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# Anh Dong Nguyen

**Date of birth:** 14/09/2004 | **Place of birth:** Ho Chi Minh City, Vietnam | **Nationality:** Vietnamese |

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## ABOUT ME

Multidisciplinary researcher and systems builder bridging wearable sensing, egocentric vision, and structured memory to transform proactive AI agents into an intuitive spatial operating system. Driven by a steep learning curve and high- impact ambition, I consistently push beyond my technical limits to solve real-world interaction bottlenecks amid perceptual uncertainty.

## EDUCATION AND TRAINING

01/10/2026 – CURRENT Ho Chi Minh City, Vietnam

**MASTER OF RESEARCH (M.RES.) IN INDUSTRIAL ENGINEERING** Ho Chi Minh City University of Technology - Vietnam National University Ho Chi Minh City

- Thesis: An Explainable AI-Based Decision Support Framework for Maintenance Prioritization in Smart Manufacturing.
- Core focus: Mathematical Optimization, Multimodal Machine Learning, Decision Support Systems, and Quantitative Research Methodology.

01/09/2022 – 01/04/2026 Ho Chi Minh City, Vietnam

**BACHELOR OF ENGINEERING IN INDUSTRIAL MANAGEMENT** Ho Chi Minh City University of Technology - Vietnam National University Ho Chi Minh City

- Final GPA: 2.5/4.0
- Relevant coursework: Operations Research, Systems Engineering, Probability & Statistics, Optimization Modeling, Data Analytics.

01/06/2026 – CURRENT Ho Chi Minh City, Vietnam

**BACHELOR OF ENGINEERING IN ELECTRONICS AND TELECOMMUNICATIONS ENGINEERING (SECOND DEGREE)** Posts and Telecommunications Institute of Technology

- Pursued concurrently to build hardware-level foundations for spatial computing and wearable HCI.
- Focus areas: Embedded Systems, Digital Signal Processing (DSP), Sensor Interfacing (IMU/Optical), Wireless Communication Protocols (BLE), and Microcontroller Programming.

## WORK EXPERIENCE

**COLLABORATIVE RESEARCH ASSISTANT – VINUNIVERSITY (VINUNI) – SUPERVISED BY PROF. MO EL-HAJ** – 01/04/2026 – Current – HO CHI MINH CITY, VIETNAM

- Co-first author of “Probabilistic Structured Event Modeling for Video Event Retrieval under Perceptual Uncertainty”, accepted at the Asian Conference on Computer Vision (ACCV 2026, Osaka, Japan).
- Authored “What Makes Structured Episodic Retrieval Robust to Noisy Query Cues? A Controlled Study”, currently under review at COLING 2027 (ACL Main Track), investigating the resilience of hippocampus-inspired episodic memory (CIRCUIT) under degraded multimodal queries.
- Formulating probabilistic graph and structured memory representations to bridge perceptual uncertainty in long-horizon video and language understanding.

**TECHNICAL RESEARCH TEAM LEAD – PROVINCIAL SCIENCE & TECHNOLOGY INITIATIVE – PO SAH INƯ - PI: DR. TRAN DUC THUAN** – 05/06/2026 – Current – HO CHI MINH CITY, VIETNAM

- Leading the technical research division under Principal Investigator Dr. Tran Duc Thuan to architect an interactive, context-aware AI Companion system deployed at the Po Sah Inư historical relic site (Mui Ne National Tourist Area).
- Designing multimodal human–agent interaction pipelines that integrate spatial context awareness, real-time conversational retrieval, and culturally grounded knowledge graphs for on-site visitors.
- Directing end-to-end system prototyping, latency optimization, and field evaluation in unconstrained outdoor heritage environments.

**UNDERGRADUATE RESEARCH ASSISTANT – ADVANCING COMPUTING LAB (ACLAB) – HCMUT - SUPERVISED BY DR. LE TRONG NHAN** – 10/10/2025 – 28/03/2026 – HO CHI MINH CITY, VIETNAM

- Conducted research under Dr. Le Trong Nhan on 24-hour spatio-temporal Graph Neural Networks (GNNs), resulting in a Q4 paper published at ICISN 2026.
- Modeled temporal dependencies and graph-structured sensor/network topologies to optimize multi-horizon forecasting accuracy and computational efficiency.

## SKILLS

Microsoft Office | think critically | solve problems | make decisions | adapt to change | attend to detail | resolve conflicts | think creatively

### Research skills

scientific research methodology | conduct literature research | data analytics | write technical reports | write scientific publications

### Engineering skills

Python | Objective-C | C++ | sensors | computer vision | Graph Neural Networks (GNN) | principles of animation | select pattern material | robotic components | upgrade firmware | Prototyping development | Basic knowledge of programming with Arduino, Raspberry PI, Esp32 Microcontroller | AI platforms(PyTorch, Tensorflow, TensorRT, ONNX Runtime)

## DIGITAL SKILLS TEST RESULTS

| | | |
|---|---|---|
| Information and data literacy | **ADVANCED** | Level 6 / 6 |
| Communication and collaboration | **ADVANCED** | Level 6 / 6 |
| Digital content creation | **INTERMEDIATE** | Level 4 / 6 |
| Safety | **ADVANCED** | Level 6 / 6 |
| Problem solving | **ADVANCED** | Level 6 / 6 |

