

Luong Tran

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Research Interests

My research interests focus on the effectiveness of Multi-modal Representation Learning and its applications, particularly in Weakly Supervised Learning scenarios. I am also interested in Multi-modal Generative AI and in scaling such systems effectively using Mixture-of-Experts architectures. Recently, I have been exploring vision-based World Models combined with Reinforcement Learning as a core component for AI-driven robotics.

Education

Bachelor's Degree in Data Science (Advanced Program) *Hanoi University of Science and Technology*
Major: Data Science and Artificial Intelligence *2020 - 2024*

GPA: 3.75/4.0 (9.38/10)

Relevant Coursework: Machine Learning, Data Structures & Algorithms, Linear Algebra, Probability and Statistics

Publication

CLIP-FMoE: Scalable CLIP via Fused Mixture-of-Experts with Enforced Specialization, [Link](#)

Luong Tran, Lan-Cuong Nguyen, Huynh Dang Nguyen, Dat Nguyen Cong, Dung D. Le, Van Nguyen

The International Conference on Learning Representations, ICLR 2026

More Reliable Pseudo-labels, Better Performance: A Generalized Approach to Single Positive Multi-label Learning, [Link](#)

Luong Tran, Thieu Vo, Anh Nguyen, Sang Dinh Viet, Van Nguyen

The International Conference on Computer Vision, ICCV 2025

Improving Single Positive Multi-label Classification via Knowledge-based Label-weighted Large Loss Rejection, [Link](#)

Duc Nguyen Quang*, **Luong Tran***, Duc Le Hong, Hoan Nguyen Huy, Sang Dinh Viet

The International Symposium on Information and Communication Technology, SoICT 2023

Preprint

Precise Video-to-Audio Generation with Cross-Modal Alignment in Latent Space

Thanh V. T. Tran, Ngoc-Son Nguyen, **Luong Tran**, Long-Khanh Pham, Paarth Neekhara, Shehzeen Samarah Hussain, Van Nguyen

Under review at the IEEE/CVF Conference on Computer Vision and Pattern Recognition, CVPR 2026

LIBMoE: A Library for comprehensive benchmarking Mixture of Experts in Large Language Models, [Link](#)

Nam V. Nguyen, Thong T. Doan, **Luong Tran**, Van Nguyen, Quang Pham

Under review at Transactions on Machine Learning Research, TMLR

Research Experience

AI Center, FPT Software

July 2024 - present

AI Resident

Advisor: Dr. **Van Nguyen**, Associate Prof. **Anh Nguyen**

- Design and deploy a multi-agent personalized chatbot to reduce stress and harmful moods among developers, with an MVP released to sales teams for evaluation.
- Explore Mixture-of-Experts architectures for Multimodal LLMs to design specialized components that enable scalable and efficient training via up-cycling instead of retraining from scratch.
- Research about multimodal alignment learning for vision-language tasks, with a focus on effective post-pre-training adaptation methods for CLIP.

Vingroup

July 2023 - May 2024

Vingroup AI Engineer Training Program

- Complete a 4-month intensive, R&D-oriented training program, gaining proficiency in advanced Machine Learning, particularly in Computer Vision and Natural Language Processing, and rank in the top 1% of program participants.

- Design, implement, and deploy lightweight models for vehicle Re-Identification and Face Recognition, empirically reducing error rates to under 2% on the company's large-scale urban dataset.
- Apply and evaluate quantization techniques for YOLOv5 and integrated DeepSort for camera-based vehicle tracking in parking areas, achieving a 25% reduction in system latency and improving overall deployment efficiency.

Computer Vision Research Team, BKAI HUST

October 2020 - July 2024

Research Assistant

Advisor: Assistant Prof. **Sang Dinh Viet**

- Conduct research on projects funded by Naver Corporation.
- Develop multi-label and semi-supervised learning approaches to build an image tagging system for Naver social network data, addressing challenges of limited and noisy supervision.

Awards & Honors

Best Presentation Award

July 2024

Hanoi University of Science and Technology (HUST)

Awarded for outstanding thesis presentation in the 2024.2 Computer Vision Council graduation.

JUNCTIONX HANOI 2023

April 2023

Co-organized by Junction Vietnam and Viettel Group

- Track Winner of Cloud Track: Cloud Application for Community
- Develop the EcoFrenzy app, a social media platform that challenges its users to take green and fun actions in their everyday lives, with the goal of reducing air pollution caused by transportation.

Skills

Programming Languages/Frameworks
Languages

Python, PyTorch, C/C++, Java, LangChain, OpenCV
English (7.0 IELTS)

References

- [Associate Prof. Anh Nguyen](#)

Department of Computer Science, University of Liverpool

Email: anh.nguyen@liverpool.ac.uk

- [Dr. Van Nguyen](#)

AI Transformation Lab Manager, Head of Research, FPT Software

Email: vanth19@fpt.com

- [Assistant Prof. Sang Dinh Viet](#)

Vice Dean, School of Information and Communication Technology, HUST

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