# Ushan Chamod

Full-Stack Developer

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## Summary

As an engineer, I'm driven by a genuine passion for solving real-world problems through thoughtful, human-centered software. I believe technology should serve people, not the other way around, and I strive to create solutions that are both impactful and intuitive. For me, software engineering is more than a career, it's a meaningful practice that lets me contribute to the world with purpose. I value clarity, creativity, and collaboration and I'm always looking for opportunities to build work that truly matters.

## Technical Skills

| | |
|---|---|
| Programming Languages | JavaScript • TypeScript • Python • Java |
| Frameworks/ Library/ Runtime | Node.js • React • Next.js • Express.js • NestJS • Framer Motion • GSAP |
| Backend & APIs | RESTful APIs • JWT Authentication • WebSocket • GraphQL |
| Databases | PostgreSQL • MongoDB • MySQL • ChromaDB (Vector Database) |
| AI/ Automation Tools | LangChain • LangGraph • LLMs • Retrieval-Augmented Generation (RAG) • Embedding & Vector Search |
| Cloud, DevOps & Tooling | Docker (Basic) • CI/CD Concepts • Linux Server Environments • Nginx (Basic) |
| Version Control | Git • GitHub |
| Operating Systems | Windows • Linux (Ubuntu, Kali) |

## Employment

**Full Stack Developer (Project Base)**                                    *June 2024 – Now*

*Lavontech (PVT) LTD*

- Built Inventory Management, POS, E-commerce systems, and a mobile app. Used React, Next.js, NestJS, Express, MongoDB, and MySQL.
- Focused on performance, localization, clean and reusable components.

**Full Stack Developer (Project Base)**                                    *Jan 2024 - Apr 2024*

*Visionary Design Vanguard (VDV)*

- Developed a venue reservation system using React, Express, and MySQL with responsive UI and REST API integration.

**Full Stack Developer (Project Base)**                                    *Jan 2023 – Nov 2023*

*Implex Holdings (PVT) LTD*

- Worked as a Full Stack Developer at Implex Holdings (PVT) LTD, assisting in front-end, back-end, database, and API development while gaining hands-on industry experience.

## Education

**Bachelor of Software Engineering (Hons.)** [Final Year]                 *Dec 2021 - Present*

*The Open University of Sri Lanka*

- A comprehensive four-year program covering software engineering, programming, computer science, and quality assurance.
- Developed strong self-directed learning and communication skills through an open and distance learning model.

## Leadership & Extracurricular Activities

- **Head Prefect** at Weerapura Junior School                             *2015 - 2016*

## Recent Projects

### AI-Powered E-commerce Shopping Assistant
- Designed an autonomous AI assistant capable of understanding user intent and executing secure, controlled database operations using an agent-based workflow.
- Implemented a cyclic state machine using LangGraph (LangChain) to manage conversation flow, context retention, and tool selection.
- Developed a hybrid product search mechanism combining vector similarity search (OpenAI embeddings with pgvector) and SQL-based metadata filtering for accurate product retrieval.
- Built a Retrieval-Augmented Generation (RAG) pipeline to query policy and reference documents, reducing hallucinations and improving response reliability.
- Implemented timeout handling and circuit-breaker mechanisms to ensure system robustness.

### Issue Tracker with AI Agent
- Developed a full-stack issue tracking system integrated with an AI agent for intelligent issue analysis and retrieval.
- Designed the AI agent using LangGraph StateGraph with conditional routing and deterministic text generation using OpenAI GPT-3.5-turbo.
- Implemented secure, isolated AI services using FastAPI, preventing exposure of sensitive API keys and authentication tokens.
- Integrated JWT-based authentication and secure external search tools.
- Built the frontend using React and TypeScript, and the backend using Node.js (Express) with MongoDB.

### Multi-Tenant Accounting System
- Architected a scalable, multi-tenant accounting platform to support the digital migration of 200+ companies.
- Implemented logical tenant isolation using PostgreSQL (Neon) with Node.js, TypeScript, and Drizzle ORM.
- Designed a stateless file storage architecture using Cloudflare R2.
- Developed background job scheduling mechanisms to monitor compliance-related business rules.
- Deployed and configured the production environment on a VPS.

### POS System for Jewelry Shop Chain (Front-end)
- Developed a point-of-sale system tailored for the jewelry industry, supporting karat-based pricing, weight-based sales, and dynamic price calculations.
- Built responsive and reusable UI components using React.js.
- Integrated REST APIs and GraphQL to enable real-time data synchronization across branches.

### Inventory management System for Jewelry Shop Chain (Front-end)
- Led frontend architecture design with Zustand for efficient global state management.
- Implemented hybrid data fetching using REST APIs and Apollo GraphQL.
- Engineered full bi-directional language support (LTR/RTL) for English and Arabic localization.
- Enhanced user experience using SCSS and GSAP for smooth animations and micro-interactions.

### Venue Reservation System (BMICH)
- Developed a venue reservation system using React.js, Express.js, and MySQL.
- Designed a normalized relational database schema to manage venues, pricing structures, and client information with minimal redundancy.
- Implemented real-time availability checks to prevent double-booking conflicts.