

Colton Acosta

404.430.1346 • cacost12@asu.edu • US Citizen • coltonacosta.com • linkedin.com/in/colton-acosta/

EDUCATION

B.S.E, Electrical Engineering
Arizona State University, Tempe, AZ

May 2023
4.00 GPA

TECHNICAL SKILLS

Software: C, C++, C#, Python, Assembly, Linux, Git, Make, ARM, Visual Studio

Hardware: Microcontrollers, Soldering (SMD), Multimeters, Oscilloscopes, Verilog, FPGA, Function Generators

Design/Modeling: Altium, LTspice, KiCAD, MATLAB/Simulink, Cadence, NX, SolidWorks

EXPERIENCE

SpaceX: Hardware Development Engineer, Starship Electronics

October 2023–Present

- Responsible Engineer for a gyroscope that provides inputs to bending compensation algorithms on Starship Booster
- Responsible Engineer for an engineering camera used to stream video of key events in flight to inform design
- Maintained vehicle configs such as telemetry channels and rates and pushed code to the flight software repository
- Wrote Python scripts to scrub vehicle data from company databases and analyze hardware performance
- Reduced cost per vehicle stack by more than 150k by developing new technologies for rocket usage such as MEMs gyroscopes, video encoder ASICs, and cutting edge image sensors
- Brought up new PCB designs by testing power trees, serial interfaces, and sensors using oscilloscopes and multimeters
- Doubled camera yield by root causing production test failures such as boot failures, loss of streams, and corrupted video packets

Raytheon Missiles and Defense: Software Engineer

July 2023–October 2023

- Implemented new features for a .NET based WebUI used for automating software (SIL), computer (CIL), and hardware (HIL) in the loop missile tests using C# and Javascript
- Wrote a C# method to automatically locate library dll files to eliminate the need for manually setting the path
- Added a new page to the WebUI for monitoring background test status by querying the API using HTTP requests
- Added Javascript keyboard event listeners user interface to implement quit and save keyboard shortcuts

Garmin Aviation: Embedded Software Engineering Intern

May 2022–August 2022

- Developed certification software for a new Vulkan graphics driver to be used in safety-critical avionics systems
- Wrote unit tests with randomized test vectors in C to test the GPU driver source code with maximal coverage
- Debugged compiler errors of ARM and Windows builds using Visual Studio and MSBuild XML schemas
- Resolved runtime errors caused by randomized test vectors by analyzing the source code functions and manually setting up data structures, pointers, arrays, and buffers

PROJECTS

Sun Devil Rocketry: Flight Computer

January 2021–Present

- Developed a flight computer to log flight data and implement parachute recovery in amateur and high power rockets
- Equipped the computer with an ARM Cortex-M7 microcontroller, a pressure sensor, external flash, and USB
- Wrote hardware drivers in C to abstract low level control of hardware UART, I2C, SPI, and GPIO interfacing
- Wrote a data-logger application to collect flight data, and successfully recovered flight data from several launches
- Implemented the recovery software using a state machine architecture to transition between programming, idle, in-flight, and post-flight states
- Implemented apogee detection, main parachute altitude detection, and landing detection algorithms using a FIFO buffer, Z-transforms, and tuned thresholds

Sun Devil Rocketry: Liquid Rocket Engine Controller

August 2019–May 2023

- Architected an avionics system which successfully supported ASU's first static hotfire attempt of a liquid rocket engine
- Programmed a Python interface for real-time visualization of engine state and sensor measurements
- Wrote sequencing code in C to open/close engine valves in a timed order to automate a static hotfire test
- Wrote an interrupt driven command processor to communicate with the remote ground station over RS485