Piyush Kumar

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EDUCATION

Vellore Institute of Technology, Bhopal *Aug 2022 – Ongoing*
B.Tech in Aerospace Engineering, CGPA: 8.41/10

TECHNICAL & ENGINEERING SKILLS

- Practical knowledge of AI and computer-vision for embedded and edge systems (model selection, lightweight inference, and integration for perception tasks).
- Strong numerical modelling and simulation skills (FEA and CFD workflows: mesh setup, boundary conditions, solver runs, and result-driven design iteration).
- Proficient in Python for data pipelines, analysis and visualization (NumPy, pandas, matplotlib) to automate validation and generate performance insights.
- Experience with data management and reporting: MySQL integration for experimental datasets and stakeholder-ready Excel reporting (pivot tables, charts, basic macros).

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 – Apr 2025*

- 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.

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 SMS, 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).