

NIRANJAN JHA

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📁 [Portfolio](#)

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SUMMARY

AI/ML Engineer with a solid background in machine learning, python, and web development. Proficient in Python projects and various machine learning libraries.

EDUCATION

USAR, guru gobind singh indraprastha university, Surajmal Vihar
B.Tech - Artificial Intelligence and Machine Learning

2022 – 2026
Surajmal Vihar, New Delhi

COURSEWORK / SKILLS

- Python
- Machine Learning
- Deep Learning
- Artificial intelligence
- SQL
- Front-End
- Data Analytics & Visualization

PROJECTS

Satyadrishti–Deepfake Detection System 🔗 | [Machine Learning, Python, Flask, IDE - VS Code](#) **2025**

- **Objective:** Develop an AI/ML-based solution for detecting face-swap-based deepfake videos, aimed at preserving authenticity in media and supporting cybersecurity, journalism, and digital forensics.
- **Design:** Divided deepfake and real videos into frames and created a labeled dataset. Applied transfer learning using the ResNet50 architecture for binary classification of video frames as real or fake.
- **Real-Time Analysis:** Provides real-time evaluation of video frames and images to identify potential deepfakes.

SignSpeak AI 🔗 | [Python, Computer Vision, Deep Learning, IDE - VS Code](#) **2025**

- **Objective:** To build a system that converts sign language gestures into text and speech using deep learning, aiding communication for deaf and mute individuals.
- **Model Development and Training:** A CNN model was trained on a custom gesture dataset using deep learning. Techniques like augmentation and dropout improved model performance and generalization.
- **Design:** Live video is captured via OpenCV, gestures are classified using the trained model. The output is displayed as text and converted to speech using pyttsx3 or gTTS, with a simple GUI for real-time interaction.

Deepfake-Audio-Recognition 🔗 | [Machine Learning, Python, Flask, IDE - VS Code](#) **2023-2024**

- **Data Preparation and Feature Extraction:** Employ state-of-the-art algorithms to analyze and detect deepfakes with high accuracy, converting audio into spectrograms or MFCC for RNN input.
- **Model Development and Training:** Build and design an RNN (e.g., LSTM or GRU) to process sequential audio features, then train the model to classify audio as real or deepfake.
- **Deployment and Monitoring:** Deploy the model for real-time analysis and continuously monitor its performance, updating as necessary.

Crop Recommendation 🔗 | [Machine Learning, Python, streamlit, IDE - VS Code](#) **2024**

- **Objective:** Build a Crop Recommendation System to help farmers choose the best crop based on environmental factors, enhancing productivity.
- **Design:** Used key parameters like soil nutrients, weather, and rainfall, implementing a RandomForestClassifier for accurate predictions.
- **Integration:** Deployed via Streamlit for user-friendly input and recommendations, with fallback for unmatched conditions.

Face Tracking System 🔗 | [Hardware, IDE - Arduino, VS Code](#) **2025**

- Developed a real-time **Face Tracking System** using OpenCV and Haar cascades for accurate detection and tracking of faces. Designed for applications in surveillance, interactive systems, and gesture-based interfaces, ensuring efficient performance and seamless integration with camera feeds.

Bluetooth controlled car with obstacle avoidance 🔗 | [Hardware, IDE - Arduino](#) **2024**

- Developed a **Bluetooth-Controlled Car with Obstacle Avoidance** combines robotics and wireless communication. Controlled via a mobile app, it moves in all directions and avoids collisions using an ultrasonic sensor. The car adjusts its path automatically if obstacles are detected. Powered by an Arduino board, this project is ideal for security, military, and learning applications.

EXPERIENCE

1. Defence Research and Development Organisation (DRDO)

Jun 2025 – Jul 2025

Machine Learning Intern

Delhi, India

- * During this internship, I worked on an on-site DRDO project titled **Sign-Language-to-Text-and-Speech Conversion Using Deep Learning** using CNN and OpenCV for real-time gesture-to-voice conversion.

2.IIT Roorkee

Apr 2025 – Aug 2025

Research Intern

Delhi, India

- * During this internship at IIT Roorkee, I worked under the guidance of **Dr. Udit Choudhury** on developing interfaced embedded systems using Python and Arduino for customized experimental setups in **biosensing applications**, conducted remotely.

3.University School of Automation and Robotics (USAR)

Aug 2024 – Oct 2024

Machine Learning Intern

Delhi, India

- * During this internship, we studied **Machine Learning** and developed a project utilizing the Support Vector Regression (SVR) model to predict **Stock Market Trends**.This internship is conducted on-site.

TECHNICAL SKILLS

Languages: Python, C++, SQL

Libraries/Frameworks: TensorFlow, PyTorch, Scikit-learn, Keras, Pandas, NumPy, Matplotlib, Seaborn

Databases & Tools: MySQL, Power BI/Tableau, Jupyter Notebook, Google Colab, VS Code

Developer Tools: Git/GitHub, Arduino

Core Areas: Machine Learning, Deep Learning, Natural Language Processing (NLP), Computer Vision, Data Analytics & Visualization

Soft Skills: Problem Solving, Teamwork, Communication, Time Management, Creativity

CERTIFICATIONS

- Internship Certificate - DRDO 
- Internship Certificate - IIT Roorkee 
- LOR - By DRDO Scientist 
- AI Foundations Associate - Oracle 
- Artificial Intelligence - IBM 
- Python Pro Bootcamp - Udemy 

EXTRACURRICULAR

- * I enjoy working on hardware projects and have created several robots, including a **Face tracking system**, **Bluetooth controlled car with obstacle avoidance**, **Line Follower Robot**, and a **Laser Security Alarm**, among others.
- * Achieved **2nd runner-up** in Vytoblitz 1.0 Hackathon
- * Open Source Contributor at **GirlScript Summer of Code (GSSOC)**, active contributor.
- * Hackathon Participant
- * In my free time, I enjoy **playing cricket** and **listening to music**.