Hieu Pham, Ph.D.

Assistant Professor, College of Engineering and Computer Science, VinUniversity
Director and Principal Investigator, Computer Vision and Medical AI Lab (CVMAIL), VinUniversity
Scientific Director, Entrepreneurship Lab (E-lab), VinUniversity
Visiting Scholar, Coordinated Science Laboratory, University of Illinois Urbana-Champaign (UIUC)

CONTACT INFORMATION

OFFICE ADDRESS:	VinUni-Illinois Smart Health Center, 3rd Floor, Building G, VinUni Campus, Vinhomes Ocean Park, Gia Lam Dist, Hanoi, Vietnam.
EMAIL ADDRESS:	hieu.ph@vinuni.edu.vn
WEBPAGE:	https://huyhieupham.github.io/
GOOGLE SCHOLAR:	https://scholar.google.com/citations?user=mXcFcNkAAAAJ&hl=en

PERSONAL STATEMENT

I am an Educator and Research Scientist specializing in AI, Machine Learning, Computer Vision and AI-based Computer-Aided Diagnosis (AI-CAD). My career goal is to promote **scientific research**, **training**, **innovation**, and **technology transfer**, which play key roles to drive societal progress and positive change. I am committed to training the next generation of scientists and innovators by nurturing curiosity and providing mentorship. I aim to contribute to the development of skilled individuals who can make a lasting impact in their respective fields. Innovation plays a pivotal role in translating knowledge into practical solutions. I am dedicated to fostering a culture of creativity and problem-solving, ensuring that groundbreaking discoveries find their way into applications that benefit society. Moreover, I recognize that technology transfer is essential to this process. By bridging the gap between academia and industry, we can bring cutting-edge ideas to the market, driving economic growth and improving lives. I commit to actively engage in initiatives that promote scientific research, training, innovation, and technology transfer. Through these efforts, I aim to contribute to a brighter future where progress and positive change are realized.

EDUCATION

SEPTEMBER 2019	**Ph.D. in Computer Science** Toulouse Computer Science Research Institute (IRIT), University of Toulouse, France. Dissertation: "*Human Action Recognition in RGB-D Videos based on Deep Neural Networks*".
JULY 2015	**Bachelor of Engineering in Industrial Informatics** Center for Training of Excellent Students (CTES), Hanoi University of Science and Technology (HUST), Vietnam. Thesis: "*Obstacle Detection in Indoor Environment for Visually Impaired People*", conducted at Université Grenoble Alpes, France.

RESEARCH INTERESTS

Computer Vision, Machine Learning, Deep Learning, Artificial Intelligence, Data-Driven Autonomous Systems, Medical Image Analysis, Bioimaging, Smart Health Applications, Digital Health.

ACADEMIC & PROFESSIONAL EXPERIENCE

AUGUST 2024 ÷ PRESENT	**Member** of Research Affairs Committee, VinUniversity ● Support the Provost and the Executive Board in research and innovation activities across the university.
JUNE 2024 ÷ PRESENT	**Director and Principal Investigator (PI)**, Computer Vision and Medical AI Lab, VinUniversity ● Develop data-driven approaches to enable new capabilities in biomedicine and healthcare.
FEB. 2024 ÷ PRESENT	**Affiliated Principal Investigator**, Bio Engineering Laboratory (BEL Lab), VinUniversity ● Develop novel AI-based approaches for bioimaging, biosensors, and biomaterials.
MAY 2024 ÷ PRESENT	**Head of Research Department**, Vietnam Network of Higher Education Innovation and Entrepreneurship Centre (VNEI) ● Propose new innovation models for entrepreneurship centres across Vietnam.
OTC. 2022 ÷ PRESENT	**Assistant Professor**, College of Engineering and Computer Science (CECS), VinUniversity ● Teach computer science courses: COMP1010, COMP1020, COMP3040, COMP5030, COMP3080, COMP3090.

Otc. 2023 ÷ Present	**Scientific Director**, Entrepreneurship Lab (E-lab), VinUniversity • Manage and support Research, Innovation and Technology Transfer activities.
Nov. 2021 ÷ June 2024	**Associate Director**, VinUni-Illinois Smart Health Center, VinUniversity • Developing state-of-the-art sensing and digital technologies to provide widely accessible health monitoring, screening, and diagnostics for people all over the world.
Feb. 2023 ÷ Jul. 2023	**Visiting Scholar**, Coordinated Science Laboratory at University of Illinois Urbana-Champaign (UIUC), Illinois, USA. • Artificial Intelligence (AI) for Healthcare and Medicine.
Sep. 2020 ÷ Jun. 2021	**Affiliated Faculty, Assistant Professor**, College of Engineering and Computer Science, VinUniversity • Supervise and mentor research assistants at the Smart Health Center. • Construct syllabus and deliver lectures for the *"Introduction to Machine Learning"* course. • Conduct research in Medical Imaging Analysis and AI-based Smart Healthcare
Oct. 2019 ÷ Oct. 2021	**Research Scientist & Head of Fundamental Research**, Department of Medical Center, VinBigdata • Being in charge of fundamental research on AI and Medical Imaging, leading the research team to produce high-quality, international standard research outputs (`https://vindr.ai/`). • Train and supervise AI research interns (15 peoples) • Construct and normalize large-scale medical datasets (X-ray, CT, MRI, etc). • Design and implement Computer Vision and Deep Learning approaches to solving particular medical imaging problems related to detection, segmentation and classification in medical imaging. • Produce top tier technical/clinical publications and transfer ML/DL models into products.
Oct. 2016 ÷ Sep. 2019	**Ph.D. Researcher** at the Toulouse Computer Science Research Institute (IRIT), University of Toulouse & Cerema Research Center, Toulouse, France. • Conducted studies on video-based human action recognition using deep learning networks. • Proposed new 3D motion representations and deep learning frameworks for action analysis.
Nov. ÷ Dec. 2017	**Visiting Ph.D. Student** at the Applied Artificial Intelligence Research Group, University Carlos III of Madrid, Madrid, Spain. • Designed and optimized very deep CNNs for image recognition tasks.
Nov. 2014÷ May 2015	**Research Intern** in the AIR-COBOT project, led by AIRBUS Group and ICA Research Institute, Albi, France. • Analyzed 3D point cloud for detection and characterization of defects on airplane surface.
July ÷ Oct. 2015	**Research Engineer** at the MICA International Research Center, Hanoi, Vietnam. • Conducted research on object detection, 3D video analysis, and scene understanding.
Feb. ÷ June 2015	**Research Intern** at the AGIM Laboratory, Université Grenoble Alpes, Grenoble, France. • Developed an obstacle detection and warning system for visually impaired people based on electrode matrix and mobile Kinect.

