

Nguyen Thanh Minh Duy

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Education

Soonchunhyang University (SCH)

Master of Engineering in Computer Science; **GPA: 4.12/4.5**
Scholarship: Fully Funded Graduate Research Assistantship

Asan-si, South Korea

Feb 2024 – Present

HCM VNU - University of Science

B.Sc. in Software Engineering; **GPA: 8.66/10**
Honors: Academic Excellence Scholarship (Top 10% for 3 semesters)

Ho Chi Minh City, VietNam

Aug 2018 – Feb 2022

Work Experience

Soonchunhyang University (SCH)

Graduate Research Assistant (Lab: Mobility Cyber Security)

Asan-si, South Korea

Feb 2024 – Present

- **Deep Learning for IDS:** Designed GNN and Transformer-based intrusion detection models using PyTorch/PyG on real CAN BUS datasets (millions of messages), achieving SOTA F1 and ROC-AUC scores.
- **Research Pipelines:** Built end-to-end pipelines for data preprocessing, training, and evaluation on highly imbalanced multi-class attacks, focusing on zero-day and data-scarce scenarios.
- **Publications:** Authored two first-author papers (including a Q1 journal) and maintained reusable codebases for lab benchmarking.

Zalo - VNG Corporation

Software Engineer (React.js/Electron.js)

Ho Chi Minh City, VietNam

May 2022 – Mar 2024

- **Scalable Product Development:** Shipped 15+ production features for Zalo PC (8M+ MAU), including revamped contact cards and search, resulting in improved UX and reduced user-reported issues.
- **Performance Engineering:** Optimized client-side caching and data pipelines for high-traffic flows; collaborated with QA to ensure regression-free releases.
- **Collaboration:** Partnered with Product, Design, and Backend teams to translate requirements into technical specs; promoted from Fresher to Software Engineer due to consistent delivery.

Projects

Interactive Video Retrieval System | HCMC AI Competition

2025

- **Multimodal Search:** Implemented **CLIP/SigLIPs** to embed video frames and text queries, utilizing **FAISS** for high-speed vector similarity search (top-k retrieval).
- **Pipeline:** Built an extraction pipeline using **ffmpeg** and **TransNet** for keyframes and developed a React UI for query visualization.

AI Support Chatbots for Business | Freelance

2025

- **RAG Architecture:** Developed a RAG pipeline (Vector Search + LLM) by crawling client websites for knowledge bases to provide accurate customer support responses.
- **Deployment:** Handled session management and concurrency; integrated the bot into Facebook and Web APIs with platform-specific UI adapters.

Technical Skills

Languages: Python, JavaScript, SQL, C++, HTML/CSS

AI/ML: PyTorch, PyG, Transformers, GNN, Computer Vision, Autoencoders, RAG, CLIP/SigLIP, FAISS

Development: React.js, Electron.js, Node.js, FastAPI, Docker, Git, Linux

Core Competencies: Data Structure & Algorithms, Anomaly Detection, System Design, Data Visualization

Publications

- **Nguyen T. M. Duy**, et al. *Multi-Class Intrusion Detection System for In-Vehicle Networks Using Few-Shot Learning and Convolutional Anomaly Transformer*. **Knowledge-Based Systems** (Q1), Nov 2025.
- T. D. Le, **N. T. M. Duy**, et al. *Advanced deep learning-based electricity theft detection...* **Eng. App. of AI**, Oct 2025.
- *Open-Set Recognition with Multi-Objective Graph Neural Network in CAN*. Under review, 2025.

Awards & Languages

Awards: Full Graduate Research Scholarship (SCH, 2024), Academic Excellence Scholarship (HCM VNU, 3 Sems).

Languages: Vietnamese (Native), English (Fluent), Korean (Basic).