

Animesh Rajvanshi

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EDUCATION

Bachelor of Science in Mechanical Engineering

December 2024

Arizona State University, Tempe, AZ

GPA: 3.48/4.0

Engineer In-Training (EIT), Arizona State Board of Technical Registration

March 2025

TECHNICAL SKILLS

CAD & CAE Tools: SolidWorks • Onshape • Fusion • ANSYS • Fluent • Blender • OpenRocket • CIVA NDT

Languages & Platforms: MATLAB • C • Python • Arduino • Raspberry Pi • JavaScript • LabView

WORK EXPERIENCE

Autonomous Systems Engineer, Anoop Singh Robotics

July 2025 - Present

Arizona State University

Tempe, AZ

- Developed a carbon fiber quadcopter for vision-based SLAM incorporating Raspberry Pi 4, SpeedyBee F405 controller, ArduPilot firmware, and mounts designed in Fusion for autonomous position hold and waypoint navigation
- Implements EKF/Particle Filter algorithms in Python and MATLAB for online SLAM, fusing IMU/camera data

Nanoelectronics Metrology & Failure Analysis Engineer, Celano Lab

May 2024 - July 2025

Arizona State University

Tempe, AZ

- Simulated scanning acoustic microscopy (SAM) on industry leading chiplets, modeled in Solidworks, using CIVA NDT software, identifying defects through proprietary scaling models while preserving wave physics
- Reviewed literature on hybrid bonding, analyzing failure modes and mitigation strategies in advanced 3D packaging

PROJECT EXPERIENCE

Amateur Rocket & Payload Engineer, High Powered Rocketry

May 2025 - Present

Tripoli Rocketry Association

Tempe, AZ

- Developed modular 3D-printed rocket platform in Fusion with PETG-CF for body tube, honeycomb infill, and PPA-CF for motor mount, with threaded interfaces for reusability and Raspberry Pi camera for on-board video capture
- Assembled LOC Patriot rocket with through-the-wall fins, and H100W-14A motor and black powder ejection
- Simulated flights for both rockets in OpenRocket for stability optimization (>1 caliber); used ANSYS Mechanical to test structural integrity, and CFD in Fluent for airflow analysis, and high-speed heating of 3D-printed rocket
- Designed biomimetic ESP32 based telemetry payload, incorporating Drela HT12 airfoil for aerodynamic descent

Moon Presence Project Manager, HeroX

August 2020 - Present

Personal Project

Tempe, AZ

- Led lunar power system design for NASA's Watts on the Moon challenge, adapting rover with a trencher-inspired mechanism in SolidWorks/Blender to deploy scalable cable networks resilient to thermal extremes, regolith abrasion
- Expanded infrastructure with in-situ 40-100 kW nuclear fission integration, incorporating plasma boring for lava tube habitats, ISRU regolith extraction, and electrostatic dust mitigation at TRL 4-5
- Developed compliant, lightweight wheel/tire prototypes for MicroChariot rover (19-inch wheels, 100-lb payload), enhancing shock absorption and durability in lunar regolith for NASA's Rock and Roll Challenge

Hyperspectral CubeSat Project Manager, Sun Devil Satellite Laboratory

July 2021 - July 2022

Arizona State University

Tempe, AZ

- Led a team in establishing a CubeSat conceptual design for cataloging ocean plastic using hyperspectral camera, leveraging SWIR absorption peaks (1215 nm and 1410 nm) for detection in 500 km sun-synchronous orbit
- Integrated Iridium terminal, in Onshape, for data relay enabling independent operations without ground stations

OTHER ACTIVITIES

Purple Belt, Brazilian Jiu Jitsu

September 2021 - Present

GD Jiu-Jitsu Academy

Tempe, AZ

- Volunteers to support the kids and teens program, teaching self-defense and emotional resilience in the spirit of play
- Competes actively with a strong tournament record: 4 Gold, 2 Silver, 4 Bronze medals, and 1 MVP Competitor Award

CERTIFICATIONS & LICENSES

- Astrophysics Xseries Course, *Australian National University, edX*
- Certified SolidWorks Professional (CSWP), *Dassault Systèmes - SolidWorks Corporation*
- Amateur Extra Class Amateur Radio License, Call Sign: KM7BER, *Federal Communications Commission*