Trung-Hieu Hoang

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EDUCATION

Electrical and Computer Engineering, University of Illinois at Urbana-Champaign (UIUC) Illinois, USA
Ph.D. Candidate (Expected day of graduation: 05/2026) *6/2020-present*

- **Research interest:** computer vision and machine learning, image and signal processing, AI in healthcare, human motion analysis, 3D human pose estimation, test-time adaptation, and federated learning.
- **GPA:** 4.0/4.0.
- **Academic advisor:** Prof. Minh N. Do.

Computer Science, University of Science, VNU-HCM Ho Chi Minh City, Vietnam
Bachelor of Science, Honor Program *2015-2019*

- **GPA:** 9.25/10.0 (Top 2/600 - Degree class: *Excellent*).
- **Academic advisor :** Prof. Minh-Triet Tran.

WORK EXPERIENCE

Google Research California, USA
Research Intern at Health AI Team *5/2025-8/2025*

- **Description:** Developing an automated motion features extraction pipeline for improving fine-grained human motion understanding capabilities of large Vision-Language Models (VLMs).
- **Advisor:** Theo Guidroz, Craig Schiff, and Xiang Ji.

Samsung Research America Texas, USA
Student Intern at Mobile Processor Innovation (MPI) Lab *6/2024-9/2024*

- **Description:** Designing deep neural network architectures for multi-frame image processing algorithms.
- **Advisor:** Dr. Long N. Le, Dr. Seok-Jun Lee, and Dr. Hamid Sheikh.

Orthopedics & Sports Medicine Center, Vinmec Healthcare System Ha Noi, Vietnam
Student Intern at Human Motion Analysis Laboratory *6/2023-9/2023*

- **Description:** Conducting musculoskeletal simulation with VICON optical motion capture system and validating the reliability of single-view, smartphone-based human kinematics analysis for healthcare applications.
- **Advisor:** Dr. Ho Ngoc Minh.

Argonne National Laboratory Illinois, USA
Student Intern at Data Science Learning (DSL) Division *6/2022-9/2022*

- **Description:** Enhancing the capabilities of `APPFLx`: *Argonne Privacy-Preserving Federated Learning framework*, and conducting experiments on detecting COVID-19 disease from chest radiographs.
- **Advisor:** Ravi K. Madduri.

Coordinated Science Laboratory, University of Illinois at Urbana-Champaign Illinois, USA
Student Intern at Computational Imaging Group (CIG) *9/2019-11/2019*

- **Description:** Developing the *Digitized Neurological Examination* system to collect, visualize, annotate, and quantify digital biomarkers from neurological exams with 3D cameras, smartphones, and wearable sensors.
- **Advisor:** Prof. Minh N. Do.

Software Engineering Laboratory, University of Science, VNU-HCM Ho Chi Minh City, Vietnam
Research Assistant at Multimedia and Human Computer Interaction Group *8/2018-9/2019*

- **Description:** Developing a *computer-aided diagnostic system* to help physicians detect abnormalities and key anatomical landmarks in the gastrointestinal tract from endoscopic images. Participating in AI/ML challenges: *AI City challenge, Video Instance Segmentation – the DAVIS challenge, and Visual Life-logging*.
- **Advisor:** Prof. Minh-Triet Tran.

College of Engineering and Computer Science, VinUniversity Ha Noi, Vietnam
Teaching Assistant and Lab Instructor *1/2021-5/2021*

Artificial Intelligence Laboratory, University of Science, VNU-HCM Ho Chi Minh City, Vietnam
Research Assistant at Robotics & IoT Club *8/2018-9/2019*

- **Description:** Serving as an instructor at several introductory-level courses in Python programming, and IoT.
- **Advisor:** Prof. Minh-Triet Tran, MSc. Xuan-Nam Cao.

SKILLS

1. **Programming languages:** Python, C/C++, C#, Swift, JavaScript, HTML/CSS.
2. **Technologies:** PyTorch, TensorFlow, OpenCV, Google Firebase, AWS, Unity, NodeJS, Git, LaTeX.
3. **Languages:** English *(fluent)*, Vietnamese *(native)*.

SELECTED PUBLICATIONS

List of publications on Google Scholar.

Under Submission

1. **Trung-Hieu Hoang**, Duc Minh Vo, Minh N. Do. RIP: A Simple Black-box Attack on Continual Test-time Adaptation. *Under submission, 2024*.

