

Truong Thanh Hung Nguyen

PhD Candidate

Analytics Everywhere Lab (AELab), University of New Brunswick
National Research Council Canada (NRC/CNRC)

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PROFILE

I am currently a PhD candidate at Analytics Everywhere Lab, University of New Brunswick (UNB), Canada and National Research Council Canada (NRC/CNRC), Canada, under the supervision of [Prof. Hung Cao](#) and [Rene Richard](#). I also collaborate with [Prof. Veronica Whitford](#) at the Department of Psychology, UNB, on human-centered AI for mental health.

Research interests: Self-Evolving Multi-Agent Systems · Responsible AI · Computer Vision · Edge Computing · Biomedical Engineering · Psychology · Quantum Machine Learning · Reinforcement Learning

EDUCATION

- **PhD Candidate** in Computer Science 2024 – Present
University of New Brunswick (UNB)
Canada
GPA: 4.3/4.3
Supervisors: [Prof. Hung Cao](#) and [Rene Richard](#)
- **Master's degree** in Artificial Intelligence, minor: Biomedical Engineering 2021 – 2023
Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) · DAAD Scholar
Germany
German GPA: 1.7/1.0
Master's thesis: 1.0/1.0 ([Prof. Dr. Michael Kohlhase](#) and [Prof. Dr. Michael Amberg](#))
- **Bachelor's degree** in Computer Science 2016 – 2020
Frankfurt University of Applied Sciences (FRA-UAS) · DAAD Scholar
Germany
German GPA: 1.6/1.0

RESEARCH & PROFESSIONAL EXPERIENCE

- **Research Assistant** 2024 – Present
National Research Council Canada (NRC/CNRC)
Canada
Project: Aging in Place Challenge Canada-Japan 3+2 Program
- **Research Assistant** 2021 – 2023
FAU WiSo (School of Business, Economics and Society)
Germany
Supervisor: [Prof. Dr. Michael Amberg](#)
- **Business Unit Director** 2024 – 2025
FPT Software
Canada
- **AI Scientist** 2020 – 2025
FPT Software
Vietnam
- **Full-stack Developer** 2019 – 2020
ZIGExN Co., Ltd. (株式会社ジゲン)
Japan

PUBLICATIONS

Journal Articles

- [J3] **Heart2Mind: Human-Centered Contestable Psychiatric Disorder Prediction System Using Wearable ECG Monitors**
[Hung Nguyen](#), Alireza Rahimi, Veronica Whitford, H       Fournier, Irina Kondratova, Ren   Richard, Hung Cao
ACM Transactions on Computing for Healthcare (ACM HEALTH 2026), 2026 Q1 IF 8.0

- [J2] **XEdgeAI: A Human-centered Industrial Inspection Framework with Data-centric Explainable Edge AI Approach**
Truong Thanh Hung Nguyen, Phuc Truong Loc Nguyen, Hung Cao
Information Fusion (Inf. Fusion), 2025 Q1 IF 18.6
- [J1] **SeCAM: Tightly Accelerate the Image Explanation via Region-Based Segmentation**
 Phong X. Nguyen, Hung Q. Cao, Khang V. T. Nguyen, **Hung Nguyen**, Takehisa Yairi
IEICE Transactions on Information and Systems (IEICE 2022), 2022

