

MANU MISHRA

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Education

Vellore Institute of Technology, Chennai

Sep. 2021 – Sep 2025

Bachelor of Technology in Computer Science

CGPA: 8.20

- Sponsorship and Management Lead at REVA, Special Team; Programming and Electrical Member at HumanoidX;
- Content and Technical member at VITrendZ and Webster's.

Experience

Mondee

Present

AI Engineer Intern

Hyderabad - onsite

- Worked on GenAI and designing prompts for **Aarna**, Mondee's AI app, to generate personalized travel experiences and dynamic itineraries.
- Built multi-agent **Agentic AI** workflows using LangChain, LangGraph, custom ML models, APIs, and full-stack tools.

DigiQuanta

Jan 2025 - Mar 2025

Software Developer Intern

Hyderabad - onsite

- Developed a **lip-syncing pipeline** for dubbed videos by aligning audio with visual frames using facial keypoint detection, computer vision, and temporal modeling, enhancing realism in multilingual video content.
- Built a **voice-enabled medical assistant** using, speech recognition, and GenAI APIs to provide real-time responses for preliminary diagnostics and health queries.

Indian Institute of Technology, BHU

June 2024 – July 2024

Junior Researcher

Varanasi - onsite

- Engineered a **Cuffless Blood Pressure** estimation system utilizing ECG, PPG, and advanced machine learning techniques for precise and non-invasive monitoring.
- Enhanced healthcare solutions through innovative signal processing and real-time data analysis.

Projects

SmartGrader | VLM, LLM, Unsloth, Llamafactory | [Git](#)

- Built an AI grading system using fine-tuned LLMs and Qwen-VL to interpret handwritten diagrams, pseudocode and structured content.
- Enhanced multimodal reasoning and problem-solving by incorporating Gemma3 for instructions and analytical depth.

Nexus Search | Agentic Search, LangChain, LangGraph, Tavily | [Git](#)

- Nexus Search delivers intelligent, multi-modal search and content analysis through a 13-agent architecture built with LangChain, LangGraph, and Tavily enabling professional document generation and advanced query resolution.

Talk2Me | MERN, Socket.io, TailwindCSS, Daisy UI, Zustand | [Git](#)

- Developed a MERN stack real-time chat app with JWT authentication, Socket.io messaging, online status, state management, and robust error handling.

Technical Skills

Languages: Python, Java, C++, ReactJS, NextJS, JavaScript

Developer Tools: Cloud basics, MongoDB, SQL, NodeJS, ExpressJS, Figma, AdobeXD

Technologies: Git/GitHub, Machine Learning, Deep Learning, Generative AI, LangChain/Graph

Relevant Coursework: DSA, OOPS, System Design, Software Engineering

Publications

Cuffless BP Estimation | Deep Learning, Machine Learning, SWIN Transformers | [Published](#)

- Developed cuffless blood pressure estimation system using bispectrum and bicoherence images for accurate predictions, with a SWIN Transformer model for non-invasive monitoring.

A System and Method for Automated Waste Segregation | Application no: 202441064693 | [Patented](#)

- An AI-powered machine that automates construction waste segregation, enhancing recycling efficiency and sustainability by diverting waste from landfills and integrating with waste management systems.

Achievements

- Secured **15th** place among **100+ teams** in the **Smart India Hackathon 2023** as a grand finalist.
- Won **2nd** position in the **Smart India Hackathon 2022** for the "Money Plant" smart bin for waste segregation.
- Got **first prize** in an **IoT Hackathon** for an automated solution for waste management.
- Received the Rookie Team Award at **Hackhub 2022** for a Smart Attendance System supporting online and offline use.