

NGUYEN Minh Quang (Nguyễn Minh Quang)

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Profile

Edge-AI researcher who makes machine learning run, and keep learning, on low-cost devices. Seven conference papers (one Best Paper Award; one first-author, one corresponding-author), TinyML research on 320 KB microcontrollers in Taiwan, and AI systems used by the public in Ho Chi Minh City. Has led student teams to national innovation finals. Goal: field-adaptive, trustworthy on-device learning.

Education

Sep 2023 – Oct 2026 **B.Sc. in Information Technology**, Ho Chi Minh City University of Foreign Languages – Information Technology (HUFLIT), Faculty of Information Technology; full-time regular program. GPA 3.25/4.0; expected classification: Very Good.

Research and Professional Experience

Sep 2026 – Present **Collaborative Researcher**, Pronunciation-Feedback Prototype for DHH English Learners (ongoing), Dept. of Electrical Engineering, National Formosa University, Yunlin, Taiwan. Supervisor: Prof. Dr. Hui-Kai Su. In collaboration with an English-studies phonetician (Formosa Talent Internship Program, FTIP 2026).

- Technical lead: building an app that finds the consonant in a learner's recording, measures it and gives colour-coded visual feedback (Gradio demo v0.1 for /s j f/; demo due Dec 2026).
- Methods: Montreal Forced Aligner on CMU ARCTIC (8 US speakers), Parselmouth CoG and VOT, per-speaker normalisation, a small classifier to select which of 24 consonants to score, wav2vec2 cross-check. Pilot (one speaker): 89.9% /s/-/f/ accuracy.

Sep 2026 – Present **Research Intern**, Cloud Computing and Intelligent Systems (CCIS) Laboratory, Dept. of Computer Science and Information Engineering, National Formosa University, Yunlin, Taiwan. Supervisor: Assoc. Prof. Dr. Ming-Shen Jian. Funded by a Taiwan Ministry of Education scholarship (Formosa Talent Internship Program, FTIP 2026).

- Framed on-device continual learning on an STM32F746-class MCU (Cortex-M7, 320 KB SRAM) as one shared memory budget for structured sparse weight updates and a latent-replay buffer, where prior work budgets them separately.
- Showed that the budget split moves accuracy by 31.36 points at 320 KB but only 2.99 points at 1420 KB, and that accuracy follows a log-linear law in replay size (+7.45 points per doubling, $R^2 = 0.9994$).
- Rebuilt the TVM/TinyEngine toolchain, fixed two bugs in the reference code and two in TinyEngine, and found that the scheduler's measured per-layer SRAM disagrees with the analytical cost model at high update ratios.

May 2026 – Present **Automation / Prompt Engineer**, Athena Studio.

- Designed data-extraction and analysis workflows; built and evaluated automation pipelines.
- Analysed internal tool cost and usage data to produce actionable insights and optimise workflows.

Mar 2025 – Aug 2026 **Undergraduate Researcher**, TINH VI Lab, HUFLIT. Supervisor: Dr. Thien Pham.

- Research in edge AI, multimodal AI and computer vision; contributed to seven papers (first author of one, corresponding author of one).
- Deployed models on constrained hardware: real-time traffic-sign detection (Best Paper, ATAC 2026), Android-based footwear defect inspection, thermal-vision hydrogen-leak monitoring, and edge-AI retrieval for Vietnamese traffic-law consultation.
- Studied the integrity of deployed models: a weight-free backdoor injected through ONNX graph topology.

Publications

1. **Nguyen Minh Quang** (first author), “Discharge incremental-capacity peak shifts as non-invasive proxies for effective resistance heterogeneity and imbalance diagnostics in parallel lithium-ion modules,” *Proc. Int. Conf. on Intelligent Systems and Data Science (ISDS 2026)*, Springer CCIS, 2026. Accepted.
2. **Nguyen Minh Quang** (corresponding author), “Graph-Integrity Risks in Deployed ONNX Models: A Weight-Free Backdoor via Topology Injection,” *Proc. 15th Int. Conf. on Computational Science and Network Intelligence (CSoNet 2026)*, Springer LNCS, 2026. Accepted.

