Nishan Khanal

Budhanagar-10, Kathmandu, Nepal

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Work Experience

Full-Stack Developer   *Khwopo eCommerce, Kathmandu, Nepal*
Nov 2024 Apr 2025

- Led the full-stack development of a multi-vendor, mobile-first eCommerce platform using **Next.js**, **Tailwind CSS**, **GraphQL**, and **MongoDB**.
- Designed and implemented three-level authentication with **NextAuth.js** using JWT/session strategies.
- Integrated **Redux Toolkit** for persistent cart, wishlist toggle, and async UI state management.
- Developed buyer-side modules like cart with quantity control, address manager, and eSewa/COD payment integration.
- Designed seller dashboards for product creation, stock updates, and dispatch tracking.
- Created GraphQL schemas and resolvers using **Apollo Server** with modular organization.
- Implemented cache strategies and optimistic UI updates with Apollo Client for performance.

Frontend Developer   *EMIS Unit, Thapathali Campus, Kathmandu*
Jun 2023 Apr 2024

- Rebuilt Thapathali Campus website frontend using Next.js and Tailwind CSS.
- Built CMS dashboard with token-based REST APIs for dynamic content and notice management.
- Created a component library using atomic principles; developed tabbed interfaces and table layouts.
- Implemented ISR for real-time publishing and optimized HTML for SEO and accessibility.

Full-Stack Developer (Freelance)
Feb 2023 Jun 2023

- Built a multilingual typing platform Anand Typing using Next.js, Express.js, and PostgreSQL.
- Supported Unicode Mangal, Hindi, and English typing test configurations.
- Implemented dashboards for student performance and admin test management using JWT auth.
- Secured backend with route guards, pagination, and indexed queries for concurrent usage.

Education

B.E. in Electronics, Information and Communication Engineering

Thapathali Campus, Tribhuvan University   *Apr 2021 Apr 2025*

Projects

Autonomous Rubik's Cube Solver (Published)   [IOEGC Paper] [Demo Link]

- Fined Tuned the YOLOv8 model for face recognition of a rubik's cube
- Developed a robotic arm with one degree of freedom
- Built Unity GUI to simulate the solving process

Video & Audio Compression with INRs   [Demo Video]

- Collected required videos and audio representing different spectrums of spatial and hearable frequency.
- Created novel SIREN model that represents both audio and video in a single model with sine activation.
- Used quantization and distillation for reducing the model size.
- Served via FastAPI and streamed in real time using React.js and WebRTC.

RAG Chatbot With F1 Data   [GitHub]

- Automated the collection of Formula 1 data by identifying relevant web sources and scraping content using Puppeteer.
- Generated vector embeddings using OpenAIs `text-embedding-3-small` model and stored them in a vector DB.
- Implemented RAG architecture with OpenAIs GPT-4o mini for context-aware query response using dot-product similarity.

Pulse Post [Pulse Post](#)

- Developed a full stack social media app in Reactjs, Expressjs and MongoDB
- Created a a chat feature where user can search persons based on username and chat with eachother
- Features like posting with image,like comments are implemented

USSAF Nepal Website [USSAF Nepal](#)

- Developed WordPress-based site with dynamic templates for NGOs mission, blog, and registration.
- Integrated schema markup, Open Graph metadata, and mobile-first design.

Professional Skills

AI/ML: Python, PyTorch, INRs, Computer Vision, LLMs, Pandas, NumPy
Frontend/Backend: React.js, Next.js, Tailwind CSS, Express.js, GraphQL, Apollo, MongoDB, PostgreSQL
Soft Skills: Collaboration, Technical Writing, UI/UX Thinking, Research-led Prototyping