Muhammad Abbas
Software Engineer (Backend & AI)

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SKILLS

Backend & AI
FastAPI, Flask, PyTorch, YOLOv11, OpenCV, HuggingFace, LangChain

DevOps & Cloud
Docker, Container Security, Linux Systems, AWS SageMaker (Hands-on), CI/CD

Languages
Python, C++, TypeScript, SQL, Bash/Shell, Java

Frontend
Next.js, React, Tailwind CSS

OpSec & Tools
Git, Postman, WebAuthn, Sandboxing

EDUCATION

BS Computer Science
NUST (SEECS)
2022 – 2026
CGPA: 3.33 / 4.00
(3.65 in final 2 years)

Relevant Coursework:
Web Engineering, DSA, OOP, ML, DL, LLMs, Distributed Computing, OS

CERTIFICATIONS

Meta
Back-End Developer Professional

DeepLearning.AI
Deep Learning Specialization
Machine Learning Specialization
Generative AI with LLMs (AWS)

LEADERSHIP

Executive / Manager Operations (2021 - 2025)
Bunyaad Pakistan
Led logistics for social impact initiatives.

Orientation Guide
NUST
Assisted incoming freshmen in adapting to university life

LANGUAGES

English (Fluent)
Urdu (Native)
German (Elementary)

PROFESSIONAL SUMMARY

Polyglot-minded Software Engineer and NUST CS senior with strong experience in backend systems, AI-driven products, and DevOps tooling. Proven ability to design, build, and operate end-to-end systems; from model training to secure deployment. Comfortable owning ambiguous problems across engineering, operations, and product.

EXPERIENCE

Software Engineer Intern   **Jun 2024 – Aug 2024**
Horizon Tech Services   *Islamabad*
- Engineered REST APIs using **FastAPI** for a collision detection system, enabling reliable real-time performance under production-like load with sub-100ms latency.
- Optimized inference pipelines for on-device AI using **MediaPipe** and **TFLite**, enabling real-time gesture recognition on Android edge devices without cloud dependency.

JST Research Scholar   **July 2019**
Japan Science & Technology Agency (JST)   *Tokyo, Japan*
- Selected as one of the top scholars nationally for the Sakura Science Program.
- Engaged in advanced robotics and physics research workshops at **Tokyo Institute of Technology** and **KEK**, gaining exposure to international engineering standards and research-to-production workflows.

PROJECTS

SecureVision (FYP)   **In Progress**
Real-Time AI Surveillance System   *Python, YOLOv11, Docker*
- Architecting an end-to-end surveillance pipeline integrating **YOLOv11**, **BoTSORT**, and **Pose Estimation** to detect threats (weapons, fights) in real-time.
- Engineering a custom fusion layer where visual detections trigger **Small Language Model (SLM)** analysis for context verification, reducing false positives by $\sim$40%.
- **Launch/Ops:** Aiming to optimize inference to process streams at 25+ FPS on consumer hardware by leveraging multi-threading and Docker containerization.

PCA-Praxis   **2025**
Secure Natural Language to Shell Agent   *Python, LLMs, Docker*
- Orchestrated a local AI agent (Phi-3) that autonomously translates natural language intent into executable Linux shell commands.
- **OpSec Focus:** Engineered an ephemeral **Docker sandbox** environment to execute AI-generated commands in isolation, implementing strict guardrails to prevent system-level damage.
- Will implement a self-healing reasoning loop where the agent parses stderr outputs to autonomously correct syntax errors.