# Alan Hsu

hsu303@purdue.edu | (858)-442-2909 | alanjhsu.com (Personal Website) | McLean, VA

Freshman at Purdue University with experience in engineering and programming and passionate about aerospace, rapid prototyping, and fast iteration cycles, seeking electrical engineering internships,.

## Education

**Purdue University**, College of Engineering, West Lafayette, IN *May 2027 | 4.0 GPA*

First Year Engineering, Bachelor's of Science in Electrical Engineering

**Thomas Jefferson High School for Science and Technology**, Alexandria, VA *June 2023 | 4.450 / 4 GPA*

- National Merit Scholarship Finalist
- *Advanced Courses*: Multivariable Calculus, Linear Algebra, Differential Equations, Complex Analysis, Artificial Intelligence, Machine Learning, Robotics, Prototyping, Electronics, Combined Engineering Research Lab

## Work Experience

**Starpath Robotics**, San Francisco, CA *June – Aug. 2022 | June – Aug. 2023*

*Electrical Engineer Intern*

- Designed and manufactured power electronics, avionics PCBs, motor controller interface PCBs, shielded motor harnessing, and BMS system for rovers designed to collect water ice on the moon
- Used KiCAD to design PCBs, and used Solidworks to design small mechanisms and dust sealing parts and to ensure mechanical compatibility
- Contributed technical documentation to Starpath's NASA Break the Ice Challenge technical paper

## Extracurriculars

***FLaC-Sat VIP*** | *FEMTA Team* *Jan. 2024 – Present*

- Designing mission framework for testing the FEMTA micropropulsion system on orbit in a 6U CubeSat

***Purdue Solar Racing*** | *Solar Subteam* *Aug. 2023 – Present*

- Spearheading the development of a custom high-voltage Maximum Power Point Tracking boost converter for charging a car's battery from solar power with a competitive bill of materials cost
- Assisted with assembly of other electrical subteam PCBs including driver interface and peripherals controllers

***TJ UAV Club*** | *Team Captain & Electronics Lead* *Sept. 2021 – June 2023*

- Oversaw the overall project development of Avalon X, a fixed wing aircraft that competed in the 2023 SUAS competition; led flight line operations, safety, and logistics at competition
- Designed and built two iterations of the aircraft's electronics bay, which achieves autonomous flight with a Pixhawk 2.4.8 and image processing with a Raspberry Pi 4
- Designed, fabricated, and twice-iterated a self-stabilizing camera gimbal, tuned camera settings, and developed code for automated image capture and retrieval using gphoto2

***TJ Space Program*** | *Senior Advisor* *Sept. 2022 – June 2023*

- Designed, built, and iterated a Raspberry Pi and Iridium-based CubeSat bus to provide a low cost and easy to use platform for future missions; coached underclassmen in mission and hardware design

***TJ Space Program*** | *TJREVERB Technical Lead* *Sept. 2021 – Jan. 2023*

- Served as a technical lead for TJREVERB, a 2U CubeSat deployed on December 29, 2022 to determine the feasibility of Iridium Short Burst Data (SBD) as a telemetry radio for CubeSats
- Led technical development of electrical hardware and low level programming, including hardware drivers for the electrical power system and radios, a custom flight computer PCB design, and custom communications and data encoding system for the Iridium SBD radio
- Assisted in final assembly, vibration testing, and oversaw final integration into the Nanoracks deployer
- Oversaw mission operations after deployment, including attempts for initial contact

## Skills

- Fusion 360 (CAD, CAM), Solidworks (CAD), KiCAD, LTSpice, Ubuntu/Debian Linux, Ardupilot, Excel
- 3D Printing, Laser Cutting, SMD/THT Board Assembly/Troubleshooting, Cable Harnessing, Oscilloscopes
- Programming Languages: Python, C/C++, Java, Bash