DOANH CAO BUI

Seoul, Republic of Korea

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Education

Korea University   **Mar. 2023 – On going**
Master of Engineering in Computer Engineering   *Seoul, Republic of Korea*

Unversity 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
- Advanced Computer Vision
- Deep Learning techniques
- Statistical Signal Processing
- Advanced Topics in Computer Vision
- Optimization Methods

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.

Publications

Journal Articles

- **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. *Under review*
- **Doanh C. Bui**, Tam V. Nguyen, and Khang Nguyen. Transformer with multi-level grid features and depth pooling for image captioning. *Under review*
- **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
- 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*, pages 1–1, 2024
- 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
- 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
- Khang Nguyen, Phuc Nguyen, **Doanh C. Bui**, Minh Tran, and Nguyen D Vo. Analysis of the influence of de-hazing methods on vehicle detection in aerial images. *International Journal of Advanced Computer Science and Applications*, 13(6), 2022
- **Doanh C. Bui**, Nguyen Vo Duy, and Khang Nguyen. Dlafs cascade r-cnn: An object detector based on dynamic label assignment. *Journal of Computer Science and Cybernetics*, 38(2):131–145, 2022
- Nguyen Bao Tran, Tan Tai Pham, **Doanh C. Bui**, Nguyen D Vo, and Khang Nguyen. The object detection by the combination of generic roi extractor and dynamic r-cnn with side-aware boundary localization in aerial images. *CTU Journal of Innovation and Sustainable Development*, 15(1):49–57, 2023
- **Doanh C. Bui**, Trinh Thi Thanh Truc, Nguyen Trong Thuan, Nguyen Duc Vu, and Nguyen Duy Vo. viecap4h challenge 2021: A transformer-based method for healthcare image captioning in vietnamese. *VNU Journal of Science: Computer Science and Communication Engineering*, 38(2), 2022

Conference Papers

- **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*, Cham, 2024. Springer Nature Switzerland

- **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
- Bao G Do, **Doanh C. Bui**, Nguyen D Vo, and Khang Nguyen. A multi-scale approach for vietnamese image captioning in healthcare domain. In *2022 9th NAFOSTED Conference on Information and Computer Science (NICS)*, pages 142–147. IEEE, 2022
- Minh Dinh, Vu L Bui, **Doanh C. Bui**, Duong Phi Long, Nguyen D Vo, and Khang Nguyen. Performance evaluation of optimizers for deformable-detr in natural disaster damage assessment. In *2022 International Conference on Multimedia Analysis and Pattern Recognition (MAPR)*, pages 1–6. IEEE, 2022
- **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)*, pages 1–6. IEEE, 2022
- Thinh V Le, Huyen Ngoc N Van, **Doanh C. Bui**, Phuong Vo, Nguyen D Vo, and Khang Nguyen. Empirical study of reppoints representation for object detection in aerial images. In *2022 IEEE Ninth International Conference on Communications and Electronics (ICCE)*, pages 337–342. 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)*, pages 1–6. IEEE, 2021

Scientific Projects

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

AN APPROACH TO THE PROBLEM OF RECOGNIZING VIETNAMESE RECEIPTS   2021 – 2023
- This project aims to propose an effective approach that extracts information from Vietnamese receipts. Four types of information are interested in this project: seller, address, total cost, and timestamp.
- Scientific Research Project University-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

1st Place in Track 1 – Pedestrian Attribute Recognition, UPAR challenge 2024   2024
- Awarded by the UPAR organizer (Purdue University), this accolade recognizes our participation in developing a method for out-of-domain pedestrian attribute recognition. Github: 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/quiil/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 for Good Achievement in Scientific Research in 2022 **2022**
- Awarded by the Principal of University of Information Technology, VNU-HCM.

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.

Certificate of Merit for Good Achievement in Scientific Research in 2020 **2020**
- Awarded by the Principal of University of Information Technology, VNU-HCM.

Certificate of Participation of Student Scientific Research Prize **2020**
- Awarded by the Secretary of Standing Committee of Ho Chi Minh Communist Youth Union of Ho Chi Minh city.

Technical Skills

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.

Leadership / Extracurricular

Executive Board of Nguyen Huu Huan high school youth union **2017 – 2018**
Secretary *Nguyen Huu Huan high school, Thu Duc, HCMC*
- Leading an executive committee of 15 members to organize large and small activities inside and outside the school.

Executive Board of Nguyen Huu Huan high school youth union **2016 – 2017**
Committee member *Nguyen Huu Huan high school, Thu Duc, HCMC*
- In charge of the event organizing committee