

Ujjwal Bhatta

Software Engineer — MS Computer Science Candidate (May 2026) — Vermillion, SD

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SUMMARY

Backend-focused MS Computer Science candidate with 2+ years of production experience shipping SaaS platforms on Node.js, NestJS, and PostgreSQL. IEEE CAI 2026 accepted researcher in LLM-guided reinforcement learning. Built real-time systems, event-driven architecture, and multi-agent LLM pipelines in production. Available for full-time roles from May 2026.

EDUCATION

Master of Science in Computer Science

University of South Dakota — GPA: 4.0

Aug 2024 – Expected May 2026

Vermillion, SD, USA

Bachelor of Engineering in Computer Engineering

Tribhuvan University

Nov 2017 – Apr 2022

Kathmandu, Nepal

TECHNICAL SKILLS

- **Languages:** JavaScript, TypeScript, Python, C++
- **Backend:** Node.js, NestJS, Express.js, FastAPI, REST APIs, WebSockets, Microservices, JWT
- **Databases & Caching:** PostgreSQL, MongoDB, MySQL, Redis, Prisma, Sequelize
- **Cloud & DevOps:** AWS (EC2, S3, SES), Azure, Docker, CI/CD pipelines
- **AI/ML:** Anthropic Claude API, Multi-Agent Systems, RAG (FAISS, BM25), LLM Integration, PyTorch

WORK EXPERIENCE

AITC International

Backend Engineer

Aug 2022 – Aug 2024

Remote — Flower Mound, TX, USA

- Led a backend team of 3 junior developers, established TypeScript/NestJS coding standards, and made architectural decisions (monolithic vs. microservices) for multiple projects, improving system modularity, maintainability, and overall performance.
- Built a SaaS visitor management system serving 10+ residential communities, featuring real-time emergency broadcasts and push notifications via event-driven APIs and WebSockets.
- Developed a live auction marketplace backend supporting concurrent WebSocket bidding rooms with sub-200ms update latency, plus a React.js admin dashboard for virtual exhibitions.
- Automated deployment processes using Docker and CI/CD, reducing deployment time by 50% and enabling consistent releases across environments.
- Created API and technical documentation using Postman and Swagger, reducing third party integration time by 30%.
- Wrote unit and integration tests using Jest and Mocha/Chai, improving code reliability and reducing bugs across backend services.
- Implemented scheduled background jobs using Node-Cron for automated data processing and database cleanup.

Ultimodeal Online Shopping Pvt. Ltd.

Software Engineer

Dec 2021 – Aug 2022

Kathmandu, Nepal

- Developed RESTful APIs for an e-commerce platform, designing separate service layers and implementing role-based access control (RBAC) for secure and maintainable code using JavaScript, Node.js, and MongoDB.
- Utilized AWS S3 for image storage and AWS SES for transactional email delivery, handling 500+ daily transactions.
- Integrated multiple digital payment systems including card payments, Khalti, and eSewa, ensuring secure and reliable payment processing.
- Optimized database queries, reducing API response times by up to 40% to support higher concurrent user loads.
- Collaborated in an Agile/Scrum environment, participating in sprint planning and code reviews to deliver features iteratively.

PROJECTS

PlanMyPlate — AI Meal Planning API

Python, FastAPI, React, TypeScript, Claude (Anthropic API)

Apr 2026

2nd Place, USD Ignite Hackathon

- Built an AI-powered meal planning app using multi-agent architecture with Anthropic's Claude API, generating weekly meal plans, macro-optimized grocery lists, and cooking schedules based on user body composition, dietary needs, and budget.
- Shipped a fully working product (FastAPI backend + React/TypeScript frontend) within a 48-hour sprint, judged on technical complexity and real-world applicability.

E-Commerce Product Success & Price Prediction

Python, XGBoost, LightGBM, FAISS, BM25, SHAP

Aug 2025 – Dec 2025

Vermillion, SD, USA

- Built and served a product success classifier (Random Forest, XGBoost, LightGBM) on 30,000 Amazon Electronics records via a FastAPI REST API, achieving 82.98% accuracy with structured endpoints for product ingestion and scoring.
- Developed a RAG-based price prediction system (FAISS + BM25 hybrid retrieval) with SHAP explainability, exposing predictions through REST endpoints and evaluated via MAE, RMSE, R^2 , MAPE, and Median Absolute Error.

PUBLICATIONS

Uncertainty-Aware LLM-Guided Policy Shaping for Sparse-Reward Reinforcement Learning

Accepted — IEEE CAI 2026

LEADERSHIP

NSF I-Corps

Entrepreneurial Lead

Jan 2025 – Feb 2025, Jun 2025 – Jul 2025

Vermillion, SD, USA

- Conducted 40 customer discovery interviews applying lean startup methodology to refine AI product concepts, including a legal research assistant using LLMs for case analysis and drafting, and a multi-instrument music transcription tool.