# Pranaya Mehrotra

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LinkedIn | GitHub |

## EDUCATION

**VIT Bhopal University, Madhya Pradesh**, B.Tech. Aerospace Engineering — Oct 2027

- GPA: 3.6/4.0 CGPA: 8.86/10

**Boys' High School and College, Prayagraj | Uttar Pradesh** — May 2023

- 12th Standard, ISC Board, Cumulative Percentage: 89%

**Boys' High School and College, Prayagraj | Uttar Pradesh** — May 2021

- 10th Standard, ICSE Board, Cumulative Percentage: 94%

## EXPERIENCE

**Team Captain, Team Tarkshya** — Aug 2024 – Present

- Appointed as an avionics team member of Team Tarkshya.
- Promoted to team leader position.
- As Team Captain of Team Tarkshya, I lead a multidisciplinary group of aerospace enthusiasts to design, develop, and test innovative avionics and propulsion systems. Under my captaincy, I mentored 16 students. I oversee project planning, technical development, and participation in competitions while ensuring effective collaboration among team members. My role also involves mentoring juniors, managing resources, and representing the team in formal meetings and presentations.
- Under my captaincy, I initiated a rover and robotics division, namely "Tarkshya - R.R.D.", and increased the team from 16 members to 28 members.

**Editor, AnuBrahman - Newsletter** — Aug 2024 – Present

- Appointed as an AnuBrahman writer,.
- Promoted to Editor position.
- As Editor of AnuBrahman, I co-lead a multidisciplinary group of aerospace enthusiasts to research, write, and design an aerospace newsletter. I oversee project planning, research development, and participation in competitions while ensuring effective collaboration among team members. My role also involves mentoring juniors, managing resources, and representing the team in formal meetings and presentations.

## PUBLICATIONS

**Enhancing Solar Energy Capture in Swarm Satellites With A Hybrid Particle Swarm Optimization Gravitational Search Algorithm Approach** — May 2025

Kavya Dichwalkar,Shivanandanan P,***Pranaya Mehrotra***, Vaibhavi Rajguru

GLEX-2025,14,IP,14,x93861

## PROJECTS AND RESEARCH EXPERIENCE

**Moving Rocket Fins** — Aug 2024 - Dec 2024

GitHub

- Manufactured active stabilization fins for a model rocket that enhanced flight stability by 40
- Developed and flashed custom P.I.D. control firmware (Arduino), achieving <0.5° deviation in fin response time.
- Tools Used: Arduino IDE, SolidWorks

**Bi-copter** — Feb 2025 - Aug 2025

GitHub

- Spearheaded the design of a coaxial bi-copter, pioneering a new technology for thrust vector control with a custom ESP 32 flight computer to achieve a stable 10 m hover.
- Designed and formulated a novel bi-copter structure, using PLA 3-D printing to reduce component weight by 25% compared to traditional methods.
- Tools Used: Arduino IDE, SolidWorks, E-Calc

**Aeroshell: Multi-disciplinary Optimization of Hybrid Composite Radomes for Enhanced Performance: Specially Designed for Military UAVs** Aug 2025

Document link - CAD + Analysis

- Developed a novel CAD design and performed Steady-State Thermal Analysis, Transient Thermal Analysis, Static Structural Analysis and Computational Fluid Dynamics (CFD) Analysis of Aeroshell, an in-house developed military radome.
- Addressed the challenges of RF transparency, heat management, and aerodynamic stability, in a military radome.
- Innovation in material along with aerodynamic stability, thermal performance,physical validation and development of computational models.
- Tools Used: Fusion 360, SolidWorks, ANSYS Fluent.

**Glider** Aug 2025 - Sep 2025

GitHub

- Performed rigorous mathematical operations to define the glider's dimensions, maintaining a dimensional accuracy of 0.3 cm and contributing to a 1:24 glide ratio.
- Used Nichrome wire and X.P.S. Foam to manufacture the glider and perform successful flights.
- Tools Used: SolidWorks

**Tilt Rotor U.A.V.** Sep 2025 - Oct 2025

GitHub

- Manufactured a new-age U.A.V., with a novel design and tested its flight with a 5 m radius range.
- Used tilt rotor mechanism, to perform both vertical take-off and landing, and gliding in air, innovating and incorporating a new-age system.
- Tools used: SolidWorks

## ACHIEVEMENTS

**Invitation to Attend the CEAS-AIDAA Joint Conference** Dec 2025

**Council of European Aerospace Societies (CEAS) and the Italian Association of Aeronautics and Astronautics (AIDAA)**

- Led Team Tarkshya - NYX with Project Amrut, a water propulsion system for small satellites.
- Received an invitation and was awarded full scholarship to attend the CEAS-AIDAA Joint Conference in Turin, Italy.

**Best Project - Project Expo (Industry Conclave 2024, VIT Bhopal University)** May 2024

- Recognized for developing ABHIMAY, an innovative flight recorder system with dual-use applications beyond aerospace.
- Stood out for strategic business planning, highlighting versatility and market potential in various industries.
- Awarded for excellence in innovation, demonstrating significant impact at the Industry Conclave.

## CO-CURRICULAR

**International Conference for Sustainable Aerospace Technology and Innovation**

Coordinated the conference and attended national and international personalities of aerospace in the conference.

**RC Plane Manufacturing Workshop**

Attended a 2-day RC Plane Manufacturing Workshop. Manufactured and tested a self made RC Plane.

**Awadh Hindi Toastmasters Club**

Won a poetry competition titled, "Dhai Aakhar Prem Ked."

## ADDITIONAL

**Skills:** Python, Java, CAD designing, CFD, PCB designing, MATLAB, S.T.K., Arduino IDE, NOTION, Canva, xflr-5, Easy EDA

**Certifications:**

- Wind Energy (Coursera)
- Engineering Project Management: Initiating and Planning (Coursera)
- Python (VITyarthi)
- NPTEL Online Certification in Aircraft Design (Funded by MoE, Govt. of India)