

# VYSAKH RAJU

Python Developer

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## ABOUT ME

Experienced Python Developer with over 4 years of experience in building full-stack web applications, integrating large language models (LLMs), and working on real-time systems. Skilled in creating RAG-based solutions using Langchain and ChromaDB, with hands-on experience in Docker, GitLab CI/CD, and MongoDB. Strong focus on performance, clean architecture, and automation. Proficient in developing intelligent tools and backend services with Redis, WebSockets, and REST APIs, enabling seamless user experiences and scalable system designs. Passionate about solving real-world problems through reliable, maintainable code.

## EDUCATION

### ILAHIA COLLEGE OF ENGINEERING AND TECHNOLOGY

B.Tech in Computer Science and Engineering

2016-2020

### ST. MARY'S HSS

Higher Secondary Education (Computer Science)

2014-2016

## SKILL

- Languages :** Python, JavaScript, HTML5, CSS3, Shell Scripting
- Frameworks:** Tornado, FastAPI, Streamlit, Chainlit, Bootstrap, jQuery
- Libraries:** Langchain, Requests, NumPy, Matplotlib, PyMongo, OS, JSON, Re, Socket, jQuery, flot.js, Next.js
- Tools & Platforms:** Ollama, ChromaDB , GitLab, Docker, Mattermost, Git, VS Code, Jira, Confluence, Docmost
- Databases:** MongoDB, SQLite,Redis

## WORK EXPERIENCE

### Bharath Electronics Ltd. - Project Engineer

2021-Present

As a core developer, I was responsible for building web applications, working with large language models, and writing Python scripts for data analysis and visualization.

Key Contributions:

- Built a full-stack AI system using Ollama, Langchain, and ChromaDB for RAG-based document search and chat memory.
- Designed PDF/text ingestion pipelines with embedding and session storage using Redis.
- Developed a user-friendly Streamlit UI with streaming output, session export, and admin analytics.
- Integrated tools like Git repo analysis, code summarization, and post-response feedback into the chat workflow.
- Created background jobs to clone and analyze GitLab repositories via Git Ingest.
- Built a real-time DevOps bot using GitLab Webhooks and Mattermost for CI/CD event notifications.
- Managed performance with local model orchestration, ChromaDB indexing, and Redis caching.
- Worked on socket programming to handle high-throughput TCP/UDP (unicast & multicast) communication.
- Developed tools to analyze and visualize packet data, and created RESTful APIs for front-end/back-end integration.
- Deployed and maintained applications using Docker, ensuring environment consistency and smooth CI/CD with GitLab pipelines.
- Followed agile development practices, actively contributing to sprint planning, code reviews, and cross-functional team collaboration.

## PROJECT

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### 1. AI Chat Assistant with Local LLMs

- Developed a AI assistant using Ollama, Langchain, and ChromaDB for private RAG-based question answering.
- Enabled ingestion of PDF and text files, embedding them with chunking for accurate search and conversation continuity using Redis.
- Designed the frontend in Streamlit with streaming UI.
- Integrated real-time tools and task-driven actions within the chat.

### 2. Application Deployment and Control

A web-based platform built with the Tornado framework to manage the deployment, control, and maintenance of distributed client applications and their associated hardware.

- Developed robust server-side and front-end logic for managing applications and hardware.
- Utilized Web Sockets for delivering real-time updates to and from clients.
- Introduced Redis with Sentinel to handle communication between the server and daemon, ensuring high availability and reliable data packet transmission.

### 3. Real-Time Data & Audio Visualization Platform

- Built a web application to visualize real-time data using Python (Tornado) and JavaScript.
- Used multi threaded UDP socket programming to receive high-throughput telemetry packets.
- Indexed parsed data into MongoDB with metadata tagging for efficient retrieval.
- Visualized real-time data on an HTML canvas, including a waterfall plot with an overlaid tracking line.
- Enabled WebSocket-based live updates for low-latency client interaction.
- Integrated AudioContext for live audio streaming and playback of recorded audio from Redis.
- Ensured smooth synchronization between audio streams and data visualization.
- Designed a scalable, three-tier architecture for efficient processing and user interaction.

### 4. Software built Application

- Designed and developed a web application using FastAPI framework in python.
- Users can upload a configuration file which contains the information of gitlab url and branch, application will clone or pull he repo and the application will built the software and compress it with meta info about the buit. Designed and developed a web application using the FastAPI framework in Python.
- Enabled users to upload a configuration file containing the GitLab URL and branch details.
- The application automatically clones or pulls the repository, builds the software, and compresses it along with metadata about the build.
- Implemented concurrent builds using ThreadPoolExecutor, allowing multiple applications to be built simultaneously by assigning multiple worker threads.
- Integrated Redis to publish real-time build logs, which are displayed on the web interface for users to monitor build progress.
- Provided a detailed build summary on successful completion, visible directly on the application's UI.

### 5. intelligent code-analysis Tool

- Vectorized the entire source code using ChromaDB, using thread pools to accelerate vectorization.
- Created an outgoing GitLab webhook listener using FastAPI to receive all GitLab events.
- Captured merge events, analyzed git diffs and source code changes using an LLM, and generated concise summaries.
- Automatically posted insights to the Mattermost channel, helping the testing team understand changes, detect issues (undefined variables, broken modules, potential quality problems), and improve code review efficiency.

## REFERENCE

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### M P Hemanth

Scientist Npol, DRDO

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