Huu-Hung Pham

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Education

MSc Computer Science, Ho Chi Minh City University of Technology-VNUHCM 2024 – Present
Ho Chi Minh City, Vietnam

BSc Computer Science, University of Information Technology-VNUHCM 2020 – 2024
Ho Chi Minh City, Vietnam

Experience

Research Assistant @ gMedAI Laboratory - HCMUT Mar 2024 – Present

- Conduct applied research on computer vision for medical imaging, focusing on diagnostic and interpretability tasks such as grading knee osteoarthritis on MRI and X-ray data.
- Serve as a core member in research projects funded by VNU-HCM, NAFOSTED, and the Department of Science and Technology.
- Develop and evaluate deep learning frameworks for medical image understanding and clinical decision support, focusing on efficiency, interpretability, and multimodal fusion.
- Contribute to manuscript preparation and technical implementation in ongoing journal and conference submissions (e.g., IJCAI Demo Track, Medical Image Analysis).

AI Engineer @ GSOFT Corporation Jun 2024 – Present

- Develop and deploy AI-based features that integrate the results of internal research into production-grade products.
- Implement a customer support chatbot system using the n8n automation platform, integrating language models for automated conversation handling.
- Build AI-assisted content generation tools that support marketing teams in the creation and revising of promotional materials.
- Collaborate with the backend team to design deployment pipelines using FastAPI, Docker, and internal CI/CD infrastructure for stable and maintainable releases.

Top 12 OOD-CV Challenge (Classification) @ ICCV 2023 Sep 2023

- Competed in the OOD-CV 2023 classification track (ICCV workshop challenge), evaluated by the average Top-1 accuracy across OOD test sets featuring nuisance factors (*shape, pose, texture, context, weather, occlusion*).
- Adopted an ImageNet-1k pretraining regime (ImageNet-only leaderboard) with a ViT-B/16 backbone; fine-tuned on the official training/IID split (VOC/ImageNet/PASCAL3D+ alignment) using cosine schedule, EMA, label smoothing and MixUp/CutMix at moderate ratios to stabilize features under distribution shift.
- Calibrated the model via temperature scaling and batch-norm recalibration on the IID subset before evaluation; monitored per-nuisance performance (shape/pose/texture/context/weather/occlusion) to avoid regressions noted by the benchmark.
- Achieved a **Top 12 ranking** on the official leaderboard for 2023.

Top 21 VOT Challenge (RGB-D tracking Track) @ ECCV 2022 Oct 2022

– Participated in the RGB-D tracking track of VOT-RGBD2022, evaluated under the standard VOT metrics: Expected Average Overlap (EAO), Accuracy, and Robustness.
– Developed a depth-aware tracker that integrates RGB features and depth maps to improve occlusion handling and re-detection performance.
– Tuned failure detection and reinitialization logic to balance tracking accuracy and robustness in accordance with the official VOT evaluation protocol.
– Tested on the official RGB-D benchmark sequences and achieved a **Top 21 ranking** in the competition.

Third Prize SoICT Hackathon 2023 (Naver OCR Track) @ HUST Oct 2023
– Played a pivotal role in a team competing in the Naver OCR track, focusing on real-world scene text recognition.
– Generated large-scale synthetic datasets to fine-tune and adapt pretrained OCR backbones for Vietnamese text.
– Trained and evaluated multiple models (SVTR, ABINet, DeepText) and developed an ensemble strategy to enhance robustness and accuracy.
– Achieved **Third prize** overall in the competition, demonstrating effective adaptation of the model and teamwork under time constraints.

Top 10 Kalapa Challenge 2023 @ Kalapa JSC Nov 2023
– Participated in the Kalapa AI Challenge, focusing on a lightweight model for Vietnamese handwritten address recognition.
– Adapted and optimized the SVTR architecture to handle longer text sequences while maintaining computational efficiency.
– Designed training strategies and lightweight augmentations to enhance model generalization under resource constraints.
– Achieved a **Top 10 ranking** using a single model in **18 MB**, demonstrating strong optimization, problem solving ability, and adaptability in a fast-paced competition.

Projects

Gated Adaptive Vision Transformer for MRI Osteoarthritis Prediction Github

Developed a PyTorch framework for 3D medical image classification based on Vision Transformers. Introduced gated adaptive prompting and local–global feature fusion for knee osteoarthritis grading on MRI data. Supported parameter-efficient fine-tuning (Prompt Tuning, Adapter, LoRA, SSF) for flexible experimentation.

Transformer-based Visual Prompt for Knee Osteoarthritis Diagnosis Github

Proposed a prompt-guided Vision Transformer framework integrating clinical priors for MRI-based knee osteoarthritis diagnosis. Implemented multiple prompt-generating strategies to enhance interpretability and feature representation. Evaluated on OAI dataset, achieving state-of-the-art accuracy among comparable architectures.

Vietnamese Handwritten Text Recognition using CRNN with CTC Loss Github

Built an OCR system for Vietnamese handwritten text using a CNN–RNN hybrid architecture with CTC decoding. Trained on a curated dataset of handwritten samples, focusing on line-level recognition and sequence alignment robustness. Achieved high character-level accuracy with efficient inference speed.

Vietnamese Handwritten Text Recognition using TransformerOCR Github

Implemented a Transformer-based architecture for end-to-end handwritten text recognition in Vietnamese. Compared attention-based decoding with traditional CTC models to assess performance trade-offs. Optimized positional encoding and attention modules for longer text sequences.

Publications

[1] Hieu Phan, **Hung Pham**, Dat Nguyen, Khoa Le, Tuan Nguyen, Triet Tran and Tho Quan, "TRIKOP: Exploring Visual Prompting Paradigms for Multi-Grade Knee Osteoarthritis Classification on MRI Images," *Proceedings of the Thirty-Fourth International Joint Conference on Artificial Intelligence (IJCAI-25)*, Demo Track, Aug. 2025, pp. 11095–11099. DOI: 10.24963/ijcai.2025/1270.

[2] Trung Hieu Phan, Trung Tuan Nguyen, Thanh Dat Nguyen, **Huu Hung Pham**, Gia Khang Ta, Minh Triet Tran, and Thanh Tho Quan, "DIKOApp: An AI-Based Diagnostic System for Knee Osteoarthritis," *Journal of Imaging Informatics in Medicine*, 2025. DOI: 10.1007/s10278-024-01383-5.

Skills

Programming Languages	Python, C/C++, SQL.
Frameworks & Libraries	PyTorch, TensorFlow, timm, Hugging Face Transformers, MONAI, OpenCV, scikit-learn, NumPy, Pandas, Matplotlib.
Tools & DevOps	Git, Docker, FastAPI, Jupyter Notebook, Linux environment, GPU training and optimization.
Research & Collaboration	Experimental design, model evaluation, paper writing (LaTeX), data visualization.

Certificates

Deep Learning Specialization	DeepLearning.AI on Coursera
Machine Learning Specialization	Stanford University on Coursera
Problem Solving using Computational Thinking	University of Michigan on Coursera