

# 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 Semesters).

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