Pampana Prem Charan

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Education

IIITDM Jabalpur **Dec 2021 – Aug 2025**
B.Tech in Computer Science (CGPA: 6.5) *Madhya Pradesh, India*

Sri Viswa Junior College **2019 – 2021**
Board of Intermediate Education Andhra Pradesh (percentage: 95.5) *Andhra Pradesh, India*

Won World School **2018 – 2019**
Board of Secondary Education Andhra Pradesh (CGPA: 9.7) *Andhra Pradesh, India*

Relevant Coursework

- **Computer Science:** Operating Systems, Data Structures, Analysis of Algorithms, DBMS, Artificial Intelligence, Machine Learning, Networking

Technical Skills

Programming Languages: Python, C++, Java, JavaScript

Web Development: HTML, CSS, React.js, Node.js, Express.js, Streamlit

AI & Machine Learning: Google PaLM2, LangChain, FAISS, Embeddings, Vector Databases, Machine Learning

Database Management: PostgreSQL, MongoDB, MySQL

Cloud & Tools: AWS, Git

Experience

Fusion - Institute ERP **Dec 2023 – Aug 2024**
Backend Engineer
- **API Development**: Designed and integrated RESTful APIs for PHC module, implementing efficient data validation and error handling protocols
- **Django Integration**: Integrated a Django backend, ensuring seamless data flow and enhancing the system's stability.

Projects

Real-Time Chat Application **Live Demo**
React.js, Node.js, Express.js, Socket.io, TailwindCSS
- **Secure Authentication**: Implemented secure user authentication using JWT (JSON Web Tokens) to ensure data privacy.
- **Real-Time Messaging**: Developed real-time messaging and online user status features using Socket.io and React Context.
- **State Management**: Utilized Zustand for efficient global state management, improving application performance.
- **Responsive UI**: Built a responsive user interface with TailwindCSS and Daisy UI, ensuring a seamless experience across devices.

Parallel MergeSort Implementation **Dec 2024**
C++, Multithreading, pthreads
- **Algorithm Design**: Developed a high-performance parallel merge sort using C++ threading, achieving over 14x speedup compared to its sequential counterpart.
- **Performance Optimization**: Optimized thread management and memory allocation to handle large datasets ranging from 10^6 to 10^8 elements efficiently.
- **Multithreading Expertise**: Demonstrated proficiency in parallel programming using pthreads and effective synchronization techniques.

Information Retrieval System **Dec 2024**
Python, LangChain, Google PaLM, FAISS, Streamlit
- **End-to-End AI Pipeline**: Developed a Streamlit app for querying PDF documents using LangChain, Google PaLM embeddings, and FAISS vector search.
- **Conversational Retrieval**: Enabled contextual Q&A over documents with retrieval-augmented generation and chat interface.
- **Efficient Data Handling**: Automated PDF text extraction, chunking, and semantic indexing for fast and accurate information retrieval.

Achievements

Competitive Coding: Resolved over 1,000 complex problems on competitive coding platforms.

LeetCode Rating: Achieved a top rating of **1670**, placing in the top **10%**.

Volunteer Experience

Tech Mentor, Code for Good: Mentored over 50 students and organized more than 10 workshops and hackathons.

Outreach Coordinator, Open Source Initiative: Coordinated over 20 events, leading a team of 15 volunteers.