Conference Papers

- [C28] **Adaptive Arena-based Contestable Argumentative Network-of-Experts for Open-Ended Care Plan Coordination**
Truong Thanh Hung Nguyen, Hoang-Loc Cao, Phuc Ho, Phuc Truong Loc Nguyen, René Richard, Hung Cao
4th International Conference on Frontiers of Artificial Intelligence, Ethics, and Multidisciplinary Applications (FAIEMA 2026), 2026
- [C27] **Self-Evolving Human-Centered Framework for Explainable Depression Symptom Annotation**
 Hoang-Loc Cao, Van Pham, **Truong Thanh Hung Nguyen**, Phuc Truong Loc Nguyen, Phuc Ho, Veronica Whitford, Hung Cao
The IEEE International Conference on Omni-Layer Intelligent Systems (COINS) 2026 (IEEE COINS 2026), 2026
- [C26] **Toward a Unified Geospatial Intelligence Framework Utilizing Edge Computing, IoT, and Multimodal Generative AI for Climate Risk Mitigation and Adaptive Evacuation Planning**
Truong Thanh Hung Nguyen, Hung Cao
XXV ISPRS Congress 2026 / The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences (ISPRS 2026), 2026 Invited Paper
- [C25] **Consensus-based Agentic Large Language Model Framework for Harmonized Tariff Schedule Code Classification**
Truong Thanh Hung Nguyen, Khanh Van Quynh Nguyen, Hoang-Loc Cao, Tri Duong, Phuc Ho, Van Pham, Loc Nguyen, Hung Cao
The 3rd International Conference of Resilience by Technology and Design (RTD 2026), 2026
- [C24] **Does Mixture-of-Experts Actually Help Inference on Consumer and Edge Hardware? An Empirical Study**
 Alfarizy Alfarizy, **Hung Truong Thanh Nguyen**, René Richard, Roozbeh Razavi-Far, Hung Cao
4th International Conference on Frontiers of Artificial Intelligence, Ethics, and Multidisciplinary Applications (FAIEMA 2026), 2026
- [C23] **Anatomically-conditioned Latent Diffusion Model for Data-Efficient Few-Shot Cross-Domain 3D Glioma MRI Synthesis**
 Salman Shaik, **Hung Truong Thanh Nguyen**, Hung Cao
The 39th Canadian Conference on Artificial Intelligence (Canadian AI 2026), 2026
- [C22] **Neuro-Symbolic Adaptive Collaboration of Arena-Based Argumentative LLMs for Contestable Legal Reasoning**
 Hoang-Loc Cao, Phuc Ho, **Truong Thanh Hung Nguyen**, Phuc Truong Loc Nguyen, Dinh Thien Loc Nguyen, Hung Cao
The 39th Canadian Conference on Artificial Intelligence (Canadian AI 2026), 2026
- [C21] **Multi-Dimensional Model Integrity and Responsibility Assessment Index and Scoring Framework**
 Phuc Truong Loc Nguyen, Thanh Hung Do, **Truong Thanh Hung Nguyen**, Hung Cao
The 39th Canadian Conference on Artificial Intelligence (Canadian AI 2026), 2026
- [C20] **Variational Quantum Rainbow Deep Q-Network for Optimizing Resource Allocation Problem**
Truong Thanh Hung Nguyen, Truong Thinh Nguyen, Hung Cao
The 41st ACM/SIGAPP Symposium on Applied Computing (SAC 2026), 2026
- [C19] **SEval-NAS: A Search-Agnostic Evaluation for Neural Architecture Search**
 Atah Nuh Mih, Jianzhou Wang, **Truong Thanh Hung Nguyen**, Hung Cao
The 41st ACM/SIGAPP Symposium on Applied Computing (SAC 2026), 2026

