

RAM PRAKHYATH ANNAMAREDDY

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OBJECTIVE

Computer Science student with a strong interest in backend and cloud-based application development, supported by hands-on academic and self-learning projects.

EDUCATION

PES University (2023-Present), Bangalore, India

B.Tech. - Computer Science & Engineering (CGPA : 7.90)

Expected Graduation : 2027

Certifications :

- Next.js 13: Your Odyssey into Full Stack Mastery - **Awarded Distinction Certificate.** [PESU-IO]
- OS Fundamentals and Linux - **Awarded Distinction Certificate.** [PESU-IO]

RELEVANT COURSEWORK

- Operating Systems
- Database Management Systems
- Computer Networks
- Distributed Systems
- Data Structures and Algorithms

EXPERIENCE

Summer Intern - Centre of Data Modelling, Analytics and Visualization, PES University

[July 2025 - August 2025]

- CuraMate

[Tech Stack: React.js, FastAPI, PyTorch + scikit-learn (ML), Gemini (LLM)]

- Developed an AI-powered doctor portal to assist with **medical triage, symptom clarification, and digital record management** during patient consultations.
- Implemented **PDF-based patient report parsing** to extract demographic details and medical history, reducing manual data entry for doctors.
- Built ML-driven symptom analysis modules to **categorize patient conditions** and support faster clinical decision-making.
- Integrated **LLM-powered clinical explanations and conversational assistance** to provide doctors with concise, contextual insights.
- Designed backend APIs using FastAPI to **store and retrieve patient records**, enabling end-to-end digital workflows from appointment to prescription tracking.

SKILLS

Programming Languages	:	Python, Java, C, JavaScript
Databases	:	SQL (MySQL), Neo4j, Redis
Technologies	:	Linux (Arch, Debian)
Frameworks & Libraries	:	React.js, Next.js, Node.js, Express.js
Tools	:	Git, GitHub, Vim, Docker, Postman, Jira, AWS (foundational)

PROJECTS

1. Efficient Knowledge Graph Retrieval for LLMs using Graph Partitioning and Hybrid Semantic Search

- Designing an efficient KG-RAG pipeline to improve LLM reasoning by combining semantic graph partitioning, ANN-based retrieval, and GNN inference.
- Analyzing limitations of global GNN training on large knowledge graphs and proposing subgraph-level retrieval to reduce latency and noise.
- Conducted an extensive literature survey on Louvain, Leiden partitioning, KG-RAG, GNN-RAG, and hybrid semantic search techniques.
- Evaluated large-scale knowledge graphs (Wikidata-5M, DBpedia, ConceptNet) and justified dataset selection based on semantic richness and scalability.
- Currently implementing a hybrid retrieval pipeline integrating graph embeddings, ANN search, and pre-trained GNN + LLM models.

2. A real-time collaborative P2P markdown editor

[Tech Stack: **Next.js, Y.js, Tiptap, IndexedDB, WebRTC, WebSockets**]

- Worked on building a collaborative real-time markdown editor on top of TipTap (based on ProseMirror).
- Integrated Y.js for Conflict-free Replicated Data Type (CRDT) based state management.
- Implemented peer-to-peer collaboration using a signaling server for connection setup and state synchronization.
- Implemented “offline-first functionality”, to store changes locally in IndexedDB and merging them upon reconnection.

3. Voice Powered Multitasking Assistant

[Tech Stack: **Python, Vosk, Llama-3, Edge-TTS, AsyncIO, mpg123**]

- Developed a voice activated desktop assistant for Linux that performs real-time speech recognition, natural-language reasoning, and task automation
- Integrated Vosk for wake-word detection and speech-to-text processing, coupled with Llama 3 running locally via Ollama for on-device natural-language understanding.
- Implemented a fully asynchronous TTS streaming pipeline using Microsoft Edge-TTS and mpg123 for low latency audio playback.
- Enabled system-level automation, and application control through a modular command engine. Optimized for zero-UI, terminal-based usage which is ideal for low-resource or headless systems.

ACHIEVEMENTS & HACKATHONS

- Took part in **Hacknight 7 (2025)**, a hackathon held by **ACM PESUECC** in which **100+ students took part and placed 6th in the leaderboard**.
- **Grabbed the 2nd prize at Heal-O-Code 2.0**, an overnight hackathon held on 28th and 29th March 2025 by the **Centre for Data Modelling, Analytics and Visualization (CoDMAV) & WEAL of PES University, Electronic City Campus**.
- Took part in **Override 23'**, a hackathon held by **Google Developer Student Club (GDSC)** & placed in the top 10 teams.

PERSONAL DETAILS

Date of Birth : 25th August 2005

Languages Known : English, Telugu, Kannada and Hindi

Hobbies & Interest : Singing, Motorsports, Sketching cars.