VU TRONG CHAU

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SUMMARY

Machine Learning Engineer specializing in LLMs, RAG pipelines, and production-grade MLOps. Experienced in building scalable end-to-end ML systems, optimizing model performance, and deploying cloud-native AI applications on AWS, GCP, and Azure. Strong focus on retrieval systems, vector search, and real-time inference, with a proven ability to translate complex data into reliable, high-impact solutions.

TECHNICAL SKILLS

Programming Languages: Python, R, C++, JavaScript, SQL

Machine Learning & AI: LLMs, RAG, NLP, Deep Learning, CNNs, RNNs, XGBoost, SVM

Frameworks: PyTorch, TensorFlow, Scikit-learn, LangChain, HuggingFace

MLOps & Cloud: Docker, Kubernetes, CI/CD, MLflow, Airflow, FastAPI, AWS (SageMaker), GCP (Vertex AI), Azure ML

Data Tools: Pandas, NumPy, SQL, D3.js, Tableau

IoT & Hardware (Transferable): Arduino, PCB Design, SolidWorks, AutoCAD

PROJECTS

Healthcare Chatbot Sep 2025 – present

- Designed and deployed an LLM-powered healthcare Q&A chatbot with Retrieval-Augmented Generation (RAG), enabling high-accuracy retrieval across 250,000+ records.
- Built an automated MLOps pipeline using CI/CD, Docker, and FastAPI, reducing deployment cycle time by 40%.
- Integrated FAISS vector search and optimized prompts, improving retrieval precision by 25% and enhancing response reliability.

Threat Detection using Machine Learning Jan 2025 – July 2025

- Developed ML models (Logistic Regression, XGBoost, Random Forest, Naive Bayes), achieving 92% accuracy on 72,000+ labeled texts.
- Engineered semantic, syntactic, and sentiment features, increasing classifier performance by 15%.
- Deployed a real-time moderation interface using Flask, generating severity scores and reducing review time by 40%.

Global Population Prediction Jan 2025 – May 2025

- Forecasted population trends (1960–2023) for 200+ countries using ML models achieving <2% MAE.
- Built interactive dashboards (choropleth, line charts, bar charts) to improve researcher usability and insight discovery.
- Implemented scalable data-refresh pipelines using Python and D3.js, reducing manual update effort by 60%.

Sleep Quality Prediction Sep 2024 – Dec 2024

- Developed machine learning models (Logistic Regression, Random Forest, CNNs, RNNs) to predict sleep quality scores from 70,000+ lifestyle and data records.
- Built ML models predicting sleep quality using lifestyle and biometric data, improving precision by 20% over baseline
- Engineered features (stress, heart rate, sleep duration, steps) to increase model stability and robustness and deployed a Flask dashboard enabling users to input lifestyle metrics, receive real-time predictions, and access personalized recommendations.

EDUCATION

Troy University **Troy, AL**
Master of Science in Computer Science - Artificial Intelligence | GPA: 3.5 July 2025

Key Courses: Analysis of Algorithms, Computer Architecture, Machine Learning, Advanced Artificial Intelligence, Data Visualization.

University of Sunderland **Sunderland, UK**
Bachelor of Engineering in Electronic and Electrical Engineering | UK 2:1 Honours (3.5 GPA equivalent) July 2021

Key Courses**:** Embedded systems, Electronic Circuits and Devices, Electrical Power, Electronic Systems, Manufacturing System Design.

CERTIFICATIONS

LLM Application Engineering and Development | **Simplilearn** | Link Oct 2025

Data Science Methodology | **IBM** | Link Sep 2025

Generative AI with Large Language Models | **DeepLearning.AI** | Link Sep 2025