

Ngoc Huynh Trinh

Medical Image Analysis, Computer Vision, Generative AI

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EDUCATION

Vrije Universiteit Brussel

PhD Student in Medical Science

Brussels, Belgium

09/2026 – Present

VNU University of Engineering and Technology

M.Sc. in Computer Science

Hanoi, Vietnam

09/2024 – 06/2026

CGPA: 3.8/4.00

VNU University of Engineering and Technology

B.Sc. in Information Technology

Hanoi, Vietnam

09/2020 – 06/2024

CGPA: 3.86/4.00

High School for Gifted Students, VNU University of Science

High School Diploma in Mathematics

Hanoi, Vietnam

09/2017 – 06/2020

CGPA: 9.4/10.0

WORK EXPERIENCE

Institute for Artificial Intelligence, VNU-UET

Teaching Assistant

Hanoi, Vietnam

09/2024 – Present

Courses assisted: Introduction to Programming; Relational Databases and SQL; Computational Thinking; Programming Methodology; Practical Artificial Intelligence Systems Development.

Research interests: Research on medical image analysis leveraging generative methods (e.g., VAE, Diffusion model, and Flow matching), focusing on uncertainty-aware segmentation, weakly supervised anomaly detection, and interpretable prediction of cognitive disorders.

ONGOING RESEARCH

Diffusion-Based Latent Representation Learning of 3D Brain MRI:

Cognitive Prediction and Biomarker Discovery in Multiple Sclerosis

Supervisors: Guy Nagels, Tran Quoc Long, Jeroen Van Schependom

09/2026 – Present

- Developing 3D diffusion-based generative models that learn compact, task-agnostic latent representations of brain MRI from HC and MS cohorts.
- Assessing whether the latent space encodes cognition-relevant factors (sex; grey/white matter, hippocampal and ventricular volumes) and predicts cognitive outcomes (SDMT) and brain age.
- Manipulating latent representations to analyse changes in synthetic MRI and predictions, towards novel MRI-based biomarkers of cognitive impairment.

PUBLICATIONS

- Aleatoric uncertainty estimation in medical image segmentation via flow matching. Van Nguyen Phi, **Ngoc Huynh Trinh**, Duy Minh Lam Nguyen, Phu Loc Nguyen, Quoc Long Tran. 2025. In: *International Workshop on Uncertainty for Safe Utilization of Machine Learning in Medical Imaging (UNSURE Workshop at MICCAI)*, pp. 134–144. Springer Nature Switzerland. DOI: [10.1007/978-3-032-06593-3_13](https://doi.org/10.1007/978-3-032-06593-3_13).
- The Privacy–Utility Trade-off in Brain MRI Synthesis: A Comparative Framework for Generative Models.

Dam Thai Ninh, Nguyen Duc Kien, **Trinh Ngoc Huynh**, Le Quoc Anh, Dinh Tran Hiep, Bui Duc Manh, Nguyen Hai Anh, Miguel D'Haeseleer, Jeroen Van Schependom, Stijn Denissen, Tran Quoc Long, Nguyen Linh Trung, and Guy Nagels. 2025. In: *14th International Symposium on Information and Communication Technology (SOICT)*, Nha Trang, Vietnam, December 2025. DOI: [10.1007/978-981-92-2600-9_31](https://doi.org/10.1007/978-981-92-2600-9_31)

- LatentFM: A latent flow matching approach for generative medical image segmentation. **Huynh Trinh Ngoc**, Hoang Anh Nguyen Kim, Toan Nguyen Hai, Long Tran Quoc. 2026. In: *FISU Joint Conference on Artificial Intelligence (FJCAI)*, Can Tho, Vietnam. Preprint: [arXiv:2512.04821](https://arxiv.org/abs/2512.04821).
- Diffusion model in latent space for medical image segmentation. **Huynh Trinh Ngoc**, Toan Nguyen Hai, Ba Luong Son, Long Tran Quoc. 2026. In: *FISU Joint Conference on Artificial Intelligence (FJCAI)*, Can Tho, Vietnam. Preprint: [arXiv:2512.01292](https://arxiv.org/abs/2512.01292).
- MedAnoDiff: An Efficient Diffusion-Based Weakly Supervised Anomaly Detection in Medical Images. Ngoc Dat Vuong, Duc Minh Doan, Quang Tung Bui, **Ngoc Huynh Trinh**, and Quoc Long Tran. 2026. In: *15th International Symposium on Information and Communication Technology (SOICT)*, Ho Chi Minh, Vietnam.
- Volumetric Latent Diffusion for Brain Tumour Segmentation with Missing Modalities. Hai Toan Nguyen, Tuan Hung Nguyen, Son Ba Luong, and **Ngoc Huynh Trinh**. 2026. In: *15th International Symposium on Information and Communication Technology (SOICT)*, Ho Chi Minh, Vietnam.
- Latent Representation Learning from 3D Brain MRI for Latent Analysis and Prediction in Multiple Sclerosis. **Trinh Ngoc Huynh**, Nguyen Duc Kien, Dam Thai Ninh, Nguyen Hai Anh, Tran Hiep Dinh, Manuela Vaneckova, Tomas Uher, Jeroen Van Schependom, Stijn Denissen, Tran Quoc Long, Nguyen Linh Trung, Guy Nagels. 2026. In: *Neuroinformatics*.

PROJECTS

Ministry of Science and Technology

Research Project Member

Hanoi, Vietnam

08/2022 – 11/2025

Title: Research on the Application of Artificial Intelligence in Lung Cancer Diagnosis through Analysis of Chest CT, Bronchoscopy, and Histopathological Images

Role: Member

Status: Completed

AWARDS AND HONORS

- Viettel Research Excellence Scholarship, 2025
- Full scholarship in 6/8 semesters, 2020-2024.
- 3rd prize in the *Scientific Research Conference for Undergraduates at FIT-UET* with project Diffusion model in latent space for medical image segmentation, 2024.
- Consolation prize in the *Scientific Research Conference for Undergraduates at FIT-UET* with project Developing a GPU-Optimized Real-time AI Surveillance System for Camera, 2024.
- 3rd prize in the *Scientific Research Conference for Undergraduates at FIT-UET* with project Multi-tracking multi-camera project, 2023.
- EVN Scholarship for VNU Students, Academic Year 2022-2023
- Top 5 in the *Air Quality Forecasting Challenge (AI4VN)*, 2022

LANGUAGES

- Vietnamese: Native
- English

REFERENCES

- **Dr. Long Tran Quoc:** Head of the Institute of Artificial Intelligence (IAI), University of Engineering and Technology (UET), Vietnam National University (VNU)
Contact: tqlong@vnu.edu.vn
- **Prof. Dr. Nguyen Linh Trung:** Signal and Systems Laboratory, Faculty of Electronics and Telecommunications, University of Engineering and Technology (UET), Vietnam National University (VNU)
Contact: lingtrung@vnu.edu.vn
- **Prof. Dr. Ir. Guy Nagels:** Chair of the AI Supported Modelling in Clinical Sciences (AIMS) Research Group, Vrije Universiteit Brussel (VUB)
Contact: guy.nagels@vub.be