

MUHAMMAD AFFAN ASIF

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PROFILE

Computer Science and Engineering graduate specialising in Artificial Intelligence, Machine Learning, and Computer Vision, with experience building 10+ end-to-end AI systems spanning real-time computer vision, generative AI, on-device LLM optimisation (RAG, RLHF, LoRA), and full-stack deployment. Chief Coordinator of the Computer Society of India (CSI-MJCET), leading technical initiatives, organising large-scale hackathons, and managing cross-functional teams. Winner of Smart India Hackathon 2024, the Asian Space Settlement Design Competition, and multiple national-level competitions, with strong interests in multimodal AI, efficient deep learning, and real-world AI applications.

EDUCATION

B.E. — Computer Science & Engineering (AI & ML) | Muffakham Jah College of Engineering & Technology, Hyderabad 2022 – 2026
CGPA: 9.06 / 10.0 | Relevant Coursework: Machine Learning, Deep Learning, Computer Vision, Data Structures & Algorithms, Cloud Computing

Intermediate (Class XII) | Narayana Junior College, Hyderabad Graduated 2022
Percentage: 98%

SSC (Class X) | Little Flower High School, Hyderabad Graduated 2020
GPA: 10.0 / 10.0

KEY PROJECTS

AI AqL — Offline Multimodal AI Personal Assistant

RAG • RLHF • LoRA • MCP • Stable Diffusion • Flutter | 2026

- Designed a fully offline AI assistant integrating LLMs, retrieval, generative AI, and automation agents in a Flutter mobile app
- Deployed TinyLLaMA 1.1B with 4-bit NF4 quantization and double quantization, reducing memory footprint from 4.1 GB to ~590 MB (7x reduction), with LoRA fine-tuning targeting only 1.44M parameters (0.13% of total) for efficient on-device adaptation
- Built a complete RAG pipeline using LlamaIndex, BGE-small embeddings, and ChromaDB for context-aware document querying
- Implemented custom RLHF loop storing user feedback in SQLite to continuously fine-tune the model without full retraining
- Integrated Stable Diffusion + ControlNet for image generation and a WhatsApp automation agent via MCP + LangChain

AIM — Real-Time Conversational Voice AI Agent

Deepgram STT • ElevenLabs TTS • Gemini API • VADER Sentiment • WebSockets | 2026

- Built a full-duplex AI voice sales agent using Twilio streaming, Deepgram STT, and ElevenLabs TTS with barge-in support; tested across 5 live calls achieving ~80% conversion rate and sub-700 ms response latency
- Designed a 4-state tone-adaptive dialogue system dynamically switching from neutral to closing within a single user utterance using real-time VADER sentiment analysis

- Engineered low-latency pipeline (Deepgram VAD ~250 ms, ElevenLabs Turbo TTS) enabling near real-time conversational flow
- Implemented automatic outcome classification with call-level persistence to SQLite, alongside a WebSocket-based monitoring dashboard for transcripts and analytics

AI-Powered Deepfake Video Detection with Twitter Response Automation

ResNeXt + LSTM • Selenium • face_recognition • End-to-End Deployment | 2025

- Designed and trained a ResNeXt + LSTM deepfake detection pipeline on 6,000 videos, achieving 93.6% accuracy on 100-frame sequences (↑9.4 pp over 10-frame baseline)
- Engineered temporal modeling using 60–100 frame sequences to improve robustness against frame-level inconsistencies
- Built Selenium automation to monitor Twitter mentions, download videos, run inference, and auto-reply with REAL/FAKE classification in real time

Smart Classroom AI Platform

YOLOv11 • MediaPipe • Gemini API • ElevenLabs • Manim • Flutter | 2025

- Developed an end-to-end classroom system integrating YOLOv11 attendance, MediaPipe gesture-based board capture, and an OCR-to-notes pipeline (Tesseract + EasyOCR + Gemini)
- Built 'Manimator' - an AI explainer video generator combining Manim animations, ElevenLabs TTS, and Gemini API for student queries
- Designed Flutter app with Teacher and Student modules, Quill-based note review, AI chatbot, and Supabase backend

