Colton Acosta

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SUMMARY

Junior aerospace engineering student with collaborative project experience including hardware-software interfacing, specification development, and programming with interests in control theory, signal processing, and embedded systems. Open to relocation.

EDUCATION

B.S.E, Aerospace Engineering; Autonomous Vehicle Systems — Graduating May 2022
Arizona State University, Tempe, AZ — 4.00 GPA
Barrett, The Honors College

TECHNICAL SKILLS

Presentation: Microsoft Office, LaTeX
Design and Modeling: MATLAB, SolidWorks, LabVIEW
Programming: Python, C/C++, LINUX (git, vim, gcc), R

EXPERIENCE

Liquid Propulsion Avionics Lead, Sun Devil Rocketry — August 2019-Present

- Leading the development of an avionics system for a liquid rocket engine with over 20 hardware components including actuators, sensors, controllers, and signal processing circuitry
- Programming Arduino controllers for prototype testing of data acquisition and flow control embedded systems
- Interfacing temperature, pressure, thrust, and flow measurements with a Python graphical user interface
- Built a signal amplifier to boost sensor outputs to measurable ranges resulting in savings upwards of $200
- Analyzed the influence of orifice size on flow rate measurement error and maximum system pressure to develop specifications for data acquisition sampling rates and hardware pressure tolerance
- Designing an electronic valve actuator to allow for remote and semi-autonomous propellant injection
- Documented project progress in published AIAA Propulsion and Energy conference paper
- Wrote a development plan for the 2020-2021 academic year consisting of 42 deliverables to document project milestones, cultivate a results-oriented work environment, and delegate workloads among new talent

5280 Team Member, Sun Devil Rocketry — Fall 2018-Spring 2019

- Collaborated with a group of 12 students to launch an amateur rocket to an altitude of 5280 feet
- Determined build specifications, apogee altitude, and static margin with OpenRocket software
- Constructed rocket with phenolic tubing wrapped with epoxied fiberglass fabric and laser-cut fins
- Adjusted final build to mitigate static margin calculation error, allowing rocket to be launched on time
- Used a microcontroller breakout board with internal altimeter for parachute deployment

ACADEMIC PROJECTS

Team Lead, Airfoil Statistics Project — Spring 2020

- Lead a group of seven students to complete a semester long project by devising a project plan, delegating workloads, setting timelines, and scheduling team meetings
- Collected computational aerodynamic data with ANSYS for airflow over a wing section with configurable design specifications created with SolidWorks from a NACA 2412 airfoil parameterization
- Used R programming to analyze data with an Analysis of Variance test and to compute significance-based regression models for wing section lift and drag response to chord length, angle of attack, and sweep angle factors

Honors Student, Trans-lunar Injection Simulation — Spring 2019

- Simulated a free-return, trans-lunar injection orbital trajectory in MATLAB with an animated solution
- Calculated the trajectory by solving the two-body problem using a numerical differential equation solver built from scratch with Apollo 11 low earth orbit initial conditions