

## PERSONAL INFORMATION

### Tuan-Anh Bui

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## MOTIVATION

With strong experience on the industrial environment, I pursue the aims that bring a knowledge from academic research to the real life by a technological product, especially using AI, Computer Vision to improve daily, common activities, to make the world to be a better place. I realize that pursuing Ph.D. is the must-do path to deepen my knowledge and improve the research methodology for this goal.

## RESEARCH BACKGROUND

Generative Adversarial Network, Deep model Compression, Image Retrieval.

Digital Signal Processing, Audio Processing (Viettel).

## WORK EXPERIENCE

2017 – Present

### Researcher Assistant on Computer Vision

*Temasek Lab, Singapore University of Technology and Design (SUTD)*

- (Present) 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.
- (Present) 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) project.
- Improved image retrieval module to handle big dataset (appr. 200k images) in Urban-area Scene Based Localization (USBL) project.

2012 – 2017

### Digital Signal Processing Engineer

*Viettel R&D Institute, Viettel Groups*

- Developed baseband processing algorithms: Channel equalization using adaptive filter, Adaptive Noise Cancellation, Digital Pre-Distortion to improve the linearity of radio amplifiers.

2010 - 2012

### Research Assistant on Networking

*Undergraduate Research, Green Networking Lab, HUST*

- Researched on methods for reducing energy consumption in data centre network using Software Defined Network (SDN).

## EDUCATION

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

- 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)

2004 - 2007 **High school Diploma, Physics Talented Class***Le Hong Phong Gifted High School*

- Got a Second prize in National Physics Olympiad for High School Students.

## TECHNICAL SKILLS

## Programming

- Tensorflow, Keras.
- Matlab, Python, C.

## Algorithms and Math

- Machine learning algorithms, Deep learning models.
- Probability, Statistic, Algebra.

## Others

- Logical thinking, problem solving mindset.

## PAPERS

2018 Ngoc-Trung Tran\*, **Tuan-Anh Bui\***, Ngai-Man Cheung.  
Improving GAN with Neighbors Embedding and Gradient Matching.  
 Accepted to The Thirty-Third AAAI Conference on Artificial Intelligence (AAAI-19), acceptance rate 16.2%.

2018 Ngoc-Trung Tran, **Tuan-Anh Bui**, Ngai-Man Cheung.  
 Dist-GAN: Improving GAN using distance constraints.  
 Accepted to European Conference on Computer Vision 2018 (ECCV).

2018 Ngoc-Trung Tran, Dang-Khoa Le Tan, Anh-Dzung Doan, Thanh-Toan Do, **Tuan-Anh Bui**, Mengxuan Tan, Ngai-Man Cheung.  
On-device Scalable Image-based Localization via Prioritized Cascade Search and Fast One-Many RANSAC.  
 Accepted to Transaction on Image Processing 2018 (TIP).

## Proposal

**Tuan-Anh Bui.**

Improving GAN by Discrimination Inspector.  
 Improving WGAN using Discriminator Continuity.  
 Disentangled Image Compression by the (Similarity) Force.  
 Nonlinear Adaptive DNN model compression.  
 SceneNet: A generative model for generating scene from 6-DOF camera pose.  
Auto-generate Football Minimap from live match using Domain Transfer.

## HONOURS & AWARDS

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- 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.
- 2007 Second prize in National Physics Olympiad for High School Students.

## REFERENCES

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**Associate Professor Ngai-Man Cheung, Ph.D. (Supervisor)**

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