Conference Publications

1. **Trung-Hieu Hoang**, Duc Minh Vo, Minh N. Do. Persistent Test-time Adaptation in Recurring Testing Scenario. *The 38th Annual Conference on Neural Information Processing Systems (NeurIPS), 2024*.
2. Zilinghan Li, Shilan He, Pranshu Chaturvedi, **Trung-Hieu Hoang** *et al.* APPFLx: Providing Privacy-Preserving Cross-Silo Federated Learning as a Service. *IEEE 19th International Conference on e-Science (e-Science), 2023.*
3. **Trung-Hieu Hoang**, Hai-Dang Nguyen, Viet-Anh Nguyen, Thanh-An Nguyen, Vinh-Tiep Nguyen, Minh-Triet Tran. Enhancing Endoscopic Image Classification with Symptom Localization and Data Augmentation. *Proceedings of ACM Multimedia, 2019.*
4. **Trung-Hieu Hoang**, Mai-Khiem Tran, Vinh-Tiep Nguyen, Minh-Triet Tran. Solving Life Puzzle with Visual Context-based Clustering and Habit Reference. *ImageCLEF - Multimedia Retrieval in CLEF 2019*.

Journal Publications

1. **Trung-Hieu Hoang**, Jordan Fuhrman *et al.*. Enabling End-to-End Secure Federated Learning in Biomedical Research on Heterogeneous Computing Environments with APPFLx. *Computational and Structural Biotechnology Journal (CSBJ), 2024*.
2. **Trung-Hieu Hoang**, Christopher Zallek, Minh N. Do. Smartphone-Based Digitized Neurological Examination Toolbox for Multi-test Neurological Abnormality Detection and Documentation. *IEEE Journal of Biomedical and Health Informatics (JBHI), 2024*.
3. Jongwon Lim, Katherine Koprowski, Robert Stavins, Nhat Xuan, **Trung-Hieu Hoang** *et al.* Point-of-Care Multiplex Detection of Respiratory Viruses. *ACS Sensors, 2024*.
4. **Trung-Hieu Hoang*** and Mona Zehni*, Huaijin Xu, George Heintz, Christopher Zallek, Minh N. Do. Towards a Comprehensive Solution for a Vision-based Digitized Neurological Examination. *IEEE Journal of Biomedical and Health Informatics (JBHI), 2022.*
5. **Trung-Hieu Hoang***, Aaron M. Jankelow*, Hankeun Lee*, Weijing Wang* *et al.* Smartphone Clip-On Instrument and Microfluidic Processor for Rapid Sample-to-Answer Detection of Zika Virus in Whole Blood Using Spatial RT-LAMP. *Analyst, 2022.*

Workshop Publications

1. **Trung-Hieu Hoang**, Huy Phan, Mona Zehni, Duc Minh Vo, Minh N. Do. Improving the Robustness of 3D Human Pose Estimation: A Benchmark and Learning from Noisy Input. *Proceedings of the IEEE/CVF CVPR Workshops on Fair, Data-Efficient, and Trusted Computer Vision, 2024*.
2. Minh-Triet Tran, Tam V Nguyen, **Trung-Hieu Hoang** *et al.* iTASK-Intelligent Traffic Analysis Software Kit. *Proceedings of the IEEE/CVF CVPR Workshops, 2020*.
3. Minh-Triet Tran, **Trung-Hieu Hoang** *et al.* Multi-Referenced Guided Instance Segmentation Framework for Semi-supervised Video Instance Segmentation. *Proceedings of the CVPR Workshops, 2020.*
4. Khac-Tuan Nguyen, **Trung-Hieu Hoang** *et al.* Vehicle Re-identification with Learned Representation and Spatial Verification and Abnormality Detection with Multi-Adaptive Vehicle Detectors for Traffic Video Analysis. *Proceedings of the IEEE/CVF CVPR Workshops, 2019.*
5. Minh-Triet Tran, Trung-Nghia Le, Tam V. Nguyen, That-Vinh Ton, **Trung-Hieu Hoang**, *et al.* Guided Instance Segmentation Framework for Semi-supervised Video Instance Segmentation. *Proceedings of the IEEE/CVF CVPR Workshops, 2019*.
6. Nguyen-Khang Le, Dieu-Hien Nguyen, **Trung-Hieu Hoang** *et al. Smart lifelog retrieval system with habit-based concepts and moment visualization. Lifelog Search Challenge (LSC), 2019*.

BOOK CHAPTER

1. Hai-Quan Vu, Xuan-Nam Cao, Trung-Hieu Hoang, Hai-Trieu Nguyen, Chi-Tai Vong. "Introduction to Python Programming" (in Vietnamese). *Vietnam National University in Ho Chi Minh City, 2019*.

*Equally contributed.

