

# SAYAK MONDAL COMPUTER SCIENCE STUDENT

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## 📄 SUMMARY

Software and AI-focused engineer with experience leading development in a university-funded research venture, delivering reliable, scalable systems across AI, web and data-driven applications. Proven ability to translate complex ideas into maintainable software, collaborate effectively across hardware and software teams and take ownership of critical technical decisions. Brings a research-oriented mindset, strong engineering fundamentals and a commitment to building solutions that are stable, ethical and practical in real-world contexts.

## 📁 EXPERIENCE

**Mozilla Firefox Club (VIT Student Chapter)**, Core Committee Member 03/2025 – Current | Vellore, Tamil Nadu

- Contribute to open-web engineering projects using browser APIs, security, performance, and accessibility best practices.
- Collaborate through Git-based workflows, code reviews, and structured development cycles.

**The AI-ML Club (TAM-VIT)**, Core Committee Member 03/2025 – Current

- Build and deploy applied AI/ML solutions across NLP and computer vision domains.
- Lead technical sessions and mentor peers on real-world model development and optimization.

## 🎓 EDUCATION

**Bachelor of Technology: Computer Science And Engineering**, 05/2028 | Vellore, Tamil Nadu

Vellore Institute of Technology (VIT)

9.1 CGPA

- Earned numerous certifications from reputed platforms like **Microsoft, Meta, AWS, HackerRank, Google** and more.

## 🧠 SKILLS

**Artificial Intelligence: ML/DL:** PyTorch, TensorFlow, Keras, Scikit-Learn | **Computer Vision:** OpenCV, YOLOv8, SegFormer, DeepFace | **NLP & GenAI:** Hugging Face Transformers, LangChain | **Data & Audio:** NumPy, Pandas, Matplotlib, Librosa, SpeechRecognition | **Optimization & Deployment:** ONNX | **AI App Backends:** Flask, FastAPI, Streamlit, **Web Development: Frontend:** HTML, CSS, JavaScript, React.js, Next.js | **Backend:** Node.js, Express.js, Flask, FastAPI | **Databases:** MySQL, PostgreSQL, MongoDB | **DevOps & Deployment:** Git, GitHub, Netlify, Vercel, CI/CD

## 📁 PROJECTS

**FinAlly Bot:** Full-stack AI-powered financial assistant and quantitative trading terminal featuring JWT + OTP-secured authentication, conversational AI agent orchestration, real-time market data pipelines, and a 20 strategy quant engine with streaming execution.

**Tech Stack:** FastAPI, Python 3.13, MongoDB Atlas (PyMongo), OpenAI (gpt-4o-mini), Google Gemini 2.5 Flash, yfinance, BeautifulSoup, Flask-SocketIO, Server-Sent Events (SSE), WebSockets, JWT (python-jose), bcrypt, pyotp, slowapi (rate limiting), React.js

**Highlights:** AI agent pipeline (intent → tools → LLM), real-time market analytics, financial calculators, 20-strategy backtesting engine, SSE/ WebSocket streaming, MongoDB memory & scraping, production-ready REST API (44 endpoints).

(Created in VIT Hackathon Yantra'26 : Bidathon'26)

**Deployed Project:** <https://finallybidathon.netlify.app/> 🔗

**GitHub:** <https://github.com/ElixerAxiomCalculus/bidathon-proj> 🔗

**MedBot:** Full-stack AI-powered medical chatbot delivering reference-backed responses using a Retrieval-Augmented Generation (RAG) pipeline.

**Tech Stack:** Flutter Web (Provider, flutter\_markdown), FastAPI, Python, Uvicorn, MongoDB, REST APIs, RAG architecture

**Highlights:** Semantic retrieval over medical knowledge base, context-aware response generation, scalable ASGI backend, web-deployable Flutter frontend.

**Deployed Project:** <https://medbot.aisayak.in/> 🔗

**GitHub:** <https://github.com/ElixerAxiomCalculus/MedBot> 🔗

**GlobeGenie:** Full-stack AI-powered global explorer generating interactive, location-driven travel guides with 3D visualization and contextual AI content.

**Tech Stack:** React.js, Tailwind CSS, Three.js, FastAPI, Python, Uvicorn, Map/Geo APIs (GMaps API), REST

**Highlights:** 3D globe/map rendering, AI-contextualized travel info, modular frontend with lightweight backend for real-time geographical exploration.

**Deployed Project:** <https://globegenie.aisayak.in/> 🔗

**GitHub:** <https://github.com/ElixerAxiomCalculus/global-genie> 🔗

**EmotionCam:** Real-time web-based multimodal AI application integrating facial emotion recognition, speech-to-text, tone classification, and sentiment analysis using live webcam and microphone streams.

**Tech Stack:** Python, Flask, Flask-SocketIO, DeepFace, Vosk (offline STT), Hugging Face Transformers (DistilRoBERTa, Twitter-RoBERTa), React.js (Vite), WebRTC APIs, Socket.IO

**Highlights:** Real-time facial emotion detection via DeepFace, offline speech recognition using Vosk STT model, transformer-based tone & sentiment classification, WebRTC-powered live media capture, bi-directional streaming with Flask-SocketIO, privacy-first architecture (local processing, no external data transfer), dynamic dashboard with emotion bars, confidence scores & tone tags.

**GitHub:** <https://github.com/ElixerAxiomCalculus/Emotion-Cam> 🔗

## ★ ACCOMPLISHMENTS

**Student Startup Venture Grant Recipient | VIT Vellore**

11/2025

- Awarded Rs. 4L in seed funding to develop a AI-based early eye- disease detection system.
- Selected from a pool of 150+ applicants and teams based on technical feasibility and business viability.