Computer Vision Football Analytics & Performance Tracking

YOLO • ByteTrack • K-Means Clustering • Optical Flow • Gradio | 2025

- Built a sports analytics pipeline using YOLO detection, ByteTrack multi-object tracking, and K-Means jersey colour clustering for automatic team assignment
- Engineered algorithms for player speed, distance, ball possession, and pass success rates; compensated for camera movement via optical flow

AI-Driven Smart City Infrastructure & Safety Monitoring

YOLO • Flask • Twilio • Flutter • Random Forest | 2025

- Engineered a full-stack AI platform for urban monitoring covering pothole detection, waste identification, and human-animal conflict detection
- Built Flask REST APIs, Twilio-based authority alerts, and a cross-platform Flutter mobile app; incorporated Random Forest models for crop recommendation and recycling optimisation

AWARDS & ACHIEVEMENTS

- **Winner — Smart India Hackathon 2024** — National-level government-backed hackathon, India's largest
- **Winner — 15th Annual Asian Space Settlement Design Competition 2019** — International competition
- **2nd Place — 2nd Annual Indian National Space Settlement Design Competition 2018**
- **2nd Place — Indian RoboCup Junior – South Zone 'Rescue' Competition 2017**
- **1st Place — Innovatia Panoply 2025**
- **Won Best Innovative Idea — HackEnvision 2.0** — NSAKCET
- **Won Job Offer — Hackprix Hackathon** — Industry-recognised prize
- **Won Best Project of II Year & IV Year — Innovatia Panoply**
- **1st Place — Alladi Cloud Training Hackathon**
- **3rd Place — CSI-MJCET Project Expo**
- **3rd Place — HackRev**
- **Finalist — HackCelerate**

LEADERSHIP & STUDENT CHAPTERS

Chief Coordinator | Computer Society of India (CSI-MJCET)

2025 – Present

- Leading the CSI chapter at MJCET (~200 members), managing all technical, strategic, and operational activities across the organization
- Successfully hosted 10+ events including workshops, seminars, and technical competitions under my leadership
- Organised and conducted HackRevolution, a college hackathon with a prize pool of ₹3,00,000 managing end-to-end logistics, sponsorships, judging, and participant coordination; built the official registration platform handling ~250 team registrations, shortlisted 60 teams, and facilitated participation of ~360 students

Associate Chief Coordinator (Previous Tenure)

2024 – 2025

- Led 30+ projects and hosted major events including Agentic AI, Mind Meets Machine (technical seminar), and the TechNova (tech exhibition)
- Conducted a hands-on workshop on Computer Vision for students across departments

Web Head (Previous Tenure)

2023 – 2024

- Led development of six web projects for workshops and contributed significantly to multiple machine learning initiatives

Software Head | OPTIMUS – Robotics & Automation Club, MJCET

2022 – 2023

- Organised and conducted a seminar on Arduino programming and embedded systems for junior students

RESEARCH INTERESTS

Multimodal AI systems and real-time computer vision; on-device and efficient deep learning (quantisation, LoRA, edge inference); retrieval-augmented generation and LLM alignment (RLHF); AI applications in education, healthcare, and smart city infrastructure; human-computer interaction through conversational and gesture-based AI.

TECHNICAL SKILLS

Languages: Python, Dart, JavaScript, SQL

ML / DL Frameworks: PyTorch, TensorFlow, OpenCV, YOLOv8/v11, MediaPipe, Scikit-learn, HuggingFace Transformers

Generative AI & LLMs: Gemini API, Stable Diffusion, ControlNet, ElevenLabs, TinyLLaMA, LoRA, RLHF, SFT (TRL Trainer)

Retrieval & Agents: RAG (LlamaIndex), ChromaDB, LangChain, MCP (Model Context Protocol), Groq API

Backend & APIs: Flask, FastAPI, REST APIs, WebSockets, Twilio, Supabase, SQLite, ngrok, Deepgram

Frontend & Mobile: Flutter, Gradio, PyAutoGUI, Quill

Tools & Platforms: Roboflow, Git/GitHub, Docker (basic), Google Colab, VS Code

Core AI Areas: Computer Vision, Object Detection & Tracking, Real-time AI Systems, NLP, Multimodal AI, On-device Inference

LANGUAGES

English (Professional) | Telugu (Native) | Hindi (Proficient)