

Amit Kumar Patel

Senior Software Engineer · Full Stack & AI/ML · 5.2+ Years Experience

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Summary

Full Stack Software Engineer with 5+ years of experience delivering scalable platforms and production-grade AI systems. Improved system reliability by 40% and supported platforms serving 1,000+ stores. Built and deployed RAG pipelines, agentic AI systems, and distributed inference infrastructure across Kubernetes and HPC environments. Strong expertise in full-stack architecture, CI/CD and inference optimization for large-scale ML systems. Published AI researcher with an award-winning paper (3 citations). Currently pursuing an MS in Computer Science (AI) at the University of South Dakota, seeking roles in building scalable AI systems, applied machine learning, and production full-stack engineering.

Technical Skills

Languages: Python, JavaScript/TypeScript, Node.js, Java, PHP, SQL, C++, C

Frontend/Backend Frameworks: React, Next.js, Django, Flask, FastAPI, React Native, Android, Laravel, Angular

AI/ML: LLMs, RAG, LangChain, LangGraph, LlamaIndex, PyTorch, TensorFlow, Transformers, Fine-tuning, Deep Learning, CNNs, Agentic AI, Reinforcement Learning, OpenAI SDKs, Hugging Face

LLMOps & Inference: vLLM, Ollama, Model Serving, Prompt Engineering, LLM Evaluation, VectorDB

DevOps & Cloud: Docker, Kubernetes (pod management, deployments), GitHub Actions, CI/CD, ArgoCD, Jenkins, AWS, HPC/Nautilus, Grafana, Firebase

Databases: PostgreSQL, MySQL, MongoDB, Redis, DynamoDB, Snowflake

Protocols & Tools: REST, Kafka, RabbitMQ, Git, GitHub, Android Studio, GraphQL, Agile/Scrum

Professional Experience

Research Assistant, University of South Dakota, Computer Science Dept.

Spring 2026 – Present, Vermillion, SD

- Researched **RL with LLMs and agentic AI**; implemented and benchmarked **CoT, ReAct, Reflexion, ExPeL** baselines; proposed methods for improved performance and stability by up to **30%**.
- Built end-to-end pipelines on **Nautilus HPC** for training, evaluation, and deployment; used **vLLM, open-source models, OpenAI SDK, Kubernetes, and Docker** for distributed inference.
- Led **VideoAgent optimization**; implemented baselines and improved multi-step reasoning via iterative tuning.
- Studied **CNN robustness under distribution shifts**; published **1 paper (3 citations)**; ongoing work shows promising results.

Senior Software Engineer II, LIS Nepal

Oct 2023 – Aug 2024, Lalitpur, Nepal

- Improved system reliability by **40%** by building a **RAG-based AI chatbot** using **Next.js, Django, Celery, RabbitMQ, OpenAI, and LangChain**.
- Reduced onboarding time by **25%** by mentoring 3 engineers and standardizing backend and AI engineering practices.

Software Developer (Freelance), Toptal — Top 3% Elite Network

Feb 2022 – Aug 2024, Remote

- Delivered production AI systems: Hair Density Tracker, LegalFit CRM, and AI Compliance Q&A (1,000+ queries/minute) using **React, Python, OpenCV, LangGraph, VectorDB, Kafka, Node.js, and RAG architectures**.

Senior Software Engineer, LIS Nepal

Aug 2021 – Feb 2022, Lalitpur, Nepal

- Improved reporting accuracy by **50%** by building enterprise compliance workflow automation systems used across **5+ offices and 200+ employees** using **React.js, Python(Django), React-Query, Redux-Saga, MUI, Plaid, Laravel, PostgreSQL, and GitHub Actions**.

Software Engineer, LIS Nepal

Aug 2020 – Aug 2021, Lalitpur, Nepal

- Scaled operations to **1,000+ retail stores across 10+ time zones** using **EJS, Google Maps API, Express.js, Node.js, MySQL, Sequelize ORM, Docker, and Jenkins**.
- Designed and integrated payment gateway infrastructure, strengthening reliability of **Nepal Stock Exchange platform (\$34B market cap)** and achieved **90% test coverage** using **Java, Angular, Redis, JUnit, and Mockito**.
- Reduced system downtime by **20%** by building a real-time **trading and auction matching engine**, handling live order flow using **Java, Scala, Redis, Socket, RabbitMQ, Jenkins, and MySQL**.

Associate Software Engineer, LIS Nepal

May 2019 – Aug 2020, Lalitpur, Nepal

- Built and launched OpinionShield Android app with **5,000+ active users** using **Java, Android, RxJava, Retrofit, In-App Purchase, Google Maps API, Plaid, Play Store, Android Studio**.
- Reduced POS deployment setup time by **30%** using Oracle Xstore integration with Java-based workflows.

Education

University of South Dakota

MS in Computer Science — Artificial Intelligence

Vermillion, SD

Aug 2024 – Present

IOE, Pulchowk Campus, Tribhuvan University

Bachelor of Engineering in Computer Engineering

Lalitpur, Nepal

Nov 2014 – Sep 2018

Publications & Awards

- Robin N. Ranabhat, Longwei Wang, **Amit Kumar Patel**, K.C. Santosh — *Promoting Shape Bias in CNNs: Frequency-Based and Contrastive Regularization for Corruption Robustness*, arXiv:2509.11355 — **3rd Best Paper Award**, **3 Citations** [link]