- [C18] **CoPlan: A Trustworthy Co-Intelligence Interface for Care Planning through Role-Based Contestable Argument Graphs**
Hung Truong Thanh Nguyen, H       Fournier, Piper Jackson, Makoto Itoh, Shannon Freeman, Rene Richard, Hung Cao
The 2026 International Conference on Next Generation AI Systems (NGEN-AI 2026), 2026
- [C17] **Multimedia Verification Through Multi-Agent Deep Research Multimodal Large Language Models**
Huy Hoan Le, Van Sy Thinh Nguyen, Thi Le Chi Dang, Vo Thanh Khang Nguyen, **Truong Thanh Hung Nguyen**, Hung Cao
The 33rd ACM International Conference on Multimedia (ACM MM 2025), 2025 CORE A*
- [C16] **ODExAI: A Comprehensive Object Detection Explainable AI Evaluation**
Phuc Truong Loc Nguyen, **Hung Truong Thanh Nguyen**, Hung Cao
The 48th German Conference on Artificial Intelligence (KI 2025), 2025
- [C15] **SimInterview: Transforming Business Education through Large Language Model-Based Simulated Multilingual Interview Training System**
Truong Thanh Hung Nguyen, Tran Diem Quynh Nguyen, Hoang Loc Cao, Thi Cam Thanh Tran, Thi Cam Mai Truong, Hung Cao
International Conference on Economics, Finance, and Management (ICEFM 2025), 2025
- [C14] **Motion2Meaning: A Clinician-Centered Framework for Contestable LLM in Parkinson's Disease Gait Interpretation**
Loc Phuc Truong Nguyen, Hung Thanh Do, **Hung Truong Thanh Nguyen**, Hung Cao
9th International Symposium on Chatbots and Human-Centred AI (CONVERSATIONS 2025), 2025 ★ Best Paper Nominee
- [C13] **Human-Centered Explainable Psychiatric Disorder Diagnosis System Using Wearable ECG Monitors**
Hung Nguyen, Alireza Rahimi, Veronica Whitford, H       Fournier, Irina Kondratova, Ren   Richard, Hung Cao
The 29th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD 2025), 2025 CORE B
- [C12] **XGD: Explainable AI-Guided Knowledge Distillation with Feature Refinement for Semantic Segmentation**
Truong Thanh Hung Nguyen, Van Binh Truong, Quoc Khanh Nguyen, Vo Thanh Khang Nguyen, Phuc Truong Loc Nguyen, Francis Palma, Hung Cao
The 38th Canadian Conference on Artificial Intelligence (Canadian AI 2025), 2025
- [C11] **SF2D: Semi-supervised Federated Learning for Fall Detection using (Un)labelled Data in Edge-Cloud**
Seyed Alireza Rahimi Azghadi, **Hung Nguyen**, Irina Kondratova, H       Fournier, Monica Wachowicz, Francis Palma, Ren   Richard, Hung Cao
The 38th Canadian Conference on Artificial Intelligence (Canadian AI 2025), 2025
- [C10] **MACeIP: A Multimodal Ambient Context-enriched Intelligence Platform in Smart Cities**
Truong Thanh Hung Nguyen, Phuc Truong Loc Nguyen, Monica Wachowicz, Hung Cao
The 9th IEEE/IEIE International Conference on Consumer Electronics-Asia (ICCE-Asia 2024), 2024 Invited Paper
- [C9] **LangXAI: Integrating Large Vision Models for Generating Textual Explanations to Enhance Explainability in Visual Perception Tasks**
Truong Thanh Hung Nguyen, Tobias Clement, Phuc Truong Loc Nguyen, Nils Kemmerzell, Van Binh Truong, Vo Thanh Khang Nguyen, Mohamed Abdelaal, Hung Cao
The 33rd International Joint Conference on Artificial Intelligence (IJCAI 2024), 2024 CORE A*
- [C8] **Efficient and Concise Explanations for Object Detection with Gaussian-Class Activation Mapping Explainer**
Quoc Khanh Nguyen, **Truong Thanh Hung Nguyen**, Vo Thanh Khang Nguyen, Van Binh Truong, Tuong Phan, Hung Cao
The 37th Canadian Conference on Artificial Intelligence (Canadian AI 2024), 2024
- [C7] **Enhancing the Fairness and Performance of Edge Cameras with Explainable AI**
Truong Thanh Hung Nguyen, Vo Thanh Khang Nguyen, Quoc Hung Cao, Van Binh Truong, Quoc Khanh Nguyen, Hung Cao
The 42nd IEEE International Conference on Consumer Electronics (ICCE 2024), 2024

