Avery P. Clowes

aclowes@olin.edu • (978) - 990 - 2471 • www.averyclowes.com • LinkedIn

Education

OLIN COLLEGE OF ENGINEERING | B.S. Mechanical Engineering (GPA 3.92) Expected May 2024

- Courses: Quantitative Engineering Analysis, Integrated Engineering, Mechanics of Solids & Structures, Intro to Electronics, Intersections of Art & Science
- Recipient of 4-Year Half Tuition Merit Scholarship

PHILLIPS EXETER ACADEMY | High School Diploma Graduated June 2020

Experience

FORMULA SAE ELECTRIC | Core Leadership & Mechanical Team September 2020 – Current

- Researching and designing aerodynamic nose cone in SOLIDWORKS and StarCCM+
- Designed custom low-voltage battery pack for cooling system and sensing suite
- Interfaced with sponsors and donors, managed social media, and branding as marketing lead

PHYSICAL SCIENCES INC. | Tactical Systems Intern May 2021 – Current

- Nuclear Solar Cell: A thin film alphavoltaic device for power generation near radiation source
  - Built op-amp and relay testing circuitry for thin-film signal amplification and measurement
- Diamond Transistors: radiation-hard diamond quantum microelectronics
  - Independently designed RF testing PCB for use in ultra-high vacuum
  - Assisted in design and visualization of tunneling diodes, and triodes using COMSOL
- NASA Cold Cathode: hydrogen-terminated diamond electron emitter device
  - Assisted in assembly of device and ultra-high vacuum testing bench

ACCELERATOR SYSTEMS | Assembly Technician June 2019 – August 2019

- Built structural and electrical assemblies for switching and voltage multiplication of particle accelerators

Projects

HALL EFFECT THRUSTER | Team Member September 2021 – Current

- Designing power and data PCB using KiCad for ultra-high vacuum operation of sensor suite and Raspberry PI
- Engineering magnetic fields and boron-nitride ion channel to optimize for Larmor radius
- Mechanical design and material selection for enclosure, vacuum operation, gas diffuser, and thermal tolerancing. Created manufacturing drawings and developed fabrication plan

MAGNETOPLASMADYNAMIC (MPD) THRUSTER: Intel ISEF | Finalist July 2017 – May 2018

- Designed, built, and tested an MPD electric propulsion engine
- Incorporated novel airflow module to increase efficiency
- Ran at scale pulsed power (650v 4700μf capacitor discharge)

Skills

- Software: SOLIDWORKS | Python | Adobe Suite | Arduino | KiCad | MATLAB | COMSOL
- Shop: Laser Cutter | Lathe | 3D Printing | Soldering | Vacuum Systems Operation, Maintenance
- Interests: Graphic Design | Video Editing | Hiking | Spanish | Soccer