

# Colton Acosta

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## SUMMARY

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

## EDUCATION

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**B.S.E, Aerospace Engineering;** Autonomous Vehicle Systems  
Arizona State University, Tempe, AZ  
Barrett, The Honors College

Graduating May 2022  
4.00 GPA

## TECHNICAL SKILLS

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**Presentation and Organization:** Microsoft Office,  $\text{\LaTeX}$   
**Design and Modeling:** MATLAB, SOLIDWORKS, LabVIEW  
**Programming:** Python, C/C++, Linux (git, vim, gcc), R

## EXPERIENCE

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### Liquid Propulsion Avionics Lead, Sun Devil Rocketry

August 2019-Present

- Leading the design and development of an integrated avionics system for a liquid rocket engine with over 20 hardware components including valves, sensors, controllers, and signal processing circuitry
- 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
- Conducting trade studies on electronic actuators and orifice flow meters to develop propellant throttling specifications using MATLAB for multivariate trade-off analyses and physical modeling
- 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

### 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

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### 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

### 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