Current PhD students

Aug. 2024 **Minh-Huyen Le** (co-supervise with Dr. Mai Tran). CS PhD student at VinUniversity.
Aug. 2024 **Quoc-Cuong Pham** (co-supervise with Dr. Huong Ha). CS PhD student at VinUniversity.
Aug. 2024 **Minh-Tri Phan** (co-supervise with Dr. Thanh Thai). CS PhD student at VinUniversity.
May 2024 **Xuan-Phu Nguyen** (co-supervise with Prof. Maarten De Vos). CS PhD student at KU Leuven.
Jan. 2024 **Grégoire Mugnier** (co-supervise with Prof. Nicolas Vuillerme). CS PhD student at UGA, France.

Students Advising/Mentoring

Dec. 2024	Mentor for **Phi Nguyen** (co-supervised with Dr. Long Tran - VNU). Now CS PhD student at the Technical University of Munich (TUM), Germany.
Mar. 2024	Mentor for **Hoang C., Nguyen**, KAIST undergraduate student (Gold IMO 2017). Now PhD Student @ Stony Brook University, New York
Mar. 2024	Mentor for **Hung Nguyen** (co-advised with Dr. Phi Le, HUST), graduate RA. Now PhD student @ The University of Tokyo.
Mar. 2024	Mentor for **Khiet Dang**, graduate RA. Now MSc student @ France.
Mar. 2024	Mentor for **My Nguyen**, graduate RA. Now PhD student @ UIUC.
Mar. 2024	Mentor for **Dinh Dzung**, graduate RA. Now PhD student @ The University of North Carolina at Chapel Hill
Mar. 2024	Mentor for **Van Nguyen**, undergraduate RA. Now grad student @ University of Technology Sydney (UTS)
Mar. 2023	Mentor for **Nguyen Minh Quan**, graduate RA. Now MSc @ TU Berlin and incoming CS PhD student at UIUC
Mar. 2023	Mentor for **Nguyen Thi Ngoc Huyen**, graduate RA. Now ECE PhD student @ UIUC.
Mar. 2023	Mentor for **Khiem Le**, graduate RA. Now CS Ph.D. Student @ University of Notre Dame, USA.
Mar. 2023	Mentor for **Tuan Tran**, graduate RA. Now CS PhD Student @ Trinity College Dublin, Ireland
Mar. 2023	Mentor for **Nguyen Thi Bich Thao**, graduate RA. Now CS PhD student @ UIUC
Mar. 2023	Mentor for **Nguyen Anh Duy** (co-advised with Dr. Phi Le), graduate RA. Now ECE PhD student @ UIUC
Mar. 2023	Mentor for **Nguyen Thuy Dung** (co-advised with Dr. Phi Le), graduate RA. Now ECE PhD student @ Vanderbilt University.
Mar. 2022	Mentor for **Nguyen Trong Tung**, graduate RA. Now Postgraduate Researcher @ Singapore Management University Singapore.
Mar. 2022	Mentor for **Phan Thi Hien Chi**, VinUni undergraduate student (EE). Now research intern @ A*Star, Singapore
Jul. 2020	Mentor for **Tung T., Le**, VNU-UET undergraduate student. Now CS Ph.D. student @ University of California Irvine Irvine, CA, USA.
Feb. 2021	Mentor for **Hieu T., Nguyen**, HUST undergraduate student. Now CS PhD student @ Northeastern University, USA.
Mar. 2021	Mentor for **Dung V., Do**, HUST undergraduate student. Now @ VinBrain.
Mar. 2021	Mentor for **Sam Sam**, HCM-University of Information Technology undergraduate student. Now Senior System Software Engineer in NVIDIA @ NVIDIA.
Mar. 2021	Mentor for **Thanh T., Tran**, HUST undergraduate student. Now @ VinBigData.

Awards and Honors

Nov. 2024	**Leaders in Innovation Fellowship** awarded by The Royal Academy of Engineering (UK).
Nov. 2024	**Outstanding Faculty Member in Research** at the College of Engineering and Computer Science, VinUniversity (AY 2023-2024).
Apr. 2024	**Global Young Leaders in Research and Innovation** by the Austrian Leadership Programs (ALPS).
Feb. 2024	**Top 20 Outstanding Young Faces of Vietnam 2023**
Dec. 2023	**Faculty of the Year Award 2023** (VinUniversity).
Dec. 2023	**Best Paper Award** at The Eleventh International Symposium on Computing and Networking (CANDAR 2023).
Nov. 2023	**Change Maker Award** (VinUniversity).
Oct. 2023	**Outstanding Faculty Member in Research** at the College of Engineering and Computer Science, VinUniversity (AY 2022-2023).
Sep. 2023	**National Outstanding Young Scientist Award (Golden Globe) in Science and Technology, 2023**
May 2023	**Best Paper Award** in the 23rd International Symposium on Cluster, Cloud and Internet Computing (CCGrid 2023).
May 2023	**The 2022 ISCN Excellence Awards** for our Smart Health Initiative on developing smart solutions to provide widely accessible health monitoring and improvement for people all over the world.
Sep. 2022	**AI Awards 2022**
Sep. 2021	**DAAD Fellowship 2021** for outstanding researcher in AI and Medical Imaging Research, Federal Ministry of Education and Research (Germany)
Sep. 2019	**Rank 1st** in the CheXpert competition, organized by Stanford University.
Sep. 2016	**Ph.D. Fellowship** for an outstanding candidate from the Cerema Research Center, France.
Jan. 2015	**Doctoral Travel Scholarship** from L'Université Fédérale Toulouse Midi-Pyrénées and Écoles des Docteurs, Toulouse, France.
Sep. 2015	**Research Internship Scholarship** from the ICA Research Institute, France.
Jan. 2015	**Graduate Internship Scholarship** from the Université Grenoble Alpes, France.

