Gabriel E. Marcano

(774) 253-4916
gmarcano@ucsd.edu
https://gabriel.marcanobrady.family

3869 Miramar Street #3441,
La Jolla, CA 92092

Education

PhD Student in Computer Science and Engineering, UC San Diego — Oct. 2020 - Present
B.S. in Software Engineering, Rochester Institute of Technology — May 2015

Experience and Projects

UC San Diego, PhD Graduate Student Researcher (2020-Present)

Soil Mirobial Fuel Cell (sMFC) energy harvesting for sensors, Leader of ECE research group

- Benchmarked feasibility of using COTS energy harvesting chips with sMFCs.
- Mentoring Early Research Scholars Program undergraduates to develop deployable sensors.
- Designed custom, low cost power sensing circuit board.

Repurposing Discarded Smartphones to Reduce Carbon Emissions, Embedded Systems Specialist

- Built custom OS images for Android Pixel phones to enable cluster benchmarking.
- Helped port DeathStarBench benchmark suite to run on developed cellphone cluster.

Compressing ResNets for FPGAs, Developer and tester

- Converted experiments from Pytorch to Keras to compare results with different neural network libraries.
- Expanded software to allow for testing on a distributed cluster for faster results.

The MITRE Corporation, Computer Science Engineer, Sr. (2017-2020)

Volatile organic compound detector using Quantum Dots-Polymer Nanocomposite (QDPN) deposits, Lead control software developer

- Developed primary collection control algorithm in Python for photodiode based collector.

Autonomous UAS platform, Camera and control systems developer and integrator

- Ported Linux kernel drivers for Sony 4K camera sensor from one Nvidia TX2 carrier to another.
- Developed control framework in C++ to manage UAS higher-level decision making.

Sensor fusion on vehicle platform, Camera integration developer

- Developed software in C++ to pipe HD-SDI camera data to ROS through V4L2.

Neuromorphic camera research, Assistant investigator

- Helped characterize neuromorphic camera performance.
- Developed software in C++ to capture data, and experimented with noise suppression filtering.

Low-power computing performance field study, Lead SoC platforms investigator

- Benchmarked system performance of Nvidia Tegra platforms for deep learning applications.
- Profiled power consumption of Nvidia Tegra platforms under different levels of load.

The MITRE Corporation, Computer Science Engineer (2015-2017)

Prototype array camera research, Lead software developer

- Designed control and real-time acquisition software in C++.
- Helped design remote API control for a custom high-speed FPGA-enabled array camera.

Stand-off portable CBRNE detector prototype, Lead software developer

- Integrated and tested system, composed of COTS components.
- Developed real-time low-level microcontroller software in C controlling high-power flash.

Skills

Programming languages:

Modern C++, Rust, C, Python, and Java. Experience with ARM, RISC-V, AVR, and HCS12 assembly.

Languages:

Fluent in Spanish and English.

Honors

ENSsys 2021 Organizer's Choice Demo Award. — 2021
Sloan Scholar Fellow. — 2020
Two MITRE Trailblazer awards for contributions to important MITRE projects. — 2019
Eagle Scout, Mohegan Council, Boy Scouts of America. — January 2009