PRESENTATIONS

1. Smartphone-based Digitized Neurological Examination Toolbox for Multitest Neurological Abnormality Detection and Documentation **(Oral)**. *American Society of Biomechanics (ASB) Annual Meeting*. *2024*
2. Persistent Test-time Adaptation in Recurring Testing Scenario. *The 1^{st} Workshop on Test-Time Adaptation: Model, Adapt Thyself! (MAT), IEEE/CVF Conference on Computer Vision and Pattern Recognition*. *2024*
3. Uncovering the Risk of Model Collapsing in Self-Supervised Continual Test-time Adaptation. *Workshop on Self-Supervised Learning - Theory and Practice, NeurIPS 2024.* *2024*

TEACHING EXPERIENCE

- *Lecturer*, Advanced Computer Vision *(online course)* *(VietAI - 2023, 2024)*
- *Teaching assistant*, ECE 310 - Digital Signal Processing *(UIUC - Fall 2022)*
- *Teaching assistant*, CECS1020 - Introduction to Machine Learning *(VinUniversity - Spring 2021)*

RELEVANT COURSES

- **ECE 513 - Vector Space Signal Processing**† by Prof. Minh N. Do *(UIUC - Spring 2024)*
- **ECE 563 - Information Theory** by Prof. Ilan Shomorony *(UIUC - Fall 2023)*
- **ME 481 - Whole-Body Musculoskel Biomechanic**† by Prof. Mariana E. Kersh *(UIUC - Spring 2023)*
- **ECE 543 - Statistical Learning Theory**† by Prof. Dimitrios Katselis *(UIUC - Spring 2023)*
- **ECE 566 - Computational Inference and Learning** by Prof. Pierre Moulin *(UIUC - Fall 2022)*
- **ECE 416 - Biosensors**† by Prof. Brian T. Cunningham *(UIUC - Spring 2022)*
- **ECE 551 - Digital Signal Processing II**† by Prof. Zhi-Pei Liang *(UIUC - Fall 2021)*
- **ECE 534 - Random Processes**† by Prof. Dimitrios Katselis *(UIUC - Fall 2021)*
- **CS547 - Deep Learning**† by Prof. Richard Sowers *(UIUC - Spring 2021)*
- **ECE 549 - Computer Vision**† by Prof. Saurabh Gupta *(UIUC - Spring 2021)*
- **ECE 490 - Introduction to Optimization** by Prof. Venugopal V. Veeravalli *(UIUC - Fall 2020)*
- **ECE 449 - Machine Learning** by Prof. Sanmi Koyejo *(UIUC - Fall 2020)*

HONORS AND AWARDS

- Recipient of the Dan Vivoli Endowed Fellowship *2025*
- Best Presentation Award (Machine Learning and Signal Processing session), CSL Student Conference *2025*
- Recipient of the Qualcomm Graduate Award *2025*
- Recipient of the Coordinated Science Laboratory (CSL)-InstaRecon Innovation Scholarship *2024*
- Best Paper Award (the community track) of the 1^{st} Workshop on Test-Time Adaptation: Model, Adapt Thyself! (MAT), Conference on Computer Vision and Pattern Recognition (CVPR) 2024 *2024*
- 2^{nd} place poster contest - Illinois AI and Health Summit: Healthy Aging of Brain and Mind with AI *2024*
- Recipient of the Mavis Future Faculty Fellowship, Grainger College of Engineering, UIUC *2023*
- Asia regional winner in Computer Science field – The Global Undergraduate Awards *2020*
- Recommended candidate by VEF 2.0 Program *2020*
- 4^{th} place winner - the semi-supervised track, DAVIS Challenge 2020, CVPR 2020 *2020*
- Recipient of the Ho Chi Minh City Outstanding Young Citizen Award *2019*
- 1^{st} place winner – the 21^{st} *Eureka* - Vietnam National Student Scientific Research Competition *2019*
- 3^{rd} place winner - the Semi-supervised track, DAVIS Challenge 2019, CVPR 2019 *2019*
- Recipient of the Ho Chi Minh City Information and Communication Technology Award *2018*
- 1^{st} place winner in Makerthon 2018 (a hackathon competition) *2018*
- 3^{rd} prize in the physics and astronomy field, Viet Nam National Student Science and Engineering Fair *2015*
- 2^{nd} prize in the computer science field, Viet Nam National Student Science and Engineering Fair *2014*
- Silver medals in computer science subject, the April 30^{th} Traditional Olympiad *2014 – 2015*

INTERNATIONAL EXCHANGE PROGRAM

- 14^{th} Enterprise Summer Programme, National University of Singapore, Singapore *2019*
- ASEAN – India International Exchange program, India *2018*
- 2018 Asia-Pacific Youth Forum on Digital Innovation and Entrepreneurship, Taipei *2018*
- Spring School Programme 2017, Chiba University and ASEAN University Network, Japan *2017*

REFERENCE

1. **Prof. Minh N. Do**, Department of Electrical and Computer Engineering - University of Illinois at Urbana-Champaign (UIUC), USA *minhdo@illinois.edu*
2. **Prof. Minh-Triet Tran**, Vice President, Head of Software Engineering Lab, Deputy Head of Artificial Intelligence Lab – University of Science, VNU-HCM, Vietnam *tmtriet@hcmus.edu.vn*

†Obtained A+ for excellent performance.