

# Hieu Pham, Ph.D.

Assistant Professor, College of Engineering and Computer Science, VinUniversity  
Associate Director, VinUni-Illinois Smart Health Center, VinUniversity  
Scientific Director, Entrepreneurship Lab (E-lab), VinUniversity  
Visiting Scholar, Coordinated Science Laboratory, University of Illinois Urbana-Champaign (UIUC)

## CONTACT INFORMATION

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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](mailto:hieu.ph@vinuni.edu.vn)  
WEBPAGE: <https://huyhieupham.github.io/>  
GOOGLE SCHOLAR: <https://scholar.google.com/citations?user=mXcFcNkAAAAJ&hl=en>

## PERSONAL STATEMENT

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My career goal is to promote **scientific research, training, innovation, and technology transfer**, which play key roles to drive societal progress and positive change.

## EDUCATION

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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*”, Université  
Grenoble Alpes, France.

## RESEARCH INTERESTS

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Computer Vision, Machine Learning, Deep Learning, Artificial Intelligence, Medical Image Analysis, Bioimaging, Smart Health Applications, Digital Health.

## ACADEMIC & PROFESSIONAL EXPERIENCE

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OTC. 2022 ÷ PRESENT	<b>Assistant Professor</b> , College of Engineering and Computer Science, VinUniversity • CS courses: COMP1010, COMP1020, COMP3040, COMP5030
OTC. 2023 ÷ PRESENT	<b>Scientific Director</b> , Entrepreneurship Lab (E-lab), VinUniversity • Innovation and Technology Transfer
NOV. 2021 ÷ PRESENT	<b>Associate Director</b> , 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. Learn more about us at <a href="https://smarthealth.vinuni.edu.vn/">https://smarthealth.vinuni.edu.vn/</a>
FEB. 2023 ÷ JUL. 2023	<b>Visiting Scholar</b> , Coordinated Science Laboratory at University of Illinois Urbana-Champaign (UIUC), IL, USA. • Artificial Intelligence (AI) for Healthcare and Medicine
SEP. 2020 ÷ JUN. 2021	<b>Affiliated Faculty, Assistant Professor</b> , CECS, VinUniversity • Supervise and mentor research assistants at the Smart Health Center. • Construct syllabus and deliver lectures for the “ <i>Introduction to Machine Learning</i> ” course. • Conduct research in Medical Imaging Analysis and AI-based Smart Healthcare

OCT. 2019 ÷ OCT. 2021	<p><b>Research Scientist &amp; Head of Fundamental Research</b>, Department of Medical Center, VinBigdata</p> <ul style="list-style-type: none"> <li>• Being in charge of fundamental research on AI and Medical Imaging, leading the research team to produce high-quality, international standard research outputs (<a href="https://vindr.ai/">https://vindr.ai/</a>).</li> <li>• Train and supervise AI research interns (15 peoples)</li> <li>• Construct and normalize large-scale medical datasets (X-ray, CT, MRI, etc).</li> <li>• Design and implement Computer Vision and Deep Learning approaches to solving particular medical imaging problems related to detection, segmentation and classification in medical imaging.</li> <li>• Produce top tier technical/clinical publications and transfer ML/DL models into products.</li> </ul>
OCT. 2016 ÷ SEP. 2019	<p><b>Ph.D. Researcher</b> at the Toulouse Computer Science Research Institute (IRIT), University of Toulouse &amp; Cerema Research Center, Toulouse, France.</p> <ul style="list-style-type: none"> <li>• Conducted studies on video-based human action recognition using deep learning networks.</li> <li>• Proposed new 3D motion representations and deep learning frameworks for action analysis.</li> </ul>
NOV. ÷ DEC. 2017	<p><b>Visiting Ph.D. Student</b> at the Applied Artificial Intelligence Research Group, University Carlos III of Madrid, Madrid, Spain.</p> <ul style="list-style-type: none"> <li>• Designed and optimized very deep CNNs for image recognition tasks.</li> </ul>
NOV. 2014 ÷ MAY 2015	<p><b>Research Intern</b> in the AIR-COBOT project, led by AIRBUS Group and ICA Research Institute, Albi, France.</p> <ul style="list-style-type: none"> <li>• Analyzed 3D point cloud for detection and characterization of defects on airplane surface.</li> </ul>
JULY ÷ OCT. 2015	<p><b>Research Engineer</b> at the MICA International Research Center, Hanoi, Vietnam.</p> <ul style="list-style-type: none"> <li>• Conducted research on object detection, 3D video analysis, and scene understanding.</li> </ul>
FEB. ÷ JUNE 2015	<p><b>Research Intern</b> at the AGIM Laboratory, Université Grenoble Alpes, Grenoble, France.</p> <ul style="list-style-type: none"> <li>• Developed an obstacle detection and warning system for visually impaired people based on electrode matrix and mobile Kinect.</li> </ul>

