

# Mukul Mehta

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## EDUCATION

**Graphic Era Hill University, Haldwani Campus**

*Bachelor of Computer Applications (BCA), CGPA: 9.09*

Aug 2023 – Jun 2026

*Haldwani, India*

## COURSES & CERTIFICATIONS

Supervised Machine Learning (Regression & Classification) — Coursera

CS50's Introduction to Programming with Python — Harvard University

## PROJECTS

**Hybrid Movie Recommendation System** | *Python, Pandas, Scikit-learn, NLP, FastAPI, Docker, AWS*

- Built a hybrid recommender combining item-based collaborative filtering with TF-IDF content similarity.
- Implemented a cascade approach where CF-generated candidates were re-ranked using NLP features.
- Developed a FastAPI-based REST service to deliver real-time top-N recommendations.
- Containerized and deployed the system using Docker on AWS for scalable inference.

**Telecom Customer Churn Prediction System** | *Python, Scikit-learn, XGBoost, SMOTE, SHAP, Streamlit*

- Developed an XGBoost-based churn classifier with preprocessing and feature engineering pipeline.
- Handled class imbalance using SMOTE and improved recall through threshold tuning.
- Integrated SHAP for model interpretability and feature impact analysis.
- Deployed an interactive Streamlit application for real-time churn prediction.

**Sign Language to Speech & Text Converter** | *CNN, Deep Learning, OpenCV, Streamlit, FastAPI, Docker, AWS*

- Built a CNN-based ASL alphabet recognition model with data augmentation and batch normalization.
- Implemented image-based inference using Streamlit and exposed predictions via a FastAPI backend.
- Containerized and deployed the application using Docker on AWS for scalable serving.
- Analyzed OpenCV-based live gesture recognition performance and domain shift limitations.
- Converted predicted gestures into text and speech for improved accessibility.

## TECHNICAL SKILLS

**Programming:** Python, SQL

**ML & DL:** Scikit-learn, XGBoost, CNN, NLP, Model Evaluation

**Web & Deployment:** FastAPI, Streamlit, Docker, AWS (EC2)

**Databases:** MySQL, MongoDB

**Tools:** Git, GitHub

## EXTRACURRICULAR ACTIVITIES & ACHIEVEMENTS

Sports Captain (Football); Secured 10th position in a 6 km Cross-Country race.

Qualified Group 1 in Army Recruitment; Former NCC Cadet (77 Battalion).

Active Member, CRC GEHU Haldwani.

## LEADERSHIP & CLUBS

**Lead Strategist — Tech Club:** Organized hackathons and managed technical planning.

**Secretary — SpeakUp Club:** Led documentation, coordination, and public speaking sessions.