Ha-Hieu Pham

+84-375-291-239 | hieuphamha19@gmail.com | hieuphamha19.github.io

hieuphamha19 | hieuphamha19 | Google Scholar | ORCID

Research Interest

Efficient and generalizable artificial intelligence under real-world constraints, with a focus on **data-efficient learning** (semi-supervised, self-supervised, and long-tailed learning) to address limited labeled data and distribution shifts. I am particularly interested in **neuroimaging and brain MRI**, where I study **representation learning** and **robust modeling** to capture complex brain structures. I also explore **multimodal learning with biomedical biomarkers** (e.g., imaging, clinical, and omics data, as in ADNI), aiming to develop models that **integrate heterogeneous data sources** and **generalize across modalities and clinical settings**.

Education

- **University of Science - VNUHCM** *Sep 2022 – Sep 2026*
  B.S. in Computer Science Ho Chi Minh City, Viet Nam
  - **CGPA**: 3.83/4.0 (126/138 credits)
  - **Thesis**: Data-Efficient Learning for Rare Disease Analysis in Chest X-ray Imaging (in progress)
  - **Relevant Coursework:** Data Structures & Algorithms, Fundamentals of Artificial Intelligence, Machine Learning, Data Mining, Natural Language Processing

Experience

- **VinUni-Illinois Smart Health Center (VISHC, VinUni – UIUC collaboration) [🌐]** *Jul 2025 – Present*
  Research Assistant Ha Noi, Viet Nam
  - Supervised by Prof. Huy-Hieu Pham and Dr. Trung-Nghia Le
  - Developed a semi-supervised framework for histopathology segmentation under limited annotation
  - Investigated long-tailed multi-label learning for chest X-ray classification under supervision scarcity
  - Developed rare-aware methods for chest X-ray report generation under long-tailed label distributions
- **AIMA Lab (collaboration with Carnegie Mellon University and Northwestern University)** *Jun 2024 – Present*
  Research Assistant Remote
  - Supervised by M.Sc. Thanh-Huy Nguyen, Prof. Min Xu, and Prof. Ulas Bagci
  - Developed semi-supervised and self-supervised learning methods for medical imaging under limited labeled data
  - Analyzed gene expression matrix data to extract insights for genomics and personalized medicine
  - Investigated mediastinal tumor detection on chest MRI images in collaboration with University of Medicine and Pharmacy at Ho Chi Minh City
- **Gene Solutions [🌐]** *Apr 2025 – Jun 2025*
  Bioinformatics Intern Ho Chi Minh City, Viet Nam
  - Supervised by Dr. Minh-Duy Phan and Dr. Hoa Giang
  - Analyzed large-scale, nationwide fragmentomics datasets across Vietnam derived from Non-Invasive Prenatal Testing (NIPT), involving diverse patient cohorts
  - Developed predictive models for gestational diabetes using cfDNA-derived fragmentomic features, leveraging high-dimensional genomic signals from nationwide NIPT datasets
  - Applied graph neural networks to model complex relationships within fragmentomic profiles, improving predictive performance and robustness
  - Identified tissue-of-origin of Carcinoma of Unknown Primary (CUP) using RNA-seq transcriptomic profiling and gene expression analysis
- **AISIA Lab - Ho Chi Minh University of Science** *Aug 2024 – Mar 2025*
  Undergraduate Research Assistant Ho Chi Minh City, Viet Nam
  - Supervised by Assoc. Prof. Binh Nguyen
  - Developed a breast cancer prediction model using mammogram images in collaboration with Thong Nhat Hospital
  - Constructed and curated a mammogram dataset for breast cancer analysis, including data collection, preprocessing, quality control, and annotation refinement, enabling reliable training and evaluation of deep learning models
  - Applied deep learning techniques to medical imaging and bioinformatics tasks under limited data settings
  - Investigated multimodal learning approaches for integrating imaging and biological data, enabling more robust and generalizable models

PUBLICATIONS

C=CONFERENCE, J=JOURNAL, A=ABSTRACT, S=SUBMITTED

[C.1] **Ha-Hieu Pham**, Hai-Dang Nguyen, Thanh-Huy Nguyen, Min Xu, Ulas Bagci, Trung-Nghia Le, Huy Hieu Pham (2026). **Handling Supervision Scarcity in Chest X-ray Classification: Long-Tailed and Zero-Shot Learning**. *IEEE ISBI 2026* (In Press).

