ALLEN JOSEPH

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SUMMARY

A Computer Science Engineer with a growing understanding of software development and a genuine passion for technology. Combining a logical mindset with strong soft skills, making a valuable and professional contribution to the innovative culture of IT organizations.

EDUCATION

Amal Jyothi College of Engineering Autonomous   **2020 – 2024**
B. Tech in Computer Science and Engineering

EXPERIENCE

MyBlocks
Software Engineer Intern   **Jun 2025 – Present**
- Developed Retrieval-Augmented Generation (RAG) systems using LangChain, LangGraph, and Model Context Protocol (MCP)
- Built agentic web applications using CRA, Vite, JavaScript, and TypeScript.
- Developed an AI Voice Calling Application leveraging RAG techniques.

REVERTECH IT SOLUTION
Flutter Intern   **Oct 2022 – Nov 2022**
- Developed user interfaces (UI) following modern design principles to ensure smooth user experience.
- Integrated with backend services via APIs to enable real-time data handling and communication.
- Used version control (Git) and GitHub for code collaboration and tracking.

PROJECTS

AI Voice Calling Application | Vite, TypeScript, Python, Whisper, RAG   **Oct 2025 – Present**
- Developing real-time conversational AI system with end-to-end voice streaming pipeline.
- Implemented WebSocket-based communication between frontend and backend for seamless voice interaction.
- Integrated Silero VAD for speech activity detection, Whisper for ASR, RAG for knowledge retrieval, LLM for response generation, and TTS for voice output.

Agentic Web Applications (Fitness Agent, WebGen, AgentGen) | JavaScript, TypeScript, LangChain, MCP
Aug 2024 – Present
- Built agentic web platforms using CRA and Vite with LangChain and Model Context Protocol (MCP).
- Developed Fitness Agent for personalized food and fitness recommendations using LLM-driven dashboards.
- Co-developed WebGen and AgentGen, platforms to dynamically build agentic websites leveraging context memory and tool-based AI modules.

Retrieval-Augmented Generation (RAG) Systems | Flask, Node.js, LangChain, LangGraph, MCP
Jun 2024 – Present
- Built scalable RAG backend with Flask and LangGraph integrating Groq, Gemini, and OpenAI LLMs for document-grounded chat.
- Implemented Qdrant vector search with HuggingFace embeddings and Cross-Encoder reranking for precise retrieval.
- Developed persona and voice engines enabling dynamic AI agents with multimodal (text, image, audio) processing.
- Integrated Piper, Google TTS, ElevenLabs, and Deepgram for end-to-end text-to-speech and voice interaction.

Bharatanatyam Gesture Recognition with OpenCV | Python, OpenCV, Flask | Link   **Feb 2025**
- Developed real-time mudra recognition with 90% accuracy using OpenCV and MediaPipe.
- Built Flask web app for live video streaming and gesture display.
- Enhanced cultural learning with mudra name and meaning displayed instantly.

AI-Driven Multi-Robot Fire Suppression System | Python & Hardware Integration **May 2024**
- Created autonomous firefighting robot with indoor navigation.
- Integrated sensors for fire detection and suppression.
- Designed autonomous firefighting robot with 85% fire detection success rate.

SeekAssist: AI-Powered Vision Assistance for the Visually Impaired | Flutter | Link **Jun 2023**
- Built mobile app to describe images using AI with 92% label accuracy.
- Delivered output via voice and text for visually impaired users.
- Improved usability by 30% after feedback from live user testing.

TECHNICAL SKILLS

- **Programming Languages:** Python, JavaScript, TypeScript, C
- **Frameworks & Libraries:** Flask, FastAPI, LangChain, LangGraph, Node.js, Express.js, React (CRA, Vite), Flutter
- **AI & Machine Learning:** Retrieval-Augmented Generation (RAG), Prompt Engineering, LangChain Agents, Model Context Protocol (MCP), LLM Integration (OpenAI, Gemini, Groq), Whisper ASR, HuggingFace Transformers, MediaPipe
- **Speech & Multimodal Processing:** Whisper (ASR), Deepgram STT/TTS, Google TTS, ElevenLabs, Piper TTS, Gemini Vision, Tesseract OCR
- **Data Analysis & Visualization**: Pandas, NumPy, Tableau, Power BI, Advanced Excel
- Databases & Vector Stores: SQL, Firebase (Basic), Qdrant, Pinecone (Familiar), JSON-based Data Stores
- **Web Technologies:** HTML, CSS, JavaScript (ES6+), TypeScript, REST APIs, WebSockets
- **Cloud & Deployment:** AWS (S3, EC2 – Basic), Docker (Basic), GitHub Pages, Vercel
- **Web Scraping & Automation:** Selenium, BeautifulSoup, Requests
- **Developer Tools:** VS Code, GitHub, Android Studio,

SOFT SKILLS

Quick learner, Adaptable, Communication, Time-Management Problem-Solving, Presentation, Analytical.

CERTIFICATION

- The Joy of Computing Python by NPTEL
- AWS Essential Training for Developers
- Generative AI for Data Scientists – IBM