## STUDENTS ADVISING/MENTORING

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MAR. 2023	Mentor for <b>Nguyen Minh Quan</b> , graduate RA. <b>Now MSc @ TU Berlin.</b>
MAR. 2023	Mentor for <b>Nguyen Thi Ngoc Huyen</b> , graduate RA. <b>Now ECE PhD student @ UIUC.</b>
MAR. 2023	Mentor for <b>Nguyen Thi Bich Thao</b> , graduate RA. <b>Now CS PhD student @ UIUC</b>
MAR. 2023	Mentor for <b>Nguyen Anh Duy</b> (co-advised with Dr. Phi Le), graduate RA. <b>Now ECE PhD student @ UIUC</b>
MAR. 2023	Mentor for <b>Nguyen Thuy Dung</b> (co-advised with Dr. Phi Le), graduate RA. <b>Now ECE PhD student @ Vanderbilt University.</b>
MAR. 2022	Mentor for <b>Nguyen Trong Tung</b> , graduate RA. <b>Now Postgraduate Researcher @ Singapore Management University Singapore.</b>
MAR. 2022	Mentor for <b>Phan Nhat Huy</b> , VinUni undergraduate student (EE). Second Best Poster Presentation, CECS Day, Spring 2022
MAR. 2022	Mentor for <b>Mai Quang Tuan</b> , VinUni undergraduate student, (EE). Best oral presentation, CECS Day, Spring 2022
MAR. 2022	Mentor for <b>Phan Thi Hien Chi</b> , VinUni undergraduate student (EE). Best poster presentation, CECS Day, Spring 2022
JUL. 2020	Mentor for <b>Tung T., Le</b> , VNU-UET undergraduate student. <b>Now CS Ph.D. student @ University of California Irvine Irvine, CA, USA.</b>
FEB. 2021	Mentor for <b>Hieu T., Nguyen</b> , HUST undergraduate student. <b>Now CS PhD student @ Northeastern University, USA.</b>
JAN. 2021	Mentor for <b>Hoang C., Nguyen</b> , KAIST undergraduate student (Gold IMO 2017).
MAR. 2021	Mentor for <b>Dung V., Do</b> , HUST undergraduate student. <b>Now @ VinBrain.</b>
MAR. 2021	Mentor for <b>Thanh T., Tran</b> , HUST undergraduate student. <b>Now @ VinBigData.</b>

## AWARDS AND HONORS

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DEC. 2023	<b>Faculty of the Year Award 2023</b> (VinUniversity).
NOV. 2023	<b>Change Maker Award</b> (VinUniversity).
OCT. 2023	<b>The College's Award for Exceptional Performance in Research</b> (AY 2022-2023).
SEP. 2023	<b>National Outstanding Young Scientist Award (Golden Globe) in Science and Technology, 2023</b>
MAY 2023	<b>Best Paper Award</b> in the 23rd International Symposium on Cluster, Cloud and Internet Computing (CCGrid 2023).
MAY 2023	<b>The 2022 ISCN Excellence Awards</b> 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	<b>AI Awards 2022</b>
SEP. 2021	<b>DAAD Fellowship 2021</b> for outstanding researcher in AI and Medical Imaging Research, Federal Ministry of Education and Research (Germany)
SEP. 2019	<b>Rank 1st</b> in the CheXpert competition, organized by Stanford University.
SEP. 2016	<b>Ph.D. Fellowship</b> for an outstanding candidate from the Cerema Research Center, France.
JAN. 2015	<b>Doctoral Travel Scholarship</b> from L'Université Fédérale Toulouse Midi-Pyrénées and Écoles des Docteurs, Toulouse, France.
SEP. 2015	<b>Research Internship Scholarship</b> from the ICA Research Institute, France.
JAN. 2015	<b>Graduate Internship Scholarship</b> from the Université Grenoble Alpes, France.

