

# 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 • AutoCAD • ANSYS • Fluent • CIVA NDT • Blender

**Languages & Platforms:** MATLAB • C • Python • JavaScript • Arduino • LabView

## WORK EXPERIENCE

### Nanoelectronics Metrology & Failure Analysis Researcher, Celano Lab

May 2024 - Present

Arizona State University

Tempe, AZ

- Implements scanning acoustic microscopy (SAM) in simulation using CIVA NDT software, on chiplets from industry leading vendors, to identify defects, with a proprietary scaling model ( $k=1000$ , 1 GHz to 1 MHz, for 10  $\mu\text{m}$  features) while preserving wave physics equivalence ( $d/\lambda$ )
- Creates CAD models for SAM simulation and 3D assets for supplementing the lab's research papers and projects
- Reviews literature on Cu-Cu hybrid bonding and failure mode challenges and solutions in advanced 3D packaging

### Executive Learning Assistant, Fulton Schools of Engineering Tutoring Centers

November 2021 - December 2024

Arizona State University

Tempe, AZ

- Aided engineering students' progress by tutoring courses such as control theory, differential equations, dynamics, fluid and solid mechanics, amongst others; awarded Tutor of the Month, January 2023
- Hosted trainings for junior tutors, and prepared hiring assessments and conducted interviews for fresh applicants

## PROJECT EXPERIENCE

### Team Member, Wrong-Way Driving Prevention System MEE Capstone

January 2024 - December 2024

Arizona State University

Tempe, AZ

- Contributed in designing, machining, and assembling a mechanical wrong-way driving prevention system, comprised of an active speed hump made of rows of depressible stainless steel ramps
- Engineered an Arduino Uno R3 based subsystem to discern driving direction by checking ramp depression order
- Collaborated on SolidWorks CAD modeling and ANSYS finite element analysis, achieving safety factors of 2.5-3.3 under 1000 lbf loads, validated through low-speed prototype tests

### Hyperspectral CubeSat Project Manager, Sun Devil Satellite Laboratory

July 2021 - July 2022

Arizona State University

Tempe, AZ

- Established a scientific mission, to catalog ocean plastic pollution, for a CubeSat equipped with a hyperspectral camera (1000-1700 nm, 50 m GSD) by managing a team of competent engineering students
- Developed a conceptual design leveraging SWIR absorption peaks (1215 nm, 1410 nm) for plastic detection, and a theoretical framework for a 500 km sun-synchronous orbit deployment
- Refined the proposal, integrating an Iridium terminal for data relay, eliminating ground station dependency

### Sub-team Lead, Heat Resilience Challenge (EPICS)

August 2020 - May 2021

Arizona State University

Tempe, AZ

- Collaborated with a community partner to research heat mitigation solutions for Westwood mobile home residents, analyzing portable ACs, misters, and solar panels using Analytic Hierarchy Process (AHP) for cost and efficiency
- Designed an evolved mobile home unit in SolidWorks with intake and exhaust fans for optimized airflow, inspired by desktop PC cooling systems, and confirmed temperature reductions using ANSYS fluid flow simulation

## OTHER ACTIVITIES

### Blue Belt, Brazilian Jiu Jitsu

September 2021 - Present

GD Jiu-Jitsu Academy

Tempe, AZ

- Volunteers to assist the kids and teens program, teaching self-defense and emotional resilience in the spirit of play
- Active competitor with a comprehensive tournament record (4 Gold, 2 Silver, 4 Bronze, 1 MVP Competitor award)

## CERTIFICATIONS

- Fundamentals of Engineering (FE) Exam, *National Council of Examiners for Engineering and Surveying*
- Astrophysics Xseries Course, *Australian National University*, edX