

## EDUCATION

**Electrical and Computer Engineering, University of Illinois at Urbana-Champaign (UIUC)** Illinois, USA

*Ph.D. Candidate (Expected day of graduation: 12/2025)*

6/2020-present

- **Research interest:** computer vision and machine learning, image 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 architecture for multi-frame image processing algorithm.
- **Advisor:** Dr. Long N. Le and Dr. Seok-Jun Lee.

**Motion Analysis Laboratory, Vinmec Healthcare System**

Ha Noi, Vietnam

*Student Internship*

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 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*

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, NumPy, OpenCV, Google Firebase, AWS, Unity, NodeJS,  $\text{\LaTeX}$ .
3. **Languages:** English (*fluent*), Vietnamese (*native*).

## PUBLICATIONS

1. **Trung-Hieu Hoang**, Duc Minh Vo, Minh N. Do. Persistent Test-time Adaptation in Recurring Testing Scenario. *arXiv preprint arXiv:2311.18193 (under review)*, 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*, 2024.
3. **Trung-Hieu Hoang**, Huy Phan, Mona Zehni, Duc Minh Vo, Minh N. Do. Robust 3D Human Pose Estimation: A Benchmark and Learning from Noisy Input. *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition Workshops on Fair, Data-Efficient, and Trusted Computer Vision*, 2024.
4. Jongwon Lim, Katherine Koprowski, Robert Stavins, Nhat Xuan, **Trung-Hieu Hoang**, et al.. Point-of-Care Multiplex Detection of Respiratory Viruses. *ACS Sensors*, 2024.
5. **Trung-Hieu Hoang** et al.. Enabling End-to-End Secure Federated Learning in Biomedical Research on Heterogeneous Computing Environments with APPFLx. *arXiv preprint arXiv:2312.08701*, 2023.
6. Zilinghan Li, Shilan He, Pranshu Chaturvedi, **Trung-Hieu Hoang**, et al. APPFLx: Providing Privacy-Preserving Cross-Silo Federated Learning as a Service. *2023 IEEE 19th International Conference on e-Science (e-Science)*, 2023.
7. **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*, 2022.
8. **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.
9. Minh-Triet Tran, Tam V Nguyen, **Trung-Hieu Hoang** et al. iTASK-Intelligent Traffic Analysis Software Kit. *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition Workshops*, 2020.
10. Minh-Triet Tran, **Trung-Hieu Hoang** et al. Multi-Referenced Guided Instance Segmentation Framework for Semi-supervised Video Instance Segmentation. *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition Workshops*, 2020.
11. **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.
12. Khac-Tuan Nguyen, **Trung-Hieu Hoang**, Minh-Triet Tran, Ngoc-Minh Bui, Trong-Le Do, Viet-Khoa Vo-Ho, Quoc-An Luong, Mai-Khiem Tran, Thanh-An Nguyen, Thanh-Dat Truong, Vinh-Tiep Nguyen, Trung-Nghia Le, and Minh N. Do. 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 Conference on Computer Vision and Pattern Recognition Workshops*, 2019.
13. Minh-Triet Tran, Trung-Nghia Le, Tam V. Nguyen, That-Vinh Ton, **Trung-Hieu Hoang**, Ngoc-Minh Bui, Trong-Le Do, Quoc-An Luong, Vinh-Tiep Nguyen, Duc Anh Duong, Minh N. Do. Guided Instance Segmentation Framework for Semi-supervised Video Instance Segmentation. *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition Workshops*, 2019.
14. **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*.
15. Nguyen-Khang Le, Dieu-Hien Nguyen, **Trung-Hieu Hoang**, Thanh-An Nguyen, Thanh-Dat Truong, Duy-Tung Dinh, Quoc-An Luong, Viet-Khoa Vo-Ho, Vinh-Tiep Nguyen, and Minh-Triet Tran. *Smart lifelog retrieval system with habit-based concepts and moment visualization*. LSC, 2019.

List of publications on [Google scholar](#).

## 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.

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\*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<sup>st</sup> Workshop on Test-Time Adaptation: Model, Adapt Thyself! (MAT), Conference on Computer Vision and Pattern Recognition (CVPR)*. 2024

## TEACHING EXPERIENCE

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

## RELEVANT COURSES

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

## HONORS AND AWARDS

- Best paper award – the community track, the 1<sup>st</sup> Workshop on Test-Time Adaptation: Model, Adapt Thyself! (MAT), Conference on Computer Vision and Pattern Recognition (CVPR) 2024 2024
- 2<sup>nd</sup> place poster contest - Illinois AI and Health Summit: Healthy Aging of Brain and Mind with AI 2024
- Recipient of the Mavis Future Faculty Fellow 2023
- Asia regional winner in Computer Science field – The Global Undergraduate Awards 2020
- Recommended candidate by VEF 2.0 Program 2020
- 4<sup>th</sup> place Award - the semi-supervised track, DAVIS Challenge 2020, CVPR 2020 2020
- Recipient of the Ho Chi Minh City Outstanding Young Citizen Award 2019
- 1<sup>st</sup> place award – the 21<sup>st</sup> Eureka - Vietnam National Student Scientific Research Competition 2019
- 3<sup>rd</sup> place award - the Semi-supervised track, DAVIS Challenge 2019, CVPR 2019 2019
- Recipient of the Ho Chi Minh City Information and Communication Technology Award 2018
- 1<sup>st</sup> place award in Makerthon 2018 (a hackathon competition) 2018
- Prospect prize in KMS Hackathon 2018 – 30-hour hacking for social impacts 2018
- 3<sup>rd</sup> prize in the physics and astronomy field, Viet Nam National Student Science and Engineering Fair 2015
- 2<sup>nd</sup> prize in the computer science field, Viet Nam National Student Science and Engineering Fair 2014
- Silver medals in computer science subject, the April 30<sup>th</sup> Traditional Olympiad 2014 – 2015

## INTERNATIONAL EXCHANGE PROGRAM

1. 14<sup>th</sup> Enterprise Summer Programme, National University of Singapore, Singapore July 2019
2. ASEAN – India International Exchange program, India May 2018
3. 2018 Asia-Pacific Youth Forum on Digital Innovation and Entrepreneurship, Taipei October 2018
4. Spring School Programme 2017, Chiba University and ASEAN University Network, Japan March 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*

<sup>†</sup>Obtained A+ for excellent performance.