Nguyen Quoc Anh 🆔

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SUMMARY

Dynamic and passion-driven Economics and Finance Undergraduate student, transitioning to Data Scientist after 2 years in applied Machine Learning R&D. Authored innovative papers on predictive modeling for the digital economy. Proficient in SQL, R, Python, and Generative AI, driving multidisciplinary development. Expertise in identifying financial patterns to inform profitable data-driven decisions. Collaborated with global Ph.D. researchers on time series dynamics for societal applications.

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.
- Improved chatbot accuracy by 20% through iterative testing and feedback analysis

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.

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.

Phu Nhuan Jewelry Company Valuation Report for Q1/2024 Investment (Distinction)   *03/2024 - 04/2024*

- Conducted PNJ financial analysis through Eikon and Vietstock, benchmarked CAPM, DDM, and P/E models for investment decisions. Recommended a BUY strategy on P/E value of VND 29.61 billion to optimize ROI despite OVERVALUED signal from target share.
- Scrutinized PNJ's 5-year annual reports and revenue streams, identifying a 56% increase post-2022 and a 21.6% YoY increase in early 2024. Evaluated industry peers and cash flow recovery post-epidemic, foreseeing PNJ's leverage scheme for potential global expansion.

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

- 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 5-fold cross validation to prevent data leakage. Improved MAE and RMSE evaluation metrics by over 70%, outperforming hybrid LSTM, Transformer, and SVR across 1000 time steps hence capturing cyclical and long-term dependencies.

EDUCATION

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

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 Pro, PowerPoint, LaTeX, Figma, ChatGPT 4o, ClaudeAI, Gemini, Slack

HONORS & ACCOLADES

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

- Certified 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).

Academic and Communication English Tutor   **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.

- Allocated 50% of monthly freelance income to the local impoverished, supporting educational initiatives, and medical aid programs.

LANGUAGES

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