RESEARCH GRANTS

Contributions to Ongoing Funded Research (2,735 million USD in total)

JUNE 2025 – DEC. 2029
Explainable Interpretation of Chest X-rays by Leveraging Vision-Language Foundation Models
- Principal Investigators: Hieu Pham (VinUni), Minh Do (UIUC), Ha Nguyen (VinBigData) , Pascal Frossard (EPFL), Dorina Thanou (EPFL).
- Total funding: 600,000 USD (NAFOSTED-SNSF) – on going

JUNE 2023 – DEC. 2027
Smart Life Smart Living Intercontinental. AI by and for People

- Principal Investigators: Hieu H. Pham (VinUni), Nicolas Vuillerme (UGA, France), Filipe Bueno Vilela (Inatel, Brazil).
- Total funding: 500,000 EUR (Europe) – on going

AUG. 2021 – MAY 2023
VAIPE: AI-assisted IoT-enabled smart, optimal, and Protective hEalthcare monitoring and supporting system for Vietnamese.
- Principal Investigators: Minh Do (VinUni/UIUC), Hieu H. Pham (VinUni), Phi Le Nguyen (HUST), Hung Nguyen (HUST), My Thai (University of Florida), Duc Tran (University of Massachusetts).
- Role: Co-author. I provided preliminary research idea and wrote the grant with co-authors.
- Total funding: $220,000 (VinIF) – on going

AUG. 2020 – MAY 2021
Improving systoms for women after cancer treatment: A Trial of the i-CanMagae Application.
- Principal Investigators: Nguyen Thi Hoa Huyen (CHS, VinUni), Hieu Pham (CECS, VinUni)
- Total funding: $25,000 (VinUni) – on going

AUG. 2024 – AUG 2034
From Causal Understanding of Healthy Longevity to Smart Health

- Principal Investigators: Lav R. Varshney (UIUC), Pablo D. Robles Granda (UIUC), Minh Do (UIUC), Khoa Doan (VinUni), Hieu Pham (VinUni), Wray Buntine (VinUni), Pranee Liamputtong (VinUni), Nguyen Thi Hoa Huyen (VinUni), Giap Thi Thanh Tinh (VinUni), Dung Trung Tran (VinUni, Vinmec).
- Total funding: $260,000 (VISHC, VinUni) – on going

AUG. 2024 – AUG 2034
Developing a unified, low-cost, self-care mobile health application for common disease screening and early detection in low-and middle-income countries
- Principal Investigators: Mark Hasegawa-Johnson (UIUC), Minh Do (UIUC), Hieu Pham (VinUni-VISHC), Dinh Nguyen (VinUni), Huyen Nguyen (VinUni), Vo Thanh Nhan (Vinmec), Ngoc-Minh Ho (Vinmec), Nghia Nguyen (Vinmec).
- Total funding: $260,000 (VISHC, VinUni) – on going

AUG. 2024 – AUG 2034
Enhancing Precision Digital Pathology with an AI-powered Platform Accelerated by Supercomputers
- Principal Investigators: Ravishankar Iyer (UIUC), Phuong Cao (UIUC), Volodymyr Kindratenko (UIUC), Minh Do (UIUC), Hieu Pham (VinUni), Mary Pietrowicz (UIUC), Thai Mai Thanh (VinUni), Hang Nguyen (Vinmec), Dung Tran (VinUni, Vinmec), Bui Giang (VinUni, Vinmec), Huynh Dinh Chien (VinUni), Lisa Boardman (Mayo Clinic), Aaron Mangold (Mayo Clinic), Karl Kochendorfer (UI Hospital & Clinics), Duy Hoang (VinUni), Huyen Le (U.S. Food and Drug Administration)
- Total funding: $260,000 (VISHC, VinUni) – on going

AUG. 2023 – AUG 2032
Evaluating the Effect of Antiviral Drugs using Polarized Light Imaging and Machine Learning Approaches
- Principal Investigators: Stephen Boppart (VinUni), Mark A Anastasio (VinUni), and Marina Marjanovic (VinUni), Tran Thi Mai (VinUni), Nguyen Thi Nhung (VinUni), Hieu Pham (VinUni), and Wray Buntine (VinUni).
- Total funding: $260,000 (VISHC, VinUni) – on going

Aug. 2019 – May 2021	**Building large-scale medical imaging datasets for developing AI-based computer-aided detection/diagnosis systems.**
	• Principal Investigators: Ha Q. Nguyen (VinBigdata), Hieu H. Pham (VinBigdata), Linh T. Le (HMU Hospital), Lam Khanh (108 Hospital).
	• Role: Co-author. I defined the data collection and normalization process.
	• Total funding: $200,000 (VinBigData)
Aug. 2019 – May 2021	**Application of Artificial Intelligence in Medical Image Analysis**
	• Principal Investigators: Lam Khanh (108 Hospital), Ha Q. Nguyen (VinBigdata), Hieu H. Pham (VinBigdata)
	• Role: Co-author. I developed AI solutions for several modalities (chest X-ray, MSK, chest CT)
	• Total funding: $120,000 (VinBigData)

Languages

Native Vietnamese speaker and fluent in both French and English.

