# KAUSHAL SENGUPTA

Uttarpara, West Bengal

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## EDUCATION

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|---|---|
| **Vellore Institute of Technology, Bhopal** | **September 2022 – Ongoing** |
| *B.Tech in Computer Science and Engineering* | *CGPA: 8.22/10* |
| **Central Board of Secondary Education** | **May 2022** |
| *Senior Secondary Education* | *Percentage: 83.2%* |
| **Central Board of Secondary Education** | **May 2020** |
| *Secondary Education* | *Percentage: 87.4%* |

## SKILLS

Python, C++, JavaScript, React.js, Node.js, Tailwind CSS, MySQL, MongoDB, Git/GitHub, Redis, Docker, Generative AI

## PROJECTS

**Syncflow: Project Management Platform** | MERN, Socket.io, Tailwind CSS

- Engineered a full-stack project management application using the MERN stack with features for project creation, team management, and task timelines.
- Implemented a secure, token-based authentication system using JWT and bcrypt to hash passwords, protecting all backend API routes via custom middleware.
- Developed a real-time, room-based chat system using Socket.io, enabling admins to assign new tasks to users directly from the chat interface.
- Designed and implemented relational MongoDB schemas (Mongoose) for users, projects, chats, and tasks, populating a comprehensive backend RESTful API.
- Created a dynamic calendar view (React Big Calendar) that aggregates and displays both project-level deadlines and user-specific tasks by fetching from multiple data models.
- **Role: Full-Stack Developer**

**RAG Assistant Platform** | Python, Django, Sentence Transformers, OpenCLIP, ChromaDB

- Built a Retrieval-Augmented Generation platform with ingestion for PDF, DOCX, PPTX, and TXT, enabling semantic search and grounded Q&A.
- Integrated OpenCLIP for multimodal embeddings and the Gemini API for generation, establishing a TruLens evaluation pipeline that achieved **96% Groundedness** (Faithfulness), **92% Answer Relevance**, and **90% Context Relevance**.
- Implemented a scalable embedding pipeline with batching and persistence in ChromaDB to support low-latency retrieval.
- **Role: Generative AI & Full-Stack Engineer**

**RailMilap: Journey Planning System** | Flask, React, REST APIs, Socket.io, Web Scraping, Redis

- Built a break-journey search tool that **reduced average search time by 60%** through a custom route optimization algorithm and a streamlined UI flow.
- Implemented asynchronous WebSocket updates (Flask-SocketIO) to stream direct and connecting routes to the client in real-time, eliminating HTTP request timeouts for long queries.
- Developed a Python (Pandas) data pipeline to pre-process and serialize train schedules from raw CSV data, ingesting the results into a **Redis** in-memory database for high-speed lookups.
- Architected the backend to use **Redis as the primary database**, cutting API query latency from **2s to 500ms** and reducing peak-hour server load by **40%** in simulations.
- **Role: Full-Stack Developer**

## EXTRA-CURRICULAR AND ACHIEVEMENTS

**Achievements**: Engineered an AI-powered data integration solution utilizing Informatica, securing a Top 20 placement out of 500+ global participants in the international AI/GenAI hackathon based on innovation criteria.

**Responsibilities**: Part of the VIT Bhopal Cyber-Security Club as a Web-lead, Design Team member for the Rajasthani club

## CERTIFICATIONS

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|---|---|
| **OCI Generative AI Professional** - *Oracle* | *september 2025* |
| **IBM Watson Generative AI** - *IBM* | *May 2025* |
| **Oracle AI Vector Search Associate** - *Oracle* | *september 2025* |