Abhinav Dixit

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# Technical Skills

C++/C — Python — MySQL — MongoDB — Flask — HTML/CSS — TensorFlow — Scikit-learn — SVM — CNN — PCA — Git — JavaScript — Machine Learning — Seaborn

# Projects

**Cervical Cancer Risk Prediction (ML)** *Python, SVM, PCA, GWO* Engineered a sophisticated machine learning pipeline to enhance diagnostic efficiency for cervical cancer by automating cytology image analysis. Leveraged a ResNet-50 CNN for deep feature extraction and applied PCA to drastically reduce data dimensionality from 76,000 to 1,000 features, optimizing computational performance. Implemented a Grey Wolf Optimizer (GWO) to fine-tune the SVM classifier, successfully addressing class imbalance and achieving 99% predictive accuracy. This system demonstrates significant potential as a clinical decision support tool to accelerate diagnostic timelines and improve early-stage detection rates.

# S&P 500 Economic Trends Analysis *Python, Pandas, Matplotlib, Seaborn*

# Engineered an end-to-end data analysis project to uncover economic trends of S&P 500 companies. Leveraged Python's BeautifulSoup and Requests libraries to programmatically scrape raw data from web sources. Executed comprehensive data cleaning and wrangling using Pandas to handle inconsistencies, format data types, and ensure data integrity for analysis. Performed in-depth exploratory data analysis (EDA) to identify key patterns and correlations between economic indicators. Developed a suite of compelling visualizations with Matplotlib and Seaborn to effectively communicate insights, demonstrating a strong command of the entire data analysis lifecycle from acquisition to presentation.

**VITMed Online Medical Portal** *MERN*

# Architected and developed a full-stack medical portal using the MERN stack to streamline healthcare services for the VIT Bhopal campus community. Engineered a robust backend with Node.js and Express.js, designing RESTful APIs and an optimized MongoDB schema that significantly improved data retrieval times. On the frontend, crafted a responsive, mobile-first interface using React and Material-UI, implementing a role-based dashboard that allowed patients to book appointments and access records, while enabling doctors to manage schedules efficiently. This solution enhanced usability and successfully reduced the administrative workload on medical staff.

# Education

**VIT Bhopal University** (2022–26) — B.Tech CSE, CGPA: 8.15/10

**Sunbeam English School Bhagwanpur** (2022) — CBSE, 87%

# Certifications

MongoDB Database Administrator (MongoDB University) — Oracle Data Science Professional (Oracle)