- [C6] **XAI-Enhanced Semantic Segmentation Models for Visual Quality Inspection**
Tobias Clement, **Truong Thanh Hung Nguyen**, Mohamed Abdelaal, Hung Cao
The 42nd IEEE International Conference on Consumer Electronics (ICCE 2024), 2024
- [C5] **Protecting Older Adults: A Wearable-Based Federated Learning Approach for Pre-Impact Fall Detection**
Seyed Alireza Rahimi Azghadi, **Truong Thanh Hung Nguyen**, Irina Kondratova, H       Fournier, Francis Palma, Ren   Richard, Hung Cao
The 34th International Conference on Collaborative Advances in Software and Computing (CASCON 2024), 2024
- [C4] **Coping with Data Distribution Shifts: XAI-Based Adaptive Learning with SHAP Clustering for Energy Consumption Prediction**
Tobias Clement, **Hung Truong Thanh Nguyen**, Nils Kemmerzell, Mohamed Abdelaal, Davor Stjelja
The 36th Australasian Joint Conference on Artificial Intelligence (AJCAI 2023), 2023 ★ Best Runner-up Paper Award
- [C3] **Towards Better Explanations for Object Detection**
Van Binh Truong, **Truong Thanh Hung Nguyen**, Vo Thanh Khang Nguyen, Quoc Khanh Nguyen, Quoc Hung Cao
The 15th Asian Conference on Machine Learning (ACML 2023), 2023 CORE C
- [C2] **A Novel Explainable Artificial Intelligence Model in Image Classification problem**
Hung Quoc Cao, **Hung Truong Thanh Nguyen**, Khang Vo Thanh Nguyen, Xuan Phong Nguyen
FPT AI Conference (FAIC 2021), 2021 ★ Best Paper Award
- [C1] **Evaluation of Explainable Artificial Intelligence: SHAP, LIME, and CAM**
Hung Truong Thanh Nguyen, Hung Quoc Cao, Khang Vo Thanh Nguyen, Nguyen Dinh Khoi Pham
FPT AI Conference (FAIC 2021), 2021 ★ Best Runner-up Paper Award

Challenge Papers

- [CH2] **Geometry-anchored PET-aware multimodal pseudo-CT synthesis for whole-body attenuation correction: the BIC-MAC Challenge**
 Xuan Loc Nguyen, Hoang-Loc Cao, **Truong Thanh Hung Nguyen**, Phuc Ho, Phuc Truong Loc Nguyen, Nguyen Truong Toan To, Hung Cao
Big Cross-Modal Attenuation Correction (BIC-MAC) Challenge at MICCAI 2026, 2026 ★ 1st Place CORE A

[CH1] **Contestable Multi-Agent Debate with Arena-based Argumentative Computation for Multimedia Verification**
Truong Thanh Hung Nguyen, Vo Thanh Khang Nguyen, Hoang-Loc Cao, Phuc Ho, Van Pham, Hung Cao
Grand Challenge on Multimedia Verification at The 16th ACM International Conference on Multimedia Retrieval (ICMR 2026), 2026 ★ 1st Place CORE B

Workshop Papers

- [W2] **Towards Trust of Explainable AI in Thyroid Nodule Diagnosis**
Truong Thanh Hung Nguyen, Van Binh Truong, Vo Thanh Khang Nguyen, Quoc Hung Cao, Quoc Khanh Nguyen
The 7th International Workshop on Health Intelligence (W3PHIAI-23), AAAI 2023 (W3PHIAI 2023), 2023 CORE A*

[W1] **Can Reinforcement Learning Solve a Human Allocation Problem?**
 Phong Nguyen, Matsuba Hiroya, Tejdeep Hunabad, Dmitrii Zhilenkov, **Hung Nguyen**, Khang Nguyen
The International Conference on Automated Planning and Scheduling — PRL Workshop (ICAPS 2021), 2021 CORE A*

Preprints & Under Review

- [P3] Self-Evolving Multimedia Verification through Memory Consolidation of Contestation Experiences**
Truong Thanh Hung Nguyen, Vo Thanh Khang Nguyen, Hoang-Loc Cao, Phuc Ho, Truong Thinh Nguyen, Van Pham,
 Hung Cao
arXiv preprint arXiv:2609.27175, 2026
Under review at Intelligent Computing (Science Partner Journal; Q1, IF 6.9).

