

MARLON LOPEZ

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Education

University of California, Riverside

Bachelor of Science in Computer Engineering, GPA 3.7

Expected Graduation June 2026

Riverside, California

TECHNICAL SKILLS

Languages: C/C++, Python, Java

Embedded Systems: Linux, Bare Metal (AVR), Real-time Systems, State Machines

Protocols: TCP/IP, SPI, I2C, UART, CAN, GPIB

Tools: Git, Simulink, Qt/QML, VS Code, QtCreator, CubeIDE

Hardware Integration: Sensor Calibration, Data Acquisition, Device Drivers

PROJECT

UC Riverside Liquid Propulsion Rocket Project | *C++, Qt, QML, Python, GitHub*

February 2023 – Present

DAQ Lead

University of California, Riverside

- Architected custom LabJack-based data acquisition system using C++/QML with Strategy and Prototype design patterns, achieving 15% latency improvement through modular, scalable architecture during rocket test phases
- Implemented InfluxDB integration with dynamic sensor visualization, reducing data analysis time by 4 hours per test cycle and enhancing team decision-making capabilities
- Engineered bare metal AVR-based PID pressure regulator with asynchronous state machines, utilizing UART and SPI protocols for real-time control of safety-critical rocket systems
- Designed comprehensive testing framework including state machine validation and pressure regulator verification phases, ensuring system reliability for safety-critical operations

WORK EXPERIENCE

Barsukov Lab, University of California, Riverside | *Python, Multiprocessing, Simulation*

Feb 2025 – Present

Research Software Developer

University of California, Riverside

- Architected full-stack embedded control systems across 12+ legacy and modern instruments using SPI, TCP, and GPIB protocols, enabling real-time spintronics experiments
- Engineered multiprocess threaded pool architecture streaming lock-in amplifier data at 1 MHz, achieving 1,000× throughput increase from 1 kHz baseline
- Optimized inter-process communication reducing latency by 96% (5.2 ms to 180 μs) through zero-copy queues and asynchronous buffering techniques
- Implemented automated hardware configuration control systems, boosting experimental signal-to-noise ratio by 20× through precision instrument calibration

Riverside Community College Computer Lab | *Python, Git, Excel*

June 2023 – July 2024

Computer Lab Aide/In Class Tutor

Riverside Community College, Riverside

- Mentored 120+ students across multiple programming courses in C/C++, Java, Python, and JavaScript, achieving 90% coursework completion rate through targeted technical instruction
- Enhanced student comprehension of data structures and algorithms (linked lists, stacks, queues, trees, search/sort algorithms), contributing to 25% improvement in exam performance
- Collaborated with faculty to develop comprehensive exam questions for introductory and intermediate C++ courses, improving assessment quality and student preparedness