

Suparn Nayak

+91 7892745487 | suparnnayak56@gmail.com | linkedin.com/in/suparn-nayak | github.com/Suparnnayak

EDUCATION

Sir M Visvesvaraya Institute of Technology

Bachelor of Engineering in Computer Science (*CGPA: 8.1/10*)

Bengaluru, India

2023 – 2027

P R N Amratha Bharathi PU College, Hebri

Class 12 (*Percentage: 92.8%*)

Udupi, India

2021 – 2023

PROJECTS

AidLink — Disaster Relief Resource Matcher (DSA)

- Built a C++ matching engine using **priority queue** scheduling on urgency (1–5), deadline, and deterministic tie-breaking for consistent dispatch.
- Implemented **grid-hash spatial indexing** (`unordered_map`) with average **O(1)** lookup and ring expansion for nearby donor retrieval.
- Designed heap-based **Top-k ranking** ($O(C \log k)$) + greedy assignment; evaluated fulfillment and distance metrics on **50 requests / 30 donors** synthetic batches.

HealthFlow AI — Hospital Forecasting & Advisory Platform

- Developed a full-stack platform for **7-day hospital admission forecasting** using historical inflow data and external signal features.
- Built precomputed daily forecast pipeline with DB-first serving, removing runtime inference from handlers for improved reliability and stable response behavior.
- Integrated AI advisory layer to explain trend drivers and generate staffing/risk recommendations from forecast context.

IdeaLens AI — RAG-based Hackathon Proposal Screening

- Built a scalable PDF screening pipeline with template-aware chunking into **5 rubric sections**: problem, solution, feasibility, team capability, uniqueness.
- Used **384-d embeddings** with ChromaDB retrieval for evidence-grounded scoring and internal near-duplicate detection before ranking.
- Implemented strict JSON outputs on a **100-point rubric** with validation and invalid-submission flagging for consistent first-pass evaluation.

SkyRescue Vision — UAV Human Detection (Software Contribution)

- Contributed to UAV-SAR software pipeline for real-time RGB-stream human detection and multi-object tracking on companion-computer workflows.
- Improved tracking stability by **25%** using Kalman-tuned SORT association, reducing ID switches and improving temporal continuity.

TECHNICAL SKILLS

Programming: Python, C, C++

Data Science: NumPy, Pandas, Matplotlib, Seaborn, SQL, MySQL, PostgreSQL

Machine Learning & AI: Scikit-learn, Keras, CNN, LSTM, BiLSTM, NLP, RAG, LightGBM

Tools & Deployment: Git, GitHub, Docker, Render, Vercel

Web & Frameworks: Flask, Streamlit

ACHIEVEMENTS & LEADERSHIP

- Solved **250+** LeetCode problems across core DSA patterns.
- Mentored **50+** students in Data Structures & Algorithms during CSOC.
- Active TechHub member; contributed to workshops, ideathons, and collaborative peer-learning initiatives.