

Piyush Kumar

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<https://drive.google.com/file/d/1gfs0g52vtNKf4oIF3QCI0rVNjHeoEAP5/view?usp=sharing>

EDUCATION

Vellore Institute of Technology, Bhopal

Aug 2022 – Ongoing

B.Tech in Aerospace Engineering, CGPA: 8.41/10

TECHNICAL & ENGINEERING SKILLS

- Proficient in 3D CAD modeling (Fusion 360, CATIA, SolidWorks) for aerospace and renewable energy applications.
- Designed and optimized drones: a foldable multi-purpose drone (DJI Mavic clone) and a nano-sized surveillance drone for commercial and defense use.
- Experienced in FEA, CFD, and structural validation for UAVs and lightweight systems.
- Skilled in technical documentation, design reviews, and prototype testing.

WORK EXPERIENCE

Drone Frame Designer Intern, AirM Pvt. Ltd. (Remote)

Mar 2025 – Aug 2025

- Designed a foldable drone frame (DJI Mavic clone) in Fusion 360, achieving 75% cost reduction.
- Conducted FEA in CATIA to validate structural support for 2 kg payload.
- Led a small team, coordinated tasks, and managed design reviews.

Research Intern, Aeronautical Society of India, Bangalore (On-site)

Oct 2024

- Hands-on exposure to UAV systems and aerospace technologies during a one-week program.
- Learned industry-standard aeronautics tools and flight simulation workflows.

UNIVERSITY PROJECTS

Air-Breathing Hypersonic Scramjet Engine

2024

- Developed theoretical models for airflow and fuel injection to sustain combustion at Mach 8(approx.).
- Optimized inlet and combustion-chamber geometry using ANSYS Fluent.
- Built lab-scale prototypes, performed high-speed wind-tunnel tests, and validated via STK simulations.

Compact Foldable Drone (DJI Mavic Clone)

Mar 2025 – Ongoing

- Engineered ultra-compact drone frame in Fusion 360, reducing cost by 75% while preserving performance.
- Re-designed fold-arm mechanism and central fuselage; performed FEA for 2 kg payload support.
- Integrated basic computer vision into the flight controller to detect traffic signals and hospital markers.

Autonomous Drone Mission Planner with Visual Route Optimization

2025

- Created a mission planner that parses route checkpoints from MS Excel and converts them to drone waypoints.
- Integrated onboard camera to recognize road signs (e.g., traffic lights, “+” hospital markers) and adjust flight paths autonomously.
- Simulated complete missions in Ansys STK to validate route optimization and automated behaviors.

Wind Turbine Performance Analysis & Python Tool Development

2025

- Analyzed real-world wind turbine field data to validate efficiency and power output.
- Built Python-based tools for automating data cleaning, visualization, and performance prediction.
- Proposed improvements in validation methods to support future renewable energy frameworks.

ACTIVITIES & ACHIEVEMENTS

- 3rd Prize, Rocket Launching Event (KARMAAN), designing a custom rocket (VIT Bhopal).
- Industrial visit to mechanical and automobile plants in Chennai, gaining hands-on experience.
- Core Technical Member, Blockchain Club, VIT Bhopal (Jul 2023 – Present): Frontend development and event coordination.

ADDITIONAL

Technical Skills: Java, SQL, Python; Fusion 360; CATIA; AutoCAD; Ansys STK; Git; MS Excel.

Certifications: VITyarthi Certification in Python & Fundamentals of AI & ML; Ansys STK Software Course; Agnirva Space Internship; Agnirva Space Internship: NPTEL Elite Certificate(Aircraft Design and Computational Fluid Dynamics).

Languages: English (fluent); Hindi (native).