

# BUI CAO DOANH

Seoul, Republic of Korea

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## Education

### Korea University

Mar. 2023 – Feb. 2025

Master of Science in Computer Engineering (GPA: 4.19/4.5)

Seoul, Republic of Korea

From Local-to-global Histopathology Analysis: Computational Methods for Multi-class Cancer Classification

Supervisor: Prof. Jin Tae Kwak

### University of Information Technology, HCMC Vietnam National University

Sep. 2019 – Sep. 2022

Bachelor of Science in Computer Science (GPA: 8.97/10)

Ho Chi Minh city, Vietnam

Thesis: Text-based Image Captioning based on Deep Learning (Grade: 10/10)

Supervisor: Prof. Khang Nguyen

## Relevant Coursework

- Machine Learning (A+)
- Advanced Computer Vision (A+)
- Deep Learning techniques (A+)
- Statistical Signal Processing (A)
- Advanced Topics in Computer Vision (A+)
- Optimization Methods (B+)

## Work Experience

### Faculty of Software Engineering, UIT, VNU-HCM

Nov. 2022 – Mar. 2023

Teaching assistant

Ho Chi Minh city, Vietnam

- Lecture six courses: IT001.N112.1, IT001.N112.2, IT001.N111.1, IT001.N111.2, IT001.N110.1, and IT001.N110.2. All students in these classes are freshers.
- Support the lecturer in guiding the students to practice programming with the C/C++ language.
- Supervisor: Prof. Khang Nguyen.

## Selected Publications

### Journal Articles

- Doanh C. Bui, Tam V. Nguyen, and Khang Nguyen. **Transformer with Multi-level Grid Features and Depth Pooling for Image Captioning**. *Machine Vision and Applications*, 2024, **SCIE Q2 (IF = 2.4)**
- Doanh C. Bui, Boram Song, Kyungeun Kim, and Jin Tae Kwak. **Spatially-constrained and -unconstrained bi-graph interaction network for multi-organ pathology image classification**. *IEEE Transactions on Medical Imaging*, 2024, **SCIE Q1 (IF = 8.9)**
- Doanh C. Bui, Boram Song, Kyungeun Kim, and Jin Tae Kwak. **DAX-Net: A dual-branch dual-task adaptive cross-weight feature fusion network for robust multi-class cancer classification in pathology images**. *Computer Methods and Programs in Biomedicine*, 248:108112, 2024, **SCIE Q1 (IF = 6.1)**
- Tung Minh Tran, **Doanh C. Bui**, Tam V. Nguyen, and Khang Nguyen. **Transformer-based Spatio-Temporal Unsupervised Traffic Anomaly Detection in Aerial Videos**. *IEEE Transactions on Circuits and Systems for Video Technology*, 2024, **SCIE Q1 (IF = 8.4)**
- Khang Nguyen, Thinh V. Le, Huyen Ngoc N. Van, and **Doanh C. Bui**. **Improving human-object interaction with auxiliary semantic information and enhanced instance representation**. *Pattern Recognition Letters*, 175:38–43, 2023, **SCIE Q1 (IF = 5.1)**
- Khang Nguyen, **Doanh C. Bui**, Truc Trinh, and Nguyen D Vo. **Eaes: Effective augmented embedding spaces for text-based image captioning**. *IEEE Access*, 10:32443–32452, 2022, **SCIE Q1 (IF = 3.4)**

### Conference Papers

- Doanh C. Bui** and Jin Tae Kwak. **MECFormer: Multi-task Whole Slide Image Classification with Expert Consultation Network**. In *Asian Conference on Computer Vision – ACCV 2024 (Accepted)*, 2024, **B-ranked**
- Doanh C. Bui**, Trinh T. L. Vuong, and Jin Tae Kwak. **FALFormer: Feature-aware Landmarks self-attention for Whole-slide Image Classification**. In *Medical Image Computing and Computer Assisted Intervention – MICCAI 2024*, 2024, **A-ranked**
- Doanh C. Bui**, Changsu Kim, and Jin Tae Kwak. **Efficient semantic segmentation for computational pathology**. In John E. Tomaszewski and Aaron D. Ward, editors, *Medical Imaging 2024: Digital and Computational Pathology*, volume 12933, page 129330M. International Society for Optics and Photonics, SPIE, 2024

