

Sid Vaidyanathan

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EDUCATION

M.S, Robotics and Autonomous Systems (Mechanical & Aerospace Engineering)	Graduating May 2026
Arizona State University, Tempe, AZ	
B.S.E, Mechanical Engineering	Completed May 2024
Arizona State University, Tempe, AZ	

TECHNICAL SKILLS

Design and Modeling Tools: Solidworks, Fusion 360, BIM360, ANSYS, ANSYS STK, AutoCAD Thermal Desktop, Satellite Orbit Analysis Program (S.O.A.P), LTSpice, KiCAD, LoggerPro, Microsoft Office, LabWorks
Hands on Experience: Soldering, Arc Welding, CNC/Machining, 3D Printing (FDM & Resin)
Programming: Arduino IDE, Linux, Rust, C++, MATLAB

Publications

Vaidyanathan, S., et al. (2024). **Integration and Delivery of the Deployable Optical Receiver Aperture (DORA) Cubesat** In *5.01 Small, Low-Cost Missions in Development and Operations for Space and Earth Exploration* (Paper No. 2660).

LICENSES AND CERTIFICATIONS

H.A.M Amateur Radio Technicians License: Call Sign: KK7OJI	August 2023
Harvard CS50: Introduction to Computer Science Certification	September 2022
ANSYS STK (System Tool Kit) Level 1	January 2025
Vacuum Fundamentals Course	March 2025

PROFESSIONAL WORK EXPERIENCE

Interplanetary Lab: CubeSat Engineer	June 2022 – Present
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DORA:

- Developed a 3U CubeSat with NASA JPL for communications and cosmology, launched on SpaceX NG-21.
- Lead Representative in charge of coordinating mission status updates as well as spacecraft safety compliance with launch providers and the International Space Station.
- Mechanical Team Lead in charge of analysis, design, development and testing for DORA the DORA CubeSat.

SPARCS:

- Developing a 6U CubeSat to monitor sunspot activity of low mass stars to correlate with the atmospheric composition of exoplanets.
- Aided in assembly and integration of the satellite bus from BCT to UV Detector Payload from JPL.
- Monitoring AI&T for UV Payload with Mass Spectrometer (RGA) and a Quartz Crystal (TQCM) in Thermal Vacuum

Coconut:

- 1U CubeSat developed to demonstrate store and forward for licensed HAM Radio Operators in LEO.
- Developed battery testing procedures to validate flight hardware to meet ISS Safety Requirements.

SquidSAT:

- 3U CubeSat to demonstrate small scale power beaming in Lower Earth Orbit and test
- Managing a team in charge of designing and integrating custom deployable solar panels into satellite.

Amazon – Engineering Intern	December 2022 – June 2023
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- Supported management, design, and implementation of medium scope integrated automation projects with system elements such as high-speed sortation, multiple conveyors, package lines, and robotic work cells
- Managed and led a team of technicians that aided in improving packaging efficiencies as well as reducing down time
- Performed testing and validation of package chutes based on operational efficiency, design, safety, and ergonomics.
- Designed and iterated cleaning tool for Siemens Singulator to decrease downtime and aid Operations (**CAD, ANSYS**)

Turn Systems – Mechanical Engineering Intern	March 2022 – April 2023
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- Developed an efficient capture and reuse system to stop the use of single-use plastic using automated bins.
- Designed and developed the bin infrastructure using injection molding as well as solving event-oriented problems.
- Monitoring and collecting data from units as well as troubleshooting non-working units in the field. (**Arduino IDE, RPi**)

ACADEMIC/PERSONAL PROJECTS

GPT-TARS (Revision of an Open-Source TARS Open-AI Project)

December 2024-March 2025

- Revised and redesigned open-source project that replicated TARS from *Interstellar* with Artificial Intelligence integrated.
- In charge of building a Proof-of-Concept Model (POC) for testing and solving mechanical, electrical and software issues.
- Revised assembly and redesigned custom fittings to build a scaled-up version with integrated AI and voice features.

Distributed Control of Lower Earth Orbit (LEO) Satellite Constellations

November 2024-December 2024

- Worked in a group setting to design and iterate a satellite swarm controller for Low Frequency Cosmology Missions.
- Developed equations of motions and used stability criterion to develop and design a controller in MATLAB. **(MATLAB)**
- Integrated MATLAB controller into Orbital STK to analyze response and validate feedback analysis. **(MATLAB, STK)**

MAE 565 Rocket Propulsion – RS-25 Feed Analysis

December 2024-December 2024

- Examined the feed system of the RS-25 engine, used in the Space Shuttle and NASA's Space Launch System (SLS) to estimate thrust, nozzle efficiency, and specific impulse values. **(MATLAB)**

Senior Capstone Project – Automated Bike Bus Rack

August 2023 – May 2024

- Developed an automated bike rack system for public buses in the city of Phoenix, Arizona.
- Worked with ADOT to design our system based on government regulations on public transportation.
- Presented multiple design reviews, PDR's and CDR's over the semester with industry professionals.

Formula SAE - Brakes and Rotors Subsystem

January 2022 – May 2023

- Designed remote reservoirs to increase fluid capacity prevent shock fading or overheating in brakes **(Solidworks)**
- Designed custom Brembo brakes and rotors to later be cut in a machine shop. **(CNC, CAM)**
- Prototyped system of remote reservoirs to feed into master cylinders which provide fluid for brake circuit.

MemoryGlass – Systems Integration Engineer

August 2021 – August 2022

- Designed eyewear attachment that displays names utilizing facial recognition to help patients with Alzheimer's.
- Designed components for the eyewear attachment such as the electrical components, glasses, OLED display, and a case and clamp system using Solidworks, which was later used for fabrication. **(Solidworks)**
- Used Circuit Diagramming software such as Eagle to map transparent O-led to Arduino Uno board. **(Eagle)**
- Used graphics libraries in Arduino IDE to input and control drawing outputs in a graphical user interface.

Pulsed Plasma Thruster – Mechanical Lead

August 2021 – August 2023

- Developed 8 thruster attitude control system satellite prototypes using pulsed plasma thrusters for space missions.
- Designed mechanical CubeSat framework and structures utilizing SolidWorks. **(SolidWorks)**
- Used Arduino boards and vacuum gauge sensor to get serial input reads on pressure inside the vacuum.

First Robotics Competition (Team 6479)

Fall 2016 – Spring 2020

- Won first place in the state competition and traveled to Houston for the international tournament.
- Collaborated in a team to build a robot that can shoot a ball autonomously as well as build an elevator system.
- Prototype and CAM to machine parts for our robot using 7-axis CNC **(SolidWorks, Fusion 360)**
- Used GD&T to create drawings into complex electromechanical models to perform tolerance analysis.