[C.2] **Ha-Hieu Pham**, Le Tran Quoc Khanh, Hoang-Thien Nguyen, Nguyen Lan Vi Vu, Quang-Vinh Dinh, Thanh-Huy Nguyen, Xingjian Li, Min Xu (2025). **Fetal-BCP: Addressing Empirical Distribution Gap in Semi-Supervised Fetal Ultrasound Segmentation**. *IEEE ISBI 2025*. DOI: 10.1109/ISBI60581.2025.10980925

[C.3] Luu Le, Hoang-Loc Cao, **Ha-Hieu Pham**, Thanh-Huy Nguyen, Ulas Bagci (2026). **Robust White Blood Cell Classification with Stain-Normalized Decoupled Learning and Ensembling**. *IEEE ISBI 2026*. (In Press)

[C.4] **Ha-Hieu Pham***, Nguyen Lan Vi Vu*, Thanh-Huy Nguyen, Ulas Bagci, Min Xu, Trung-Nghia Le, Huy Hieu Pham (2025). **Learning Disentangled Stain and Structural Representations for Semi-Supervised Histopathology Segmentation**. *MICCAI Workshop COMPAYL 2025*.

[C.5] Le Tran Quoc Khanh, Nguyen Lan Vi Vu, **Ha-Hieu Pham**, Xuan-Loc Huynh, Tien-Huy Nguyen, Minh Huu Nhat Le, Quan Nguyen, Hien D. Nguyen (2025). **HDC: Hierarchical Distillation for Multi-level Noisy Consistency in Semi-Supervised Fetal Ultrasound Segmentation**. *CVPR Workshops 2025*, pp. 5361–5370.

[C.6] Quan Dinh Dai Tran, Toan Thai Ngoc Truong, **Ha-Hieu Pham**, et al. (2025). **COVID-19 Pulmonary Infiltrate Manifestation Segmentation Leveraging Auxiliary Tasks**. *CITA 2025*. DOI: 10.1007/978-3-032-00972-2_60

[C.7] Le Tran Quoc Khanh, **Ha-Hieu Pham**, et al. (2025). **Few-Shot Retinal Vessel Semantic Segmentation Under Threshold-Based Co-training Dual Network**. *CITA 2025*. DOI: 10.1007/978-3-032-00972-2_61

[C.8] Minh Huu Nhat Le, **Ha-Hieu Pham**, et al. (2025). **AI-Driven Deep Learning Approach for Pan-Cancer Immune Profiling**. *MEDINFO 2025 — Healthcare Smart × Medicine Deep*. Studies in Health Technology and Informatics, Vol. 329, pp. 563–567. DOI: 10.3233/SHTI250903

[J.1] Jieyun Bai, Yitong Tang, Zihao Zhou, et al., **Ha-Hieu Pham**, Thanh-Huy Nguyen, Min Xu, et al. (2026). **FUGC: Benchmarking Semi-Supervised Learning Methods for Cervical Segmentation**. *IEEE Transactions on Medical Imaging (TMI)*. DOI: 10.1109/TMI.2026.3666364

[J.2] Nam HB Tran, Thien-Phuc Hoang Nguyen, Van-Anh Nguyen Hoang, Tien Anh Nguyen, Minh-Duc Nguyen, **Ha-Hieu Pham**, Tho Thi Le Vo, My TT Ngo, Duy Sinh Nguyen, Hoai-Nghia Nguyen, Minh-Duy Phan, Hoa Giang, Lan N Tu (2025). **Tumor Genomic and Transcriptomic Analysis Integrated With Liquid Biopsy ctDNA Monitoring**. *Cancer Medicine*. DOI: 10.1002/CAM4.71465

