

MUHAMMAD SHEERAZ

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AI AND COMPUTER VISION ENGINEER

Artificial Intelligence graduate with **1+ year of industry experience** developing and deploying **AI/ML, Computer Vision, Deep Learning, and real-time AI systems**. Proficient in **Python, TensorFlow, OpenCV, YOLO, object detection, facial recognition, multi-object tracking, video analytics, model training, evaluation, and inference optimization**. Experienced in building end-to-end computer vision pipelines, processing **RTSP video streams**, and deploying edge AI solutions on **NVIDIA Jetson Orin Nano and Raspberry Pi**. Additional hands-on experience in **LLMs, Generative AI, Agentic AI, RAG, LangChain, AI agents, and chatbot development**, with a focus on building practical, production-oriented AI applications.

EDUCATION

Bachelor of Artificial Intelligence

National Textile University, Faisalabad | 2022 – 2026

CGPA: 3.64 / 4.00

TECHNICAL SKILLS

Programming: Python, C++, javascript (basic), SQL

Deep Learning & AI: TensorFlow, Keras, Scikit-Learn, Pandas, Numpy, Huggingface, Kaggle, UCI Machine Learning, Deep Learning, Machine Learning, Model Training, Fine-Tuning, Transfer Learning, Model Evaluation, Performance Optimization, Text-to-Speech, Speech-to-Text

Computer Vision: OpenCV, YOLO, Object Detection, Face Recognition, Image Processing, Human Activity Recognition, Multi-Object Tracking, Video Analytics, ByteTrack, DeepSORT, Semantic Segmentation, OCR

Video & Data Pipelines: RTSP, Real-Time Video Analytics, Video Processing, Dataset Preparation, Data Preprocessing, Feature Extraction, Camera Integration

Generative AI & LLMs: Large Language Models (LLMs), Generative AI, RAG, NLP, Prompt Engineering, AI Agents, Transformers, Chatbot Development

Edge AI & Deployment: NVIDIA Jetson Orin Nano, Raspberry Pi, ESP32-CAM, TensorRT, CUDA, DeepStream, ONNX Runtime, Docker, FP32/FP16/INT8/INT4 Quantization, Jetson Zoo

Development: FastAPI, REST APIs, Git, GitHub, ssh

Databases: SQL Server, Supabase, PgVector, FAISS/FAISS Index, SQLite-vec, Qdrant

EXPERIENCE

AI & Computer Vision Engineer | Digitalsofts (Pvt.) Ltd.

Aug 2025 – Mar 2026

- Developed **AI and Computer Vision solutions** using Python, OpenCV, Deep Learning, and real-time video processing for practical business use cases.
- Built and evaluated **Computer Vision pipelines** for object detection, facial recognition, activity recognition, video analytics, and intelligent monitoring.
- Worked with **YOLO-based object detection and custom model pipelines**, including data preparation, training experimentation, evaluation, and inference optimization.
- Developed real-time video processing workflows using **RTSP camera streams**, enabling continuous detection, recognition, tracking, and event monitoring.
- Implemented and evaluated **multi-object tracking approaches including ByteTrack and DeepSORT** for persistent object/person tracking across video frames.
- Performed **model evaluation, testing, debugging, and performance optimization** to improve inference reliability and real-time processing.
- Researched and integrated **Generative AI and LLM-based technologies** for AI-powered business applications and intelligent workflows.
- Collaborated with engineering teams to develop, test, document, and improve AI solutions for production-oriented deployment.

AI & Computer Vision Intern | Digitalsofts (Pvt.) Ltd.

May 2025 – Aug 2025

- Assisted in developing **Computer Vision and Machine Learning** proof-of-concept solutions using Python and Deep Learning frameworks.
- Worked with **datasets, data preprocessing, model training, evaluation, and inference pipelines**.
- Participated in Computer Vision experimentation involving image/video data, recognition, detection, and intelligent monitoring.
- Conducted model testing and debugging to identify performance issues and improve AI pipeline reliability.
- Assisted with deployment-oriented experimentation for real-time AI applications.

PROJECTS

1. Real-Time Face Recognition & IN/OUT Tracking Attendance System

NVIDIA Jetson Orin Nano | Python | OpenCV | RTSP | Edge AI

- Developed an end-to-end **real-time Computer Vision pipeline** for facial detection, feature extraction, identity verification, and automated attendance logging.

- Processed **RTSP video streams** for continuous employee detection, recognition, IN/OUT tracking, and event monitoring.
- Integrated face recognition with real-time video processing and automated attendance workflows.
- Optimized inference and video-processing pipelines for **low-latency Edge AI deployment** on NVIDIA Jetson Orin Nano.
- Applied performance optimization and deployment techniques for continuous real-time operation.

2. Human Activity Recognition & Video Analytics System

Python | Ultralytics | OpenCV | Deep Learning | Video Data

- Developed a **real-time Human Activity Recognition system** using video data and Deep Learning.
- Built preprocessing and Computer Vision pipelines for extracting visual information and classifying human activities.
- Performed **dataset preparation, model training, evaluation, testing, and real-time inference**.
- Analyzed model performance and optimized inference workflows for continuous video processing.
- Designed the system for real-time monitoring and deployment-oriented Computer Vision applications.

3. Talk2SQL — AI Analytics Platform (Final Year Project)

Python | FastAPI | LLMs | RAG | Agentic AI | SQL

- Developed an AI analytics platform that converts **natural-language and voice queries into SQL** and generates actionable data insights, reports, and Analytics.
- Integrated **LLMs, Retrieval-Augmented Generation (RAG), Agentic AI, and FastAPI** for conversational database analytics.
- Implemented SQL validation and controlled database execution for reliable AI-generated queries.

4. Edge AI Visitor Recognition System

Python | OpenCV | Raspberry Pi | ESP32-CAM | Computer Vision

- Developed an **Edge AI visitor recognition system** using facial recognition and real-time image acquisition.
- Integrated ESP32-CAM and Raspberry Pi for camera-based image capture, processing, recognition, and event monitoring.
- Built automated Computer Vision workflows for visitor identification and security-event detection.
- Optimized inference for **resource-constrained edge hardware** and real-time operation.

- Demonstrates practical experience building and evaluating **LLM-powered AI systems**.

5. Privacy-Preserving Data Anonymization Framework

Python | NLP | Machine Learning | Data Processing

- Developed an NLP-based framework for detecting and anonymizing **Personally Identifiable Information (PII)**.
- Prepared and processed datasets to evaluate model performance across original, anonymized, and synthetic data.
- Conducted comparative **model evaluation** to analyze privacy-utility tradeoffs.

Certifications

- [Get Started with Python](#)
- [Developing Applications with Python and Flask](#)
- [n8n Course Level 1](#)
- [n8n Course Level 2](#)
- [IoT for Everyone](#)
- [AI for Everyone](#)
- [Linear Regression with Python](#)
- [Google AI Essentials](#)
- [Prepare Data for Exploration](#)
- [Ask Questions to Make Data-Driven Decisions](#)
- [Data, Data Everywhere](#)
- [Intro to Relational Databases and SQL](#)
- [Excel for Data Analytics](#)
- [Excel Formulas & Functions](#)