To Thanh Dat

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Education

University of Science - VNUHCM — Ho Chi Minh, Vietnam
Information Technology — *October 2024 - Present*
GPA: 8.48/10.0

Publications

Bridging the Training-Deployment Gap: Gated Encoding and Multi-Scale Refinement for Efficient Quantization-Aware Image Enhancement [Link] [Code]

Dat To-Thanh, Nghia Nguyen-Trong, Hoang Vo, Hieu Bui-Minh, and Tinh-Anh Nguyen-Nhu. *Accepted to IEEE/CVF Computer Vision and Pattern Recognition Workshops (CVPRW) 2026.*

- Integrated **Quantization-Aware Training (QAT)** into training, reducing inference latency by **72%** compared to FP32 while preserving **0.474 dB PSNR** and **0.111 SSIM** compared to Post-Training Quantization (PTQ) model
- Evalutated performance and latency of model in **TFLite** format

STER-VLM: Spatio-Temporal With Enhanced Reference Vision-Language Models [Link] [Code]

Tinh-Anh Nguyen-Nhu*, Triet Dao Hoang Minh*, **Dat To-Thanh***, Phuc Le-Gia, Tuan Vo-Lan and Tien-Huy Nguyen. *IEEE/CVF International Conference on Computer Vision Workshops (ICCVW) 2025.*

- Fine-tuned **Qwen2.5-VL-7B** using **LoRA** and **DoRA** to enhance temporal and spatial understanding for traffic video captioning and visual question answering (VQA) on NVIDIA A6000 GPU
- Designed domain-specific textual prompts that improved average validation scores by **+9.294** compared to baseline inference without prompts

Projects

Vesuvius Surface Detection - 3D Scroll Segmentation [Code] **January 2026 – Feb 2026**

- Trained the U-Net model for 1,000 epochs (52 hours) utilizing **Distributed Data Parallel (DDP)** across dual NVIDIA T4 GPUs using **nnUNetv2** framework
- Engineered a robust post-processing pipeline featuring small blob removal and a U-Net model with a Gaussian-weighted sliding window to effectively stitch holes in predicted curves
- Boosted final evaluation scores by **+0.14 (to 0.567)** on the public test set and **+0.12 (to 0.552)** on the private test set compared to baseline submissions without post-processing

Activities

Google Developer Club on Campus - HCMUS

Head of AI&DS team — *October 2025 – Present*

- Held club-scale AI playgrounds and a university-scale AI competition
- Led a weekly learning group on studying multiple topics of Computer Vision
- Collaborated in organizing academic seminars and workshops

Technical Skills

Programming: Python, C/C++
Framework/Tools: Pytorch, Lightning, Docker, Flutter, FastAPI, TailwindCSS
Languages: English, Vietnamese