

# Hassan Shakil

Islamabad, Pakistan | [hassanshakil35066@gmail.com](mailto:hassanshakil35066@gmail.com) | +923065466415  
LinkedIn: [@hassan-shakil](#) | GitHub: [@hassan4702](#) | Portfolio: [@hassanshakil](#)

## SUMMARY

*AI and Full-Stack Engineer with 2+ years of experience in architecture design & deployment of intelligent and high-performance web applications.* Proficient in *modern frameworks (Next.js, MERN stack, FastAPI/Python)* with specialized experience in *integrating Large Language Models (LLMs)* using *Retrieval-Augmented Generation (RAG)*. Combines a strong foundation in *Front-End/Back-End development, NLP and AI/ML integration* to deliver clean, efficient, scalable, and user-focused solutions.

## EDUCATION

Sir Syed CASE Institute of Technology

Islamabad, Pakistan

*B.S. in Software Engineering*

June 2024

- **CGPA:** 3.53 / 4.0
- **Related Coursework:** Software engineering, Data Structures & Algorithms, Object-Oriented Programming, DBMS, Machine Learning, Artificial Intelligence, Operating Systems and Computer Networks.

## EXPERIENCE

### Centre of Excellence in AI & Machine Learning

Islamabad, Pakistan

*AI/Full Stack Engineer*

July 2024 – Present

- Implemented back-end services using *Python frameworks* including **FastAPI**, and **Flask**, ensuring scalable and efficient processing pipelines.
- Applied RAG frameworks such as **LlamaIndex**, **Ollama**, and **LM Studio** to improve *context-aware information retrieval* and response generation using **Elasticsearch** as the vector database.
- Developed and integrated real-time uploading metrics system using **WebSockets** for live data processing.
- Utilized *task queues* and *caching* with **Huey**, **Redis**, and **Celery** to manage *asynchronous transcription workloads* and improve performance.
- Deployed *asynchronous services* using **Uvicorn** behind **NGINX** for secure, scalable, and production-ready ASGI architecture.

### Centre of advanced Research in Engineering (CARE) Pvt, Ltd

Islamabad, Pakistan

*Web Developer Intern / Supervised by Dr. Shoab Khan*

June 2023 – Sept 2023

- Spearheaded initial development of "**Block Fund**" (later my FYP), a block-chain crowdfunding platform, focusing on its **Smart Contracts** module
- Developed and tested a **specialized cryptography module within an application** for a **Central Bank Digital Currency (CBDC)** proof-of-concept, focusing on secure data handling.
- Collaborated with senior developers on implementing and refining **cryptographic protocols** for the CBDC project, ensuring adherence to security best practices.

### Horizon Tech Services

Islamabad, Pakistan

*AI/Web Developer*

June 2022 – Sept 2022

- Engaged in the **end-to-end development of enterprise-level web applications**, architecting and implementing new features while leveraging existing code-base and components.
- Developed **dynamic front-end interfaces using React**, focusing on user experience, state management, and component-based architecture for new application modules.
- Built and maintained **server-side logic and API's using Node.js**, ensuring efficient data processing and seamless communication between the front-end and back-end systems.
- Researched and implemented **optimizations for encryption algorithms (specifically Kasumi)**, analyzing performance bottlenecks and proposing improvements for efficiency.

## Horizon Tech Services

### Islamabad, Pakistan

AI Developer

June 2021 – Sept 2021

- **Developed and trained Natural Language Processing (NLP) models** for *fake news classification*, from data *pre-processing and feature engineering* to model selection and evaluation.
- Applied various *NLP techniques* and *machine learning algorithms* ( Naive Bayes, Logistic Regression, or simple neural networks) to effectively identify and classify misinformation.
- Worked with *text datasets* to prepare and clean data for model training, addressing challenges such as imbalance and noise to improve classifier accuracy.
- Evaluated *model performance* using metrics like *accuracy, precision, recall, and F1-score*, iteratively refining models to achieve better classification results.

## PROJECTS

---

### RAG-Powered Document Chatbot

Islamabad, Pakistan

Full-stack Developer

Oct 2024 – Present

- Led full-stack development of a '**RAG Document Chatbot**' (**Next.js with Redux, Tailwind, Shadcn UI; FastAPI**) enabling RAG-based document chat and **NLQ-to-SQL** database querying.
- Engineered a robust **FastAPI RAG** backend using **LlamaIndex & Llama 3.2** for context-aware document chat, featuring comprehensive error handling and logging.
- Developed an **NLQ-to-SQL** system converting natural language to **SQL** via a **FastAPI/Qwen-2.5-coder** module, integrated with a Next.js query interface.
- Built an asynchronous document ingestion pipeline (**FastAPI, Celery, Redis**) for background processing into Elasticsearch, with a Next.js UI featuring WebSocket real-time upload progress.
- Crafted a dynamic Next.js chat interface with real-time messaging, RAG source display, and robust state management, styled with Tailwind CSS & Shadcn UI.
- Implemented a secure, multi-tiered authentication system (JWT/FastAPI backend, Auth.js/Next.js frontend) with granular RBAC for API/document index access and a user management panel.
- Designed a Next.js performance metrics dashboard to monitor system usage, API/document processing stats, providing key administrative insights.

