Nguyen Quoc Anh — AI Engineer

 TheQuantScientist | in andrewfinance | ✉ anhnguyen.aiml@gmail.com | +84 39-998-5047 | 🌐 Portfolio

EDUCATION

Royal Melbourne Institute of Technology   Ho Chi Minh City, Vietnam
Bachelor of Business — Economics and Finance   *2021 — 2025*

PROFESSIONAL EXPERIENCE

BackEnd AI/ML Engineer, *(Hitachi Digital Services)*   *10/2024 — present*
- Developed a LLM-based multi-agent system for high-speed rail train management through information retrieval and penalty optimization.
- Built a Text-to-SQL agent using LangChain/LangGraph frameworks, managed ETL processes on PostgreDB/SQL, deployed via FastAPI.
- Integrated FAISS similarity search and advanced techniques (RAG, CPAL, CoT) to enhance Llama3.3, Gwen2.5, and GPT-4o rationale.
- Engineered system prompts, reduced hallucination, defined rules for data ingestion, enabling train reschedule with violation detection.
- Trained and fine-tuned YOLOv8-11n models on HoloLens v2 for real-time object detection with Maya-3D logistic guidance at manufactory.
- Wrapped trained models in ONNX format, deployed Sentis models onto HoloLens for internal testing across augmentation parameters.
- Served as technical advisor for internal Text-to-SQL projects and core member of HFMT's GenAI team, attending VDC's Leader meeting.

Research Associate, *(Tech Mahindra)*   *09/2024 — 10/2024*
- Conducted user study (n=1000) on smart devices from Apple, led participants through 50+ mobile protocols in dynamic environments.
- Engaged in CRM training and daily F2F customer services, recorded daily outcome onto the database, in charged of tech-heavy duty.
- Run selected studies under NDA agreement, trained newcomer user research staff, recruited local participants, exceeding KPI by 50%.
- Established secure research environment following vendor specifications, ensured bulletproof data privacy, welcomed foreign vendors.

Undergraduate AI/ML Researcher, *(RMIT Vietnam)*   *03/2023 — 09/2024*
- Developed SOTA deep Neural Network models on S&P 500 stocks for quant exchange, achieving 75% real-time swing-trading accuracy.
- Optimized models' metrics up to 85% by implementing Phase Space Reconstruction and Attention Mechanisms into their architectures.
- Managed ETL processes and 2M irregular observations from PhysioNet and YFinance using Python, increasing data credibility by 55%.
- Built cryptographic algorithms and Federated Environments for IoT cybersecurity experiments, peer-reviewed 43 PhD research papers.

AI Systems and Multilingual LLMs Trainer, *(Scale AI)*   *04/2024 — 09/2024*
- Trained private AI chatbots to reach a native level of Vietnamese, scoring 81% customer satisfaction rate through periodic public surveys.
- Designed LLMs' logic through consecutive, recursive copywriting and iterative feedback loops, engineered to 90% response rationality.
- Monitored GenAI's natural language errors in testing to conduct weekly NLP reports and user guides for optimal prompting experience.

RESEARCH PROJECTS

CLAM: A Hybrid Deep Learning Model for Weekly Stock Trend Forecasting   *Project Link & Paper*
- Developed a synthetic model with stacked layers of Conv1D, LSTM, and Attention Mechanisms for multi-step stock trend forecasting.
- Fine-tuned CLAM through 48 hyperparameters at 90:10 split, optimized training with EarlyStopping and ReduceLROnPlateau callbacks.
- Improved MAE and RMSE by 90%, capturing 75% of out-sample stock trends with flash crashes thus outperforming LSTM and CNN.

CryptMAGE: An Intraday Crypto Price Movements Recognition System   *Project Link & Paper*
- Converted hourly multivariate cryptocurrency time series into 12K arbitrary interval line-graph images for UP-DOWN binary classification.
- Engineered MA and RSI indicators into the OHLCV crypto data, reducing feature correlation by 53% to enable real-time categorization.
- Fine-tuned pre-trained Swin Transformer, achieved a 92% AUROC/AUPRC and 93.65% F1-Score, surpassing ViT, DeiT, and ResNet50.

PSR-NODE: A Neural ODE Model for Stock Price Forecasting   *Project Link & Paper*
- Programmed a neural differential-equation-based model incorporating Taken's Embedding Theorem for financial time series prediction.
- Reconstructed data phase space into 3D-dimension with a delay of 1 and TimeSeriesSplit with 5-fold cross-validation for efficient training.
- Boosted training speed by 63% and reduced errors metric by 70%, surpassing SVR, LSTM, and TFT, hence mitigating investments' risk.

PUBLICATIONS

[1] **Anh Nguyen*** and Son Ha. "Transforming Stock Price Forecasting: Deep Learning Architectures and Strategic Feature Engineering". In: *MDAI 2024 Proceedings* (2024). **CORE B.** https://doi.org/10.1007/978-3-031-68208-720.

[2] **Anh Nguyen***, Son Ha, and Hieu Thai. "Phase Space Reconstructed Neural Ordinary Differential Equations Model for Stock Price Forecasting". In: *PACIS 2024 Proceedings* (2024). **CORE A.** https://aisel.aisnet.org/pacis2024/ai-in-business.

[3] **Anh Nguyen*** and Hy Truong. "CLAM: A Synergistic Deep Learning Model for Multi-Step Stock Trend Forecasting". In: *Intelligenza Artificiale* (2025). **Q2.** https://doi.org/10.1177/17248035251322877.

HONORS & ACCOLADES

Guest Speaker of Bloomberg | *Vietnam Investment Summit*, *Bloomberg Businessweek Vietnam*	December. 2024
Conference Presenter | *Vietnam Economist Annual Meeting*	December. 2024
Top 4% Global SSRN Researcher | *Social Science Research Network*	November. 2024
Breakthrough Lead Researcher in Deep Learning | *RMIT News*, *BaoMoi*, *StockBiz*	Aug. 2024
Conference Presenter | *Pacific Asia Conference on Information Systems*	July. 2024
Peer Reviewer of Q1 Journals | *ICPR*, *Elsevier*, *IEEE*, *Springer*, *Nature*	Jan. 2024
Conference Presenter | *Digital3 International Conference*	Oct. 2023
All-Category Winner: Student Project Showcase | *RMIT Showcase*	Nov. 2023
Certified Python for Machine Learning and SQL for Data Analytics | *NASBA*	Nov. 2023

TECHNICAL SKILLS

Data Science & AI: *TensorFlow, Keras, PyTorch, Numpy, Scikit-learn, XGBoost, Transformers, Mistral AI, MPNet, YOLO*

Data Analytics: *Power BI, Excel, R, MySQL, Python (Pandas, Matplotlib, Seaborn, Geoplotlib), PostgreSQL, MongoDB*

Digital Tools: *Canva Pro, PowerPoint, LaTeX, Figma, ChatGPT 4o, ClaudeAI, Gemini, Slack, Tableau, Google Analytics*

LLM Models: *DeepSeek-R1, Gwen2.5-72B, Llama3.3, Azure OpenAI, OlympicCoder*

Languages: *English (IELTS 7.0), Vietnamese (Native), German (Beginner)*