Sambhav Surana

AI/ML Developer | Python Developer

Third-year B.Tech student specializing in AI with hands-on experience in Computer Vision, NLP, and Generative AI. Proficient in Python, NumPy, Pandas, and Scikit-learn with practical knowledge of OpenCV, TensorFlow, and PyTorch. Passionate about building and deploying AI/ML models with experience in data preprocessing, model training, and evaluation. Eager to contribute to innovative AI solutions at Divergent Software Labs.

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Experience

Abhyudaya Coding Club
Club Member
Shri Vaishnav Vidyapeeth Vishwavidyalaya
2024 - Present

- The development of AI-based projects including Time Table Generation system using constraint satisfaction algorithms
- Organized workshops on Python, NumPy, Pandas, and Scikit-learn for club members
- Collaborated with team members on model optimization and performance enhancement

Certifications

Hackathons & Competitions
Hackwave 2.0
Aug 2025

Participated in a 36-hour coding hackathon organized by Echelon Dev Society at CDGI, Indore. Gained hands-on experience in rapid prototyping, teamwork, and problem-solving.

https://hackwave-site.vercel.app/

Introduction to Machine Learning
NPTEL Online Certification –IIT Kharagpur
Jul–Sep 2024

- Achieved Elite Certificate with a consolidated score of **66%**
- Completed an **8-week course** covering fundamental machine learning concepts and assignments

Technical Skills

Programming Languages
Python, JavaScript, SQL, Bash

ML Libraries & Frameworks
NumPy, Pandas, Scikit-learn, TensorFlow, PyTorch, Matplotlib

Computer Vision
OpenCV, Image Processing, Data Augmentation, YOLO, Face Recognition, Object Detection

Deep Learning
CNN, Neural Networks, Model Training, Transfer Learning, Feature Extraction

NLP & Generative AI
LangChain, OpenAI API, Ollama, Text Processing, Query Decomposition, LLM Integration

Deployment & Tools
REST APIs, Git, GitHub, Model Deployment, Gradio, WebSockets

Databases
MySQL, MongoDB, ChromaDB

Web Technologies
React.js, Next.js, HTML/CSS, Tailwind CSS

Development Tools
VS Code, PyCharm, Jupyter Notebook, Git

Operating Systems
Windows, Linux

Education

Sai Shree International Academy
Class 10 (67%)
2021

Sai Shree International Academy
Class 12 (79%)
2023

Shri Vaishnav Vidyapeeth Vishwavidyalaya
CSE (AI-IBM) III Year
B.Tech.
2023 - Present

Projects

Deep Search — AI-Powered Contextual Research Tool

Python + Gradio tool that merges DuckDuckGo results with local Ollama LLMs. An auto-planner breaks a query into sub-questions, runs them in parallel, then returns a fully cited answer (Markdown, CSV, or any JSON schema). Model-agnostic: instantly swaps between Llama 3, Mistral, Phi-3, etc., detected at runtime.

- Developed a research assistant that **integrates web search with local LLM inference** to generate **fully cited Markdown answers**.
- Implemented an **auto-planner** to decompose user queries into sub-questions and **aggregate results for comprehensive responses**.
- Applied NLP techniques for query processing and answer generation

Python, Gradio, Ollama LLMs, DuckDuckGo API, Asyncio, NLP, LangChain

https://github.com/Sambhav242005/Deep-Search

AI Face Detection and Recognition System

An advanced system leveraging deep learning and computer vision techniques to detect and recognize faces in real time using YOLOv11-face, face_recognition, and OpenCV.

March 2023

- Developed a real-time system for **surveillance, access control, and face management** using **YOLOv11-face** for detection and **face_recognition** for feature extraction.
- Implemented **multi-threaded processing** for high-speed video stream handling with **OpenCV**.
- Applied image processing and data augmentation techniques to improve model accuracy
- Enabled **automatic registration of unknown faces** and provided a **UI for labeling and managing recognized faces**.
- Integrated **ChromaDB** to efficiently store and query face embeddings, ensuring **scalable performance on large datasets**.

Face Recognition, OpenCV, Deep Learning, Computer Vision, ChromaDB, Real-time Processing, Face Detection, Face Embedding, Python, YOLOv11-face, Image Processing, Data Augmentation

https://github.com/Sambhav242005/AI-Face-Detect...

Stock Prediction — Time Series AI Model

Linear Regression-based model to forecast stock prices with real-world financial datasets

June 2025

Python | Scikit-learn | Pandas | Matplotlib | NumPy

- Developed a stock prediction tool using linear regression to forecast closing prices based on historical patterns.
- Applied data preprocessing techniques including normalization and feature engineering
- Evaluated model performance using MSE, RMSE, and R-squared metrics

Linear Regression, Stock Forecasting, Time Series, Data Analysis, Scikit-learn, Predictive Modeling, Data Preprocessing, Model Evaluation

https://github.com/Sambhav242005/FUTURE_ML_02

Time Table Generation

An automated system for generating optimized timetables for educational institutions using constraint satisfaction algorithms.

2024 - Present

- Developed a **constraint-based algorithm** to generate optimal timetables considering teacher availability, room constraints, and subject requirements.
- Implemented **conflict resolution mechanisms** to handle overlapping classes and resource allocation.
- Created a **user-friendly interface** for inputting constraints and visualizing generated timetables.
- Applied data preprocessing techniques to clean and normalize input data

Python, Constraint Satisfaction, Optimization Algorithms, Educational Technology, Scheduling, Abhyudaya Coding Club, Data Preprocessing

Languages

English

Hindi

German