Jaljala Shrestha Lama

Highland Heights, KY

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github.com/jalshrestha 🌐 Portfolio

Education

Northern Kentucky University **May 2026**
Bachelor of Science in Computer Science; GPA: 3.54/ 4.0 *Highland Heights, KY*

Relevant Coursework

Data Structures & Algorithms, Data Wrangling, Theory of Computation, Artificial Intelligence, Data Visualization, Operating Systems, Database Systems, Discrete Mathematics, Android Application

Experience

Research Assistant **May 2024 – Present**
Northern Kentucky University *Highland Heights, KY*
- Built an NLP pipeline with Python, spaCy, and SBERT to cluster 30K snippets in four minutes .
- Co-authored a peer-reviewed MIPRO 2025 paper analyzing 150+ ChatGPT users and 5K+ prompts to uncover privacy vulnerabilities and propose safer LLM deployment practices.
- Devised a semantic-novelty metric combining GPT-4o, Claude 3, Gemini 2.5 Flash, and DeepSeek to automate 90.5% of reviews with 94.4% precision, supporting ICETC submission.
- Designed a hybrid Graph Neural Network + CodeBERT architecture to detect fraudulent Ethereum smart contracts with 89% accuracy and 0.67 F1-score.

Teaching Assistant **Jan 2025 – May 2025**
Northern Kentucky University *Highland Heights, KY*
- Assisted in teaching Web Development for 40+ students through coding labs, debugging, and project reviews.
- Fine-tuned a machine learning model to auto-grade assignments with 87% accuracy versus human grading.
- Developed course materials, exercises, and rubrics for consistent instruction; delivered guest lectures and mentorship.

Projects

Neural Options Oracle – AI Trading Platform | *Python, FastAPI, OpenAI, LightGBM, Prophet, Docker, Supabase*
- Developed trading application using Python FastAPI and OpenAI with 6 specialized AI agents for technical analysis, sentiment scoring, and options flow. Generated real-time trading signals with confidence scoring and risk assessment.
- Implemented model combining OpenAI sentiment analysis, LightGBM gradient boosting, and Prophet time series forecasting. Achieved real-time signal generation with statistical analysis and feature engineering from market data.
- Developed scalable, production-ready trading infrastructure integrating Alpaca and Yahoo Finance APIs with Docker and Supabase; implemented WebSocket-based live market data streaming, paper-trading execution, and portfolio performance tracking with fault-tolerant asynchronous design.

Wanderer – AI Travel Companion & Social Matching Platform | *React, Node.js, Firebase, Google Gemini AI*
- Developed full-stack web application using React, TypeScript, Node.js, and Firebase with real-time messaging, JWT authentication, RESTful APIs, and responsive UI design with comprehensive error handling and validation.
- Engineered multi-agent AI architecture using with 4 agents that coordinate complex travel planning workflows, integrating real-time data from SerpAPI, OpenWeather, and Google Maps APIs for intelligent itinerary generation.
- Built user matching system with profile management, Firebase integration, intelligent preference algorithms, real-time chat via WebSocket connections, and dynamic UI components using TypeScript for type safety and maintainable code.

Crypto Price Prediction | *WebSocket, Redis, TensorFlow.js, Gemini-2.5-Flash, Sentence-BERT, FAISS*
- Developed LSTM ensemble wrapped with Gemini-2.5-Flash RAG layer to explain forecasts; reduced MAE by 7.1% and raised ROC-AUC to 0.83.
- Implemented technical-indicator engine (RSI, MACD, Bollinger Bands, Volume Profile) and market-phase HMM classifier, improving CAGR 18%.
- Deployed sentiment analysis pipeline embedding 1K news/min using Sentence-BERT + FAISS; correlated polarity to 4h returns (r=0.42).

Technical Skills

Languages: Python, R, C++, Java, JavaScript, Linux, MySQL
Frameworks & Tools: PyTorch, TensorFlow, Azure, Docker, Pandas, NumPy, Scikit-learn, OpenCV, Node.js, React.js, Next.js, Git, Tableau, Blockchain, OpenAI