

Piyush Vats

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PROFILE

Final-year BCA student specializing in Data Science & ML. Builds end-to-end AI products — from real-time anomaly-detection engines and NLP pipelines to React dashboards and containerized cloud deployments. Consistently ships production-grade systems independently.

TECHNICAL SKILLS

Languages: Python, JavaScript (React.js), SQL, PHP, C++, HTML / CSS

ML & Data: Scikit-learn, Pandas, NumPy, Hugging Face Transformers, Gemini API, Plotly, Streamlit

Backend & DB: FastAPI, SQLAlchemy, PostgreSQL (Supabase), SQLite, WebSockets, RESTful APIs

DevOps & Cloud: Docker, Git / Git LFS, Render, Streamlit Cloud, GCP

PROJECTS

SENTINEL — Workforce Integrity Platform · Python · FastAPI · React · Supabase 2025

- **Full-stack system:** Windows desktop agent (Python) + FastAPI/PostgreSQL backend + React admin dashboard communicating over REST & WebSockets in real time.
- **Behavioral anomaly engine:** detects mechanical typing, mouse-jiggler devices, suspicious paste patterns, and idle abuse using statistical analysis of input metadata — privacy-safe, no keylogging.
- **Local-first sync architecture:** detections persist to SQLite instantly (offline-safe), then flush to Supabase via a background thread with retry logic — zero data loss on network failure.
- Stack: pynput · asynpcg · CustomTkinter · FastAPI · SQLAlchemy · Supabase · React · Tailwind · Recharts

DataSense AI — Conversational Data Analysis Tool · Python · Gemini API · Docker · Render Aug 2025

- **Natural-language to Pandas:** translates plain-English questions into executable analysis code via the Gemini API — no coding required for the end user.
- **Automated EDA suite:** auto-generates correlation heatmaps, distribution plots, and outlier analysis with interactive Plotly charts inside a multi-dataset Streamlit workspace.
- **Production deployment:** containerized with Docker, managed 400 MB+ model files via Git LFS, deployed on Render with health checks and environment-scoped config.
- Stack: Python · Streamlit · Gemini API · Pandas · Plotly · Hugging Face · Docker · Render

SONAR — Music Recognition System · Python · DSP · FastAPI · React · Spotify API Nov 2025

- **Fingerprinting engine from scratch:** spectrogram generation → constellation-map peak detection → combinatorial hash creation → inverted-index lookup, achieving sub-second ID on noisy audio.
- **Full-stack:** FastAPI backend stores & queries millions of hashes; React + Tailwind UI supports live mic capture, album art, and Spotify / YouTube metadata integration.
- **Performance:** CUDA-accelerated DSP via torchaudio for real-time processing; reliable recognition validated against noisy real-world audio.
- Stack: Python (NumPy · SciPy · torchaudio + CUDA) · FastAPI · React.js · Tailwind · Spotify API · YouTube API

EDUCATION

B.C.A. — Data Science & Machine Learning IITM, GGSIPU Delhi 2023 – 2026

GPA: 9.3 / 10 • Top 5% of batch • University Subject Topper — Web Based Programming

CERTIFICATIONS

Summer Training — Data Science & ML (Jun–Jul 2025) • MERN Stack Winter School (Jan 2025) • Google Analytics Certification (Dec 2025) • Power BI Workshop — DUCAT (Feb 2025)