

# Oliver Rayner

MIT Class of 2024 Aero/Astro and EECS

Student Engineer Computer Scientist Oarsmen Rock-Climber

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## 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<sub>4</sub> 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)