## RESEARCH GRANTS

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### Contributions to Ongoing Funded Research

JUNE 2023 DEC. 2027	–   <b>“Smart Life Smart Living Intercontinental. AI by and for People”</b> <ul style="list-style-type: none"><li>• Principal Investigators: Hieu H. Pham (VinUni), Nicolas Vuillerme (UGA, France), Filipe Bueno Vilela (Inatel, Brazil).</li><li>• Total funding: 500,000 EUR (Europe)</li></ul>
AUG. 2021 MAY 2023	–   <b>VAIPE: AI-assisted IoT-enabled smart, optimal, and Protective hEalthcare monitoring and supporting system for Vietnamese.</b> <ul style="list-style-type: none"><li>• 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).</li><li>• Role: Co-author. I provided preliminary research idea and wrote the grant with co-authors.</li><li>• Total funding: \$220,000 (VinIF)</li></ul>
AUG. 2020 MAY 2021	–   <b>Improving systems for women after cancer treatment: A Trial of the i-CanMagae Application.</b> <ul style="list-style-type: none"><li>• Principal Investigators: Nguyen Thi Hoa Huyen (CHS, VinUni), Hieu Pham (CECS, VinUni)</li><li>• Total funding: \$25,000 (VinUni)</li></ul>
AUG. 2024 AUG 2034	–   <b>From Causal Understanding of Healthy Longevity to Smart Health</b> <ul style="list-style-type: none"><li>• 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).</li><li>• Total funding: \$260,000 (VISHC, VinUni)</li></ul>
AUG. 2024 AUG 2034	–   <b>Developing a unified, low-cost, self-care mobile health application for common disease screening and early detection in low-and middle-income countries</b> <ul style="list-style-type: none"><li>• 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).</li><li>• Total funding: \$260,000 (VISHC, VinUni)</li></ul>

- AUG. 2024 – AUG 2024 | **Enhancing Precision Digital Pathology with an AI-powered Platform Accelerated by Super-computers**
- 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)
- AUG. 2023 – AUG 2022 | **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)
- 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

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Native Vietnamese speaker and fluent in both French and English.

## SCIENTIFIC PUBLICATIONS (>1115 CITATIONS (FEB.2024) | H-INDEX 14 | H10-INDEX 21)

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### Journal publications

- [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-21] 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-22] 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-22] 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-20] 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-19] 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-18] 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-17] 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-16] 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-15] 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-14] **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-13] 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-28] 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-27] 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-26] 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-25] 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-24] Tue Cao, Nhat Tran, Le Nguyen, Hung Nguyen, Hieu Pham. "IncepSE: Leveraging InceptionTime's performance with Squeeze and Excitation mechanism in ECG analysis. **Proceedings of the 12th International Symposium on Information and Communication Technology (2023).**
- [C-23] 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-22] 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-21] 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-20] 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-19] 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-18] 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-17] 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-16] **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-15] **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-14] 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-13] 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-12] 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-11] 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-10] 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-9] 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-8] 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 >1115 citations, h-index = 14, h-10 index = 21 on February 19, 2024).

## INDUSTRIAL EXPERIENCE

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

## PATENTS

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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). Pending.

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). Pending.

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). Pending.

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). Pending.

## REVIEW ACTIVITIES

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**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 (MICCAI 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 (MICCAI 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

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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

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

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

## TECHNICAL PROGRAM COMMITTEES

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2022 The special session chair of The 12th International Conference on Control, Automation and Information Sciences (ICCAIS 2023), which will be held in November 2023 in Hanoi.

2020 International Conference on Multimedia Analysis and Pattern Recognition (MAPR).

2023 The 15th IEEE International Conference on Knowledge and Systems Engineering (KSE2023)

## INVITED RESEARCH TALKS

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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

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Editorial Board Member for Scientific Data Journal (Nature)

IEEE Member

Editorial Board Member for Scientific Data Journal (Nature)

Member of the IEEE Computer Society and the French Information, Signal, Image et Vision Society.

The IEEE Signal Processing Society, Member.

## REFERENCES

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### **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](mailto:minhdo@illinois.edu)