Alexis Garado

E-mail: agarado@ucsc.edu • LinkedIn: linkedin.com/in/garado/ • Site: garado.github.io

EDUCATION

UC Santa Cruz
B.S. Computer Engineering
Concentration: Digital Hardware
Expected Graduation: March 2023

Technical Skills
Microcontroller programming
C, C++, assembly
Linux, shell scripting
Verilog, FPGA design

Relevant Coursework
Intro to Mechatronics
Embedded System Design
Logic Design with Verilog
Computer Architecture (graduate)

EXPERIENCE

Maxar Technologies
San Jose, CA

Ground Software Engineer Intern (June 2021 - Sept 2021)
- Automated daily verification of satellite telemetry for 90+ spacecraft, saving hours of the team's time per day
- Created automated system to efficiently notify the team of any data errors
- Ran unit test procedures for command and telemetry processing to prepare for new software releases

Ground Software Engineer Intern (June 2020 - Dec 2020)
- Developed and improved satellite telemetry archival software
- Worked closely with software involving encryption/decryption of telemetry

Jack Baskin School of Engineering
Santa Cruz, CA

Embedded System Design Tutor (Sept 2021 - Dec 2021)
- Clearly explained concepts related to microprocessor and microcontroller architecture, programming techniques, timing issues, interrupts, peripheral devices, and interfacing to analog and digital systems

Introduction to Logic Design Tutor (Mar 2021 - June 2021)
- Explained key concepts to students regarding FPGA lab assignments
- Taught boolean algebra, logic minimization, finite-state machine design, sequential circuits, common logic elements, programmable logic devices, and introductory system-level design

Computer Systems & Assembly Language Tutor (Mar 2019 - Mar 2021)
- Taught digital logic design, computer architecture, and assembly language concepts while facilitating a positive and productive learning environment
- Graded digital logic and assembly lab assignments for 300+ students.

PROJECTS

Autonomous robot
November 2022
- Wrote software in C for autonomous robot capable of accurately locating, navigating to, and launching projectile at specified target
- Designed and soldered analog filter to detect target emitting 25kHz signal

Gameboy emulator
December 2022 - Present
- Emulation of the Nintendo Gameboy's Sharp LR35902 CPU in C++
- Partial implementation of graphics rendering and audio playback

Oscilloscope
May 2021
- Dual-channel oscilloscope on 32-bit microcontroller written in C
- Supported both free-running or trigger modes, as well as x- and y-scaling and scrolling

Enigma machine
March 2021
- FPGA programmed in Verilog to emulate functionality of a WWII encryption device
- Performed encryption and decryption of user-inputted messages

Chip8 emulator
August 2020
- Retro video game emulator in C++ with graphics displayed on Raspberry Pi-controlled LED matrix

Real-time operating system
April 2021
- Software-based UART communication protocol between 2 microcontrollers using FreeRTOS
- Optimized code to be able to run 4 concurrent communication streams