

## EDUCATION

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

*Ph.D. Candidate (Expected day of graduation: 5/2026)* 6/2020-present

- **Research interest:** computer vision and machine learning, AI in healthcare, medical image processing, unsupervised 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

**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**

IL, USA

*Student Internship at Data Science Learning Division*

6/2022-9/2022

- **Description:** Enhancing the capabilities of APPFLx: Argonne Privacy-Preserving Federated Learning framework<sup>†</sup>, and conducting federated learning experiments on detecting COVID-19 disease from chest radiographs, collaboratively between multiple research institutes.
- **Advisor:** Ravi K. Madduri.

**Coordinated Science Laboratory, University of Illinois at Urbana-Champaign**

IL, 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 to find diseases, abnormal marks, anatomical landmarks in 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 (CVPRW)*; *Visual Life-logging*).
- **Advisor:** Assoc. Prof. Minh-Triet Tran.

**College of Engineering and Computer Science, VinUniversity**

Ha Noi, Vietnam

*Teaching Assistant*

1/2021-5/2021

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

**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:** Assoc. Prof. Minh-Triet Tran, MSc. Xuan-Nam Cao.

<sup>†</sup><https://github.com/APPFL/APPFL>

## SKILLS

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

## PUBLICATIONS

1. **Trung-Hieu Hoang**, Duc Minh Vo, Minh N. Do. Persistent Test-time Adaptation in Episodic Scenario. *arXiv preprint arXiv:2311.18193 (Under review)*, 2024.
2. **Trung-Hieu Hoang**, Christopher Zallek, Minh N. Do. Digitized Neurological Examination Toolbox for Multi-test Neurological Abnormality Detection and Documentation Using Smartphone Recording Based Solution. *(Under review)*, 2024. Pre-print available.
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. **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.
5. 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.
6. **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.
7. **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.
8. 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.
9. 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.
10. **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.
11. 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.
12. 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.
13. **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*.
14. 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 language" (in Vietnamese). *Vietnam National University in Ho Chi Minh City*, 2019.

## TEACHING ASSISTANTSHIP

- CECS1020 - Introduction to Machine Learning (VinUniversity - Spring 2021)
- ECE 310 - Digital Signal Processing (UIUC - Fall 2022)

## 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

- 2<sup>nd</sup> place poster contest - Illinois AI and Health Summit: Healthy Aging of Brain and Mind with AI 2024
- Recipient of the Marvis 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 2019
- Ho Chi Minh City Outstanding Young Citizen Award 2019
- 1<sup>st</sup> prize – the 21<sup>st</sup> National Student Scientific Research 2019
- 3<sup>rd</sup> Place Award - the Semi-supervised track, DAVIS Challenge 2019, CVPR 2019 2019
- Ho Chi Minh City Information and Communication Technology Award 2018
- 1<sup>st</sup> prize in Makerthon 2018 2018
- Prospect prize in KMS Hackathon 2018 – 30-hour hacking for social impacts 2018
- 3<sup>rd</sup> prize (physics and astronomy) Viet Nam National Student Science and Engineering Fair 2015
- 2<sup>nd</sup> prize (computer science) Viet Nam National Student Science and Engineering Fair 2014
- Silver medals in the April 30<sup>th</sup> Tradition Olympiad (computer science subject) 2014 – 2015

## INTERNATIONAL EXCHANGE PROGRAM

1. 14<sup>th</sup> Enterprise Summer Programme, National University of 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) *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 *tmtriet@hcmus.edu.vn*

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