

Hassan Abdul Sattar

AI / LLM Engineer · Generative AI Applications

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SUMMARY

Software Engineer (FAST-NUCES 2026, **Dean's List**, majoring in Generative AI) who builds **LLM-powered applications end to end**: RAG pipelines with cited, grounded answers, LLM agents behind **FastAPI** services, and ML components inside larger systems. Research on **secure code generation with DPO**. I take AI features from prototype to a tested, deployed product.

TECHNICAL SKILLS

LLMs & GenAI	RAG, prompt engineering, Gemini API, agentic / multi-agent systems, hallucination control, DPO
Retrieval & ML	Sentence-BERT embeddings, FAISS vector search, chunking, NLP classification, genetic algorithms
Languages	Python, JavaScript, SQL, C++, Java
Serving & Apps	FastAPI, Pydantic, Streamlit, REST APIs, React, Node.js
Data	PostgreSQL, MongoDB, Neo4j, Redis, ClickHouse
Deployment	Docker, Kubernetes, GitHub Actions, AWS (EC2, VPC, ELB, Auto Scaling, IAM)

PROJECTS & RESEARCH

RAG-Based Handbook Assistant Nov 2025

Tech: Python, Sentence-BERT (all-MiniLM-L6-v2), FAISS, Streamlit

- Built a retrieval-augmented Q&A system with page-level chunking, dense embeddings and **FAISS top-k retrieval**.
- Added **page citations** and a similarity threshold that rejects out-of-scope questions to **reduce hallucinations**.

SESA: Smart Energy Scheduling Agent [GitHub ↗](#) Nov 2025 – Dec 2025

Tech: FastAPI, Gemini LLM, Pydantic, Streamlit

- Built an AI agent that detects peak hours and produces **confidence-scored suggestions** with advice generated by **Gemini**, served via a typed FastAPI backend and a Streamlit chat UI.

Research: Secure Code Generation with Enhanced DPO Oct 2025 – Dec 2025

Tech: LLMs, Direct Preference Optimization

- Proposed **MO-EnhancedDPO**, jointly optimizing LLM-generated code for **security, correctness and maintainability**.

AutoValid: ML-Driven Test Automation Framework **FINAL YEAR PROJECT** [GitHub ↗](#) Aug 2025 – Jun 2026

Tech: Python, ML/NLP, Playwright, Node.js, React, Neo4j, PostgreSQL, Redis

- Built an **ML/NLP classifier** that infers input-field types from DOM attributes to drive automatic generation of valid, boundary and adversarial test data inside a Playwright crawler.

AI University Timetable Scheduler Apr 2025 – May 2025

Tech: Python, Genetic Algorithms, CSP, PyQt5

- Generated conflict-free timetables by combining a CSP backtracking solver with genetic-algorithm optimization.

EXPERIENCE

Software Engineering Intern (Backend) Jul 2025 – Aug 2025

National Information Technology Board (NITB), Government of Pakistan Islamabad

- Developed backend REST APIs in PHP Laravel for government digital platforms and contributed to architecture decisions.

Lab Demonstrator: Data Structures & ICT Sep 2025 – May 2026

FAST National University of Computer & Emerging Sciences Islamabad

- Supported lectures and labs for 50+ students, mentoring them in programming and data structures.

EDUCATION

Bachelor of Science in Software Engineering Aug 2022 – Jun 2026

FAST National University of Computer & Emerging Sciences (FAST-NUCES) Islamabad

Dean's List of Honour (Spring 2026). Focus areas: Generative AI, Workflow Automation, Software Development & Testing.

CERTIFICATIONS & ACHIEVEMENTS

Promptopia prompt-engineering competition · participant, GDG on Campus FAST

AWS Cloud Foundations · 2026

AWS Cloud Quest: Cloud Practitioner · 2026

Python Programming · Open Weaver