

TANMAY TIWARI

Aerospace Engineering · Systems & Computational Modeling · Defense Aspirant (CDS / AFCAT)

Bhopal, MP | +91 74832 70487 | itanmaytiwari37@gmail.com | github.com/tanmaytiwari37 | linkedin.com/in/itanmaytiwari37

PROFILE

Systems-oriented Aerospace Engineering undergraduate with hands-on experience in **computational modeling**, **Python-based engineering simulation**, and **machine learning pipelines**. Builds modular, analytically-rigorous projects spanning atmospheric physics, behavioral analytics and recommendation systems. Demonstrated competitive discipline across five years of athletics; actively preparing for the **Indian Defense Services (CDS / AFCAT)** alongside aerospace coursework.

EDUCATION

VIT Bhopal University

B.Tech, Aerospace Engineering

Relevant coursework: Aerospace Fundamentals, Engineering Mathematics, Python for Engineers, SolidWorks (CAD), Thermodynamics.

2024 — Present

Kothri Kalan, MP

New Light School, Uttarakhand

Class XII — 80% · Class X — 90.04% (Distinction)

Concluded 2024

TECHNICAL SKILLS

Programming	Python (primary), C / C++, MATLAB (basic)
Engineering	SolidWorks part modeling, ISA atmospheric modeling, thermodynamic lapse-rate analysis
Data & Viz	NumPy, Pandas, Matplotlib, Streamlit; data cleaning, feature engineering, plot synthesis
AI / ML	Scikit-learn, Random Forest classifiers, supervised pipelines; Generative AI fundamentals (Codebasics)
Tools	Git & GitHub, VS Code, Jupyter, Google Colab, Linux/Bash, LaTeX, Markdown, FastAPI
Soft	First-principles reasoning, technical documentation, cross-functional teamwork, self-directed execution

CERTIFICATIONS

Python Essentials — Vityarthi, VIT Bhopal University	Dec 2025
Fundamentals of AI & ML — Vityarthi, VIT Bhopal University	Apr 2026
Gen AI & Data Science Bootcamp — Codebasics	<i>Ongoing</i>

TECHNICAL PROJECTS

Student Productivity Classifier — Random Forest on Lifestyle Data

[GitHub ↗](#)

Python · Scikit-learn · Pandas · NumPy

- Engineered a **3-class supervised classifier** (Low / Medium / High) using **Random Forest**, surfacing **non-obvious lifestyle-to-productivity correlations** across sleep, study, screen-time and exercise features through a stratified train-test pipeline.

Aerospace Projects — ISA Atmospheric Calculator (0–86 km)

[GitHub ↗](#)

Python · NumPy · Matplotlib · Atmospheric Physics

- Implemented the **International Standard Atmosphere model** across troposphere, stratosphere and mesosphere — computing **temperature, pressure and density profiles** by encoding lapse-rate transitions and hydrostatic equations in vectorized NumPy, with Matplotlib visualizations validated against published ISA reference tables.

Vibe-Tunes — Emotion-Based Music Recommender

[GitHub ↗](#)

Python · Streamlit · Pandas · Feature-Space Clustering

- Architected a **mood-to-music recommendation engine** mapping user-selected emotional states onto audio-feature dimensions — **tempo, energy, valence, danceability** — through cluster-and-filter pipelines surfaced via an interactive Streamlit UI.

Habit Tracker — Streak Analysis & Behavioral Visualization

[GitHub ↗](#)

Python · Matplotlib · Object-Oriented Design

- Built a **modular, OOP-based habit-tracking system** with strict separation between logging, analytics and visualization layers — enabling **streak continuity tracking, completion-rate computation** and Matplotlib-rendered behavioral trend plots.

LEADERSHIP & ATHLETICS

- Multi-sport competitor, 2017–2022:** 1st — 200m Sprint (2021–22), District Badminton, Inter-school Kabaddi; 2nd — 100m Sprint (2020–21). Six consecutive years across Kabaddi, Kho-Kho and Badminton — **building the endurance, discipline and team-coordination baseline suited to defense-services screening.**
- Team PHOENIX, Health Hackathon (2025):** co-designed emergency-response system logic for a healthcare prototype, owning **workflow mapping, edge-case enumeration and operational documentation** across a 5-member multidisciplinary team. Actively preparing for **CDS / AFCAT** alongside engineering coursework.