Scientific Publications (>1800 citations (Feb 2025) | H-index 20 | H10-index 32)

Journal publications

[J-26] Nguyen Nang Hung, Nguyen Truong, Nghia Hoang, Hieu Pham, Hung Nguyen, and Le Nguyen. *"SAFA: Handling Sparse and Scarce Data in Federated Learning with Accumulative Learning"* – **IEEE Transactions on Computers, 2025**

[J-25] Huyen Thi Hoa Nguyen, Linh Khanh Bui, Tran Ngoc Tran, Ngan Thi Thuy Nguyen, Anh Hoang Phuong, **Hieu Huy Pham**, Andrew W Taylor-Robinson, Tran Quang Duc, and Huong Thi Thanh Nguyen. *"The i-CanManage program to improve exercise and symptom management for Vietnamese women after cancer: A pilot randomized controlled trial protocol"* – **DIGITAL HEALTH, 2024**

[J-24] Hieu X Nguyen, Duong V Nguyen, **Hieu H Pham**, Cuong D Do. *"MPCNN: A Novel Matrix Profile Approach for CNN-based Single Lead Sleep Apnea In Classification Problem"* – **IEEE Journal of Biomedical and Health Informatics (2024)**

[J-23] Van-Tuan Tran, **Huy-Hieu Pham**, Kok-Seng Wong. *"Personalized privacy-preserving framework for cross-silo federated learning"* – **IEEE Transactions on Emerging Topics in Computing (2024)**

[J-22] Q Nguyen, **HH Pham**, KS Wong, P Le Nguyen, TT Nguyen, MN Do. *"FedDCT: Federated Learning of Large Convolutional Neural Networks on Resource Constrained Devices Using Divide and Collaborative Training"* – **IEEE Transactions on Network and Service Management (2023)**

[J-21] Anh Duy Nguyen, Thu Hang Phung, Thuy Dung Nguyen, **Huy Hieu Pham**, Kien Nguyen, Phi Le Nguyen. *"GAMMA: A universal model for calibrating sensory data of multiple low-cost air monitoring devices"* – **Engineering Applications of Artificial Intelligence (2024)**

[J-20] Thuy Dung Nguyen, Tuan Nguyen, Phi Le Nguyen, **Hieu H Pham**, Khoa D Doan, Kok-Seng Wong. *" Backdoor attacks and defenses in federated learning: Survey, challenges and future research directions"* – **Engineering Applications of Artificial Intelligence (2024)**

[J-19] Nguyen, Huy Q., Cuong Q. Nguyen, Dung D. Le, and **Hieu H. Pham**. *"Enhancing few-shot image classification with cosine transformer"* – **IEEE Access (2023)**

[J-18] Thao Nguyen, **Hieu H Pham**, Khiem H Le, Anh-Tu Nguyen, Tien Thanh, Cuong Do. *"Detecting COVID-19 from digitized ECG printouts using 1D convolutional neural networks"* – **PloS ONE 17(11): e0277081.**

[J-17] Khiem H Le, Tuan V Tran, **Hieu H Pham**, Hieu T Nguyen, Tung T Le, Ha Q Nguyen. *"Learning from multiple expert annotators for enhancing anomaly detection in medical image analysis"* – **IEEE Access 11 (2023): 14105-14114.**

[J-16] Nguyen, A. D., **Pham, H. H.**, Trung, H. T., Nguyen, Q. V. H., Truong, T. N., Nguyen, P. L.. *"High Accurate and Explainable Multi-Pill Detection Framework with Graph Neural Network-Assisted Multimodal Data Fusion"* – **Plos ONE (2023)**

[J-15] Khiem H Le, **Hieu H Pham**, Thao BT Nguyen, Tu A Nguyen, Tien N Thanh, Cuong D Do.

"*LightX3ECG: A Lightweight and eXplainable Deep Learning System for 3-lead Electrocardiogram Classification*" – **Biomedical Signal Processing and Control, Volume 85, August 2023, 104963.**

[J-14] Nguyen, H. T., Nguyen, H. Q., **Pham, H. H.**, Lam, K., Le, L. T., Dao, M., Vu, V. "*VinDr-Mammo: A large-scale benchmark dataset for computer-aided diagnosis in full-field digital mammography*" – **Scientific Data (Nature)**, 2023 (Accepted)

[J-13] **Pham, H. Hieu**, Tran, Nguyen, H. N., T., Nguyen, T., Nguyen, Q. H. (2022) "*PediCXR: An open, large-scale chest radiograph dataset for interpretation of thoracic diseases in children*" – **Scientific Data (Nature)**, 2023 (Accepted)

[J-12] Thao Nguyen, Tam M Vo, Thang V Nguyen, **Hieu H Pham***, Ha Q Nguyen. "*Learning to diagnose common thorax diseases on chest radiographs from radiology reports in Vietnamese*" – **PLOS One, 2022** | Full paper

[J-11] Ngoc Huy Nguyen, Ha Quy Nguyen, Nghia Trung Nguyen, Thang Viet Nguyen, **Hieu Huy Pham**, Tuan Ngoc-Minh Nguyen. "*A clinical validation of VinDr-CXR, an AI system for detecting abnormal chest radiographs*" – **Frontiers in Digital Health (2022)** | **Accepted** (.pdf)

[J-10] Ha Q. Nguyen, Khanh Lam, Linh T. Le, **Hieu H. Pham**, Dat Q. Tran, Dung B. Nguyen, Dung D. Le, Chi M. Pham, Hang T. T. Tong, Diep H. Dinh, Cuong D. Do, Luu T. Doan, Cuong N. Nguyen, Binh T. Nguyen, Que V. Nguyen, Au D. Hoang, Hien N. Phan, Anh T. Nguyen, Phuong H. Ho, Dat T. Ngo, Nghia T. Nguyen, Nhan T. Nguyen, Minh Dao, Van Vu. "*VinDr-CXR: An open dataset of chest X-rays with radiologist's annotations*" – **Nature Scientific Data (2022)** | (.pdf)

[J-9] Binh T. Dao,Thang V. Nguyen, **Hieu H. Pham**, Ha Q. Nguyen. "*Phase recognition in contrast-enhanced CT scans based on deep learning and random sampling*" – **Medical Physics (2022)** (.pdf)

[J-8] **Hieu H. Pham**, Tung T. Le, Dat Q. Tran, Dat T. Ngo, Ha Q. Nguyen A. Velastin. "*Interpreting chest X-rays via CNNs that exploit disease dependencies and uncertainty labels*" – **Neurocomputing**.