- **Doanh C. Bui**, Thinh V Le, and Ba Hung Ngo. **C2T-Net: Channel-Aware Cross-Fused Transformer-Style Networks for Pedestrian Attribute Recognition**. In *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision*, pages 351–358, 2024
- **Doanh C. Bui**, Nghia Hieu Nguyen, Nguyen D Vo, Uyen Han Thuy Thai, and Khang Nguyen. **Vi-DRSNet: A Novel Hybrid Model for Vietnamese Image Captioning in Healthcare Domain**. In *2022 International Conference on Multimedia Analysis and Pattern Recognition (MAPR)*. IEEE, 2022
- **Doanh C. Bui**, Truc Trinh, Nguyen D Vo, and Khang Nguyen. **An Augmented Embedding Spaces approach for Text-based Image Captioning**. In *2021 8th NAFOSTED Conference on Information and Computer Science (NICS)*, pages 172–176. IEEE, 2021
- **Doanh C. Bui**, Dung Truong, Nguyen D Vo, and Khang Nguyen. **Mc-ocr challenge 2021: Deep learning approach for vietnamese receipts ocr**. In *2021 RIVF International Conference on Computing and Communication Technologies (RIVF)*. IEEE, 2021

## Scientific Projects

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### VIETNAMESE IMAGE CAPTIONING BASED ON TRANSFORMERS 2022 – On going

- This project seeks to establish a benchmark for Vietnamese image captioning and devise specialized approaches tailored to the nuances of the Vietnamese language for addressing this challenge.
- Scientific Research Project VNU-HCM C-level.
- Role: Student, Researcher

### VEHICLE AND ANOMALY DETECTION IN AERIAL IMAGES 2022 – On going

- This project endeavors to present methodologies for detecting vehicles and anomalies in aerial images, with a particular focus on identifying invalid movements of pedestrians and vehicles within roundabouts.
- Scientific Research Project VNU-HCM B-level.
- Role: Student, Researcher

### DETECTING OBJECTS IN IMAGE DOCUMENTS USING DEEP LEARNING NETWORKS 2021 – 2023

- This project aims to explore the performance of advanced object detectors in page object detection problems. Besides, the project also proposes an object detection method to improve the performance of the UIT-DODV dataset.
- Scientific Research Project VNU-HCM C-level.
- Role: Student, Researcher

## Awards

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### 1st Place in Track 1 – Pedestrian Attribute Recognition, UPAR challenge 2024 2024

- Awarded by the UPAR organizer (University of Barcelona), this accolade recognizes our participation in developing a method for out-of-domain pedestrian attribute recognition. Github: [https://github.com/caodoanh2001/upar\\_challenge](https://github.com/caodoanh2001/upar_challenge).

### 1st Place in Track 2 - Visual Question Answering, MICCAI Thompson challenge 2023 2023

- Awarded by the Thompson Challenge organizer (Purdue University), this accolade recognizes our participation in developing a method for visual question answering within the context of Life-Saving Intervention Procedures from a First-Person View. Github: [https://github.com/quii/QuIIL\\_thompson\\_solution](https://github.com/quii/QuIIL_thompson_solution).

### Hyundai Global Fellowship 2022

- Awarded by Hyundai Chung Mong-Koo foundation, which is a full coverage for master study (2023 – 2025).

### Pony Chung scholarship for undergraduate student 2022

- Awarded by Pony Chung foundation (Hyundai corporation).

### Certificate of Merit from the President of VNU 2020

- Awarded by the President of Vietnam National University Ho Chi Minh City, this certificate is granted to students whose articles have been published in prestigious international journals in the industry, indexed by ISI.

## Professional Service

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- Reviewer for *IEEE Transactions on Medical Imaging* (2024–present)
- Reviewer for *IEEE Access* (2022–present)
- Reviewer for *Journal of Neural Network (Elsevier)* (2024–present)

## Technical Skills

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**Languages:** C/C++ (proficient, 3+ years), Python (proficient, 4+ years), Javascript (intermediate).

**Developer Tools:** VS Code, Linux, Bash, Docker.

**Technologies/Frameworks:** Tensorflow, PyTorch, Sklearn, Matplotlib, FlaskAPI, OpenSlide.