# RAUNAK KUMAR SINGH

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## EDUCATION

**Indian Institute of Information Technology, Kottayam** — Kerala, India
*Bachelor of Technology in Computer Science and Engineering* — *Aug. 2020 – May 2024*

## SKILLS SUMMARY

**Languages**: C++, Python, JavaScript
**Frameworks**: React, Next.js, Node.js, Express, Tailwind CSS, Bootstrap, Material UI
**AI / ML**: Generative AI, LLM Fine-tuning, Prompt Engineering, Retrieval-Augmented Generation (RAG), VLLM
**OCR & Computer Vision**: PaddleOCR, EasyOCR, Object Detection
**Core Subjects**: Operating Systems, Object-Oriented Programming, DBMS, Computer Vision
**Tools & Platforms**: Docker, Nginx, AWS, OpenAI API, Gemini, Ollama, TTS Systems (Bhasini, FineShare)

## WORK EXPERIENCE

**DIGIQUANTA** — Jan 2025-Present
*Software Developer* — *Hyderabad, India*

- Developed a medical data extraction system using **LLaMA 3.1 8B + PaddleOCR** and **Qwen 2.5VL 7B**, converting unstructured medical documents into structured formats
- Built a medical chatbot assistant that interacts like a doctor, gathers symptoms, and suggests precautions and medicines in English, Telugu, and Hindi using OpenAI or Gemini API
- Created a video narration tool that understands video context, extracts key frames, generates scripts, converts text to speech, and overlays audio, supporting OpenAI, Gemini, and Ollama in multiple languages
- Fine-tuned a classifier model **LayoutLMv3** to classify dynamic documents with varying orientations, enhancing accuracy with **PaddleOCR** for improved text understanding
- Designed a document parser capable of processing both scanned and non-scanned documents, reconstructing their original format, and extracting key insights
- Developed a real-time object detection tool to identify people count, age, and gender using camera feeds **YOLOv8**
- Benchmarked various Generative AI models (LLaMA, Qwen, Gemma, DeepSeek), OCR solutions (PaddleOCR, EasyOCR, SuryaOCR, Markdown OCR), and TTS (Bhasini, FineShare)

**C-DAC Bengaluru** — March 2024-Dec 2024
*Project Engineer* — *Bengaluru, India*

- Designed a UI system for generating dynamic form code
- Developed a quantum network simulator to simulate quantum circuit on GPUs
- Optimized quantum circuit execution, resulting in a 20% improvement in qubit performance
- Researched advanced quantum technologies and high-performance computing

## KEY PROJECTS

**DSA-SHEET** | *MERN Stack* | link — June 2024

- Created a DSA learning platform with secure JWT authentication and OTP-based password recovery
- Enhanced performance with data caching, reduced API calls by 40%
- 400+ real-time users on the DSAsheet solve questions from this website
- Tech Stack: ReactJS, NodeJS, ExpressJS, MongoDB, POSTMAN, Bootstrap, Material UI

**MT-MX Converter** | *Microservices* | Video — August 2022

- Developed microservices to validate, and convert old MT103 payment receipts into Pacs008 formats
- Established secure communication of REST API endpoints for receiving MT103, delivering Pacs008 format
- Implemented microservices in docker container and hosted container on AWS
- Tech Stack: NodeJS, Regex, Docker, Nginx, AWS

## ACHIEVEMENTS

- Secured Runner-Up position at the Nest Digital Microservices Hackathon in Kakanad, Kochi
- Secured the 3rd rank in the coding contest held in College technical fest
- Qualified two rounds in L&T technology services hackathon, selected in top 129 out of 3500+ students
- LeetCode (400+ questions) | Codeforces (1300+) Pupil | Codechef (3*)