Ethan Armstrong

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Education

University of Washington: Seattle, WA |JUNE 2025

- Current overall GPA: 3.5

Aliso Niguel High School: ALISO VIEJO, CA |JUNE 2021

- GPA: 4.06, SAT: 1440
- AP Scholar, Scholar-Athlete, Superintendent's Honor Roll, Teal Cares Award

Experience

Lead Controls Engineer: Society for Advanced Rocket Propulsion |October 2021 – Current

- Controls Lead, Lead Engineer on design of software and control systems, manage 3 other engineers

Lead Backend Developer: DashCloud |November 2022 – Current

- Coordinated with both business team and other developers to design a modern social media app

Webmaster: Aliso Niguel football and pep-squad |September 2018 – June 2020

- Managed and updated announcements and events, designed registration system with linked database

Related projects

Designed P.L.O.P Control codebase

- PID and LQR controller, sensor fusion, path integration, actuating control surfaces, radio control

Short wave VHF radio PCB

- Designed PCB utilizing STM32, wrote control code, I2C, and Serial Interface, wrote external libraries

Designed drone control systems

- Integrated sensors, designed PID controller, ran simulations, conducted wind tunnel tests

Rocket Ground desktop application

- Used QT to design GPU based GUI, asynchronously pull API data

Image Converter desktop application

- Used QT to design Windows GUI, Researched and re-implemented image formats

File Linking website

- Designed and hosted HTTP based file linking website, Created front and back end from scratch

Wave Function Collapse generator

- Implemented WFC generator into a self-hosted website, designed API callback system

Car Bluetooth audio system

- Created Bluetooth audio sync on raspberry pi, wired and fused circuitry into my car

NGINX based proxy server

- Designed a NGINX based proxy server on remote server instance, Integrated GitHub CI/CD for ease of update

Class 1 Rocket build

- Built rocket frame, designed dual deployment flight computer, received NAR level 1 certification

Relevant Skills

- Rust
- C / C++
- Python
- Java
- Java Script / HTML / CSS
- GUI development
- 3D modeling
- PCB Design
- Soldering

Extracurricular / volunteer work

- ANHS Varsity Football
- ANHS Wrestling
- ANHS field cleanup
- Wolverine Field Construction
- ANHS Lift-A-Thon Fundraiser
- ANHS Pep Squad Webmaster

ABL cover letter

It's with great excitement that I'm applying to ABLs summer internship. Part of that excitement is the realization that I'm transitioning from my hobby/education into my future career. Rocketry and its various processes had caught my attention by 8th grade when I launched my first solid fuel rocket (and several more over the years) at the Friends of Amateur Rocketry (FAR) site in California City, California. What other industry, allows you to touch on rocket mechanics, control systems, communications systems and solve design failures – everything from materials to fuels to PCBs to firmware/software? Over the years I've continued to plan and design systems for both my own and my teams' rockets. During high school I founded the Aliso Niguel Amateur Rocket Club (which launched at FAR). The club's initial launch was of 4 high power (600 Ns) rocket, built entirely from scratch, with the exception of the fiberglass airframe.

I'm now at the University of Washington where I'm continuing my education in physics, mathematics, and computer science (Major in Computer Science and a Minor in Physics). I've also found a home at the Society for Advanced Rocket Propulsion (SARP) which is UW's rocket team. The team is composed of Structures, Avionics-Recovery, Propulsion, Payload and Business. I stepped into the Payload Controls Lead position my freshman year. As the Payload Controls Lead, I'm responsible for understanding the overall program goals and then defining the efforts my group undertakes to achieve the larger objectives. Our focus for the upcoming years, is on a propulsively-landed micro gravity platform. The Payload Controls team is responsible, in short, for landing the rocket. This requires us to design flight controllers (PID/LQR), networking solutions, inflight communications (post payload deployment) and sensor packages. Following down this path has led me to accomplish some of my biggest projects yet.

Integrating my physics, math, computer science classwork and a healthy dose of engineering, I've designed the communications system and written the driver libraries to run a 2-meter radio connection between the control center, the launch pad, and the payload. Being able to combine these, has given me even greater insight into the details of what it takes to go from an idea to production deployment. Simple things, like communication timing/clocks, vibration/ sensor noise, and how our payload is eventually ejected, all come together – I love the challenge.

I am extremely excited for this opportunity, where I can both share my knowledge and experience with others and, more importantly, learn from and work with leading experts in the fields that encompass rocket development and small launch systems.

Thank you so much for your time and consideration, I am looking forward to being able to contribute to ABL's RS1 in the near future.

