Luis Antonio Zermeño de Gorordo
Engineer B.Sc. Robotics and Digital Systems

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PROFESSIONAL SUMMARY

Robotics Engineer focused on autonomous systems and embedded control architectures. I specialize in full-stack robotic integration, from designing ROS2 navigation pipelines and computer vision modules to implementing real-time firmware on STM32 microcontrollers. Skilled in sensor fusion, control theory, and hardware-software interfacing, I enjoy the challenge of making complex algorithms work on physical hardware. My background includes research-grade development in robotics labs and cross-functional engineering projects.

TECHNICAL SKILLS

Programming: C/C++ (Embedded & OOP), Python, SQL, Bash, ROS2
Embedded: STM32, RTOS, Arduino, ESP32, Bare-metal programming, Interrupts & Timers, CAN Bus, I2C, SPI, UART/Serial, PWM generation, FPGA (quartus)
Robotics & Control: ROS2, MATLAB/Simulink, PID Tuning, Sensor Fusion, Kalman, Motor Control, Computer Vision Tools: Git, Linux, Oscilloscope, Docker, PCB/Schematic Interpretation, Agile/Scrum Methodology

LANGUAGES

- Spanish (native)
- English (C1)
- Italian (A1 – Conversational)

ENGINEERING PROJECTS & EXPERIENCE

Software Engineer | Luzesa S.A. de C.V. — CDMX, Mexico | 08/2025 – Present

- Developing an automated algorithm for employee bonus calculations, reducing manual processing time and errors. Leading the integration of legacy internal software with new calculation modules, ensuring data consistency across platforms. Designing an intuitive interface that enables clear visualization and adjustment of employee performance data.

AGV with HMI | ITESM & Elettric 80 – 06/2025

- Designed and programmed an automated guided vehicle (AGV) with SLAM-based navigation, path planning (A* and Bug algorithms), visual detection (OpenCV and ArUco markers), voice control, and real-time monitoring through a custom web-based human-machine interface. Implemented in ROS2 using modular software architecture.

Robotics Research Engineer (Intern) | Siena Robotics and Systems Lab (SIRSLab), Italy – 09/2024 to 01/2025

- Led the migration of Franka Research 3 robotic arm control stacks from ROS to ROS2, improving system modularity.

Autonomous Agricultural Vehicle Prototype | ITESM & John Deere – 12/2023

- Designed a distributed STM32H7/Arduino system using CAN Bus and RTOS to manage real-time tasks (IMU/Encoders/PWM). Implemented sensor fusion algorithms for steering correction and wireless telemetry (NRF24) for remote monitoring. Validated hardware drivers through unit testing and integrated the system using Agile/Scrum methodology.

Embedded Control System for Valve Validation | ITESM & Robertshaw – 06/2023

- Architected RTOS (FreeRTOS) firmware on STM32 to manage concurrent tasks for HMI and sensor acquisition (ADC/Timers). Built a Python (Matplotlib) tool for real-time data logging via UART and designed electrical schematics.

EDUCATION

Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM)

- B.Sc. in Robotics and Digital System Technology
- Graduated June 2025
- Final Grade Average: 92/100

University of Siena (UNISI)

- The Siena Robotics and Systems Lab (SIRSLab)
- Research Stay September 2024 – 01/2025

AWARDS/ACHIEVEMENTS

FIRST Robotics Competition

- WARC (World Adolescent Robotics Competition) – Beijing, China – 11/2015
  - Winning Alliance - FTC.

- API (Asia Pacific Invitational), Macquarie University – Sydney, Australia – 07/2016
  - Second Place - FTC.

- FIRST Global – Washington DC, USA – 07/2017
  - Participated as team North America.

- Volunteered in FRC, FTC, and FLL, serving as a judge and coordinator.
- Developed a set of 3 iOS apps for team coordination and rules comprehension for FTC, FRC and FLL competitions named FTC Toolbox, FRC Toolbox, FLL Toolbox.