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, test-time adaptation, 3D human pose estimation, 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

Samsung Research America Texas, USA
Student Internship 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 Internship 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 Internship 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 Internship at Computational Imaging Group (CIG) *9/2019-11/2019*

- **Description:** Proposing and developing the Digitized Neurological Examination (DNE) system to collect, visualize, annotate, and quantify digital biomarkers from neurological exam video recordings obtained by multiple sensors, including 3D cameras, smartphones/tablets, 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:** Proposing and developing a diagnostic support system that can help doctors find diseases, abnormal marks, and anatomical landmarks in the human gastrointestinal tract from endoscopic imaging. We also participated in several projects in computer vision and machine learning *(Intelligence Traffic System - AI City challenge, Video Instance Segmentation – the DAVIS challenge, 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*

- **Description:** Designing programming assignments in Python and running the lab section for CECS1020 (Spring 2021) - Introduction to Machine Learning by Prof. Minh N. Do.

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

- 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 Fellow, 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*
- Prospect prize in KMS Hackathon 2018 – 30-hour hacking for social impacts *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.