Khush Kedawat

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Technical Skills

Python — JavaScript — C++ — MERN (MongoDB, Express, React, Node.js) — Flask — HTML/CSS — Scikit-learn — SVM — CNN — PCA — Git — MySQL — Arduino — Linux

Projects

Cervical Cancer Risk Prediction (ML) *Python, SVM, PCA, GWO*

Developed a predictive system integrating **deep learning feature extraction** (ResNet-50 CNN), **dimensionality reduction** (PCA), and a **Support Vector Machine optimized with Grey Wolf Optimizer**. Trained on **Herlev, SIPaKMeD, and Mendeley LBC datasets**, reducing feature vectors from 76k to 1k, enabling faster computation without losing accuracy. Achieved **99% accuracy** with strong ROC–AUC and precision–recall, addressing class imbalance and improving model robustness. This work highlights potential for **early-stage cancer detection**, supporting pathologists with automated cytology screening tools and contributing towards real-world **clinical decision support systems**.

Smart Irrigation System (IoT + ML) *Arduino, Python*

Designed and deployed an **IoT-enabled irrigation system** using soil moisture and temperature–humidity sensors integrated with Arduino/NodeMCU. Collected time-series environmental data and trained an ML model to predict irrigation schedules, reducing **water usage by 30%**. Built a relay-based actuation system to automate water pumps, ensuring crops received optimal hydration. A web-based dashboard provided real-time monitoring, alerts, and manual override features. The system demonstrated how **IoT + ML can enhance sustainable agriculture** through intelligent water management.

VITMed Medical Portal *MERN*

Created a **full-stack medical portal** enabling patients to book appointments, access prescriptions, and view medical history, while doctors manage schedules and records through a role-based dashboard. Backend was implemented with Node.js/Express and REST APIs, storing structured data in MongoDB. The frontend was developed in React with Material-UI, ensuring a **responsive, mobile-friendly interface**. Optimized schema design and query handling improved data retrieval times, while clean UI/UX design enhanced usability for both doctors and patients. This project highlights the application of **MERN stack in healthcare systems**.

Music Streaming Platform *MERN, Web Audio API, Cloud*

Developed a scalable **music streaming web application** featuring user authentication, personalized playlists, search, likes, and recommendations. Integrated the **Web Audio API** for smooth playback, volume control, waveform visualization, and crossfade transitions. Backend built with Node/Express served chunked audio streams, optimized with caching and MongoDB indexing. Deployed on cloud infrastructure with CDN support, achieving support for **1000+ concurrent users**. Added an admin console for **analytics, content moderation, and usage insights**. This project combined modern web technologies with **real-time streaming performance**.

Education

VIT Bhopal University (2022–26) — B.Tech CSE, CGPA: 8.37/10
DAV Centenary Public School (2021) — CBSE, 92%

Certifications

MongoDB Basics (MongoDB University) — Data Structures and Algorithms (FACE Prep)