ADARSH RAJPUT

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EDUCATION

B.Tech (Aerospace Engineering) June 2022 - June 2026

VIT Bhopal University, Sehore, MP 8.44 CGPA

Relevant coursework: Fluid mechanics, Aerospace Structures, Aerodynamics

TECHNICAL SKILLS

Design & Modeling Tools: Fusion360, Simscale, OpenFOAM, SOLIDWORKS

Certifications: NPTEL Aircraft Design (April 2024), NPTEL Computational Fluid Dynamics (May 2025)

ACADEMIC PROJECTS

Self- Balancing gyroscopic cycle Fall 2024

- **Designed** key components in Fusion360, including the structural frame, wheels, and handlebar.
- Led the detailed **3D design** of the chain sprocket and drivetrain assembly for a **9 member team**.
- Utilized advanced CAD methodologies to optimize the prototype's mass distribution.
- Focused on design iteration to ensure structural balance and manufacturability of the product.
- Conducted component-level finite element analysis (FEA) to evaluate stress distribution across components.
- Validated the structural integrity and performance margins of the design under simulated load conditions.

Infrared Signature Suppression System for Helicopter Winter 2024

- Developed team schedule, including quality measurement for each major milestone.
- Designed a spectrally selective solar absorber and thermal infrared suppression system.
- Focused analysis on the utility of hollow cylindrical microstructures for heat dissipation.
- Modeled the thermal IR suppression system for an Mi-17 V5 tail section using Fusion360
- Executed thermal FEA by meshing over 500,000 elements to analyze signature reduction performance.
- Researched and compared 6 existing IR countermeasures technologies (film-cooled tailpipes, BHO).

PERSONAL PROJECTS

Design and Analysis of Solid Rocket Motor Casing Aug 2025

- Designed and analyzed a solid rocket motor casing using thin-walled pressure vessel theory.
- Created a detailed SOLIDWORKS CAD model with realistic nozzle interface constraints.
- Performed static FEA to evaluate stress, deformation, and safety factor under internal pressure.
- Validated analytical calculations through numerical simulation results.
- Evaluated material selection and structural safety margins for preliminary aerospace design.
- Selected aerospace-grade materials (Al 6061-T6) based on strength-to-weight ratio, manufacturability, and structural reliability.

ACTIVITIES

Pre-Conference Workshop on Gas Turbine Technologies | ICSATI 2025

- Volunteered in a specialized workshop focusing on the latest advancements and innovations in gas turbine systems.

RC Plane Design & Fabrication Workshop | Aerogo India

- Gained 16 hours of practical expertise in radio-controlled aircraft development.
- Mastered core competencies in RC vehicle design, component assembly, and system operation.