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: 3.87*

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

Work Experience

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

Students for the Exploration and Development of Space (SEDS) *August 2022–Present*
Satellite Fabrication (SATFAB) Thermals Subteam Lead, University of Maryland

- Lead thermals subteam on thermal modelling of cube satellite payloads in upper atmosphere and space
- Lead research and development of phase-change materials as a thermal storage device in cube satellites
- Meet with other subteam leads and coordinate tasks for overall project

Terrapin Rocket Team *August 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
- Manage team member tasks and coordinate with other teams to design entire rocket

UMD Undergraduate Quantum Association *August 2022–Present*
Member, University of Maryland

- Learn basics of quantum mechanics and computing with qubits
- Develop programs in quantum computation with IBM's QISkit and Python

Personal Projects *December 2020–Present*

- Constructing rocket for the TRA L1 high powered 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*
Dr. Cecilia Huertas Cerdeira, 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*
Dr. Young Tai Choi, 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

- Experience with JavaScript, Java, Node.js, SQL, React, React Native, HTML, and CSS
- Expertise with 3D CAD software and animation tools such as Solidworks and Blender