Dwaipayan Sardar

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SENIOR SOFTWARE ENGINEER-2, VITRA.AI

Innovative **Senior Software Engineer (4+ years)** with hands-on expertise in **full-stack development, distributed systems, and AI-driven solutions**. Adept at designing **scalable, multilingual, and intelligent platforms** for enterprises, with proven success in delivering high-impact projects for **Mahindra Tractors** and SaaS products at **Vitra.ai**. Skilled at integrating **AI/ML (LLMs, LangChain, RAG), cloud-native architectures (AWS, Docker, Redis, PostgreSQL), and cross-platform mobile apps (React Native, Flutter)**. Recognized for hackathon wins, innovation in **speech translation and personalization technologies**, and delivering **customer-centric, production-grade software**.

CORE SKILLS

- **Frontend Development:** React.js, Next.js, Tailwind CSS, Hero UI, Responsive UI/UX
- **Backend & APIs:** Node.js, NestJS, Express.js, WebSockets, REST
- **Databases:** PostgreSQL, MySQL, MongoDB, Redis, Query Optimization
- **Cloud & DevOps:** AWS (Certified), Azure, GCP, Docker, CI/CD, Grafana, Prometheus
- **Programming Languages:** JavaScript, TypeScript, C++, Python, Java
- **Mobile App Development:** React Native, Expo, Flutter(Basic), Android Native(Basic)
- **AI/ML & NLP:** Large Language Models (LLMs), LangChain, RAG, Face Augmentation, Voice Assistants
- **Testing & Automation:** Playwright, Puppeteer, Crawlee, Unit/Integration Testing

PROFESSIONAL EXPERIENCE

Vitra.ai, Bengaluru   Apr 2025 – Present
Senior Software Engineer-2
- Leading product engineering initiatives for **enterprise-grade multilingual platforms** with focus on scalability, performance, and AI integrations.
- Architecting and mentoring teams on **cloud-native systems**, ensuring high availability, robust monitoring, and cost-optimized deployments.

Vitra.ai, Bengaluru   Apr 2024 – Mar 2025
Senior Software Engineer
- **Designed and deployed a no-code translation platform** enabling enterprises to localize websites and mobile apps with minimal developer intervention.
- Integrated **Shopify and e-commerce** workflows with automated translation and **real-time currency conversion (250+ currencies)**, expanding global reach.
- Improved multilingual **React Native and Android Native compatibility**, ensuring smooth user experiences across platforms.
- Applied **database optimization and caching strategies** to reduce query latency by ~40% and enhance large-scale translation delivery.

Vitra.ai, Bengaluru   **Aug 2023 – Mar 2024**
Software Engineer
- Led the development of an **AI-powered personalized video creation system for Mahindra Tractors' 60th anniversary campaign**, serving thousands of users in multiple regional languages.
- Integrated **face augmentation technology** with WhatsApp-based distribution to provide **immersive, personalized customer experiences**.
- Achieved **measurable boost in engagement** across rural and semi-urban communities by combining **AI-driven personalization with regional accessibility**.

Vitra.ai, Bengaluru   **Feb 2021 – Aug 2023**
Software Development Intern (Remote)
- Contributed to **core translation modules**, supporting **speech-to-text, text-to-speech, and real-time translation workflows**.
- Collaborated with senior engineers on **early product scaling**, database structuring, and system optimizations that later powered Vitra.ai's flagship products.
- Led the development of an internal **CRM Platform- Vitra.ai Universe**

EDUCATION

- **M.Sc. Computer Science** – Acharya Prafulla Chandra College, North 24 Parganas, 2021 – 2023 (CGPA: 9.96)
- **B.Sc. (Hons) Computer Science** – Acharya Prafulla Chandra College, North 24 Parganas, 2018 – 2021 (CGPA: 9.66)

KEY PROJECTS

IoT & Voice Assistant Platform (Mahindra Tractors)
PostgreSQL, Next.js, NestJS, C++
- Engineered an IoT-enabled platform with **tractor sensors (brake, hydraulics, steering, etc.)** communicating via Wi-Fi to a central server.
- Built **real-time WebSocket broadcasting system**, enabling web apps to instantly receive touch signals and explain tractor parts in multi-language voice outputs.
- Developed an **Alexa-like tractor-specific voice bot**, available in multiple Indian languages, to assist farmers and dealers.

Personalized Decal Mobile App (Mahindra Tractors)
React Native Expo, NestJS, PostgreSQL
- Built a **dealer-facing mobile app** to order **personalized decals** with customer-selected names.
- Integrated **multi-language support** for diverse user groups, streamlining dealer workflows.
- Reduced order-processing time and ensured **accurate customization with PostgreSQL-backed data handling**.

"Har Gaon Mein Star Hain" Campaign (Mahindra Tractors)
NestJS, PostgreSQL, Python
- Designed a **personalized poster generation system** using **face augmentation** technology.
- Automated **poster delivery via WhatsApp** using AI pipelines, enabling instant distribution to thousands of farmers.
- Achieved high adoption rates in rural markets by offering **localized templates in state-specific languages**.

QBMS – Intelligent Question Bank Management System

Next.js, NestJS, MongoDB, LangChain

- Built an **AI-powered question bank** for academic institutions.
- Implemented **RAG pipelines with LangChain** to extract and classify questions from **PDFs and images**.
- Added **Bloom's Taxonomy-based categorization**, improving exam readiness for educators.

Webhook Manager (General Service)

NestJS, PostgreSQL, Redis

- Developed a **generalized webhook orchestration service** capable of scheduling or instantly triggering API calls.
- Implemented **configurable retry strategies**, backed by Redis queues for high reliability.
- Designed secure **API key–based service onboarding**, enabling multi-tenant usage.

Bhasha Sarathi – Real-time Offline Speech Translation App

React Native, Offline AI

- Built an **offline speech-to-speech translator**, supporting multiple Indian languages to bridge communication barriers.
- Delivered **instant translation capability** without internet dependency, winning **Future Hack Hackathon 3.0 (1st Place)**.

CERTIFICATIONS

- **AWS Certified Cloud Practitioner** – Amazon Web Services (Aug 2025)
- **Docker** – KodeKloud (Sep 2024)

HONORS & AWARDS

- 🥇 **Future Hack Hackathon 3.0** – 1st Place (Bhasha Sarathi – Real-time Offline Speech Translation App)
- 🥈 **Future Hack Hackathon 2.0** – 2nd Place (Chatbot as Dashboard Replacement)
- 🎯 **GenAI Hackathon – Airtribe x Pine Labs –** Participant