

DUC ANH VU

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Education

Nanyang Technological University, Singapore

2020 – 2024 (expected)

Computer Science with a minor in Business

Specialization: Artificial Intelligence, Machine Learning, NLP, Data Analysis

High School for Gifted Students, Hanoi, Vietnam

2017 – 2020

Specialization in Mathematics

Participated in Mathematics Olympiad Team

Work Experience

Institute of Infocomm Research, A*STAR

Jan 2023 – July 2023

NLP Research Engineer Intern

Singapore

- Designed data quality checking models using large language models for English-Vietnamese translation tasks, boosting the 20% performance improvement.
- Optimized the existing framework for the audio speech task and successfully deployed the finalized model for commercial production.

ByteDance Ltd.

May 2022 – Aug 2022

NLP Research Engineer Intern

Singapore

- Achieved 2% overall performance enhancement in the Multimodal Question Answering task across diverse benchmarks, enhancing the suitability of commercial products.
- Engineered a robust rejection model for Math Word Problem tasks, demonstrating exceptional performance on both Math23K and SVAMP benchmarks, aligning with state-of-the-art results.
- Performed advanced numeracy-augmented pre-training on models such as XLM-RoBERTa and BART across unsupervised, weakly-supervised, and fully-supervised objectives.

Eureka Robotics

Jan 2022 – April 2022

Computer Vision Engineer Intern

Singapore

- Engineered a U-Net based model utilizing ResNet and VGG encoders to accurately identify defects and anomalies within specific image regions for industrial inspection purposes.
- Optimized the ResNet18-Unet configuration for superior performance in image segmentation tasks.
- Created a Docker image that integrates into a Robot Operating System (ROS) environment, enhancing the compatibility and efficiency of robotic applications.

Viettel Cyberspace Center

May 2021 – Aug 2021

Computer Vision Engineer Intern

Hanoi, Vietnam

- Implemented YOLOv3 frameworks for the human segmentation tasks
- Collected and annotated data to improve the database's quality

Research Experience

NTU NAIL Lab | Supervisor: Prof. Luu Anh Tuan

2022 – Present

- **Math Word Problem Solving:** Led a team of Computer Science undergraduate students on evaluate ChatGPT's math problem generation capabilities, establishing a new benchmark. Research work submitted for review at **EMNLP 2023**
- **Multimodal Sentiment Analysis:** collaborated with a team working on a new framework named Supervised Angular-based Contrastive Learning for Multimodal Sentiment Analysis. Research work submitted for review at **EMNLP 2023**
- **Hate Speech Detection:** Developed an innovative framework for Hate Speech Detection tasks, achieving state-of-the-art results in across ImplicitHateCorpus and SBIC benchmarks. Research work submitted for review at **EMNLP 2023**

Final Year Project | Supervisor: Prof. Luu Anh Tuan

2023 – Present

- **Deep Learning Techniques for Knowledge Graph Construction:** Analyze and improve the novel deep learning techniques for automating knowledge graph from structured and unstructured documents (ongoing project)

HUST Lab | Supervisor: Prof. Tran Ngoc Thang

2023 – Present

- **Building Footprint Extraction:** Developed an novel framework for building footprint extraction, integrating super resolution, frame field learning, and polygonization techniques. Accepted at **iCAST 2023**

Publication

- Minh Hai Nguyen, Le Minh Hoang, Nguyen Quang Dat, **Vu Duc Anh**, Quang Vang Pham, Duong Xuan Bien. *Using data mining for a multi deep neural network with Adam to predict water level: Xuan Quan Gate in Bac Hung Hai system*. ICISNA'23.
- Vuong Nguyen, Trong-Anh Ho, **Duc-Anh Vu**, Nguyen Thi Ngoc Anh, Tran Ngoc Thang. *Building Footprint Extraction in Dense Areas using Super Resolution and Frame Field Learning*. iCAST 2023.

Technical Skills

Programming Languages: Python, SQL, C/C++, Java, Matlab
Frameworks & Libraries: Tensorflow, Pytorch, Keras, Numpy, Pandas, Matplotlib, scikit-learn
Software & Tools: Git, Docker, HTML/CSS, JavaScript (React), WordPress, Tableau, Hadoop, Cassandra

Honors & Awards

Third Prize: Singapore International Mathematics Challenge 2019, Singapore
Silver Medal: HSGS Mathematics Olympiad 2019, Hanoi, Vietnam
Silver Medal: World Mathematics Team Championship - WMTC 2016, Korea
Course Completed: Machine Learning, Deep Learning Specialization, NLP Specialization, GANs Specialization, NoSQL, Big Data, Spark Foundations (Coursera)

Co-curricular Activities

Vietnamese Youth Alliance in Singapore (VNYA)
• Head of Logistics Department 2023 - 2024 (expected)
• Member of Logistics Department 2022 - 2023
NTU Buddhist Society (NTUBS) | Publicity Department 2021 - 2022
Vietnamese Community in NTU (VNNTU) | Program Department 2021 - 2022