# Nguyen Quoc Anh — AI Engineer

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

## SUMMARY

Dynamic and passion-driven senior Economics and Finance Undergraduate student. Experienced in Data Science with 2 years of academic research in applied Machine Learning. Collaborated with EU research institutions and global Ph.D. scientists. Leading AI/ML projects on predictive modeling in quantitative finance. Seeking on-hand opportunities in AI-driven industries.

## EDUCATION

**Royal Melbourne Institute of Technology**                                    Ho Chi Minh City, Vietnam
Bachelor of Business — Economics and Finance                                              *2021 — 2024*

## AREAS OF EXPERTISE

Artificial Intelligence - Deep Learning - Supervised Learning - Prompt Engineering - Data Analytics - Generative AI - NLP
Predictive Modeling - Time Series - Statistical Analysis - Mathematical Modeling - Quantitative Research - Computer Vision

## PROFESSIONAL EXPERIENCE

**AI/ML Researcher,** *(RMIT University)*                    **Ho Chi Minh City, Vietnam** *03/2023 — present*

- Processed over **85,000** observations from PhysioNet and YFinance **APIs**, deployed time-sensitive models for **irregular** data analysis.
- Developed and fine-tuned deep **Neural Network** models on **S&P 500** stocks for forecasting, achieving **75%** swing-trading accuracy.
- Labeled raw time series for **binary** classification, designed **technical** indicators, trained **Image Models**, reducing error metrics by **73%**.
- Led **5** research groups, 1st author of **6** papers, peer reviewed **39+** journal papers, compiled cryptographic algorithms for **IoT** cybersecurity.

**AI Systems and Multilingual LLMs Trainer,** *(Outlier)*          **Remote, United State** *04/2024 — 08/2024*

- Trained **8** AI bots to be proficient in **Vietnamese**, engineered LLMs logic in consecutive **prompting**, surpassing **ChatGPT-4o** fluency.
- Applied **copywriting** on AI prompts to mirror native Vietnamese dialogues, semantic fine-tuned until reached **90%** response rationality.
- Monitored rhetorical error, flagged over **65** syntax bugs to Team Lead to enhance **NLP** systems, scoring **81%** customer satisfaction rate.

## RESEARCH PROJECTS

**CNN-LSTM-AM: A Hybrid Deep Learning Model for Weekly Stock Trend Forecasting**          *07/2024 — 09/2024*

- Developed CLAM model for **multi-step** stock trend forecasting, combining stacked layers of **C**NN, **L**STM, and **A**ttention **M**echanisms.
- CLAM achieved a **91.8%** reduction in MAE and **89.4%** reduction in RMSE, surpassing standalone CNN, LSTM, and CNN-LSTM.
- Performed **90:10** train/validation on **OHLCV** data with separate test, capturing **75%** of stock price movement across **4** stock datasets.

**Intraday Crypto Price Movements Recognition Using Hierarchical Vision Transformers**          *04/2024 — 07/2024*

- Fetched 2-year **hourly** crypto data, transformed **arbitrary** intervals into **images**, embedded static info as **metadata** for optimal training.
- Ensured label balance, engineered **MA** and **RSI** indicators, developed correlation **heatmaps** between OHLCV and **engineered** datasets.
- Reduced intercorrelation by **53%**, reached **95%** accuracy, **91%** AUROC, and **90%** AUPRC with Swin Transformer over ViT and DeiT.

**Phase Space Reconstructed Neural ODE for Financial Time Series Forecasting**          *01/2023 — 03/2024*

- Programmed thus hyperparameter-tuning NODE for time series prediction, optimized model with **3:1** dimension and time delays ratio.
- Deployed **Takens's Theorem** to reconstruct **3D** phase space, capturing **75%** of cyclical and long-term dependencies across industries.
- Applied **TimeSeriesSplit** and **5-fold** validation, improved **MAE** and **RMSE** metrics by **70%**, outperforming LSTM, Transformer, SVR.

## 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**. DOI: https://doi.org/10.1007/978-3-031-68208-7_20.

[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.

