Oliver Rayner

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MIT Class of 2024 Aero/Astro and EECS
Student Engineer Computer Scientist Oarsmen Rock-Climber

EDUCATION

MIT, Cambridge, MA — Aerospace Engineering and EECS

September 2020 - PRESENT

4.7 GPA pursuing a double major in Aerospace Engineering (Course 16) and EECS (Course 6-2).

EXPERIENCE

Princeton Satellite/Fusion Systems, Princeton NJ – Intern

June 2022 - PRESENT

Power electronics, fault detection systems through bayesian inference models, hypersonics, compressor and turbine design, brayton cycles for auxiliary spacecraft power in fusion systems, and fiber optics.

STEP-1, MIT Space Propulsion Lab — Camera Payload Electrical Systems - Design Lead

June 2021 - PRESENT

Electronics and systems design of STEP-1's Camera Payload. Currently building schematics and PCBs using KiCAD for the underlying electronics systems.

Electrospray Propulsion Systems, MIT Space Propulsion Lab — Undergraduate Researcher

July 2018 - March 2020

Reaction control systems, wetting experiments, and contact angle measurements with EMI-BF_4 on substrates of SPL's ion Electrospray Propulsion System (iEPS).

PROJECTS

MASLab — MIT Mobile Autonomous Systems Competition (2022)

I worked on a team of five students where I was responsible for all the software, controls, and electrical components of our autonomous machine. Utilizing an implementation **A* Pathfinding**, **OpenCV**, and **PID position control**, our team won **1st place** (http://maslab.mit.edu/2022/wiki/team05).

STEP-1 — Camera Payload Electronics Design

STEP-1 is better described as a "pathfinder for staged electrospray propulsion."I am responsible for the camera payload's **electronics** and **PCB design**. STEP-1's planned launch date into low earth orbit is June 2023.

Gort — Music-playing Discord Bot (2018)

A hobby project of mine which allows users to play music across multiple servers simultaneously. Gort has recently reached over **60,000 users**.

SKILLS

Advanced knowledge in **python**, **ROS**, **javascript** and **typescript**, **react.js**, **html**, **css**, **C**, **C++**, and **C#**, **Arduino**, **MATLAB**, **Java**, and **Git**, **SPICE**, and **KiCAD**.

Proficient in CAD software such as **Solidworks** and **KiCAD**

MIT Lightweight Crew

AWARDS

1st Place MIT Mobile Autonomous Systems (MASLab) Competition (2022)

Yale Science and Engineering Award (2019)

1st Place Westchester JSHS (2019)

3rd Place WESEF (2019)

Daniel Marcus Sportsmanship Award (2016)

NOTABLE COURSEWORK

Spring 2022: Fluid dynamics, Thermodynamics, Advanced Python Programming, and Rhetoric.

Past: ADCS design and simulation, Autonomous Systems, Structural and Systems engineering.

LEADERSHIP

Captain of PCRA's Men's rowing team (2019-2020)