Hieu Vu

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RESEARCH INTERESTS

I am passionate about machine learning and its applications in general. My current focus is enhancing graph neural networks (GNNs) and deep generative models (VAEs, GANs, and Diffusion models) for graph and sequential data. I also have experience with active learning, Bayesian neural networks, and distributionally robust optimization framework. My long-term research goal is to develop data-efficient and robust deep learning models to accelerate their practical applications in real-world scenarios.

ACADEMIC BACKGROUND

The University of Iowa — Iowa City, USA
Ph.D. in Computer Science - Advised by Dr. Bijaya Adhikari — *Aug.* 2022 – *Present*
Expected graduation: May, 2027

Hanoi University of Science and Technology (HUST) — Hanoi, Vietnam
B.Sc. in Information Systems — *Aug.* 2014 – *Mar.* 2019
Excellence degree (5-year program), GPA 3.63/4.0

RESEARCH WORKS

Efficient and Effective Implicit Dynamic Graph Neural Network
Yongjian Zhong, ***Hieu Vu****, Tianbao Yang, Bijaya Adhikari* — *KDD, 2024*

Distributionally Robust Fair Principal Components via Geodesic Descents
Hieu Vu*, Toan Tran, Man-Chung Yue, Viet Anh Nguyen* — *ICLR, 2022*

Bayesian Metric Learning for Robust Training of Deep Models under Noisy Labels
Hieu Vu*, Toan Tran, Gustavo Carneiro* — *preprint, 2020*

MAP Estimation With Bernoulli Randomness,
and Its Application to Text Analysis and Recommender Systems
Xuan Bui, ***Hieu Vu****, Oanh Nguyen, Khoat Than* — *IEEE Access, 2020*

RESEARCH EXPERIENCES

VinAI Research — Hanoi, Vietnam
Research Resident - Advised by Dr. Toan Tran and Dr. Viet Anh Nguyen — *Nov. 2019 – Jan. 2022*

- Main research topics: Bayesian Neural Networks, Active Learning, Distributionally Robust Optimization. Gained background: Linear Algebra, Probability & Statistics, Deep Generative Models, Robust Optimization
- Achievement: be the first author in a publication at ICLR 2022

Data Science Lab, HUST — Hanoi, Vietnam
Undergraduate Research Assistant - Advised by Dr. Khoat Than — *Jun. 2017 – Jun. 2019*

- Main research topics: Topic models, Hierarchical models. Gained backgrounds: Linear Algebra, Probability & Statistics, Topic modeling methods
- Achievement: be the second author in a publication at IEEE Access 2020

TECHNICAL SKILLS

Programming Languages: Python, Java, JavaScript, and C/C++
Relevant Frameworks: Pandas, Scikit-Learn, PyTorch, Matplotlib
Web-based: HTML/CSS/JS, NodeJS, ReactJS
Databases: MySQL, MongoDB, Aerospike

INDUSTRIAL EXPERIENCES

VinAI Research Hanoi, Vietnam
AI Engineer *Jan. 2022 – June. 2022*

- Develop models and apply Active Learning techniques for 2D object detection tasks using YOLOv5
- Finetune a pre-trained model for a LIDAR-based 3D object detection project on internal datasets, which gained 460% improvement
- Do clustering analysis on internal datasets for similarity search and outlier detection using traditional clustering methods such as KMeans, Gaussian mixture, Hierarchical clustering, and DBSCAN

VC Corporation Hanoi, Vietnam
Software developer *Jun. 2018 – Aug. 2019*

- Build a recommendation system for news articles using a Doc2Vec model, text mining techniques
- Build micro-service web server
- Frameworks: Flask, Java-Jersey, Jetty framework, MySQL, Aerospike, Kafka

ACADEMIC SERVICE

International workshop on Epidemiology meets Data Mining and Knowledge discovery (epiDAMIK Workshop @ KDD 2023)
Program Committee member and reviewer

AWARDS AND CERTIFICATES

Excellence scholarship for the academic year of 2018 – 2019
Granted for top 1% *students with highest CPA of School of Information and Communication Technology, HUST*

REFERENCES

Dr. Bijaya Adhikari
The University of Iowa
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Dr. Toan Tran
VinAI Research, Hanoi, Vietnam
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Dr. Viet Anh Nguyen
Chinese University of Hong Kong
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Dr. Khoat Than
Hanoi University of Science and Technology
khoattq@soict.hust.edu.vn