Hieu Vu

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RESEARCH INTERESTS

My research interests span machine learning, deep learning, and their applications, with a current focus on graph representation learning and deep generative models (VAEs, GANs, Diffusion) for graph and sequential data. I also have prior experience in active learning, Bayesian neural networks, and distributionally robust optimization.

ACADEMIC BACKGROUND

- **Ph.D. in Computer Science** Aug. 2022 – May, 2027 (Expected)
  University of Iowa *Iowa City, USA*
  Advised by Prof. Bijaya Adhikari

- **B.Sc. in Information Systems** Aug. 2014 – Mar. 2019
  Hanoi University of Science and Technology (HUST) *Hanoi, Vietnam*
  Excellence degree, 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

- **Research Assistant** Aug. 2022 - Present
  Computational Epidemiology Research Group - Advised by Prof. Bijaya Adhikari *Iowa City, USA*
  - Hospital mobility graph generation/Deep generative model for temporal graph (*project leader*)
  - Physics-regularized Deep Generative Model for epidemic time-series data (*project leader*)
  - Cystic Fibrocis Detection (*project member*)
  - Implicit Subgraph Neural Network (*project member*)
  - Heterogenous Hypergraph Contrastive Learning for Dynamic Patient Risk Estimation (*project member*)

- **Research Resident** Nov. 2019 – Jan. 2022
  VinAI Research - Advised by Dr. Toan Tran and Dr. Viet Anh Nguyen *Hanoi, Vietnam*
  - Main research topics: Bayesian Neural Networks, Active Learning, Distributionally Robust Optimization. Relevant backgrounds: Deep Generative Models, Robust Optimization
  - Achievement: be the first author in a publication at ICLR 2022

- **Undergraduate Research Assistant** Jun. 2017 – Jun. 2019
  Data Science Lab, HUST - Advised by Dr. Khoat Than *Hanoi, Vietnam*
  - Main research topics: Topic models, Hierarchical models. Relevant backgrounds: Linear Algebra, Probability & Statistics, Topic modeling methods, Graphical models
  - 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

- **AI Engineer** Jan. 2022 – June. 2022
  VinAI Research *Hanoi, Vietnam*
  - 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 $\sim 460\%$ 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
- **Software developer** Jun. 2018 – Aug. 2019
  VC Corporation *Hanoi, Vietnam*
  - Build a recommendation system for news articles using a Doc2Vec model, deploy with Flash
  - Build micro-service Restful web server with Java-Jersey framework
  - Build a cache server with Aerospike delivering data from MySQL database

ACADEMIC SERVICE

- International workshop on Epidemiology meets Data Mining and Knowledge discovery (epiDAMIK Workshop @ KDD 2023): *Program Committee member and reviewer*
- SIAM Conference on Data Mining (SDM): *Subreviewer for the 2023 edition.*
- International Conference on Knowledge Discovery and Data Mining (KDD): *Subreviewer for the 2023, 2024 editions.*
- International Conference on Information and Knowledge Management (CIKM): *Subreviewer for the 2024 edition.*

AWARDS AND CERTIFICATES

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

REFERENCES

Dr. Bijaya Adhikari
The University of Iowa
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VinAI Research, Hanoi, Vietnam
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Dr. Viet Anh Nguyen
Chinese University of Hong Kong
✉ nguyen@se.cuhk.edu.hk

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