Thinh Ly

+1 517 203 6898 | thinhalex2005@gmail.com | LinkedIn | GitHub

Education

Michigan State University East Lansing, MI

Bachelor of Science, Computer Science and Advanced Mathematics, Honors College *Expected May 2027*

- GPA: 4.0/4.0
- Relevant Coursework: Machine Learning, Biometrics and Pattern Recognition, Data Structures and Algorithms, Object-Oriented Programming, Computer Organization and Architecture, Computer Systems

Publication

[1] Gia Huy Thai, Hoang-Nguyen Vu, Anh-Minh Phan, **Quang-Thinh Ly**, Tram Dinh, Thi-Ngoc-Truc Nguyen, Nhat Ho. *"Shape-Adapting Gated Experts: Dynamic Expert Routing for Colonoscopic Lesion Segmentation"*. Under Review at CVPR 2026 [Paper][Website]

Experience

Undergraduate Researcher Jan 2025 – Present

UT Austin *Remote*

- Collaborated with researchers from Vietnam and UT Austin to develop AI-driven healthcare solutions for the 10 most prevalent cancers in Vietnam.
- Engineered the SAGE-UNet architecture with dynamic expert-routing mechanisms, enabling precise segmentation of colorectal lesions from gigapixel histopathology images.
- Spearheaded extensive ablation studies to identify optimal expert capacity and routing strategies, achieving leading Dice scores of 92.7% – 95.2% on colorectal datasets.
- Benchmarked 20 SOTA segmentation models across three large-scale colorectal datasets, establishing rigorous experimental comparisons.

Research Assistant [Code] Aug 2024 – Jul 2025

MIT CSAIL *Remote*

- Optimized billion-scale search systems on NSF supercomputers using C++, OpenMP, and AVX, targeting NeurIPS Big-ANN Challenge benchmarks.
- Reproduced 8 baseline models on Yandex T2I and LAION datasets, ensuring reproducible HPC workflows via Docker.
- Conducted in-depth analysis of 9 SOTA architectures, critically evaluating algorithmic designs and performance trade-offs.
- Open-sourced 5 high-performance algorithms, contributing well-documented tools to the research community.

Project

Image Captioning Project [Code]

- Developed a Vision Language model using pretrained Resnet50 encoder and Transformer decoder to generate meaningful captions for 8,000 Flickr images.
- Enhanced model performance with regularization and early stopping, recording a significant 10.9% improvement in performance.
- Secured a highly competitive 0.7 METEOR score, ranking within the top tier of captioning architectures.

Car Counter System [Code]

- Implemented a robust vehicle counting system using YOLOv8 model to track cars, buses, and trucks, on a five-lane highway.
- Preprocessed CCTV videos through OpenCV to eliminate irrelevant regions, reducing area of interest by 70%.
- Integrated SORT algorithm for precise vehicle tracking under occlusion and dense traffic, attaining 94% accuracy in vehicle counting.