3. Co-author, “Real-Time Traffic Sign Detection for Edge Devices: A Mixed-Precision NMS-Free Approach,” *Proc. Conf. on Applications of Technology, Automation and Civil Engineering (ATAC 2026)*, 2026. Accepted. **Best Paper Award**.
4. Co-author, “VITAL: Vietnamese Text-Image Alignment Learning for Weakly Grounded Multimodal Clickbait Detection,” *Proc. ISDS 2026*, Springer CCIS, 2026. Accepted.
5. Co-author, “Sustainable legal information access through edge AI: a hybrid vector-hypergraph retrieval system for Vietnamese traffic law consultation,” *Proc. Int. Conf. on Business Sustainability (ICBS 2026)*, UEH, 2026. Accepted and presented (certificate of achievement).
6. Co-author, “A Multi-Modal Approach for Hydrogen Leakage Monitoring based on Thermal Vision,” *Proc. Int. Conf. on Machine Learning and Computational Intelligence (MLCI)*, ACM ICPS. Published. doi: [10.1145/3815970.3815978](https://doi.org/10.1145/3815970.3815978)
7. Co-author, “An Android-Based Edge Device for Footwear Defect Inspection Toward a Portable yet Powerful Approach,” *Proc. MLCI*, ACM ICPS. Published. doi: [10.1145/3815970.3815972](https://doi.org/10.1145/3815970.3815972)

Indexing: Springer LNCS, [SCImago SJR 2025 Q2](#); Springer CCIS, [Scopus CiteScore 2025 Q3](#); MLCI proceedings (ACM ICPS) Scopus-indexed.

Leadership and Innovation Competitions

2026	Smart City IC Design Competition . Guided a university team designing custom processor architectures for smart urban installations.
2025	Bach Khoa Innovation 2025 (HCMUT). Team leader of both finalist teams: - Team GUTS, “AI Camera to Detect Hydrogen Leaks”: Top 09, Indefol Solar Challenge (University–Industry Division). - Team HIRO, “Smart Motorcycle Helmet”: Top 20, University Division.
2025	IT Got Talent 2025 (10th edition). Engineered and presented an intelligent-system solution: Consolation Prize .
2024	RoboG 2024 , national humanoid-robotics competition. Team HUFLIT AI Pioneers: Third Prize (national Top 3) and Best Application Idea Award . Press: Kiemtruong.vn .

Community and Public-Impact Projects

2026	Offline AI election-information assistant for the community event “Học sinh, sinh viên Thành phố Hồ Chí Minh trao niềm tin, gửi kỳ vọng” (Water Drop Park, Ly Thai To, HCMC); answered public questions about national elections. Press: HUFLIT News · Facebook .
2026	University-level research projects , HUFLIT (both accepted, grade “Good”): “Smart Helmet” (project HSV2025-09, team member); hydrogen-leak monitoring and warning with thermal camera and AI.
Tet 2025	Public interactive robots “Bông”, Nguyen Hue Walking Street, HCMC (city-level project, HUFLIT Faculty of IT). Two 3-metre robots that greeted visitors in 20 languages; 15,000+ visitors in total. Press: Thanh Niên · Tuổi Trẻ · Lao Động .

Honors and Scholarships

2026	Taiwan Ministry of Education Scholarship, Formosa Talent Internship Program (FTIP)
2026	Best Paper Award, ATAC 2026
2024–2025	Competition awards: RoboG 2024, Bach Khoa Innovation 2025, IT Got Talent 2025 (see above)

Technical Skills and Languages

Edge AI / TinyML	On-device training and continual learning (structured sparse updates, latent replay); int8 quantization; mixed-precision inference; TVM / TinyEngine; TensorFlow Lite Micro; ONNX
Hardware	STM32 microcontrollers (Cortex-M7, STM32F746-class); Android edge deployment
ML areas	Computer vision; multimodal (text-image) models; retrieval systems (vector-hypergraph); battery diagnostics (incremental-capacity analysis); model security
Tools	PyTorch; data-extraction and automation pipelines; LLM prompt engineering
Languages	Vietnamese (native); English: TOEIC Listening & Reading 930 (Mar 2026); IELTS Academic 7.0, CEFR C1 (Jul 2026)

References

Dr. Thien Pham, TINH VI Lab, Faculty of IT, HUFLIT, Vietnam (undergraduate research supervisor)
Assoc. Prof. Dr. Ming-Shen Jian, CCIS Laboratory, Dept. of CSIE, National Formosa University, Taiwan (internship supervisor)
Referee contact details are provided in the application portal.