

# Sahil Raj Patel

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## Professional Summary

AI & Data Science undergraduate with hands-on experience in Machine Learning, Deep Learning, Computer Vision, and AI-driven surveillance systems. Built predictive models achieving 95% accuracy and reduced downtime by 20%. Skilled in CNN, facial recognition, object tracking, recommendation systems, and end-to-end ML deployment using Flask REST APIs and Docker.

## Education

**B.Tech – CSE (Data Science)**, Haridwar University

2023–2027

CGPA: 8.2/10

Class 12: 81%

Class 10: 80%

## Technical Skills

**Languages:** Python, C, SQL

**Machine Learning:** Regression, Classification, Clustering, Recommendation Systems, Collaborative Filtering, Cosine Similarity, Feature Engineering, Cross-Validation, Model Optimization

**Deep Learning:** CNN, Transfer Learning, Image Classification

**Computer Vision:** OpenCV, YOLOv8, Face Recognition, Object Tracking

**Embedded Systems:** Arduino, Servo Motors, Microcontrollers

**Frameworks:** TensorFlow, PyTorch, Scikit-learn, Pandas, NumPy

**Deployment:** Flask, REST APIs, Docker

**Tools:** Git, GitHub, VS Code, Jupyter Notebook, Google Colab

**Cloud:** Google Cloud Platform (Basic)

## Experience

### Data Science Summer Intern

June 2025 – July 2025

CertED Technologies – Haridwar University

- Built and evaluated ML models for predictive analytics achieving 90%+ accuracy.
- Applied cross-validation and hyperparameter tuning improving performance by 12%.
- Performed data preprocessing and feature engineering.
- Deployed ML models using Flask REST APIs and Docker containers.

## Projects

### AI-Based Autonomous Face Tracking Target Locking System

2nd Position – TECHSANGRAM 2025

- Designed defense-oriented AI surveillance system using facial credential authentication for authorized target identification.
- Trained face recognition model using OpenCV-based feature encoding achieving 94% accuracy.
- Integrated YOLOv8 for real-time object detection and tracking (30 FPS performance).
- Implemented servo motor-based mechanical alignment system for automated target positioning.
- Integrated Arduino microcontroller for hardware actuation and secure command execution.
- Reduced false detection rate by 15% through dataset preprocessing and optimization techniques.

### Spotify Music Recommendation System

- Developed content-based and collaborative filtering recommendation system using Spotify dataset.
- Implemented TF-IDF vectorization and cosine similarity for song similarity computation.
- Built recommendation pipeline using Pandas, NumPy, and Scikit-learn.
- Improved recommendation relevance via feature engineering and similarity threshold tuning.

## Certifications

Data Science Summer Internship – CertED (2025)

Microsoft Power BI – Microsoft Learn (2025)

C Programming – IIT Bombay (95%)

IBM SkillsBuild AI Internship

Data Science with Generative AI – PW Skills

NPTEL Certification