Nguyen Quoc Anh 🆔

Data Scientist and AI Researcher

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SUMMARY

Undergraduate in Financial Analyst with 3 years in Economics and Finance, transitioning to Data Scientist after 2 years of R&D in applied Machine Learning. Authored innovative research papers enhancing predictive modeling for the digital economy. Highly skilled in SQL, R, Python, and Generative AI, facilitating robust multidisciplinary development. Experienced in extracting underlying financial patterns to drive profitable decisions in data-centric projects. Partnered with global Ph.D. researchers from EU institutions in interpreting time series dynamics for societal application. Assisted research in re-programming LLMs.

AREAS OF EXPERTISE

Deep Learning - Feature Engineering - Data Mining - Data Processing - Big Data - Quantitative Analysis - Data Visualization - Predictive Analytics - Time Series Analysis - Financial Report - Portfolio Management - Financial Modeling - Equity Valuation

PROFESSIONAL EXPERIENCE

AI Systems and LLMs Trainer, *(Outlier AI)* **San Francisco, United States** *04/2024 - present*

- Trained AI bots to be proficient in Vietnamese, fed natural prompts to improve LLMs logic, surpassing ChatGPT-4o linguistic capability.
- Engineered AI prompts, applied copywriting for native Vietnamese dialogues, semantic fine-tuned for the highest response rationality.
- Monitored multi-system conversations for rhetorical error, flagged bugs to Team Lead for review, re-regulated the language system.

Collaborative Researcher, *(RMIT Vietnam)* **Ho Chi Minh City, Vietnam** *03/2023 - present*

- Mined, cleaned, preprocessed irregular financial time series data from web APIs and open source, utilised Chaos Theory's fundamentals.
- Developed predictive models (ARIMA, XGBoost, LSTM, Transformer, Hybrid, etc.) for stock and cryptocurrency real-time forecasting.
- Engineered technical indicators (RSI, SMA, MACD, etc.), applied text mining on ESG reports, improving forecasting errors by 35-50%.
- Designed classification rationale, trained image-based models from HuggingFace libs, labeled time series for computer vision tasks.
- Constructed cryptographic notations and mathematical equations to interpret Blockchain-based cryptosystems and AI architectures.
- Read research papers, conducted weekly summary reports, pitched research gaps, led and managed project meetings across timezone.

Academic and Communication English Tutor, *Freelance* **Ho Chi Minh City, Vietnam** *02/2021 - 11/2022*

- 1:1 tutored 7 students (2 Onsite and 5 Online), taught basic communication English for DM&C's Korean CEO and a native Japanese.
- Focused on IELTS Academic training (Reading, Writing, and Speaking) thus designing personalized study plans for each participant.
- Consulted more than 200 undergraduate Bachelor students' work, earned 1 Bronze medal in the National English Test for the Gifted.

PROJECTS

Detecting Intraday Crypto Price Movements Using Hierachical Vision Transformers *04/2024 - 07/2024*

- Mined 2-year hourly crypto data from yfinance, transformed raw time series into arbitrary-interval images, developed and fine-tuned pre-trained vision Transformers (e.g. Swin, DeiT, ViT, etc.) for binary classification task, benchmarking against traditional DL models.
- Ensured data/label balance, engineered MA and RSI, ran correlation matrix between OHLCV and engineered features/datasets, constructed parallel heatmaps, reducing inter-correlation by 53% hence achieving 95% accuracy with 91% AUROC and AUPRC.

Phase Space Reconstructed Neural ODE for Financial Time Series Forecasting *06/2023 - 10/2023*

- Re-programmed and hyperparameter-tuned image-based NODE for time series regression, optimized model training with embedding dimensions and time delays for 3D-phase space across 16,000 data points from diverse stock categories (e.g., tech, finance, and pharma).
- Applied TimeSeriesSplit and cross-fold validation to prevent data leakage, optimized MAE and RMSE metrics by over 70%, outperforming hybrid LSTM, Transformer, and SVR across 1000 time steps hence capturing cyclical and long-term dependencies.

EDUCATION

BBus in Economics and Finance, *Royal Melbourne Institute of Technology* **Ho Chi Minh City, Vietnam**

Relevant Courses: Corporate Finance, Equity Investment and Portfolio Management, Forecasting and Quantitative Analysis, Leadership

PUBLICATIONS

[1] Anh Nguyen. "Long Short-Term Memory Architectures: Towards A Superlative Tech Stock Price Forecasting Model For Sustainable Economic Prosperity". In: *ICYREB 2023 Proceedings, Vol. 2, pp. 83-94, ISBN: 978-604-346-250-0* (2023).

[2] 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://dx.doi.org/10.2139/ssrn.4729146.

[3] Anh Nguyen, Son Ha, and Phien Nguyen. "A Lightweight Multi-Head Attention Transformer for Stock Price Forecasting". In: *SSRN Electronic Journal* (2024). **WPS**. DOI: https://dx.doi.org/10.2139/ssrn.4729648.

[4] 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/.

TECHNICAL SKILLS

- **Machine Learning Libraries:** TensorFlow/Keras, PyTorch, Scikit-learn, XGBoost, Hugging Face Transformers, Fastai

- **Data Analytics and Visualization Tools:** Power BI, Excel, R, SQL, Python (Pandas, Matplotlib, Seaborn, Geoplotlib)

- **Software and Development Tools:** LightningAI, Jupyter Notebook, MongoDB, Refinitiv Eikon, Bittensor, MySQL

- **Digital and Generative Tools:** Canva, PowerPoint, LaTeX, Figma, ChatGPT 4o, ClaudeAI, Gemini Advanced

HONORS & ACCOLADES

- Academic IELTS: Band 7.0 (Jan. 2021) - IDP Education

- Advanced Python for Machine Learning and SQL for Data Analytics (Nov. 2023) - NASBA

- RMIT Showcase: Project Love Meter Winner (Nov. 2023) - RMIT Vietnam

- RMIT Digital Showcase: Finalist (Jan. 2024) - Impact

- Presenter (Oct. 2023) - Digital3 and ICYREB 2024

- Presenter (July. 2024) - Pacific Asia Conference on Information Systems (PACIS 2024)

VOLUNTEER

Academic Research Peer Reviewer, *(WoS Record)*   **Ho Chi Minh City, Vietnam** *01/2024 - present*

- Reviewed 14 papers for multiple Q1-Q2 journals published by IEEE Access.

- Reviewed 4 papers for the International Conference on Pattern Recognition (ICPR 2024).

- Reviewed 3 papers for Computers & Electrical Engineering of Elsevier (Q1 Journal).

- Reviewed 1 paper for Annals of Operations Research of Springer Nature (Q1 Journal).

- Reviewed 2 papers for Humanities & Social Sciences Communications of Nature (Q1 Journal).

LANGUAGES

- **Vietnamese** [Native]   - **English** [Native]