Colton Acosta

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

SUMMARY

Senior electrical engineering student with leadership and professional experience including work in embedded software, programming, PCB schematic and layout design, analog and digital electronics, and project management. Interests include avionics, embedded systems, control theory, and signal processing.

EDUCATION

B.S.E, Electrical Engineering Graduating May 2023
Arizona State University, Tempe, AZ 4.00 GPA

TECHNICAL SKILLS

Software: C, C++, Python, Assembly, Linux, Git, Make, ARM, Visual Studio
Hardware: Verilog, Microcontrollers, FPGA, Soldering (SMD), Multimeters, Oscilloscopes, Function Generators
Design/Modeling: LTspice, KiCAD, DipTrace, MATLAB/Simulink, Cadence, SolidWorks

PROFESSIONAL EXPERIENCE

Undergraduate Research Assistant: SCALE Advanced CMOS January 2022–Present

- Designed over ten PCBs for mounting test devices and interfacing with semiconductor parameter analyzers
- Constructed a CMOS measurement setup rated for cryogenic temperatures to emulate temperature conditions in space
- Designed and simulated a transimpedance amplifier to amplify CMOS drain currents and filter high frequency noise

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

Sun Devil Rocketry: President and Avionics Team Founder August 2021–May 2022

- Oversaw all activities of a technical student organization with three rocket propulsion teams, two amateur rocketry teams, a K-12 outreach program, and over 50 members
- Facilitated all project development by holding meetings and design reviews, writing budget proposals, organizing launch logistics, mentoring, and maintaining industry/university relations
- Founded a new avionics team to design the club's first flight computer and promote the development of electrical and software engineering skills among students interested in the aerospace industry

Pyramid Technologies, Inc, Mesa, AZ: Electrical Engineering Intern May 2021–August 2021

- Qualified new optocouplers by measuring logic levels and slew rate for ambient temperatures ranging from 0 to 60°C
- Designed a new PCB to protect test fixture pins from overvoltage and overcurrent conditions
- Resolved electrical issues with dysfunctional test fixtures and equipment used by engineers and production staff

PROJECTS

Sun Devil Rocketry: Flight Computer January 2021–Present

- Developing a flight computer for high-powered rockets to implement recovery, control, and telemetry functionality
- Equipped the embedded computer with an ARM Cortex-M7 microcontroller, a 9-axis IMU, GPS, a LoRa wireless module, a micro SD card, external flash, and a USB interface
- Programmed the computer with C for low level control of the microcontroller's UART, I2C, SPI, and GPIO peripherals

Sun Devil Rocketry: Engine Controller August 2019–Present

- Developing a controller for a liquid rocket engine to manage engine hardware and automate ignition sequencing
- Designed the PCB using an ARM Cortex-M7 microcontroller, a switching power supply, external flash, an SD card, ignition terminals, sensor peripherals, a USB interface, and a wireless command and control interface
- Programmed a Python interface for real-time visualization of temperature, pressure, thrust, and flow measurements