## ACADEMIC PROJECTS

**Phu Nhuan Jewelry Company Valuation Report for Q1/2024 Investment**   *High Distinction, 03/2024 — 04/2024*

- Analysed PNJ financial state, benchmarking CAPM, DDM, P/E models. Recommended **BUY** strategy despite **OVERVALUED** signal.
- Interpreted **5-year** financial reports, identified **56%** post-2022 and **21.6% YoY** increase in 2024, surpassing peers and industry median.
- Detected PNJ's leverage for expansion, recommending target price of **VND105** thousand for risk-seeking investors to optimize profit.

**Wärtsilä Business Analysis and Case Study Report**   *High Distinction, 08/2023 — 09/2023*

- Analyzed **20-year** FDI impact in Vietnam. Performed **PESTEL** analysis and benchmarked country risk, giving **advisory** to Wärtsilä.
- Studied **WACC** across countries, identified Japan as the optimal lender. Estimated target **return** that meets shareholders' expectations.
- Conducted 15Y **NPV** and **FX** risk analysis, mitigating Forex exposure. Optimized cash flow conversion, reducing project risk by **30%**.

**Individual Portfolio Risk Management and Trading Report**   *Distinction, 05/2023 — 06/2023*

- Performed 5-year technical analysis of **S&P 500**, constructed a diversified portfolio using **CAPM**, setting a **5.98%** in expected return.
- Calculated one-day **99% VaR** for portfolio risk, with a value of **1.825%**, representing a potential loss of **$12,775** in adverse scenarios.
- Executed futures and options **hedging** strategies, resulting in a **1.47%** net return adjustment. Profited **$10K** from the **$700K** investment.

## TECHNICAL SKILLS

- **Data Science & AI:** TensorFlow, Keras, PyTorch, Numpy, Scikit-learn, XGBoost, Hugging Face Transformers, Cloud GPU
- **Data Analytics:** Power BI, Excel, R, MySQL, Python (Pandas, Matplotlib, Seaborn, Geoplotlib), PostgreSQL, MongoDB
- **Financial Analysis:** Technical Analysis, Financial Reporting, Budget Forecasting, Cost Analysis and Profit Optimization
- **Digital Tools:** Canva Pro, PowerPoint, LaTeX, Figma, ChatGPT 4o, ClaudeAI, Gemini, Slack, Tableau, Google Analytics

## HONORS & ACCOLADES

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|---|---|
| Breakthrough Lead Researcher in Finance \| *RMIT News*, *BaoMoi*, *StockBiz*, *SmartF* | Aug. 2024 |
| Conference Presenter \| *Pacific Asia Conference on Information Systems* | July. 2024 |
| Invited Peer Reviewer \| *Springer*, *IEEE*, *Elsevier*, *ICPR*, *Nature* | Jan. 2024 |
| Nominated Project (CNN-BiLSTM-GRU) \| *RMIT Impact* | Jan. 2024 |
| Conference Presenter \| *Digital3 International Conference* | Oct. 2023 |
| Project Love Meter Award \| *RMIT Showcase* | Nov. 2023 |
| Certified Python for Machine Learning and SQL for Data Analytics \| *NASBA* | Nov. 2023 |

## VOLUNTEER

**Supporter of Con Duong Xanh Charity Group,** *Member*   **Dong Nai, Vietnam** *01/2024 — present*

- Constructed and repaired roads for Truc Lam Tri Duc Zen **Monastery**, hence ensuring safe access for visitors and religious **practitioners**.
- Planted trees and seeds around a **10-hectare** temple land, contributing to the **beautification** and ecological **sustainability** of the temple.

**Academic and Communication English Tutor,** *Freelance*   **Ho Chi Minh City, Vietnam** *02/2021 — 11/2023*

- **1:1** tutored **7** students (**2** Onsite and **5** Online), taught basic communication English for DM&C's **Korean** CEO and a native **Japanese**.
- Designed personalized **IELTS** study plans, consulted **200+** students, earned **1** Bronze medal in the National English Test for the **Gifted**.

## LANGUAGES

- **Vietnamese** [Native]
- **English** [IELTS 7.0]