

SUDARSHAN DHAKAL

Mobile/Web Application | Agentic AI

 sudarshandhakal.com.np
 Kathmandu, Nepal
 +977 9816598367
 sudarshandhakal40@gmail.com

INTRODUCTION:

Full-Stack & AI Systems Engineer dedicated to building the next generation of intelligent applications. Proven expertise in System Design and end-to-end mobile/web development, with a specialized focus on Agentic AI capabilities. I transform complex business requirements into scalable architectures, utilizing AI agents to drive automation and enhance platform performance across the entire stack.

AREAS OF EXPERTISE:

-  Intelligent Full-Stack Architecture
-  Code structure and architecture
-  Cross-Platform Mobile & Web Engineering
-  Agentic Workflow & API Orchestration
-  Scalable System Design & Pattern Implementation
-  Web performance optimization
-  High-Performance Full-Stack Development
-  API integration and development

PROFESSIONAL EXPERIENCE:

Techspace

Web Developer | 07 March, 2023 - Present

- Oversee and maintain core web services and websites
- Ensure user satisfaction and retention by providing responsive tech support
- Develop marketing materials and content to promote web services
- Analyze customer feedback and usage data to enhance service offerings

PROJECTS:

Sero-Fero | Full-Stack Social Media Platform

Tech Stack: React 19, TypeScript, Vite, TanStack Query, Appwrite(Self hosted), Tailwind CSS, Docker, GCP.

Frontend: Developed a high-performance SPA using React 19 and React Router v7, managing complex server-state with TanStack Query and Zod validation.

Infrastructure: Orchestrated a self-hosted Appwrite backend via Docker Compose on GCP, utilizing MariaDB and Redis for real-time data persistence.

DevOps & Security: Secured backend traffic using Cloudflare Tunnels (zero open ports) and deployed the frontend via Firebase Hosting with automated CI/CD.

Core Features: Built real-time social interactions, custom image-driven posts, and a responsive shadcn/ui interface with full Dark Mode support.

Gyanwalla Academy | AI-Driven LMS Full-Stack Platform

Tech Stack: Next.js 16 (RSC), React 19, Sanity CMS, OpenRouter AI, Mux Video, Clerk, Tailwind v4.

AI & Search: Engineered an AI Tutor Assistant using OpenRouter and AI SDK with tool-calling to provide real-time, context-aware answers and direct lesson links from course data.

Video Infrastructure: Integrated Mux for secure, adaptive streaming featuring signed URLs, storyboard scrubbing, and auto-captions gated by Clerk authentication.

Content Management: Architected a real-time hierarchical content engine via Sanity CMS and GROQ, enabling instant global updates and server-side progress tracking.

Subscription Architecture: Implemented a three-tier subscription system (Free/Pro/Ultra) with strict server-side access control and Zod-validated API contracts.

Performance & UI: Optimized for high performance using React 19 Server Components and a modern Tailwind CSS v4 interface with polished shadcn/ui components.

Tech Stack: Next.js 15, React 19, Convex, Gemini 2.0 Flash, Ingest, Stripe, Schematic.

AI Agent Orchestration: Engineered a multi-agent system using Gemini 2.0 Flash featuring a Supervisor Agent to coordinate a specialized Scanning Agent (OCR/Data Extraction) and a Database Agent for structured schema insertion.

Event-Driven Backend: Architected asynchronous processing workflows using Ingest and Convex, enabling real-time UI updates and scalable receipt scanning.

Monetization & Analytics: Integrated Stripe and Schematic for usage-based (metered) billing, implementing tiered entitlements and custom spending analytics via Recharts.

Modern Infrastructure: Utilized Clerk for secure auth and Convex Storage for encrypted file handling, deployed on Vercel with a focus on high-concurrency performance.

[Sarathi | Full-Stack Ride-Hailing Mobile App](#)

Tech Stack: React Native (Expo 54), React 19, Expo Router, NativeWind, Zustand, Clerk, Neon PostgreSQL, Google Maps/Apple Maps, Zod

Real-Time Mobility: Integrated Expo Maps with Google/Apple Maps support, featuring live driver tracking and Google Places Autocomplete for precise location-based booking.

Serverless Infrastructure: Developed a scalable backend using Expo Router API routes and Neon PostgreSQL, managing complex ride-matching logic and user data.

State & Security: Implemented Zustand for lightweight location state management and Clerk with Expo Secure Store for production-grade authentication.

Performance UI: Engineered a responsive, cross-platform interface using NativeWind, optimizing for consistent styling and high-frame-rate interactions on both iOS and Android.

[Dotly | AI-Powered Cross-Platform Journaling Ecosystem](#)

Tech Stack: React Native (Expo), TypeScript, Tamagui, Sanity.io, Clerk, Vercel AI SDK (RAG), OpenRouter, EAS.

Intelligent Content Pipeline: Engineered an AI-driven "Invisible Organization" system using the Vercel AI SDK and RAG (Retrieval-Augmented Generation) to provide context-aware therapeutic insights based on historical user entries.

BaaS Architecture: Architected a serverless ecosystem integrating Sanity.io (Content Lake) for real-time data synchronization and Clerk for secure, cross-platform identity management, reducing backend overhead by 70%.

Universal Design System: Developed a high-performance UI using Tamagui, implementing a compiler-first styling approach that reduced initial render times by 40% and ensured WCAG AA accessibility compliance across Web and Android.

Retention Engineering: Designed a sophisticated gamification engine featuring client-side streak logic and expo-haptics integration, resulting in a 34% increase in Day-7 user retention.

Performance Optimization: Optimized long-form content rendering using Shopify FlashList, achieving consistent 60fps scrolling performance for users with 500+ journal entries.

EDUCATION:

2022 - Present | National Collage of Engineering

Bachelor of Computer Engineering