3pi+)
Embedded Control Project — 2024

- Implemented PID line following with route recording and simplification to optimize traversal.

Selected Projects

CareBot — Medication Delivery Robot

- Implemented Uniform Cost Search route planning and MQTT-based coordination (Raspberry Pi + Arduino).

AES on FPGA (DE10-Lite)

- Integrated AES encryption component via FSM in VHDL with a multi-member team.

Awards & Certifications

- Best Poster Award — Exploring Soft Robotics (Dec 2025)
- NVIDIA DLI: Fundamentals of Deep Learning (Jun 2025)
- OpenCV Bootcamp (Apr 2025)
- Google Cloud Computing Fundamentals (Mar 21, 2023)

Technical Skills

- **Languages:** C++, Python, TypeScript, VHDL, MATLAB
- **Robotics/Control:** ROS 2 (Humble), micro-ROS, PID/PI, odometry, Gazebo
- **Perception:** OpenCV, YOLOv8
- **Hardware:** ESP32, Jetson Nano, Raspberry Pi, Arduino, FPGA Cyclone

Languages

Spanish (Native), English (B2)