

TUAN ANH BUI

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Website ◇ Scholar ◇ Github ◇ LinkedIn

INTRODUCTION

- A **Researcher**: Good 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 (demo), and Fintech.
- An **Educator**: Extensive teaching experience in ML/AI, i.e., (Head) Teaching Associate @Monash, Lecturer @VietAI, ML/AI Blogger at tuananhbui89.github.io.
- A Hard-Working person trying to be more Productive: Often taking responsibility for multiple (above) roles simultaneously (my humble principles).

EDUCATION

Faculty of Information Technology, Monash University 2019 - 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 2023 -
Research Fellow Australia

- Research Trustworthy Generative Models, i.e., how to erase undesirable concepts from Text-to-Image Generative Models. Joint with Defense Science and Technology Group (DST Group).
- Research Adversarial Attack and Defense methods to make ML models more robust and reliable. Joint with Data61 and DST.

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

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

TrustingSocial - A Fintech Startup 2019 - 2019
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) 2017 - 2019
Research Engineer on Computer Vision Singapore

- Developing Neural Compression algorithms to reduce memory and computational cost of Deep Neural Networks developed on mobile hardware such as FPGAs (uncompleted patent).

- Improving Generative Adversarial Networks (GANs), esp. in the mode collapse problem.
- Developing ML modules to detect and track Undefined Flying Objects (i.e., Drones) in the Sky Surveillance - Flying Object Detection (SSFOD) project (sample 1)(sample 2)(demo)(demo 2).
- Developing image retrieval modules handling large large-scale real-world dataset (appr. 200k images) in the Urban-area Scene Based Localization (USBL) project (system design)(paper)(project).

Viettel R&D Institute, Viettel Group

Digital Signal Processing Engineer

2012 - 2016

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

Monash University

2020 -

Australia

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

Intelligent image and video analysis - Head Teaching Associate

Monash University

2023 -

Australia

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

Advanced Computer Vision - Lecturer

VietAI - An Education Nonprofit Organization in Vietnam

2023 -

Remote

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

SELECTED PUBLICATIONS - GOOGLE SCHOLAR

A. Bui, L. Vuong, K. Doan, T. Le, P. Montague, T. Abraham, D. Phung, “*Erasing Undesirable Concepts in Diffusion Models with Adversarial Preservation*”. Under submission. [paper, slide, code-release soon]

A. Bui*, K. Doan*, T. Le, P. Montague, T. Abraham, D. Phung, “*Removing Undesirable Concepts from Text-to-Image Generative Models with Learnable Prompts*”. Under submission. [paper, code-release soon]

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]

HONOURS & AWARDS

2023	DAAD PostdocNetAI Fellowship in Generative Models, Germany.
2022	Top 10% Reviewer at AISTATS 2022.
2019-2023	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.