TUAN ANH BUI

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Website ⋄ Scholar ⋄ Github ⋄ Linkedin

INTRODUCTION

- A **Researcher**: Strong track record of publishing A/A* papers on cutting-edge and competitive topics, i.e., Trustworthy ML and Generative AI. Co-organizer of Monash GenAI Reading Group (reading list)
- An **Engineer**: Hands-on experience in various ML/AI projects in diverse domains and applications, i.e., Healthcare (sample), Defence, and Fintech.
- An **Educator**: Extensive teaching experience in ML/AI, i.e., (Head) Teaching Associate @Monash, Lecturer @VietAI, Blogging at tuananhbui89.github.io.
- A Hard-Working person trying to be more Productive: Often taking responsibility for multiple (above) roles simultaneously.

EDUCATION

Faculty of Information Technology, Monash Universtiy Oct 2019 - Oct 2023
PhD in Computer Science *Australia*

- Thesis title: "Enhancing Adversarial Robustness: Representation, Ensemble, and Distribution Approaches"
- Research interests: Trustworthy Machine Learning, Generative models, Representation Learning.

Hanoi University of Science and Technology 2007 - 2012
B.Sc. in Electronics and Telecommunications (Honour) *Vietnam*

- Thesis title: "Research on optimal trade-off between power saving and QoS".
- Thesis grade: 4/4 (10/10) (Best Thesis Award).
- GPA: 8.44/10 (top 5%, Merit for Excellent Graduate Student).

WORKING EXPERIENCE

Monash University June 2020 -
Research Assistant → Research Fellow *Australia*

- Research Adversarial Attack and Defense methods to make ML models more robust and reliable. Joint with Data61 and Defense Science and Technology Group (DST Group).
- From June 2023, I start working as a Research Fellow in this project.

RapidAI - A Healthcare Startup in US June 2021 - Aug 2021
Machine Learning Consultant *Remote*

- Developing machine learning model to detect Gaze-Deviation for stroke detection.

TrustingSocial - A Fintech Startup Jan 2020 - Oct 2020
Research Engineer on Computer Vision *Vietnam*

- Developing face matching and face recognition algorithm for credit scoring system.

Temasek Lab, Singapore University of Technology and Design (SUTD) Mar 2017 - Jan 2020
Research Engineer on Computer Vision *Singapore*

- Deep model compression, esp. in Recurrent Neural Network (RNN) and Long-Short Term Memory (LSTM), to reducing memory and computational cost, to apply on mobile hardware such as FPGA.
- Improving Generative Adversarial Networks (GANs), esp. in mode collapse problem.

- Implemented module to detect and track Undefined Flying Objects, esp. Drone in Sky Surveillance - Flying Object Detection (SSFOD)
- Improved image retrieval module to handle big dataset (appr. 200k images) in Urban-area Scene Based Localization (USBL) project.

Viettel R&D Institute, Viettel Group July 2012 - Nov 2016
Digital Signal Processing Engineer *Vietnam*

- Developing waveforms for VHF and HF tactical radio on Software Defined Radio Platform
- Developing baseband processing algorithms (simulation on Matlab and implement on C55x, TI Fixed-Point processor)

TEACHING EXPERIENCE

Deep Learning - (Head) Teaching Associate 2020 -
Monash University *Australia*

- Topics: Basic and Advanced Deep Learning, i.e., Optimization, CNNs, RNNs, Tranformers, Generative models.
- Tutoring 500+ students since 2020 including both Master (FIT5215) and Bachelor (FIT3181) students.

Intelligent image and video analysis - Head Teaching Associate 2023 -
Monash University *Australia*

- Topics: Classic Computer Vision (i.e., Edge/Keypoint detection, Morphology, SIFT) and Recent CV Applications (i.e., Object Detection/Segmentaion).
- Tutoring 30+ Master students since 2023 (FIT5221).

Advanced Computer Vision - Lecturer 2023 -
VietAI - An Education Nonprofit Organization in Vietnam *Remote*

- Topics: Deep Generative Models (sample lecture) and Multimodal Learning (sample lecture).
- Tutoring 20+ online students since 2023.

SELECTED PUBLICATIONS - GOOGLE SCHOLAR

A. Bui*, Vy Vo*, T. Pham, H. Zhao, D. Phung, T. Le, *"Diverse-Aware Agnostic Ensemble of Sharpness Minimizers"*. Under submission. [paper, code-release soon]

V. Nguyen, T. Le, **A. Bui**, T. Do, D. Phung, *"Optimal Transport Model Distributional Robustness"*. Accepted to NeurIPS 2023. paper

A. Bui, T. Le, H. Zhao, Q. Tran, P. Montague, D. Phung, *"Generating Adversarial Examples with Task Oriented Multi-Objective Optimization"*. Accepted to TMLR 2023. [paper, code]

A. Bui, T. Le, Q. Tran, H. Zhao, D. Phung, *"A Unified Wasserstein Distributional Robustness Framework for Adversarial Training"*. Accepted to ICLR 2022. [paper, code]

A. Bui, T. Le, H. Zhao, P. Montague, S. Camtepe, D. Phung, *"Understanding and Achieving Efficient Robustness with Adversarial Supervised Contrastive Learning"*. Preprint. [paper, code]

H. Phan, T. Le, T. Phung, **A. Bui**, N. Ho, D. Phung, *"Global-Local Regularization Via Distributional Robustness"*. Accepted to AISTATS 2023.

T. Le*, **A. Bui***, Tue. Le, H. Zhao, Q. Tran, P. Montague, D. Phung, *"On Global-view Based Defense via Adversarial Attack and Defense Risk Guaranteed Bounds"*. Accepted to AISTATS 2022.

A. Bui, T. Le, H. Zhao, P. Montague, O. de Vel, T. Abraham, D. Phung, *"Improving Ensemble Robustness by Collaboratively Promoting and Demoting Adversarial Robustness"*. Accepted to AAAI 2021. [paper, code]

A. Bui, T. Le, H. Zhao, P. Montague, O. de Vel, T. Abraham, D. Phung, *"Improving Adversarial Robustness by Enforcing Local and Global Compactness"*. Accepted to ECCV 2020. [paper, code]

NT Tran*, **A. Bui***, NM Cheung, *"Improving GAN with neighbors embedding and gradient matching"*. Accepted to AAAI 2019. [paper, code]

NT Tran, **A. Bui**, NM Cheung, *"Dist-gan: An improved gan using distance constraints"*. Accepted to ECCV 2018. [paper, code]

NT Tran, Le Tan, D. K., Doan, A. D., Do, T. T., **A. Bui**, Tan, M., Cheung, N. M. (2018). *On-device scalable image-based localization via prioritized cascade search and fast one-many RANSAC.* IEEE Transactions on Image Processing, 28(4), 1675-1690. paper

HONOURS & AWARDS

2023	DAAD PostdocNetAI Fellowship in Generative Models, Germany.
2022	Top 10% Reviewer at AISTATS 2022.
2019	Faculty of Information Technology's Scholarship, Monash University.
2012-2015	Creative Idea Award for Research and Management at Viettel R&D Institute.
2012	Merit for excellent graduate student, HUST.
2012	Best Thesis Award in Thesis Defence, SET, HUST.
2012	Third prize in Student Conference on Scientific Research, HUST.
2007	Second prize in National Physics Olympiad for High School Students, Vietnam.

REFERENCES

Professor Dinh Phung, Ph.D. (Supervisor)
Falcuty of Information Technology
Monash University

Assistant Professor Trung Le, Ph.D. (Co-Supervisor)
Falcuty of Information Technology
Monash University