

Varun Unnithan

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Education

B.S. in Aerospace Engineering and Computer Science

Expected Graduation: May 2026

University of Maryland, College Park, MD

GPA: 3.94

- Honors College: Gemstone Program
- President's Scholarship Recipient
- Courses: Differential Equations, Object Oriented Programming, Discrete Math, Data Structures, Statics

Work Experience

Research for Intelligence & Security Challenges (RISC) Internship

May 2023–Present

UMD ARLIS, Hybrid

- Analyze graph-based workflows for government processes and develop logical rules for their operation
- Use first-order logic in Python to formally verify changes in operational workflows due to AI
- Communicate, work with, and present to workplace mentors and government clients

Software Engineering Internship

August 2021–April 2022

Resilience Inc, Remote

- Engineered back-end systems for the AIMEE mobile application with Node.js and React Native
- Overhauled documentation and database systems; installed MySQL databases and server onto AWS
- Led implementation of JWT authentication and user account login systems to improve app security
- Collaborated effectively with upper management and team members

Technical Experience

Terrapin Rocket Team

September 2022–Present

Avionics Team Lead, University of Maryland

- Lead design of flight computer for telemetry and datalogging for a 10,000 ft altitude solid rocket
- Design PCB boards and flight computer hardware schematics
- Write code in C++ to take in data and process data from sensors and GPS on a Teensy 4.1
- Integrate tasks and systems with work of other teams to design the entire rocket

Students for the Exploration and Development of Space (SEDS)

September 2022–Present

Satellite Fabrication (SATFAB) Thermals Subteam Lead, University of Maryland

- Perform thermal modelling of cube satellite payloads in upper atmosphere and space
- Research and manufacture phase-change materials as a thermal storage device in cube satellites
- Meet with other subteam leads and coordinate tasks for overall project

Personal Projects

December 2020–Present

- Constructed a high-powered rocket with an H125 motor and received the TRA L1 rocket certification
- Programmed a 3D rendering engine with raymarching methods in Java
- Developed a website with 3D interactive simulations to teach students about space and physics

Research

Whisker-Inspired Flow Sensing

January 2023–Present

Research Assistant, University of Maryland

- Manufacture a whisker-inspired soft body that can sense the flow of the vortices shed by nearby objects
- Explore different materials and whisker profiles for their viscoelasticity and ability to measure flow
- Use MATLAB to collect and process data about whisker when subjected to a fluid flow

Buckling Initiators on Honeycomb Cell Structures for Energy Absorption

September 2022–December 2022

Introduction to Aerospace Engineering (ENAE100), University of Maryland

- Modelled and 3D printed honeycomb cell structures with varying sized buckling initiators
- Performed crush tests with an MTS machine and analyzed data for stress and strain

Skills

- **Programming:** JavaScript, Java, Node.js, SQL, MATLAB, C, React, React Native, HTML, and CSS
- **CAD & Analysis:** Solidworks, Fusion 360, Thermal Desktop, Blender