*Results from a self-assessment based on The Digital Competence Framework 2.1*

## LANGUAGE SKILLS

Mother tongue(s): **VIETNAMESE**

Other language(s):

| | UNDERSTANDING | | SPEAKING | | WRITING |
|---|---|---|---|---|---|
| | Listening | Reading | Spoken production | Spoken interaction | |
| **ENGLISH** | C1 | C1 | B2 | C1 | B2 |

*Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user*

## CERTIFICATIONS

IELTS Official, 11/07/2026
**IELTS Academic - Band 7.0**

Google, 01/08/2024
**Google Business Intelligence Specialization**

Credential ID 0LMVCQH9R4M4

**Link** https://europa.eu/europass/eportfolio/screen/redirect-external?url=https%3A%2F%2Fwww.coursera.org%2Faccount%2Faccomplishments%2Fspecialization%2F0LMVCQH9R4M4

Google, 01/08/2024

### Google Data Analytics Specialization

Credential ID WL716UD21GD2

**Link** https://europa.eu/europass/eportfolio/screen/redirect-external?url=https%3A%2F%2Fwww.coursera.org%2Faccount%2Faccomplishments%2Fspecialization%2FWL716UD21GD2

## PUBLICATIONS

2027

### What Makes Structured Episodic Retrieval Robust to Noisy Query Cues? A Controlled Study

*Equal contribution (Co-first author). Conducted a controlled study on structured episodic memory retrieval for LLM agents across EPBench and LoCoMo benchmarks. Demonstrated that replacing hard axis intersection with additive per-axis scoring and query-type routing recovers significant retrieval loss (from 63% empty returns), while speaker metadata matching boosts answer accuracy by 7.9 points over dense retrieval.

Nhan Thanh Ho*, Anh Dong Nguyen*, Thuan Duc Tran*, and Mo El-Haj. 2027. “What Makes Structured Episodic Retrieval Robust to Noisy Query Cues? A Controlled Study”. Under review at ACL ARR for COLING 2027.

**Authors**: Nhan Thanh Ho*, Anh Dong Nguyen*, Thuan Duc Tran*, Mo El-Haj | **Journal Name**: 32nd International Conference on Computational Linguistics (COLING 2027) – Under Review via ACL ARR | **Volume, Issue and Pages**: Manuscript under peer review

**Link** https://ggwp00p.github.io/probabilistic-event-modeling/structured-episodic-retrieval/

2026

### Probabilistic Structured Event Modeling for Video Event Retrieval under Perceptual Uncertainty

*Equal contribution (Co-first author). Formulated a marginal-likelihood retrieval framework integrating attribute-level perceptual uncertainty and homography Jacobian spatial propagation, achieving 3.3× higher Recall@5 over deterministic baselines on CAVIAR and VIRAT benchmarks.

Nhan Thanh Ho*, Anh Dong Nguyen*, Thuan Duc Tran*, et al. Sept 2026. “Probabilistic Structured Event Modeling for Video Event Retrieval under Perceptual Uncertainty”. In: Asian Conference on Computer Vision. ACCV ’26.

**Authors**: • Nhan Thanh Ho*, Anh Dong Nguyen*, Thuan Duc Tran*, Nguyen Van Thang, Bui Anh Thinh, Nguyen Bao Tran, Long Nhat Ho | **Journal Name**: Asian Conference on Computer Vision (ACCV 2026)

**Link** https://ggwp00p.github.io/probabilistic-event-modeling/index.html

2026

### • 24H-GNN: A Pattern-Driven Pseudo-Label Fusion Graph Network for City-Wide Traffic Flow Prediction

*Equal contribution (Co-first author). Proposed a pattern-driven pseudo-label fusion graph neural network (24H-GNN) to capture complex spatio-temporal dependencies and enhance accuracy in city-wide traffic flow forecasting.

Thanh Nhan Ho*, Dong Anh Nguyen*, et al. March 2026. “24H-GNN: A Pattern-Driven Pseudo-Label Fusion Graph Network for City-Wide Traffic Flow Prediction”. In: Int. Conf. on Intelligent Systems and Networks. ICISN ’26.

**Authors**: Thanh Nhan Ho*, Dong Anh Nguyen*, Minh Tai Pham Nguyen, Minh Khue Phan Tran, Hoang Minh Nguyen, Nguyen Bao Tran, Trong Nhan Le | **Journal Name**: • Proceedings of the 6th International Conference on Intelligent Systems and Networks (ICISN 2026) | **Volume, Issue and Pages**: Lecture Notes in Networks and Systems (LNNS) | **Publisher**: Springer Nature Singapore

**Link** https://ggwp00p.github.io/probabilistic-event-modeling/24h-gnn/#demo

## HONOURS AND AWARDS

27/03/2026

### Outstanding Academic Performance in Academic year 2024 - 2025 – Ho Chi Minh City University of Technology - Vietnam National University

Outstanding Academic Performance - In semester 2 (Final Year), Academic year 2024 - 2025 with GPA 3.8

**Link** https://drive.google.com/file/d/1zZ66i3Yil2xC27jGcCpMqUCvZnn3_mK7/view?usp=sharing