[A.1] **Ha-Hieu Pham**, Minh Le, Han Huynh, Nguyen Quoc Khanh Le, Huy-Hieu Pham (2026). **Graph-Theoretic Consistency for Robust and Topology-Aware Semi-Supervised Histopathology Segmentation**. *AAAI-26 Student Abstract* (Oral). DOI: 10.1609/aaai.v40i48.42267

[A.2] Minh Huu Nhat Le, **Ha-Hieu Pham**, et al. (2025). **Convolutional Neural Network-Based Artificial Intelligence for Immune Subtype Classification in Pan-Cancer**. *Cancer Research*, 85(8_Supplement_2): LB111. DOI: 10.1158/1538-7445.AM2025-LB111

[S.1] Hexin Dong*, Yi Lin*, et al., **Ha-Hieu Pham**, et al. (2026). **CXR-LT 2026 Challenge: Multi-Center Long-Tailed and Zero-Shot Chest X-ray Classification**. Under review at *Medical Image Analysis (MedIA)*.

[S.2] **Ha-Hieu Pham**, Thanh-Huy Nguyen, Min Xu, Ulas Bagci, Trung-Nghia Le, Huy Hieu Pham (2026). **RAREGen: Rare-Aware Reliable Chest X-ray Report Generation under Long-Tailed Distributions**. Under review at *MICCAI 2026*.

[S.3] Vinh Nguyen Dao, et al., **Ha-Hieu Pham**, et al. (2026). **Integrated Cell-free DNA and Omics Genetic Scores for Early Detection of Gestational Diabetes**. Under review at *Journal of Maternal-Fetal & Neonatal Medicine*.

[S.4] Tuong-Nghiem Diep, et al., **Ha-Hieu Pham**, et al. (2026). **TN-Mammo: A Multi-view Mammography Dataset for Breast Density Classification**. Under review at *Scientific Data*.

HONORS AND AWARDS

- **Travel Grant & Student Volunteer Scholarship** *2026*
  AAAI 2026 Conference, Singapore
- **Winner – CXR-LT 2026 Challenge @ ISBI 2026** *2026*
  CXR-LT 2026: An ISBI challenge on long-tailed, multi-label, and zero-shot classification on chest X-rays [🌐]
- **Third Price – WBCBench 2026 @ ISBI 2026** *2026*
  WBCBench 2026: Robust White Blood Cell Classification
- **Runner-up – FUGC 2025 @ ISBI 2025** *2025*
  Fetal Ultrasound Grand Challenge: Semi-Supervised Cervical Segmentation [🌐]
- **Finalist – STSR Challenge @ MICCAI 2025** *2025*
  MICCAI STSR 2025: CBCT teeth and root plup canal segmentation

Skills

- **Programming Languages:** Python, C++, C, JavaScript, SQL
- **Frameworks:** PyTorch, TensorFlow, Scikit-learn, PyTorch Lightning, Hugging Face, MONAI, OpenCV
- **Tools:** HPC, Slurm, Git, Linux, Conda, Jupyter Notebook, LaTeX

Professional Services

- **Conference Reviewer:** International Symposium on Biomedical Imaging (ISBI), 2026
- **Journal Reviewer:** Medical Image Analysis (MedIA)

References

Dr. Huy Hieu Pham
Assistant Professor, College of Engineering and Computer Science, VinUniversity
Email: hieu.ph@vinuni.edu.vn

Dr. Ulas Bagci
Associate Professor, Department of Radiology, Northwestern University
Email: ulas.bagci@northwestern.edu

Dr. Min Xu
Associate Professor, School of Computer Science, Carnegie Mellon University
Email: mxu1@cs.cmu.edu

Dr. Trung-Nghia Le
Ho Chi Minh City University of Science, Vietnam National University
Email: ltnghia@fit.hcmus.edu.vn