[J-7] **Huy-Hieu Pham**, Houssam Salmane, Louahdi Khoudour, Alain Crouzil, Pablo Zegers, Sergio A. Velastin. "*A Unified Deep Framework for Joint 3D Pose Estimation and Action Recognition from a Single RGB Camera*" – Special Issue Camera as a Smart-Sensor (V.20,7), **Intelligent Sensors**

[J-6] **Huy-Hieu Pham**, Houssam Salmane, Louahdi Khoudour, Alain Crouzil, Pablo Zegers, Sergio A. Velastin. "*Spatio-Temporal Image Representation of 3D Skeletal Movements for View-Invariant Action Recognition with Deep Convolutional Neural Networks*" – Special Issue "Deep Learning -Based Image Sensors", **Intelligent Sensors**

[J-5] **Huy-Hieu Pham**, Louahdi Khoudour, Alain Crouzil, Pablo Zegers, Sergio A. Velastin. "*Learning to Recognize 3D Human Action from A New Skeleton-based Representation Using Deep Convolutional Neural Networks*" – The **IET Computer Vision Journal** (IET 2018) | Accepted

[J-4] **Huy-Hieu Pham**, Louahdi Khoudour, Alain Crouzil, Pablo Zegers, Sergio A. Velastin. "*Exploiting Deep Residual Networks for Human Action Recognition from Skeletal Data*" – The **Computer Vision and Image Understanding Journal**, Vol. 170 (51-66), 2018 (CVIU 2018) | .pdf

[J-3] Igor Jovancevic, **Huy-Hieu Pham**, Jean-José Orteu, Rémi Gilblas, Jacques Harvent, Xavier Maurice, Ludovic Brèthes. "*3D Point Cloud Analysis for Detection and Characterization of Defects on Airplane Exterior Surface*" – **Journal of Nondestructive Evaluation**, Vol. 36 (74), 2017 **(JNE 2017)** | .pdf

[J-2] Igor Jovancevic, **Huy-Hieu Pham**, Jean-José Orteu, Rémi Gilblas, Jacques Harvent, Xavier Maurice, Ludovic Brèthes. "*Détection et Caractérisation de Défauts de Surface par Analyse des Nuages de Points 3D Fournis par Un Scanner*" - **La revue Instrumentation, Mesure, Métrologie**, Vol. 16 (1-4), 2017 **(I2M 2017)** | .pdf

[J-1] **Huy-Hieu Pham**, Thi Lan Le, and Nicolas Vuillerme. "*Real-Time Obstacle Detection System in Indoor Environment for Visually Impaired Sensor Using Microsoft Kinect*" – **The Journal of Sensor**, Vol. 11 (1-13), 2016 **(SCIE 2016)** | .pdf

Peer-reviewed conference publications

[C-38] DT Tran, H Vu, A Tran, H Pham, H Nguyen, P Nguyen. " *Semise: Semi-supervised learning for severity representation in medical image.* **The 2025 IEEE International Symposium on Biomedical Imaging (ISBI 2025)**

[C-37] H Dinh, S Le, M Than, M Ho, N Vuillerme, H Pham. *"Quantitative Gait Analysis from Single RGB Videos Using a Dual-Input Transformer-Based Network.* **The 2025 IEEE International Symposium on Biomedical Imaging (ISBI 2025)**

[C-36] H Le, K Dang, T Lai, N Nguyen, M Tran, H Pham *"SarcNet: A Novel AI-based Framework to Automatically Analyze and Score Sarcomere Organizations in Fluorescently Tagged hiPSC-CMs.* **The 2025 IEEE International Symposium on Biomedical Imaging (ISBI 2025)**

[C-35] Manh Duong Nguyen, Dac Thai Nguyen, Trung Viet Nguyen, Homi Yamada, Huy Hieu Pham, Phi Le Nguyen *"Bridging Classification and Segmentation in Osteosarcoma Assessment via Foundation and Discrete Diffusion Models.* **IEEE International Symposium on Biomedical Imaging (ISBI) 2025**

[C-34] *"Foundation Model and Temporal Priors-guided Transductive Few-shot Action Recognition.* **The IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP 2025)**

[C-33] Duong Nguyen, Phi Le Nguyen, Truong Nguyen, **Hieu Pham**, and Duc Tran. *"FedBlock: A Blockchain Approach to Federated Learning against Backdoor AttacksCross-Modal Aggregation and Contrastive Regularization.* **The IEEE Special Session Federated Learning on Big Data, 2024.**

[C-32] MD Nguyen, TT Nguyen, **HH Pham**, TN Hoang, PL Nguyen, TT Huynh. *"FedMAC: Tackling Partial-Modality Missing in Federated Learning with Cross-Modal Aggregation and Contrastive Regularization.* **The 22nd International Symposium on Network Computing and Applications (NCA 2024)**

[C-31] LMN Duy A. Nguyen, Trang H. Tran, **Huy Hieu Pham**, Phi Le Nguyen. *"Improving Time Series Encoding with Noise-Aware Self-Supervised Learning and an Efficient Encoder.* **The IEEE International Conference on Data Mining (ICDM) 2024.**

[C-30] Huyen Le, Khiet Dang, Nhung Nguyen, Mai Tran, and **Hieu Pham**. *"D-SarcNet: A Dual-stream Deep Learning Framework for Automatic Analysis of Sarcomere Structures in Fluorescently Labeled hiPSC-CMs.* **IEEE International Conference on Bioinformatics and Biomedicine 2024 (IEEE BIBM 2024)**.

[C-29] Phi Nguyen, **Hieu Pham**, Long Tran. *"Training-Free Condition Video Diffusion Models for single frame Spatial-Semantic Echocardiogram Synthesis.* **The 27th Medical Image Computing and Computer-Assisted Intervention (MICCAI2024)**.

[C-28] Hong Nguyen, Hoang Nguyen, Melinda Chang, **Hieu Pham**, Shrikanth Narayanan, Michael Pazzani. *"ConPro: Learning Severity Representation for Medical Images using Contrastive Learning and Preference Optimization.* **Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (2024)**.

