ISAAC SHEARD

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Objective

Seeking an aerospace engineering internship. Maker and problem-solver with experience in rockets, robotics, design, and software, driven to tackle challenging projects that advance aerospace technology.

Education

B.S. Aerospace Engineering **Expected May 2028**

Massachusetts Institute of Technology (MIT) - Cambridge, MA | GPA: 4.0

- **Relevant Coursework:** Physics I: Classical Mechanics, Physics II: E&M, Single & Multi Variable Calculus, Differential Equations, Intro to Computer Science Programming in Python, Intro to Autonomy, Solid State Chemistry, Advanced Machining, Materials & Structures (In progress), Signals & Systems (In progress), Aerospace Probability & Statistics (In progress)

Skills

- **Programming:** Python, Java, C++, C, GNU Make, Arduino, GCODE, Qt, SVG (markup)
- **Engineering & Aerospace:** 3D Printing, Robotics, Fusion360, Onshape, SolidWorks, Solid Edge, openMotor, openRocket, RASAero, Ansys
- **Development Tools:** Git (CLI & GUI), GitHub, CANalyzer, WinMerge, Command Shell, PowerShell, Agile
- Spanish-Speaking (Upper Intermediate)

Work History

Solid Propulsion Subteam Member & Executive IT Chair **Sep 2024 - Present**

MIT Rocket Team – Cambridge, MA

- Led FEA of a filament-wound CFRP motor case in Ansys/ACP- built the winding/laminate model, defined the orthotropic CFRP material, simulated internal-pressure and remote-displacement end loads, correlated predictions to hydrostatic/static-fire results, and delivered reusable documentation adopted for future CFRP cases
- Machined nozzle carrier and forward closure, mixed/cast custom solid propellant, and designed grain geometry for low-altitude SRAD tests
- Manage IT systems for the MIT Rocket Team to maintain and update the website, wiki, and file storage systems, ensuring smooth technical operations across subteams

Head RI3D Captain **Oct 2025 - Present**

FIRSTxMIT – Cambridge, MA

- Launching and scaling RI3D@MIT in its inaugural year - leading a ~40-student team through design reviews, securing sponsorships, owning procurement/BOM/POs, and driving systems integration to deliver a robot 72 hours after kickoff

Zero Robotics Researcher **Jan 2025 - Present**

MIT Media Lab, Space Enabled – Cambridge, MA

- Stabilized the IDE by adding unit tests and closing 24 bugs, and am now developing Space Tractor, a core gameplay feature for the next year
- Collaborated with NASA Ames to test Astrobee and refine the ISS deployment plan, ensuring readiness aboard the International Space Station (ISS)
- Served as an instructor for this year's game, providing guidance and expertise to high school students to enhance gameplay design and execution
- Led the 2025 competition finals as Master of Ceremonies, presenting live to students, mentors, and NASA officials

Embedded Software Engineering Intern

AGCO **– Jackson, MN** **Jun 2024 - Aug 2024; Jun 2025 - Aug 2025**

- Led the design and implementation of a user interface and CAN signal routing for an integrated weather station system on the sprayer platforms
- Delivered up to 200x faster runtimes across four optimization projects and built calibration software for the RoGator sprayer tractor
- Collaborated with senior engineers to troubleshoot critical design issues and standardized calibration conventions, while developing and managing comprehensive project documentation to ensure team-wide access to essential information for continuity

Captain, Programming Lead, and Driver of Team 2847 **Oct 2020 - Aug 2024**

FIRST Robotics – Fairmont, MN

- Led FRC Team 2847 as captain, programming lead, and robot driver, securing its first state berth, qualifying for world competition, and winning the Minnesota state championship
- Successfully organized $149,000 in fundraising through grant writing, community initiatives, and business searching, surpassing the program's total funds from the previous two decades

NASA Space Grant Consortium Research Intern **Jun 2023 - Aug 2023**

University of Minnesota – Minneapolis, MN

- Collaborated in spinning sat project sent to NASA Ames Research Center
- Perfected sun tracking payload by adding software features, improving target reliability, and enabling 360 degree tracking
- Programmed microcontrollers for stratospheric data collection and component control, integrating additional sensors to test pitch, yaw, roll, angular rate, magnetic field, acceleration, GPS, temperature, and pressure

Selected Awards

- **Robotics:** Minnesota State Champion (2023), Minnesota All State Programmer (2024), Dean's List Semifinalist (2021-2022, 2022-2023), Autonomous Award (2024), Quality Award (2022)
- **MSHSL 'Triple A' (Athletics, Academics, Arts)** (2023-2024)