

M. USMAN TARIQ

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SUMMARY

Software Engineer specializing in Artificial Intelligence, Machine Learning, and secure full-stack development. Adept at building end-to-end explainable AI models, zero-knowledge cryptographic communication systems, and scalable cloud-deployed architectures. Proven experience spanning real-time signal processing, distributed multi-agent backends, and modern DevOps pipelines.

EDUCATION

FAST University <i>Bachelor's in Software Engineering</i>	Islamabad, Pakistan 2022 – 2026
Army Public School / Fazaia College <i>Higher Secondary School Certificate (HSSC)</i>	Islamabad, Pakistan 2020 – 2022

TECHNICAL SKILLS

- **Languages:** Python, Java, JavaScript, C++, C#, HTML/CSS, SQL
- **AI & Machine Learning:** PyTorch, LangChain, HuggingFace, Diffusion Models (DDPM), FBCSP+LDA, Grad-CAM, RAG, NLP, Computer Vision, Signal Processing
- **Web & Backend Stack:** MERN Stack (MongoDB, Express, React, Node.js), FastAPI, Socket.IO, Streamlit, Firebase, Web Crypto API
- **DevOps & Cloud:** Docker, Kubernetes, CI/CD, Git, AWS, Linux/Shell Scripting
- **Databases & Tools:** FAISS (Vector DB), SQLite, JUnit, Jira, Figma, Wireshark, Packet Tracer
- **Languages Spoken:** English (Fluent), Urdu (Fluent), German (Basics)

WORK EXPERIENCE

Huawei Technologies <i>Software Engineer</i>	Islamabad, Pakistan 2026 – Present
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- Developed 10+ KPI-driven dashboards for monitoring nationwide telecom sites, consolidating daily alarm, VLAN, cell, software, and hardware data into structured operational views.
- Reduced network-data interpretation time from approximately 1–2 hours to a few clicks, enabling teams to identify site issues, performance trends, and abnormal conditions more efficiently.
- Automated recurring Excel-based data-analysis workflows, minimizing manual comparison, interpretation, and error-prone assessment of network records.
- Built context-aware chatbot and API capabilities into dashboards, allowing users to query network data and receive relevant insights and actionable recommendations.
- Designed KPIs and metrics that help the engineering team validate network conditions, investigate potential faults, and communicate findings during supervisor-level meetings.
- Analyze data from interconnected telecom systems to identify recurring alarm patterns, investigate possible root causes, and support informed troubleshooting decisions.

National Incubation Center <i>Software Engineer Intern</i>	Islamabad, Pakistan 2025
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- Engineered a robust web-based room scheduling system utilizing Firebase for real-time backend integration, significantly reducing booking conflicts.
- Collaborated with the Community Expert on diverse operational initiatives, managing requirements gathering and cross-team execution.
- Directed marketing content creation, including the ideation, scripting, and editing of video reels to boost platform engagement.
- Facilitated and co-organized key ecosystem events such as “League of Launchers” and primary Cohort activities, ensuring smooth operational flow.

Parliament of Pakistan <i>Software Engineer Intern</i>	Islamabad, Pakistan 2024
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- Automated a previously manual internal ticketing system, drastically improving workflow efficiency and reducing cross-departmental response times.
- Engaged directly in parliamentary sessions to gather complex operational requirements, acting as a technical liaison between multidisciplinary government teams.

- Produced and edited digital public service messages for national broadcast, leveraging media production tools for high-quality visual storytelling.
- Partnered closely with editorial and broadcast teams to deliver impactful, highly polished content designed for wide public outreach.

TECHNICAL PROJECTS

End-to-End Encrypted Secure Chat

React, Node.js, Web Crypto API, Socket.IO

- Architected a production-ready, zero-knowledge messaging and file-sharing platform where the server routes ciphertext without accessing plaintext content.
- Implemented client-side AES-256-GCM message encryption and chunk-based (64KB) file encryption to ensure strict data confidentiality.
- Engineered an ECDH P-256 secure key exchange authenticated via ECDSA digital signatures, successfully mitigating Man-in-the-Middle (MITM) attacks.
- Integrated forward secrecy and replay attack protection using ephemeral keys, timestamps, nonces, and sequence counters.

E-commerce QA Testing Portfolio

Manual Testing, Jira, Postman, Regression Testing

- Developed a structured QA portfolio for an e-commerce web application covering authentication, product search, cart, checkout, and order-management workflows.
- Designed and executed functional, negative, boundary-value, exploratory, and regression test cases across core user journeys.
- Documented reproducible defects in Jira with clear steps, expected and actual results, severity, priority, screenshots, and supporting evidence.
- Built a Postman collection to validate authentication, product, cart, and order-management APIs.

Multi-Agent Distributed Backend System

FastAPI, Python, Docker, SQLite

- Engineered a multi-agent framework featuring a centralized Supervisor node and pluggable worker agents to enable distributed task routing and autonomous coordination.
- Developed a “Gemini Wrapper” agent with dual execution modes (Local Mock and Cloud LLM) and an “Assignment Coach” agent featuring task planning and SQLite-based long-term memory.
- Implemented API authentication, short-term memory management, and containerized deployment scripts for scalable local and cloud execution.

Enterprise LLM-based RAG Pipeline

LangChain, FAISS, Ollama, Streamlit

- Built an intelligent Retrieval-Augmented Generation (RAG) system to ingest documents via PyPDF and create semantic embeddings using HuggingFace Sentence Transformers.
- Integrated a FAISS vector database to execute rapid semantic searches, grounding local Ollama LLM responses in factual document context.
- Designed a streamlined user interface using Streamlit, initially configured as an interactive FYP Handbook assistant but dynamically adaptable for arbitrary document sets.

Cross-Browser and Responsive Web Testing Project

Playwright, JavaScript, Chrome, Firefox, Edge, Browser DevTools

- Tested a responsive web application across Chrome, Firefox, and Edge at desktop, tablet, and mobile viewport sizes.
- Created a compatibility test matrix covering layout behavior, form validation, navigation, links, console errors, and slow-network scenarios.
- Reported browser-specific, responsive-layout, usability, and accessibility defects with reproducible evidence and recommended risk levels.
- Prepared a release-readiness summary based on test coverage, defect severity, regression results, and unresolved risks.

CERTIFICATIONS & TRAININGS

- **AWS Cloud Practitioner Essentials** – Amazon Web Services
- **LangChain for LLM Application Development** – DeepLearning.AI
- **Docker Foundations** – Docker
- **Officer Training** – Pakistan Institute for Parliamentary Services (PIPS)