[C-27] Hung T Le, **Hieu H Pham**. *"Learning to Estimate Critical Gait Parameters from Single-View RGB Videos with Transformer-Based Attention Network.* **The 21st IEEE International Symposium on Biomedical Imaging (2024)**.

[C-26] Phi Nguyen, Duc Tran, **Hieu Pham**, Long Tran. *"Echocardiography video synthesis from end diastolic semantic map via diffusion model.* **IEEE International Conference on Acoustics, Speech Signal Processing (2024)**.

[C-25] Quang Ha Pham, Nang Hung Nguyen, Thanh Hung Nguyen, **Huy Hieu Pham**, Phi Le Nguyen, Truong Thao Nguyen. *"SEM: A Simple Yet Efficient Model-agnostic Local Training Mechanism to Tackle Data Sparsity and Scarcity in Federated Learning.* **The Eleventh International Symposium on Computing and Networking (CANDAR), 2023**.

[C-24] Xuan Cuong Do, Hoang Dang Nguyen, Nhat Hai Nguyen, Thanh Hung Nguyen, **Hieu Pham**, Phi Le Nguyen. *"A Novel Approach for Extracting Key Information from Vietnamese Prescription Images.* **Proceedings of the 12th International Symposium on Information and Communication Technology**.

[C-23] Tue Cao, Nhat Tran, Le Nguyen, Hung Nguyen, **Hieu Pham**. *"IncepSE: Leveraging*

InceptionTime's performance with Squeeze and Excitaion mechanism in ECG analysis. **Proceedings of the 12th International Symposium on Information and Communication Technology (2023).**

[C-22]   Anh-Tu Nguyen, Thao Nguyen, Huy-Khiem Le, **Huy-Hieu Pham**, Cuong Do. *"A novel deep learning-based approach for sleep apnea detection using single-lead ECG signals.* **The Asia-Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC).**

[C-21]   Anh Duy Nguyen, Thuy Dung Nguyen, **Huy Hieu Pham**, Thanh Hung Nguyen, Phi Le Nguyen. *"Image-Based Contextual Pill Recognition with Medical Knowledge Graph Assistance.* **Recent Challenges in Intelligent Information and Database Systems: 14th Asian Conference, ACIIDS 2022, Ho Chi Minh City, Vietnam, November 28-30, 2022, Proceedings.**

[C-20]   Khiem H Le, **Hieu H. Pham**, Thao BT Nguyen, Tu A Nguyen, Tien N Thanh, Cuong D Do. *"Enhancing deep learning-based 3-lead ecg classification with heartbeat counting and demographic data integration"* – **2022 IEEE-EMBS Conference on Biomedical Engineering and Sciences (IECBES).**

[C-19]   Nang Hung Nguyen, Duc Long Nguyen, Trong Bang Nguyen, Thanh-Hung Nguyen, **Huy Hieu Pham**, Truong Thao Nguyen, Phi Le Nguyen. *"CADIS: Handling Cluster-skewed Non-IID Data in Federated Learning with Clustered Aggregation and Knowledge DIStilled Regularization"* – **The 23rd International Symposium on Cluster, Cloud and Internet Computing (CCGrid 2023), BANGALORE, INDIA | MAY 1-4, 2023** (Best Paper Award).

[C-18]   Dung Thuy Nguyen, Duy Anh Nguyen, Thanh-Hung Nguyen, Kok-Seng Wong, **Huy Hieu Pham**, Truong Thao Nguyen, Phi Le Nguyen. *"FedGrad: Mitigating Backdoor Attacks in Federated Learning Through Local Ultimate Gradients Inspection"* – **International Joint Conference on Neural Networks (IJCNN 2023), Gold Coast, Australia.**

[C-17]   Sam B. Tran, Huyen T. X. Nguyen, Chi Phan, Ha Q. Nguyen, **Hieu H. Pham**. *"A Novel Transparency Strategy-based Data Augmentation Approach for BI-RADS Classification of Mammograms"* – **The 22nd IEEE Statistical Signal Processing Workshop, 2-5 July, Hanoi, Vietnam.**

[C-16]   Dat T. Ngo, Thao T.B Nguyen, Hieu T. Nguyen, Dung B. Nguyen, Ha Q. Nguyen, **Hieu H. Pham**. *"Slice-level Detection of Intracranial Hemorrhage on CT Using Deep Descriptors of Adjacent Slices"* – **The 22nd IEEE Statistical Signal Processing Workshop, 2-5 July, Hanoi, Vietnam.**

[C-15]   **Hieu H Pham***, Khiem H Le, Tuan V. Tran , Ha Q. Nguyen *"Improving Object Detection in Medical Image Analysis through Multiple Expert Annotators: An Empirical Investigation"* – **Midwest Machine Learning Symposium (MMLS 2023), Chicago, IL, USA**

[C-14]   **Hieu H Pham***, Ha Q. Nguyen, Hieu T. Nguyen, Linh T. Le, Khanh Lam. *"Evaluating the Impact of an Explainable Machine Learning System on Interobserver Agreement in Chest Radiograph Interpretation"* – **Midwest Machine Learning Symposium (MMLS 2023), Chicago, IL, USA**

[C-13]   Quan Nguyen, **Hieu H. Pham**, Kok-Seng Wong, Phi Le Nguyen, Truong Thao Nguyen, Minh N. Do. *"Dividing and Co-training Large Convolutional Neural Networks on Resource Constrained Devices in Federated Learning"* – **Midwest Machine Learning Symposium (MMLS 2023), Chicago, IL, USA**

[C-12]   Khiem H Le, **Hieu H Pham**, Thao BT Nguyen, Tu A Nguyen, Tien N Thanh, Cuong D Do. *"Lead-wise Explainability of Deep Learning System for Electrocardiogram Classification"* – **Midwest Machine Learning Symposium (MMLS 2023), Chicago, IL, USA**

