

Vats Pratap Singh

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TECHNICAL SKILLS

Programming: Python, C++

Machine Learning: Scikit-learn, TensorFlow, Keras, XGBoost

Data Science: Pandas, NumPy, Data Cleaning & EDA

Databases: PostgreSQL, MySQL, MongoDB

Tools & Platforms: GitHub, Jenkins, AWS

EDUCATION

Vellore Institute of Technology, Bhopal

Aug 2022 – Aug 2026

B.Tech in Computer Science and Engineering (Cloud Computing and Automation)

CGPA: 8.42

PROJECTS

VaultSphere: Multi-Tenant SaaS with ML Anomaly Detection

May 2025 – Aug 2025

- Engineered a full-scale **multi-tenant SaaS platform** ensuring tenant data isolation and scalability using **AWS EC2, S3, and RDS**.
- Developed **Node.js + Express backend** with JWT authentication, role-based access control (RBAC), and audit logging.
- Integrated **LSTM Autoencoder and Isolation Forest** models for real-time anomaly detection in user activity logs.
- Deployed infrastructure using **CI/CD (GitHub Actions)** and implemented **auto-scaling** for high availability.
- Built an analytics dashboard in **React.js** for visualizing tenant-wise security insights and anomaly trends.

TrendSage: Automated Market Insights Pipeline

Jan 2025 – Mar 2025

- Built an **n8n-based data pipeline** with **Node.js & Supabase** for automated market/competitor analysis.
- Integrated **Twitter, Yahoo Finance, Google News APIs** and web scraping for multi-source data collection.
- Applied **OpenAI summarization & sentiment analysis**; delivered insights via **Slack/Telegram reports**.
- Automated workflows with daily **cron scheduling**, ensuring consistent data refresh and reporting.
- Developed dashboards for **real-time visualization** of trends and competitor activity.

CortexQA: AI-Powered PDF Question Answering System

Feb 2025 – Mar 2025

- Built an end-to-end **PDF Question Answering** system enabling natural-language queries with **source-grounded** responses.
- Extracted text using **pdfplumber** and applied **overlapping chunking** to maintain contextual consistency.
- Generated embeddings with **Sentence-Transformers (all-MiniLM-L6-v2)** and implemented a **FAISS** index for fast semantic search.
- Integrated **deepset/roberta-base-squad2** for accurate, context-aware answer generation.
- Developed an interactive **Streamlit UI** with adjustable chunk size, overlap, and retrieval parameters.

TerraTech: Crop Price Forecasting

Sept 2024 – Jan 2025

- Developed Flask web app using **LSTM & XGBoost** for hybrid crop price forecasting.
- Built interactive UI for data upload, model selection, and **real-time predictions**.
- Deployed dashboards for trend detection, volatility analysis, and policy insights.
- Provided **actionable recommendations** for farmers, consumers, and policymakers.

NeuroDetect: AI-Powered Parkinson's Detection

Apr 2024 – Jun 2024

- Designed ML system using **SVM, KNN, Random Forest, Decision Trees** on speech biomarkers.
- Achieved **87% accuracy** (Kaggle dataset) and **81% accuracy** (Google dataset) with KNN.
- Performed extensive **feature engineering & model evaluation**; built real-time prediction pipeline.
- Addressed **class imbalance issues** in the larger dataset, improving model generalization.

CERTIFICATIONS

OCI Certified Generative AI Professional

OCI Certified AI Foundations Associate

OCI Certified Developer Professional

IBM DevOps Fundamentals