Best Regards,

Ethan

Relativity

It's with great excitement that I'm applying to Relativity Space's summer internship. Part of that excitement is the realization that I'm transitioning from my hobby/education into my future career. Rocketry and its various processes had caught my attention by 8th grade when I launched my first solid fuel rocket (and several more over the years) at the Friends of Amateur Rocketry (FAR) site in California City, California. What other industry, allows you to touch on rocket mechanics, control systems, communications systems and solve design failures – everything from materials to fuels to PCBs to firmware/software? Over the years I've continued to plan and design systems for both my own and my teams' rockets. During high school I founded the Aliso Niguel Amateur Rocket Club (which launched at FAR). The club's initial launch was of 4 high power (600 Ns) rocket, built entirely from scratch, with the exception of the fiberglass airframe.

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I am extremely excited for this opportunity, where I can both share my knowledge and experience with others and, more importantly, learn from and work with leading experts in the software engineering field.

Thank you so much for your time and consideration, I am looking forward to being able to contribute to the software side of Relativity's rockets. Best Regards,

Ethan

Space X

It's with great excitement that I'm applying to SpaceX's summer internship. Part of that excitement is the realization that I'm transitioning from my hobby/education into my future career. Rocketry and its various processes had caught my attention by 8th grade when I launched my first solid fuel rocket (and several more over the years) at the Friends of Amateur Rocketry (FAR) site in California City, California. What other industry, allows you to touch on rocket mechanics, control systems, communications systems and solve design failures – everything from materials to fuels to PCBs to firmware/software? Over the years I've continued to plan and design systems for both my own and my teams' rockets. During high school I founded the Aliso Niguel Amateur Rocket Club (which launched at FAR). The club's initial launch was of 4 high power (600 Ns) rocket, built entirely from scratch, with the exception of the fiberglass airframe.

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I am extremely excited for this opportunity, where I can both share my knowledge and experience with others and, more importantly, learn from and work with leading experts in both software engineering, and rocket launch systems.

Thank you so much for your time and consideration, I am looking forward to being able to contribute to, in a meaningful way, to a part of SpaceX, or Starlink. Best Regards,

Ethan

Astranis

It's with great excitement that I'm applying to Astranis' summer internship. Part of that excitement is the realization that I'm transitioning from my hobby/education into my future career. Rocketry and its various processes had caught my attention by 8th grade when I launched my first solid fuel rocket (and several more over the years) at the Friends of Amateur Rocketry (FAR) site in California City, California. What other industry, allows you to touch on rocket mechanics, control systems, communications systems and solve design failures – everything from materials to fuels to PCBs to firmware/software? Over the years I've continued to plan and design systems for both my own and my teams' rockets. During high school I founded the Aliso Niguel Amateur Rocket Club (which launched at FAR). The club's initial launch was of 4 high power (600 Ns) rocket, built entirely from scratch, with the exception of the fiberglass airframe.

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I am extremely excited for this opportunity, where I can both share my knowledge and experience with others and, more importantly, learn from and work with leading experts in software engineering and radio communications

Thank you so much for your time and consideration, I am looking forward to being able to contribute to Astranis' goal of bringing satellite internet to the places where its needed most.

Ethan

It's with great excitement that I'm applying to Keysight's summer internship. Part of that excitement is the realization that I'm transitioning from my hobby/education into my future career. Software Engineering has caught my attention since elementary school when I first started programming mods for videogames. Since then, I have developed and undertaken many software engineering projects – tackling everything from game development, to integrated systems software development across numerous different languages.

I'm now at the University of Washington where I'm continuing my education in physics, mathematics, and computer science (Major in Computer Science and a Minor in Physics). I've also found a home at the Society for Advanced Rocket Propulsion (SARP) which is UW's rocket team. The team is composed of Structures, Avionics-Recovery, Propulsion, Payload and Business. I stepped into the Payload Controls Lead position my freshman year. As the Payload Controls Lead, I'm responsible for understanding the overall program goals and then defining the efforts my group undertakes to achieve the larger objectives. Our focus for the upcoming years, is on a propulsively-landed micro gravity platform. The Payload Controls team is responsible, in short, for landing the rocket. This requires us to design software solutions for, the monitoring and control of power supplies, sensor acquisition, actuating control surfaces, and data transmission and visualization. Following down this path has led me to accomplish some of my biggest projects yet.

Integrating my physics, math, computer science classwork and a healthy dose of engineering, I've designed the communications system and written the driver libraries to run a 2-meter radio connection between the control center, the launch pad, and the payload. The design of these boards was the most daunting software engineering challenge I've undertaken thus far. Putting aside the physical design of the radios, I had to implement SPI communications between two on board IC's, design and implement both UART and I2C external communications protocols, as well as external driver libraries, to ensure a modular radio component for future projects. Being able to combine multiple different platforms and languages into one cohesive system has given me an insight into the details of what it takes to go from an idea to production deployment.

I am extremely excited for this opportunity, where I will get the chance to work closely with experts and gain industry experience working on a hands-on project.

Thank you so much for your time and consideration, I am looking forward to being able to contribute to the design of breakthrough electronics at keysight.

Ethan