[C-11]   Anh Duy Nguyen, **Huy Hieu Pham,** Huynh Thanh Trung, Quoc Viet Hung Nguyen, Thao Nguyen Truong, Phi Le Nguyen *"A Deep Multimodal Learning Framework for Pill Detection from Images"* – **Midwest Machine Learning Symposium (MMLS 2023), Chicago, IL, USA**

[C-10]   Tue M. Cao, Nhat TH. Tran, Phi Le Nguyen, **Hieu H. Pham** *"Multimodal contrastive learning for diagnosing cardiovascular diseases from electrocardiography (ECG) signals and patient metadata"* – **Midwest Machine Learning Symposium (MMLS 2023), Chicago, IL, USA**

[C-9]   Tung-Trong Nguyen, **Hieu H Pham***, Phi Le Nguyen, Thanh Hung Nguyen, Minh Do. *"Multi-stream Fusion for Class Incremental Learning in Pill Image Classification"* – **Proceedings of the Asian Conference on Computer Vision (ACCV2022) |** Full paper

[C-8]   Nang Hung Nguyen, Phi Le Nguyen, Duc Long Nguyen, Trung Thanh Nguyen, Thuy Dung Nguyen, Thanh Hung Nguyen, **Huy Hieu Pham**, Truong Thao Nguyen. *"FedDRL: Deep Reinforcement Learning-based Adaptive Aggregation for Non-IID Data in Federated Learning"* – **The 51st International Conference on Parallel Processing (ICPP 2022).**

[C-7]   Huyen TX Nguyen, Sam B Tran, Dung B Nguyen, **Hieu H. Pham**, and Ha Q Nguyen. *"A novel*

multi-view deep learning approach for BI-RADS and density assessment of mammograms Convolutional Neural Networks" – **The 44th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (2022 IEEE EMBC)** .

[C-6]   Thanh T. Tran, **Hieu H. Pham**, Thang V. Nguyen, Tung T. Le, Hieu T. Nguyen, Ha Q. Nguyen. *"Learning to Automatically Diagnose Multiple Diseases in Pediatric Chest Radiographs Using Deep Convolutional Neural Networks"* – **2021 IEEE/CVF International Conference on Computer Vision Workshops (ICCV Workshop 2021)**.

[C-5]   **Hieu H. Pham**, Dung V. Do, Ha Q. Nguyen. *"DICOM Imaging Router: An Open Deep Learning Framework for Classification of Body Parts from DICOM X-ray Scans"* – **2021 IEEE/CVF International Conference on Computer Vision Workshops (ICCV Workshop 2021)**.

[C-5]   Hoang C. Nguyen, Tung T. Le, **Hieu H. Pham**, Ha Q. Nguyen. *"VinDr-RibCXR: A Benchmark Dataset for Automatic Segmentation and Labeling of Individual Ribs on Chest X-rays"* – **Medical Imaging with Deep Learning (MIDL 2021)**.

[C-4]   Hieu T. Nguyen, **Hieu H. Pham**, Nghia T. Nguyen, Ha Q. Nguyen, Minh Dao, Van Vu. *"A deep learning framework for spinal lesions detection and classification from radiographs"* – **International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 2021)**.

[C-3]   **Hieu H. Pham**, Tung T. Le, Dat Q. Tran, Dat T. Ngo, Ha Q. Nguyen. *"Interpreting chest X-rays via CNNs that exploit disease dependencies and uncertainty labels"* – Proceedings of **Medical Imaging with Deep Learning** ([MIDL 2020](#)) | [.pdf](#)

[C-2]   **Huy-Hieu Pham**, Louahdi Khoudour, Alain Crouzil, Pablo Zegers, Sergio A. Velastin. *"Skeleton to Color Map: A Novel Representation for 3D Action Recognition with Inception Residual Networks"* – The 25th **IEEE International Conference on Image Processing** 7-10 October, 2018, Athens, Greece ([ICIP 2018](#)) | [.pdf](#)

[C-1]   **Huy-Hieu Pham**, Louahdi Khoudour, Alain Crouzil, Pablo Zegers, Sergio A. Velastin. *"Learning and Recognizing Human Action from Skeleton Movement with Deep Residual Neural Networks"* – The 8th **International Conference of Pattern Recognition Systems**, 11-13 July, 2017, Madrid, Spain ([ICPRS 2017](#)) | [.pdf](#)

I am the author, co-author of about 50 scientific articles appeared in top-tier conferences and journals in Computer Vision and Medical Imaging such as IEEE Transactions on Emerging Topics in Computing, Scientific Data (Nature), PLOS One, Frontiers in Digital Health, Medical Physics, Computer Vision and Image Understanding, Neurocomputing, MICCAI, MIDL, ICIP, ICCV, ECCV, and ACCV. For a complete list of publications, please refer to my [Google Scholar](#) (about ›1650 citations, h-index = 19, h-10 index = 31 on February 13, 2025).

Industrial Experience

2015 - 2016 Research Intern, Airbus Group, Toulouse, France.

PATENTS

1. Ha Q. Nguyen, Long T. Dam, **Hieu H. Pham**, Dung N. Ba, Dat T. Ngo. *"PACS-AI: Integrating AI-based medical image management solution to support clinicians in real-time imaging diagnosis"* - Intellectual Property Office of Viet Nam (IP Viet Nam).

2. **Hieu H. Pham**, Cuong Do. *"Artificial intelligence technology analyzes and diagnoses common cardiovascular diseases based on ECG paper"* - Intellectual Property Office of Viet Nam (IP Viet Nam).

3. **Hieu H. Pham**, Nguyen Phi Le, Nguyen Thanh Hung, Minh Do. *"Mobile solution to digitize personal health data using artificial intelligence (AI) and optical character recognition (OCR)"* - Intellectual Property Office of Viet Nam (IP Viet Nam).

4. **Hieu H. Pham**, Nguyen Phi Le, Nguyen Thanh Hung, Minh Do. *"VAIPE Pill Reminder: Artificial intelligence technology automatically creates and reminds medication schedule from pictures of pills and prescriptions"* - Intellectual Property Office of Viet Nam (IP Viet Nam).

