

SAMEER AHMED

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EDUCATION

Shaheed Zulfikar Ali Bhutto Institute of Science and Technology (SZABIST) *Sept 2023 - Present*
Bachelor of Science in Artificial Intelligence (BSAI)

Relevant Coursework: Machine Learning, Computer Vision, Natural Language Processing, Data Structures Algorithms and Operating Systems.

PROJECTS

PageTurn AI — *Python, FastAPI, React, TypeScript, ChromaDB, Ollama/Groq* ([GitHub](#))

- Built a local-first RAG study assistant that indexes lecture PDFs via PyMuPDF extraction, chunking, and sentence-transformer embeddings stored in ChromaDB for citation-grounded retrieval.
- Designed a dual-provider LLM pipeline (Ollama primary, Groq fallback) with SSE-streamed responses and strict citation integrity, discarding hallucinated sources instead of fabricating citations.
- Architected a 6-table relational schema (SQLite) powering chat, and summary/MCQ/flashcard/exam-prep generation with Markdown/PDF export.

GazeAware — *Python, OpenCV, MediaPipe, NLP, LLM-Powered Recommendations* ([GitHub](#))

- Engineered a real-time biometric monitoring system tracking 11 signals, achieving sub-100ms latency for eye strain detection using optimized OpenCV and MediaPipe pipelines.
- Integrated a Groq/LLaMA 3.1-powered prescription engine to generate personalized, local recovery recommendations without sending data externally.
- Architected a privacy-first, local-only processing pipeline using FastAPI and React, eliminating external data dependencies for sensitive biometric monitoring.

CaseTrack — *Node.js/Express, React, Vite, Tailwind CSS, PostgreSQL (Neon), JWT* ([GitHub](#))

- Developed a full-stack complaint management platform featuring a custom case-file ledger and Role-Based Access Control (RBAC) to ensure secure, scalable data handling.
- Streamlined complaint triage by implementing AI-driven keyword categorization, reducing manual routing time by 40% and improving response accuracy for administrative teams.
- Optimized PostgreSQL query execution plans and implemented indexing strategies, reducing latency by 25% for high concurrency complaint management operations.

TECHNICAL SKILLS

Languages: Python, C++, C, Java, TypeScript, JavaScript, SQL, HTML/CSS, Assembly

Frameworks: FastAPI, React, Node.js/Express, TensorFlow, PyTorch, scikit-learn, OpenCV, MediaPipe

Developer Tools: GitHub, Arduino, ESP32-WROOM, CI/CD

Libraries: NumPy, Pandas, Matplotlib, PyTorch, TensorFlow

ACHIEVEMENTS

2nd Place — **VIRTUAL TRY-ON**

ZABEFEST 2023

Built Virtual Try-On, a computer vision-based AR fitting solution that let users see clothing rendered onto themselves in real time via camera, eliminating the need for physical try-ons in retail settings and addressing privacy and time-efficiency in the shopping experience.

Honourable Mention — **GAZEAWARE**

ZABEFEST 2026

Recognized for GazeAware, a real-time computer vision and NLP-based eye strain detection system tracking 11 biometric signals with an integrated LLM-powered prescription engine.