

UMAR BALAK

umarbalak35@gmail.com | linkedin.com/in/umar-balak | github.com/UmarBalak

EDUCATION

Saraswati College Of Engineering

Bachelor of Engineering in Computer Science And Engineering (AIML) with **8.64 CGPA**

Last Sem SGPA - **9.65**

Navi Mumbai, India

2021 – 2025

Anjuman-E-Islam Janjira High School and Jr. College of Science and Arts

Class XII with **92.50%**

Murud, Maharashtra

2019 – 2021

SKILLS

Programming Languages: Python, JavaScript, SQL

Frameworks / Databases: FastAPI, Streamlit, TensorFlow, Keras, Scikit-Learn, NumPy, Pandas

Tools / Platforms: Jupyter Notebook, Google Colab, VS Code, Git, GitHub

PROJECTS

AdaptFL: Federated Learning Framework

[GitHub](#)

A federated learning framework enabling decentralized model training across multiple clients while preserving data privacy.

- Developed an **admin-client system** where admins register clients, and clients configure environments for local training.
- Implemented a **multi-input model feature**, enabling clients to train using diverse input data types and formats while contributing to the federated learning process.
- Built **FastAPI server** to manage client registration, weight aggregation, and global weight distribution.
- Integrated WebSockets for **real-time client-server** communication and Microsoft Blob Storage for model weights storage.
- Technologies: Python, FastAPI, WebSockets, Microsoft Blob Storage, PostgreSQL, Streamlit

AI-driven Proctored Exam System – Try Now

[GitHub](#)

Developed a system utilizing advanced AI technologies for real-time proctored exam monitoring.

- Implemented YOLOv8 for **background monitoring** to detect unauthorized individuals, enhancing exam integrity.
- Deployed OpenCV and MediaPipe for real-time **eye gaze tracking and head movement detection**, ensuring active monitoring during assessments.
- Technologies: YOLOv8, OpenCV, MediaPipe, Django, MySQL

TinyVGG: Image Classification Model Inspired by VGG16 – Try Now

[GitHub](#)

An optimized image classification model based on the VGG16 architecture, designed for high efficiency and performance.

- Achieved **92% classification accuracy** on the CIFAR-10 dataset by utilizing a robust VGG16-based model.
- Reduced **model size to 4MB**, optimizing it for deployment on resource-constrained devices while retaining performance.
- Integrated OpenCV for **preprocessing** CIFAR-10 images, ensuring consistent input quality for the model.
- Technologies: TensorFlow, Keras, OpenCV, NumPy, CNN, CIFAR-10

CineMate: Movie Recommendation System – Try Now

[GitHub](#)

A movie recommendation system leveraging advanced algorithms and techniques for accuracy and user satisfaction.

- Utilized K-Nearest Neighbors and TF-IDF **algorithms** to provide users with the **top 10** tailored movie recommendations.
- Features two sections for movie: one with **8,000 top Netflix** movies and another with **75,000 top TMDb** movies.
- Technologies: KNN, TF-IDF, Python, Scikit-Learn, Pandas, Streamlit

EXPERIENCE

Quasar 2.0 Hackathon - 1st Prize Winner

March 2024

Developed an innovative AI-powered proctoring system, integrating YOLOv8 for detecting unauthorized individuals and employing OpenCV and MediaPipe for accurate eye gaze and head movement tracking to enhance exam integrity.

NASA Space App Challenge - Winner

October 2023

Engineered an intelligent project collaboration platform featuring a machine learning-based recommendation engine, facilitating seamless student-recruiter matchmaking via a user-friendly web interface.

CERTIFICATIONS

Microsoft Azure AI-900 - [Microsoft](#)

March 2023