

GEETANJALI SAINI

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SUMMARY

Electronics and Communication Engineering undergraduate with hands-on experience in embedded systems and applied machine learning. Strong foundation in Python, signal processing, and Arduino-based systems, with practical exposure to end-to-end ML pipelines, model interpretation, and deployment using Streamlit.

TECHNICAL SKILLS

Languages: C, Python, Verilog, MATLAB, HTML

Machine Learning: Random Forest, Feature Engineering, Model Evaluation (RMSE, R^2 , MAE), LIME

Libraries / Frameworks: scikit-learn, Streamlit, NumPy, Pandas

Tools / Platforms: Git/GitHub, Arduino IDE, Jupyter Notebook, Firebase

Embedded & Hardware: Arduino, Microcontrollers, IR Sensors, Accelerometers, Soil Moisture Sensors

PROJECTS

Smart Traffic Light System

NIT Goa

Arduino, IR Sensors, Embedded C

- Designed a dynamic traffic signal controller using real-time vehicle detection.
- Implemented adaptive green-light timing based on traffic density.
- Demonstrated improved traffic flow efficiency compared to fixed-timing systems.

Earthquake Detection using High-Pass Filtering of Tectonic Vibrations

NIT Goa

Arduino Nano, ADXL345, Python, Signal Processing

- Built a real-time seismic vibration detection system using accelerometer data.
- Applied high-pass filtering to isolate high-frequency tectonic signals.
- Enabled live alerts using buzzer and LED indicators with real-time data visualization.

Autonomous Irrigation Robot

NIT Goa

Arduino, Soil Moisture Sensors, IR Sensors

- Developed an autonomous robot for plant detection and need-based irrigation.
- Implemented moisture-threshold logic to reduce water wastage.

Music Popularity Predictor [GitHub] [Live Demo]

Python, scikit-learn, Streamlit, LIME

- Built an end-to-end machine learning system to predict song popularity using audio and metadata features such as acousticness, energy, tempo, and duration.
- Performed data preprocessing, feature engineering, and trained a Random Forest Regressor for numerical popularity prediction.
- Evaluated model performance using RMSE, R^2 , and MAE to ensure robustness and generalization.
- Integrated LIME to interpret individual predictions and analyze feature influence on popularity scores.
- Deployed an interactive Streamlit web application allowing users to input song features and visualize prediction behavior in real time.

CampusFlow – Smart Campus Engagement Platform (In Progress)

Vue.js, Nuxt.js, Tailwind CSS, Node.js, Firebase

- Developing a full-stack platform for campus announcements, events, polls, and community engagement.
- Implementing role-based access control and dynamic, user-configurable forms.

EDUCATION

B.Tech in Electronics and Communication Engineering

National Institute of Technology Goa

CGPA: 7.48

2023 – 2027

Class XII (CBSE)

Kendriya Vidyalaya No. 1, Vasco-da-Gama, Goa

Percentage: 81%

2023

Class X (CBSE)

Kendriya Vidyalaya DGQA, Chennai

Percentage: 93%

2021

POSITIONS OF RESPONSIBILITY

Class Representative (CR), B.Tech ECE

NIT Goa, 2025

- Represented students in academic and administrative matters.
- Coordinated communication between faculty and students.

Event Coordinator (Head), Savyaas Techno-Cultural Fest

NIT Goa, 2025

- Led planning and execution of technical and cultural events.
- Managed logistics, registrations, and cross-team coordination.