

Le Nguyen Gia Hung

AI undergraduate researcher | Explainable AI & multimodal learning

Research interests: trustworthy AI, time-series forecasting and computer vision.

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Education

FPT University — B.Eng. in Artificial Intelligence

2023 – Dec 2027 (expected)

GPA: **8.62/10.0**. Certificate of Merit: semesters 3, 4, 5 and 6.

Publications & Manuscripts

Peer-reviewed conference publication

Gia-Hung Nguyen Le, Gia-Bao Pham Hoang, Tan-Phat Vo, Thu Le and Nhu Nguyen. “Proactive Air Quality Forecasting and Health Alert System for Melbourne.” *AJCAI 2025, Springer LNAI*. First and corresponding author. DOI: [10.1007/978-981-95-4969-6_34](https://doi.org/10.1007/978-981-95-4969-6_34).

Manuscripts under review

Gia-Hung Nguyen Le, Thu Le and Huynh Quoc Viet. “Distribution-Free Coverage of Attack Classes on Devices Absent from Training.” *AISTATS 2027, under review*. First author.

Gia-Hung Nguyen Le, Quoc-Viet Huynh and Thu Le. “Auditing Multi-Source Cyanobacterial Bloom Forecasts under Sparse Environmental Telemetry.” *ACIIDS 2027, under review*. First and corresponding author.

Thu Le, **Le Nguyen Gia Hung**, Huynh Quoc Viet, Nguyen Hoai My and Trieu Vuong Nguyen. “Trustworthy Multimodal Anomaly Detection in Time Series with Conformal Calibration and Counterfactual Attribution.” *ACM SIGKDD 2027, under review*. Second author.

Thu Le, **Gia-Hung Nguyen Le**, Hoang Pham Gia Bao and Huynh Quoc Viet. “Warning Before the Evening Peak: Health-Centred Air Quality Alerts in New Zealand and Australia.” *AJCAI 2026, under review*. Second author.

Selected Research Experience

SmokeNet: Air Quality Forecasting

Jun – Nov 2025

First & Corresponding Author; published at *AJCAI 2025*

Academic research

- Designed a Transformer using 48 hours of history to forecast next-day mean $PM_{2.5}$, with seasonal embeddings and reconstruction loss.
- Reported MAE **0.7470** $\mu g/m^3$, R^2 **0.9545** and **35.9% lower MAE than XGBoost** on the held-out 2024 test year.
- Examined forecasts with SHAP, Integrated Gradients and DiCE; a separate May 2024 smoke-event backtest reported **57.7% lower MAE**. [Code](#).

Cyanobacterial Bloom Forecast Audit

Jan 2026 – Present

First & Corresponding Author; *ACIIDS 2027 under review*

Academic research

- Co-authored a past-only audit across **7 New Zealand lakes**, evaluating 7- and 14-day forecasts on **170 observed holdout targets** per horizon.
- Full fusion showed no significant gain over Ch1-a history after Holm correction; provenance checks reduced 22 apparent episode starts to 3 eligible incidents.

Device-Held-Out Conformal Prediction

First Author; *AISTATS 2027 under review*

Academic research

- Co-authored a device-disjoint conformal prediction study on CIC IoT-DIAD 2024: **40 training, 14 calibration and 14 test devices**; compared device-weighted and device-quantile rules. [Code](#).

Research experience continued

Trustworthy Multimodal Anomaly Detection

Second Author; ACM SIGKDD 2027 under review

Jan 2026 – Present

Academic research

- Co-authored a leakage audit across **9 domains** and the C-DLE framework for calibrated false-alarm control; reported **94.3% attribution accuracy** against ground-truth anomalies.

Other research. Second author on health-centred air-quality alerts: the study reported 1-day-ahead MAE $3.19 \mu\text{g}/\text{m}^3$ and $R^2 = 0.54$ in Canterbury.

MERR-GAT: Multimodal Emotion Recognition

Second & Corresponding Author

Oct 2025 – Present

Research in progress

- Develop audio–text emotion recognition with **WavLM + Compact Conformer**, **BERT/Roberta** and GAT fusion; evaluation on IEMOCAP, RAVDESS and MELD is ongoing.

Vietnamese Speech Recognition

Co-Researcher & Co-Author

Sep 2025 – Present

Research in progress

- Develop a **5.4M-parameter** CNN–BiLSTM/CTC model on **745 hours** of speech; reported **WER 33.09%** and **CER 15.28%**.

Selected course project: Built 9-class PPE detection with YOLOv8/OpenCV, compliance logic and a Streamlit webcam interface with violation reports.

Experience & Leadership

First Cloud AI Journey — NutriTrack

FCAJ Cloud Intern, Team NeuraX

Jan – May 2026

AWS Vietnam program

- Developed recipe-generation and AI-coaching workflows using **Amazon Bedrock** and **AWS Lambda**, structured JSON responses and DynamoDB user context.
- Collaborated on AppSync integration; documented timeout handling and workshops. [Report](#).

SpeedyLabX Student Research Group

Founder & Student Lead

Jan 2025 – Present

FPT University

- Lead a **10-member** undergraduate group through technical workshops, paper reading and shared research and submission workflows.

Hackathon Projects & Competitions

BioListen VN — Vietnam AI Innovation Challenge

UI & LLM; placed 6th in Round 1

Jul 2026

Team NeuraX.ai

- Built monitoring views for audio input, spectrograms and alerts; integrated API data and Vietnamese ranger-report prompts. Next.js, TypeScript, FastAPI/Groq stack. [Code](#).

CosmicOptic — NASA Space Apps Challenge

Frontend & Backend Developer

Oct 2025

Hackathon participant

- Built React/D3 light-curve views and a FastAPI backend; demonstrated the inference interface with synthetic signals. [Code](#).

Also participated: FPT Hackathon 2025 (algorithmic programming); FPT University AI Hackathon (TeamFinder, a course-teammate website).

Skills

Languages & frameworks: Python, SQL/PostgreSQL, TypeScript, React, FastAPI.

ML & evaluation: PyTorch, Transformers, TensorFlow/Keras, Scikit-learn, OpenCV; SHAP, Integrated Gradients, DiCE, chronological evaluation.

Data & tools: Pandas, NumPy, Git, Docker, Linux; Bedrock, Lambda, DynamoDB, AppSync.

Selected Certifications

Natural Language Processing (DeepLearning.AI); Gradient to Production: MLOps & Model Serving (Coursera); Full Stack Software Developer (IBM).