

# Sandeep S

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## EDUCATION

### Indian Institute of Technology, Madras

Bachelor of Science (B.Sc) - Programming & Data Science; CGPA: 8.5/10.0

Chennai, India

2022 – 2026

Courses: Mathematics and Statistics for Data Science, Application Development, Data Structures & Algorithms, Java, Linux.

### Easwari Engineering College (Anna University)

Bachelor of Engineering (B.E) - Electronics and Communication Engineering; CGPA: 8.76/10.0

Chennai, India

2021 – 2025

Courses: Analog and Digital Circuits, Control Systems, Digital Signal Processing, VLSI Design, Medical Electronics.

## TECHNICAL SKILLS

Languages: Python, C++, Java, JavaScript, SQL (PostgreSQL, MySQL, MongoDB), Neo4j, HTML

Frameworks & Libraries: PyTorch, TensorFlow, NumPy, Pandas, PydanticAI, FastAPI, React, LangChain, LangSmith

Tools: Docker, Kubernetes, Git, Azure DevOps, AWS, GCP, Supabase, Redis, GitHub, TinyML

## PROFESSIONAL EXPERIENCE

### S2T AI - AI-Powered Investigations

Software Engineer L1

Singapore

Sept 2025 – Present

Streamlined data ingestion by building **web crawlers** and reverse-engineering **APIs** to ensure consistent data collection, optimized backend integration, and high-efficiency pipelines, and created an Agentic AI (MCP Driven) workflow for applications. Scaled, managed and maintained microservices via **Kubernetes**, managing **DevOps/MLOps** workflows .

### Vessel Match (Incubated at Nirmaan IIT Madras)

Founding Engineer - Head of Research & Workflows

Chennai, India

May 2024 – Present

- Led R&D of a production-ready **multi-agentic workflow**, combining **RAG** + agent orchestration to automate end-to-end maritime logistics and data processing.
- Worked on **event-driven microservices architecture** using AWS (**Lambda, EC2**) + **FastAPI** for a production platform.
- Scaled pipelines to process **200+** vessels/day; contributed to securing **INR 700,000** seed funding and **\$2K AWS credits**.

### Indian Institute of Technology, Madras

Teaching Assistant - Business Data Management (MS2001)

Chennai, India

Jan 2024 – Sept 2025

- Facilitated doubt clearing sessions, curated datasets, and built Python + LLM evaluation scripts to automate submission checks, improving grading speed and data integrity.

### Paradox, IIT Madras

Steering Committee, Paradox' 2026 & Secretary, Paradox' 2025

Chennai, India

Jan 2023 – Present

- Steering Committee for Paradox '26 driving financial audits and planning, and having led Paradox '25 as **Secretary** managing **14 departments** and **50+ events**, overseeing logistics and on-ground setup for **5,000+** attendees with a **Rupees 16M budget**.

## PROJECTS

### GuruHeal [🌐 Presentation 📜 Code]

May 2025

AI-powered wellness platform with multilingual chat, **prompt-engineered** LLM pipelines, real-time retrieval, and personalized recommendations. Microservices with a GraphRAG knowledge base, **agentic web search**, **tool-calling**, and Generative UI. Next.js · PydanticAI · TypeScript · JavaScript · Figma · FastAPI · Supabase · Redis · Neo4j

### LLM Automation Agent [🌐 Code]

Feb 2025

LLM-powered agent that takes plain-English task descriptions and runs them automatically. When the requirement is provided the agent chooses and runs the right tools—SQL, OCR, embeddings, web scraping, file ops—and returns results.

FastAPI · OpenAI · LangChain · Pydantic AI · Litellm · OpenRouter · Docker · GitHub Actions

### Crime Analysis and Prediction [🌐 Code]

June 2024

Geospatial analysis portal for the **Karnataka Police Hackathon**. Utilized **Time Series Prediction** and behavioral analysis to identify crime hotspots and trends across the state.

Django · PyTorch · React · Facebook Prophet · Pandas · PyTorch · Tableau · Time Series · Folium

## RESEARCH & PUBLICATIONS

### Modelling Clinical and Radiographic Data for Early Detection and Prediction of Osteoarthritis

[📄 Paper]

Published: IEEE CSNT '25 (VIT Bhopal)

- Late-fusion: EfficientNetB3 (X-rays) + XGBoost (clinical), weighted ensemble for early KOA detection and grade prediction.

### KOA Prediction & Grading via Late-Fusion + LLM/RAG Insights

[📄 Folder]

Indian Patent App. No. 202541071393 A (Filed: 28 Jul '25; Pub: 01 Aug '25)

- Late-fusion Model (EfficientNetB3 + XGBoost) with LLM+RAG Pipeline for interpretability and patient-facing insights.

## HONORS & AWARDS

- Winner — **Karnataka State Police Datathon, 2024**: Won among 30,000+ initial submissions; built a geospatial + time-series crime analysis/prediction system for Karnataka State Police organized with support from Microsoft.

- **Technical Competitions:** 1.SSNCE (Invente): Winner—Solder It '22 Runner—EMaze'22,Trump the Aces('23) 2.CEG Anna Univ. (Kurukshetra): Runner—CTRLZ '23. 3.REC (Coulomb):Winner—Circuit Debugging'22 Runner—DIY Electronics'22