

MOHAMMAD AFROJ ALAM

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OBJECTIVE

A Passionate AI/ML Engineer with hands-on experience in data handling, machine learning model development, and AI system support within a defense research environment. Skilled in Python-based development, computer vision, data analysis, and deployment of AI solutions for real-time and robotics applications. Strong problem-solving abilities with a continuous learning mindset.

EXPERIENCE

PROJECT ENGINEER | RESEARCH CENTRE IMARAT (DRDO) HYDERABAD

JUNE 2024 – PRESENT

- Currently working on a contract basis as a Project Engineer in RCI lab under the Directorate of Embedded AI Systems. My work focuses on the development and evaluation of AI and machine learning systems for robotics and real-time applications.
- Handle the full data processing workflow, including data collection and preprocessing, assisting in training and validating AI models for audio-visual perception and missile related applications.
- Evaluate software and modules for Robotics Perception System. Perform functional, performance, and compliance testing, and maintain detailed validation and evaluation Documentation.
- Set up and manage ML/DL environment using Conda, establish development pipelines with CUDA accelerations for AI-powered applications and deploy trained models on NVIDIA Jetson devices for edge AI applications.

APPRENTICESHIP TRAINING | RESEARCH CENTRE IMARAT (DRDO) HYDERABAD

MAR 2022 – MAR 2023

- Completed one year apprenticeship at DRDO, where I gained exposure to the defence research and development environment.
- Contributed to technical and data analysis tasks, providing system-level and application-level support for ongoing projects.
- Managed data annotation and preparation workflows for both audio and video datasets using CVAT(Computer Vision Annotation Tool) and Label Studio to generate high-quality ground-truth data for robotic perception systems and AI based defence applications development.

TECHNICAL PROJECTS

Object Detection Application

Developed an object detection Application using YOLOv5, specifically for identifying cracks and void in missile-related components, Integrated SORT(Simple Online and Real-time Tracking) based object tracking and implemented dynamic inference feedback and interactive 3D visualization using Matplotlib. Deployed automated inference pipeline via a PySimpleGUI based interface, providing full user control over system parameters.

Aircraft flight Data Analysis & Modeling

Worked on vibration data analysis where my responsibilities included analyzing sensor based raw data and preprocessing it through cleaning, scaling and synchronization of input-target samples to a common time frame. I was also involved in training and validation LSTM(Long Short-Term Memory) based Architectures model to predict G-rms experience by aircraft. Deployed automated inference pipeline through Streamlit based GUI.

LLM-Based System Development

Created a local AI assistant using LLM with ollama deployed with Streamlit based interface, integrated basic RAG(Retrieval-Augmented Generation) functionality for contextual information retrieval.

EDUCATION

B.Tech (CSE) | RAJIV GANDHI PROUDYOGIKI VISHWAVIDHYALAYA, BHOPAL (MP).

2022 – 2025– COMPUTER SCIENCE ENGINEERING | 75.70%

DIPLOMA | JAMIA POLYTECHNIC AKKALKUWA, NANDURBAR (MAHARASHTRA).

2017 – 2020– COMPUTER SCIENCE ENGINEERING | 80%

Matriculation | G.M. HIGH SCHOOL BARHARIA, SIWAN (BIHAR).

2016 – 2017– SECONDARY EDUCATION | 68%

ACADEMIC PROJECTS

- Real-Time Object detection Using deep learning (*B.Tech Major Project*)
- Online Books Store (Diploma Final Project)

TECHNICAL SKILLS

Programming & Tools	: Python, Streamlit, PySimpleGUI, OpenCV, Matplotlib
Machine Learning & AI	: ML, LLMs, RAG, YOLOv5, LSTM
Data Handling	: Pandas, NumPy, Data Preprocessing
Hardware Knowledge	: Familiar with NVIDIA Jetson (Orin, Xavier, Nano)

PERSONAL DETAILS

- Father's Name : MD Rahmat Ali
- Date of Birth : 14/05/2002
- Languages Known : HINDI, English & URDU
- Present Address : Mallapur, Near RCI Road Balapur, Hyderabad Telangana, 500005
- Expertise : Management Skills, Critical Thinking, Helping Nature.

Declaration: The above information is true and correct to the best of my knowledge.