Review Activities

Reviewer, IEEE Transactions on Medical Imaging
Reviewer, Journal of Visual Communication and Image Representation
Reviewer, Griffith University Thesis Examination - Xuan Truong Du Chau (5169954)
Reviewer, Communications Medicine (Nature)

Judging Team, Poster Judges, Midwest Machine Learning Symposium (MMLS-2023), Chicago, IL.
Member, The International Conference on Information Processing in Computer-Assisted Interventions (IPCAI) Award Panel
Reviewer, Frontiers in Medicine
Reviewer, Journal of Computer Methods and Programs in Biomedicine
Reviewer, International Conference on Medical Image Computing and Computer Assisted Intervention (MIC-CAI 2023)
Reviewer, IEEE Transactions on Mobile Computing (TMC)
Reviewer, The ACM Transactions on Multimedia Computing Communications and Applications (TOMM)
Reviewer, The International Conference on Information Processing in Computer-Assisted Interventions (IPCAI 2023)
Reviewer, IEEE/CVF Conference on Computer Vision and Pattern Recognition 2023 (CVPR 2023)
Reviewer, IEEE International Conference on Knowledge and Systems Engineering (IEEE KSE 2022)
Reviewer, IEEE Journal of Selected Topics in Signal Processing
Reviewer, IEEE/CVF Conference on Computer Vision and Pattern Recognition 2022 (CVPR2022)
Reviewer, Journal of Electronic Imaging
Reviewer, European Conference on Computer Vision (ECCV 2022)
Reviewer, International Conference on Medical Image Computing and Computer Assisted Intervention (MIC-CAI 2022)
Reviewer, IEEE Journal of Biomedical and Health Informatics (JBHI)
Reviewer, Nature Scientific Reports
Reviewer, IET Computer Vision Journal
Reviewer, International Conference on Computer Vision (ICCV)

WORKSHOP/SCHOOL/COMPETITION ORGANIZATION COMMITTEES

Kaggle Competition on VinBigData Chest X-ray Abnormalities Detection Automatically. URL: https://www.kaggle.com/c/vinbigdata-chest-xray-abnormalities-detection.

VAIPE: Medicine Pill Image Recognition Challenge. URL https://aihub.vn/competitions/230.

SPECIAL SESSION ORGANIZATION/TECHNICAL PROGRAM COMMITTEES

1. Special Session on Artificial Intelligence for Heathcare – The 12th International Symposium on Information and Communication Technology (SoICT 2023)

2. Special Session on Signal Processing and Data Science for Smart Health – The 22nd IEEE Statistical Signal Processing (SSP) workshop.

3. Member, Workshop Committee for Engaging Scientists in Shared Responsible Innovation in Neuroscience in Southeast Asia, the National Academies of Sciences, Engineering, and Medicine (NASEM).

4. Editorial Board Member for Scientific Data Journal (Nature).

5. Area Chair, the 17th Asian Conference on Computer Vision (ACCV), 2024

6. Program Committee (PC) Member, the Thirty-Seventh AAAI Conference on Artificial Intelligence, 2023.

7. Program Committee Member, International Conference on Bioinformatics and Biomedicine (BIBM) 2024.

8. Program Chair of The 17th International Conference on Brain Informatics (BI 2024), December 13-15, 2024, Bangkok, Thailand.

9. Program Committee Member, International Conference on Multimedia Analysis and Pattern Recognition (MAPR).

10. Program Committee Member, the 15th IEEE International Conference on Knowledge and Systems Engineering (KSE2023).

INVITED RESEARCH TALKS

JUN. 2023   Invited speaker, *"Development and Evaluation of the Impact of AI-based Systems for Medical Image Analysis in Clinical Settings"* at Biophotonics Imaging Laboratory Beckman Institute for Advanced Science and Technology, the University of Illinois at Urbana-Champaign, USA.

JUN. 2023   Invited speaker, *"Development and Evaluation of the Impact of AI-based Systems for Medical Image Analysis in Clinical Settings"* at The Department of Bioengineering, the University of Illinois at Urbana-Champaign, USA.

MAR. 2023   Invited speaker, *"Development and Evaluation of the Impact of AI-based Systems for Medical Image Analysis in Clinical Settings"* at Computational Imaging Group at Coordinated Science Lab, the

University of Illinois at Urbana-Champaign, USA.

Apr. 2023   Invited speaker, *"Development and Evaluation of the Impact of AI-based Systems for Medical Image Analysis in Clinical Settings"* at DEPEND Group at Coordinated Science Lab, the University of Illinois at Urbana-Champaign, USA.

Dec. 2018   Invited speaker, *"Applied Machine Learning Days"* at the French Institute of Science and Technology for Transport, Development and Networks (IFSTTAR), Paris, France.

Nov. 2017   Invited speaker, *"An Introduction to Deep Learning for Image and Video Interpretation"* at the University Carlos III of Madrid (UC3M), Madrid, Spain.

July 2018   *"The 2nd International Summer School on Deep Learning"*, Genova, Italy.

Dec. 2017   *"Workshop on Face, Action and Behavior Recognition"*, Télécom ParisTech, Paris, France.

June 2018   *"Deep Learning Workshop"*, Toulouse Computer Science Research Institute (IRIT), Toulouse, France.

Scientific Societies

Member, The Radiological Society of North America (RSNA)
Member, International Society for Computational Biology (ISCB)
Member, IEEE Signal Processing Society
Member, IEEE Engineering in Medicine and Biology Society
Member, American Institute of Medical and Biological Engineering (AIMBE)
Member, Institute for Electrical and Electronic Engineers (IEEE)
Editorial Board Member, Scientific Data Journal (Nature)
Member, IEEE Computer Society and the French Information, Signal, Image et Vision Society.

References

Minh Do, ScD, UIUC

Honorary Vice Provost, VinUniversity
Professor, College of Engineering and Computer Science, VinUniversity
Professor, Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign
Address: 13 Coordinated Science Laboratory, 1308 W Main Street MC 228, Urbana, IL 61801
Phone: 217-333-2511
Phone number: (217) 244-4782
E-mail: minhdo@illinois.edu

Updated in January 2025