### NewsStream Analytics Platform

Islamabad, Pakistan

Full stack Developer

July 2024 – Oct 2024

- Developed a full-stack news aggregation platform, scraping data from multiple online news sources.
- Engineered the back-end using **Flask** to manage data ingestion, processing, and API endpoints.
- Implemented a dynamic front-end with **React** to create an interactive dashboard for news visualization and user interaction.
- Integrated **Elasticsearch** as the primary database for efficient storage, advanced filtering, and scalable searching of news articles.
- Developed *multi-language summarization capabilities* using local **LLMs** (e.g., **Llama 3.2**) and the ChatGPT API for content generation, alongside implementing robust user role-based access control
- Designed and deployed *advanced filtering capabilities*, allowing users to sort and customize their news feed based on various criteria.

### Sumz AI - AI Powered Content Summarizer

Islamabad, Pakistan

Full stack Developer

Jan 2024 – Jan 2024

- Developed "**Sumz AI**" a single-page web application using **React** to provide users with quick **AI-generated summaries** of online content from URLs.
- Integrated a third-party API (via **RapidAPI**, leveraging **GPT** model) to perform **AI-driven text summarization** of articles and web pages.
- Engineered the front-end with **React** to create an intuitive user interface for submitting URLs, displaying summaries, and managing user interactions.
- Implemented a "copy summary" feature for ease of use and utilized browser **local storage** to persist users' previously summarized links for quick access upon returning to the site.
- Built as a **client-side application**, focusing on efficient state management and API data handling within the **React framework** to ensure a smooth user experience.

## Block Fund- A Crowdfunding Platform (FYP)

Team Lead / Supervised by Dr. Shoab Khan

Islamabad, Pakistan

Sep 2023 – Feb 2024

- Architected "**BlockFund**" a decentralized crowdfunding platform using **React** for the front-end and **Solidity smart contracts** for core on-chain operations like transparent campaign financing and fund management.
- Developed a responsive and interactive user interface with **React**, enabling seamless campaign Browse, creation, contribution, and user engagement.
- Engineered a supporting off-chain back-end using **Node.js (with Express.js)** and **MongoDB** to manage user accounts, store detailed project metadata not suitable for the block-chain, and provide robust API endpoints for the front-end.
- Authored core smart contracts in **Solidity** to govern the complete lifecycle of crowdfunding campaigns, including contribution tracking and automated, criteria-based fund disbursement.
- Utilized **Third web SDK** for efficient deployment and interaction with smart contracts, and integrated **IPFS** for decentralized storage and upload of campaign-related assets (e.g., project visuals, documents).
- Ensured the integrity of all *financial transactions and campaign states* through block-chain immutability, while leveraging the off-chain system for dynamic content and scalable user data management.

## CERTIFICATIONS

---

- **Meta Front-End Developer**
  - Issued by : Meta (Facebook)
  - Issue Date : Feb 2025
  - Credential ID : SKWD6ZYD8XIN
  - Credential URL : [View Certificate](#)
- **Hacker Rank Front-End Developer**
  - Issued by : HackerRank
  - Issue Date : May 2025
  - Credential ID : 9363c91bb527
  - Credential URL : [View Certificate](#)

## ACTIVITIES AND LEADERSHIP

---

President - IEEE Society (CASE)

June 2023 – June 2024

- Led and managed the university's **IEEE Student Society**, overseeing a committee of **20+ executive members** and directing all society operations, strategic planning, and activities.
- Served as the *primary representative for the IEEE Society*.
- Organized and executed over **10+** diverse technical and professional development events, including workshops on **Cyber Security, AI/ML**, industry seminars, significantly enhancing student engagement.
- Honed strong skills in leadership, strategic planning, project management, public speaking, and stakeholder engagement through successfully directing society initiatives, managing a team, and representing the organization.

## ACHIEVEMENTS

---

- Recipient of *multiple certificates* for active participation and achievements in *university workshops and events* (2024)
- Awarded *multiple certificates by the Vice-Chancellor* for consistently achieving the highest GPA (Semester 6,7,8) (2024)

## SKILLS

---

### • PROGRAMMING LANGUAGES & FRAMEWORKS

JavaScript, Python, Solidity, SQL, C++, HTML5, CSS3 (Tailwind), Bash/Shell.

### • TOOLS & TECHNOLOGIES

- **Version Control:** Git, GitHub
- **Task Queues & Caching:** Celery, Redis, Huey
- **LLM Tooling:** LM Studio, Ollama
- **API & Communication:** REST APIs, WebSockets, Postman
- **Development Environments:** VS Code, PyCharm
- **Blockchain & Authentication:** Thirdweb, Auth.js
- **Containerization & Deployment:** Docker, NGINX, Unicorn, Daphne

### Languages:

English (Fluent), Urdu (Native)

## REFERENCES

---

To be furnished upon request