SON THAI LY

stly@cougarnet.uh.edu | Google Scholar | Github | LinkedIn | Personal Website

Permanent US Resident / Green Card holder

EDUCATION

University of Houston — TX, USA
Ph.D. of Computer Engineering - Advisor: Professor Hien V. Nguyen — 01/2021 - 12/2025

Chonnam National University — South Korea
Master of Computer Science — 09/2017 - 08/2019

SaiGon Technology University — Vietnam
Bachelor of Mechatronics — 09/2009 - 08/2013

WORK EXPERIENCE

University of Houston — TX, USA
Research Assistant - Machine Learning, Computer Vision, and LLMs for Medical Analysis — 06/2021 - Present

- Developed Be-Your-Own-Doctor, an LLM-based tool generating personalized lung cancer reports.
- Conducted research on parameter-efficient fine-tuning (PEFT) methods in medical applications.
- Led National Institutes of Health project on solving *limited and noisy annotations problems* in the medical imaging domain.
- Published 6 papers, including 2 conference/journal accepted and 4 ArXiV papers.
- Served as the reviewer for CVPR2025, ICCV2025, MICCAI 2025, IEEE Transactions on Circuits and Systems for Video Technology.

Chonnam National University — South Korea
Research Assistant - Specialized on Machine Learning, Computer Vision, Deep Learning — 09/2017 - 08/2019

- Conducted research on using body gestures and 3D reconstructed facial data for *Expression Recognition*.
- Published 3 international conference papers and 1 paper on Image and Vision Computing Journal.

Soongsil University — South Korea
Research Assistant — 09/2015 - 08/2017

- Led the government R&D project on *4D Printing with Shape Memory Polymers*.
- Published a paper on *International Journal of Precision Engineering and Manufacturing-Green Technology*.

FIRST-AUTHOR PH.D PROJECTS (06/2021 - PRESENT) | SEE GOOGLE SCHOLAR

Enhancing PEFT via Frequency-Domain Reweighting for Medical Imaging Analysis, Submitted to IEEE Transactions on Medical Imaging.

- Proved that FreqFiT's spectral modulation enables cross-token interactions unreachable by token-local PEFT, provably enlarging the attainable function class at the minimal budget.
- Showed consistent gains across 2D/3D medical imaging (classification, few-shot segmentation) and VTAB natural-image tasks while preserving a small trainable footprint.

Enhancing Parameter-Efficient Fine-Tuning of Vision Transformers through Frequency-Based Adaptation, Accepted to MICCAI 2025 - **Oral presentation**. Pytorch code.

- Introduce FreqFiT, a novel FFT-based method that can modify the spectrum of the features.
- Providing comprehensive experimental results and analysis with many state-of-the-art PEFT methods.

μ-Tuning - Optimizing Your Foundation Model for Medical Images: A Comprehensive Analysis of Fine-Tuning Strategies, 1st author, Pytorch code, submitted to Medical Image Analysis.

- Introducing μ-Tuning, a novel hybrid tuning framework that exhibits enhanced stability and performance.
- Benchmarking the performance of visual prompt and minimal weight tuning methods on few-shots medical tasks.
- Providing extensive investigation not only on the AUC, ACC metrics, and Mcnemar statistics test but also on the insight into linear and non-linear tuning in medical transfer learning, stability analysis, and performances on cross-domain tasks.

Multiplexed Immunofluorescence Brain Image Analysis Using Self-Supervised Dual-Loss Adaptive Masked Autoencoder, 1st author, ArXiv, Pytorch code, Artificial Intelligence in Medicine.

- Introducing DAMA, a novel information-theoretic self-supervised learning method that proposed objective function maximizes the mutual information between the input image and self-supervised labels for multiplexed brain image analysis.
- Introducing the first adaptive mask sampling strategy for self-supervised learning models.
- Extensive experiments on cell detection and classification are provided to validate the effectiveness of DAMA.