MAYANK RANA

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EDUCATION

Indraprastha Institute of Information Technology, Delhi   2024 - 2028
B.Tech - Computer Science and Applied Mathematics

St. Xavier's Senior Secondary School   2011-2024 (Pre-Primary - 12th)
CBSE Standard 12 - PCMB

SKILLS

Expertise Area	Data Structures and Algorithms, Full Stack Development, Object Oriented Programming
Programming Languages	Java (OOPS) JavaScript, TypeScript Python C / C++
Tools and Technologies	Git, Next.js, ReactJS, NodeJS, HTML, CSS, TailwindCSS, Vite, Firebase (Auth, Firestore), MySQL, Puppeteer, OCR (Tesseract), NLP (NLTK), Hugging Face, Vercel, Netlify, Render, Capacitor etc
Technical Electives	Data Structures and Algorithms, Algorithm Design Analysis, Advanced Programming in Java, Computer Organization and Architecture, Operating Systems, Discrete Structures

WORK EXPERIENCE

SWE Intern DRDO | Restricted   May' 25 - June'25 (2 Months)
Mentor: Dr. Pankaj Kumar, Sr. Scientist DRDO-SSPL (Delhi)

- Due to strict adherence to DRDO's confidentiality and security guidelines, the project source code cannot be disclosed publicly however, the system's architecture, design decisions and functionality can be discussed in detail.
- Python Flask backend manages API requests and chatbot logic
- OCR and NLP pipelines extract and process scanned documents
- JavaScript fetch API transmits user prompts to a locally deployed proprietary LLM for inference
- Sentence Transformers with FAISS enable semantic search
- Frontend built using HTML, CSS, and JavaScript for interaction

FullStack SD, Volunteer for PACE NGO (Wazirpur) | Github   Sept' 25 - Dec' 25
Mentor : Dr. Aheli Chowdhury

- **Tech Stack:** Next.js & React for UI, Firebase for Live-Persistent Database and Auth, Google Maps APi / ReCharts , Capacitor for android wrapping
- Volunteered to design and develop a full-stack NGO Child & Family Tracking System to digitize household registration and follow-up workflows.
- Built a role-based, user-friendly interface to support NGO staff and field workers during daily operations.
- Implemented Firebase Authentication to ensure secure user access and data privacy.
- Used Firestore and Firebase Storage for structured data management and secure media upload buckets.
- Integrated Google Maps API to enable accurate household geolocation for efficient on-ground visits.
- Prepared the application for mobile deployment using Capacitor, enabling Android builds hosted via Vercel.

PROJECTS

ManasAi | [GitHub](#) | [Link](#) (Frontend)   Jan'25 - Present
AI-Based Health Assistance System   Team Size: 2
- **Tech Stack:** Node.js + Express.js, Firebase, LLAMA3, React (with Vite), Tailwind CSS and Netlify based hosting
- Manas+ is a full-stack AI health companion that combines a local LLM, voice interaction, emergency GPS support, and persistent user health profiles.
- Powered by a locally hosted LLaMA 3 model via Ollama.
- Integrated Firebase for data storage and OpenStreetMap services (Leaflet) for real-time emergency location assistance.

Anomaly Detector | [GitHub](#) | [Link](#) (MVP)   Dec' 25 - Present
Intelligent CCTV Monitoring System for Accident Identification and Emergency Alerting   Team Size: 2
- **Tech Stack:** Azure AI Services (Anomaly/Vision), Azure OpenAI, Ollama llama3, NPM JIMP, FFMPEG, Node.js, HTML, CSS and JS
- Built an AI-driven CCTV incident detection system that converts surveillance footage into real-time safety alerts; MVP completed and under testing.
- Used Azure AI Vision and Azure Anomaly Detector to extract video signals and detect unusual crowd behavior and movement anomalies.
- Applied Azure OpenAI to interpret anomalies, assign severity levels, and generate human-readable explanations and response suggestions.
- Utilized Ollama (LLaMA 3) for local testing, with FFmpeg and Jimp for video preprocessing and frame extraction.

Other Projects | [GitHub](#)   Aug' 24
Personal Project/Course Projects   Team Size: 1-2
- **Tech Stack:** Python, Java, C/C++, JavaScript, HTML/CSS, React, Firebase/SQL, Azure Services, REST APIs etc
- Haru no Yorokobi - Spring's Delight (Personal Project) Japanese Restaurant POS System
- University ERP (Advanced Programming Course Project)
- Fleet Management System GUI (Advanced Programming Course Project)
- RV32I-Emulation-Suite (Assembler and Simulator | Computer Architecture Course Projects)
- SimpleOS based on EGOS-2000, Loader, Scheduler, MultiThreader and UnixTerminal (Linux Based Course Projects)

POSITIONS OF RESPONSIBILITY

- **Student Council** - St. Xaviers Delhi (Represented Gandhi House)   Apr' 23 - Apr'24
- **Member and Contributor** - E-Cell IIIT Delhi   Jan' 25 - Present
- **Member** - AudioBytes IIIT Delhi   Aug' 24 - Present
- **Member** - The65thSquare IIIT Delhi.   Aug' 24 - Present

AWARDS AND ACHIEVEMENTS

- **Selected for SWE Internship at Defence Research & Development Organization (DRDO)**
- **Selected for round 2 at YUVAi and IC26-Microsoft (ongoing)**
- **Top 4 - Social Code'25 (NSS x CyFuse)**
- **Award of Excellence - St. Xavier's 3rd-7th Grade**

INTERESTS AND HOBBIES

- **Cinematic Design** - UE5/Adobe After Effects and Premiere Pro
- **Music and Chess** - Pianist/Keyboardist

Declaration: The above information is correct to the best of my knowledge.
Mayank Rana
Date: 19 Dec 2025