[P2]

Privacy-Preserving Multi-Stage Fall Detection Framework with Semi-supervised Federated Learning and Robotic Vision Confirmation
Seyed Alireza Rahimi Azghadi, Truong-Thanh-Hung Nguyen, H       Fournier, Monica Wachowicz, Ren   Richard, Francis Palma, Hung Cao
arXiv preprint arXiv:2507.10474 (arXiv 2025), 2025

[P1]

Examining Monitoring System: Detecting Abnormal Behavior In Online Examinations
Dinh An Ngo, Thanh Dat Nguyen, Thi Le Chi Dang, Huy Hoan Le, Ton Bao Ho, Vo Thanh Khang Nguyen, Truong Thanh Hung Nguyen
arXiv preprint arXiv:2402.12179 (arXiv 2024), 2024

HONORS, AWARDS & SCHOLARSHIPS

2026	Canada Graduate Research Scholarship – Doctoral (CGS D) (Nominated) — Tri-Agency (NSERC, CIHR, SSHRC), Government of Canada
2026	1st Place Prize — ICMR 2026 Grand Challenge on Multimedia Verification
2026	1st Place Prize — Big Cross-Modal Attenuation Correction (BIC-MAC) Challenge at MICCAI 2026
2025	Best Paper Nominee — 9th International Symposium on Chatbots and Human-Centred AI (CONVERSATIONS 2025)
2025	Runner-up of the Best Poster Award — Atlantic Canada AI Summit
2025	Best Poster Award — UNB Computer Science Research Expo
2025	Best Runner-up Poster Award — UNB Computer Science Research Expo
2024	Colin Ware Prize in Computer Science — University of New Brunswick
2024	Best Presentation Award — IEEE 42nd International Conference on Consumer Electronics (ICCE 2024)
2024	Best Contribution Award — IEEE 42nd International Conference on Consumer Electronics (ICCE 2024)
2023	Best Runner-up Paper Award — Australasian Joint Conference on Artificial Intelligence (AJCAI 2023)
2021	Best Paper Award — FPT AI Conference 2021 (FAIC 2021)
2021	Best Runner-up Paper Award — FPT AI Conference 2021 (FAIC 2021)
2020	DAAD Scholarship — Sur-place scholarship
2016–2020	DAAD Scholarship — Exchange bachelor studies in Germany

PATENTS & COPYRIGHTS

2024	EVA AI Software — Software copyright No. 3921/2024/QTG, Copyright Office of Vietnam, Ministry of Culture, Sports and Tourism, 21 May 2024 Vo Thanh Khang Nguyen, Van Binh Truong, <u>Truong Thanh Hung Nguyen</u> , Quoc Khanh Nguyen, Quoc Hung Cao
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TEACHING EXPERIENCE

Teaching certification		
●	Diploma of University Teaching Certified for formal training and qualification in higher education instruction	Canada
Teaching assistant		
●	Introduction to Machine Learning	UNB
●	Data Structures and Algorithms	UNB
●	Introduction to Numerical Methods	UNB
Guest lectures		
●	Beyond Explainable AI (XAI) University of New Brunswick	Canada

● Introduction to Interpretable Machine Learning <i>Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU)</i>	Germany
● Introduction to Explainable AI (XAI) <i>FPT University</i>	Vietnam
● Introduction to Reinforcement Learning (RL) <i>Quy Nhon University</i>	Vietnam

STUDENT MENTORSHIP

7	Master's students
10	Undergraduate students

ACADEMIC SERVICE

PC Member	Canadian AI Conference 2026; IEEE 44th International Conference on Consumer Electronics (IEEE ICCE 2026); 35th IEEE International Conference on Collaborative Advances in Software and Computing (CASCON 2025); International Conference on Cryptography and Information Security (VCRIS 2026, 2025)
Judge	Canada-Wide Science Fair (Senior) 2025
Journal Reviewer	Information Processing & Management; Information Fusion; IEEE Transactions on Mobile Computing; European Journal of Operational Research; International Journal of Human-Computer Interaction; IEEE Canadian Journal of Electrical and Computer Engineering; IET Smart Cities; IGI Global Book Chapter — Navigating the Circular Age of a Sustainable Digital Revolution
Conference Reviewer	Canadian AI Conference 2026, 2025, 2024; Conference on Information Technology and its Applications (CITA 2025, 2024); International Conference on Cryptography and Information Security (VCRIS 2024); International Conference on Information Reuse and Integration for Data Science (IEEE IRI 2025, 2024)