

Julio Quiroga Galan

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-Spanish (Native) -English (Bilingual) -French (Basic)

Education

Michigan State University

East Lansing, MI

-Master of Science in Electrical & Computer Engineering

4.0 GPA/Expected Dec 2026

University of California-Santa Cruz

Santa Cruz, CA

-Bachelor of Science in Robotics Engineering & Electrical Engineering Minor (CUM LAUDE)

June 2025

Work History

Founder, Real Robotics

East Lansing, MI

Dec, 2025 - Present

- Designed and simulated autonomous drone systems for search-and-rescue missions in support of first responders
- Performed market and feasibility analyses to evaluate business viability and develop investor-facing reports and pitch materials
- Won elevator pitch competitions and secured funding to advance startup development

Graduate Researcher, Cyber Physical Systems Lab

East Lansing, MI

Sep, 2025 - Present

- Researching LLM-guided Multi-Agent Reinforcement Learning to improve collaboration and control efficiency to achieve high-level goals.
- Designing and analyzing optimal & nonlinear control policies (LQR/LQG, MPC, Lyapunov-based) to ensure stability, safety, and performance.
- Building Python Deep Neural Networks that turn LLM outputs into verifiable controllers, with on-robot execution and closed-loop telemetry.

R&D Engineer, Ikergune

Donostia-San Sebastian, Spain

Jun, 2025 - Aug, 2025

- Integrated industrial PLCs with IO-Link sensors and actuators over PROFINET for real-time control and data acquisition.
- Built and customized Linux OS images with the Yocto Project (kernel features, device trees, layers) for robotics hardware optimization.
- Programmed and debugged embedded System communication protocols (SPI, UART, I2C, CAN) for automated systems.

Sensor Development & Integration Engineer, SYLVAE

Santa Cruz, CA

Sep, 2024 - Jun, 2025

- Led LiDAR and temperature sensing for a ground wildfire-risk mitigation platform on ESP32/Linux.
- Designed and tested PCBs (Cadence Allegro), state machines for feedback response, and C/C++ data acquisition.
- Analyzed point clouds in CloudCompare and produced calibrated field measurements.
- Coordinated with other teams to integrate the sensors into the final product.

Undergraduate Researcher, Hare Lab

Santa Cruz, CA

Jun, 2024 - Sep, 2024

- Prototyped a 4+1 VTOL drone for humanitarian missions.
- Ran simulations in ArduPilot and developed multi-sensor perception for resource and survivor detection.

Logic Design Reader, Baskin Engineering

Santa Cruz, CA

Sep, 2023 - Jan, 2024

- Supported course delivery (exams/homework) in digital circuits, Boolean algebra, and FPGA fundamentals.

Skills

Python, MATLAB, C / C++, DNN, SolidWorks, Linux, PCB design, Cadence Allegro, KiCad, Embedded systems, Control systems, Nonlinear control, Optimal control, LQR, MPC, Electromechanical system design, PLC integration, SPI, UART, I2C, CAN, LiDAR, CloudCompare

Projects

Inverted Pendulum (Applied Feedback Control):

- Derived Lagrangian and state-space model, verified controllability/observability, and designed LQR controller and estimator..
- Executed MATLAB inverted-pendulum simulations ([Inv Pend Sim](#)) to evaluate motor and hardware limit analysis..
- Translated the design to embedded C on an MCU using an electromechanical plant model for real-time control.

Mechatronics Robot Design:

- Led a 10-week electro-mechanical system that required 3D design SolidWorks, MCU embedded C state machines, A/D & D/A, and filters.
- Sensor development with photo-transistor, band-pass filters for tower detection, tank circuit for door localization, and black-tape navigation.
- Software design of hierarchical state machines and embedded communication protocols for hardware interaction.
- Record of 37/40 balls collected and 33/40 deposited under 2 minutes at a designated door.

Formula SAE (Electric Race Car)

- Developed the tractive system for an electric race car
- Designed KiCad PCBs for pre-charge/discharge with MOSFET switching, measurement-point control, and Manual Service Disconnect
- Worked with a high-voltage system of 120 V / 700 A accumulator, implementing protection and control features.

Honors

Burgess Institute of Entrepreneurship Launch Program **East Lansing, MI** March 2026
-Recognized and entered into the exclusive Launch program of BIE to continue developing a startup recognized in competitions and raised funds.

Engineering Graduate Leadership Fellowship **East Lansing, MI** Fall 2025 - Present
-Recognized for exceptional academic and leadership achievements, and for delivering engineering outreach talks

Engineering Honor Society (Tau Beta Pi) **Santa Cruz, CA & East Lansing, MI** Spring 2023 - Present
-Recognized for exceptional academic achievement and leadership in engineering, ranking in the top 5% of my class