

Duy Tin Vo, Ph.D.



Google Scholar

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Date of Birth: 07/04/1989

Nationality: Vietnamese

Resident status: Permanent Resident of Canada

Research Interests

- Sentiment Analysis, Text Classification
- Machine Translation, Sequence Labeling, Topic Modelling
- Multilingual: E-community Toxicity, Language Identification
- Machine Learning, Neural Network, Deep Learning
- Natural Language Processing, Artificial Intelligence

Working Experience

- **Assistant Professor** at Lakehead University, ON, Canada *September 2020 - Present*
 - Teach undergraduate and graduate courses
 - Conduct research in NLP
- **Technological Advisor** at Chata.ai, AB, Canada *September 2020 - Present*
 - Give feedback and manage CURT
 - Help maintain the ABSA system
- **Data Scientist** at Chata.ai, AB, Canada *July 2018 - September 2020*
 - Manage NRC-IRAP grant (\$300k) to work on natural language generation (CURT: Controlled Underlying Representations with Transformers)
 - * Build an auto-response model to reply to reviews in hotel and restaurant domains using transformers
 - * Research on controllable paraphrasing employing transformers
 - Develop an aspect-based sentiment analysis (ABSA) system on hotel and restaurant.
 - * Stream and manage millions of reviews for analyzing.
 - * Propose a neural network model to learn and predict sentimental polarity towards mentioned aspects.
 - * Deploy the model into production (a β -version now).
 - Study neural topic modelling to unsupervisedly structure unstructured data.
 - Research a machine translation model to translate natural questions to SQL queries
 - * Implement attention-based encoder-decoder.

- * Investigate the applicability of cutting-edge approaches such as pointer network, GNN, BERT, GPT, XLNET, CTRL, ALBERT, T5...
- * Propose a tailored neural net, which is currently used at the company.
- **Postdoctoral Fellow** at Université Laval, QC, Canada *December 2017 - June 2018*
 - Supervisors: Prof. Richard Khoury.
 - Supervise a team (consisting of 2 PhD and 3 Msc students) in the E-Community Health and Toxicity project under MITACS program.
 - Research on applying neural networks to improve the current toxic filter of Twohat Security.
 - Mine five-year data on Twitter, which contains billions of tweets for language detection.
 - Propose three NN architectures to tackle three sub-tasks.
 - * Design Attention CNNs and Attention LSTMs for language detection with an accuracy of about 99% for 22 languages.
 - * Create a hybrid neural network to predict subversive and misspelling words with the highest performance in the team.
 - * Construct a NER tagger, which involved a CRF layer stacking on deep hierarchical character-level and word-level LSTMs.
- **Research Intern** at Twohat Security, BC, Canada *April 2018 - June 2018*
 - Create, deploy and transfer language detection and subversive models for the company.
 - Design a research plan for the team.
- **Research Intern** at University of Ottawa, ON, Canada *January 2017-June 2017*
 - Supervisor: Prof. Diana Inkpen and Prof. Xiaodan Zhu.
 - Design, train and tune very deep neural networks for text classification.
 - Unify and stack different state-of-the-art techniques (e.g. CNN, Residual NN, RNN, GRU, and LSTM) to form the deepest model at that time.
 - Outcome: one technical report and one conference paper.
- **Teaching Assistant** at SUTD, Singapore *September 2014-September 2016*
 - Prepare lecture notes, deliver tutorials, mark assignments for two courses (i.e. computational structures and database).
- **Lecturer** at Cantho University, Vietnam *June 2011-September 2013*
 - Teach fundamental courses: programming languages, engineering mathematics, digital signal processing(DSP), etc.
 - Research on DSP, SoC, FPGA, VHDL (VHSIC-HDL).

Education Background

- **Ph.D., Computer Science - Language Technologies** *September 2013-September 2017*

- at Singapore University of Technology and Design (SUTD), Singapore.
- Advisor: Prof. Yue Zhang
- Thesis title: Sentiment Analysis for Short Texts Based on Neural Networks
- Outcome: 5 papers on top conferences and a Research Merit Award at SUTD
- GPA: 4.11/5.0

- **B.Eng., Electronics and Telecommunication** *September 2007- April 2011*

- Cantho University, Vietnam.
- Advisor: Dr. Nguyen Cao Qui
- Thesis title: MP3 Encoding and Decoding using SoC on the DE2 board
- Outcome: First-class honor
- GPA: 3.65/4.0

Technical Skill

- Python, Cython, C++, Matlab, SQL, Java
- NLP packages: Sklearn, Gensim, NLTK, CoreNLP, Word2vec, Glove, Fasttext, transformer family (Transformer, GPT, BERT, XLNET), etc.
- Deep Learning libraries: Pytorch, Tensorflow, Keras, Theano
- Computing services: Amazon Web Services; Google Cloud Platform, Valohai, Paperspace
- Teamwork Apps: Docker, Github, Jira, Basecamp, L^AT_EX, Markdown.
- Operation Systems: Linux, Windows, macOS

Training Certificate

- **Cadence - HEEAP Training**, the Higher Engineering Education Alliance Program of Arizona State University at HCMC University of Technology and Education, Vietnam, 2011;
- **Teaching Methodology** at Can Tho University, Vietnam, 2011

Academic Publication

1. **Duy Tin Vo**, Richard Khoury. Language Identification on Massive Datasets of Short Message using an Attention Mechanism CNN. In ASONAM 2020 (Virtual).
2. **Duy Tin Vo**, Yue Zhang and Xiaodan Zhu. Shallow Network with Rich Features for Text Classification. In CICLing 2018, Hanoi, Vietnam.
3. Zhiyang Teng, **Duy Tin Vo** and Yue Zhang. Context - Sensitive Lexicon Features for Neural Sentiment Analysis. In Proceedings of EMNLP 2016, Texas, USA, November.

4. **Duy Tin Vo** and Yue Zhang. Don't Count, Predict! An Automatic Approach to Learning Sentiment Lexicons for Short Text. In Proceedings of ACL 2016, Berlin, Germany, August.
5. Meishan Zhang, Yue Zhang and **Duy Tin Vo**. Gated Neural Networks for Targeted Sentiment Analysis. In Proceedings of AAAI 2016, Phoenix, Arizona, USA, February.
6. Meishan Zhang, Yue Zhang and **Duy Tin Vo**. Neural Networks for Open Domain Targeted Sentiment. In proceedings of EMNLP 2015, Lisboa, Portugal, September.
7. **Duy Tin Vo** and Yue Zhang. Target-dependent Twitter Sentiment Classification with Rich Automatic Features. In Proceedings of IJCAI 2015, Buenos Aires, Argentina, July.

Invited Talk

- **Duy Tin Vo**. Neural Network Methods for Targeted Sentiment Extraction. An invited talk to Deep Learning Summit Asia 2016, Singapore, October.
- Yue Zhang and **Duy Tin Vo**. Neural Networks for Sentiment Analysis. Tutorial at EMNLP 2016, Texas, USA, November.

Professional Service

- PC member: Conference on Natural Language Processing & Chinese Computing (2016); Joint Conference on Chinese Language Processing (2016); International Conference on Computational Linguistics (2018).
- Sub-Reviewer: Association for the Advancement of Artificial Intelligence Conference (2017); European Chapter of the Association for Computational Linguistics (2017); Conference of the International Speech Communication Association (2017); Conference on Neural Information Processing Systems (2017); Annual Meeting of the Association for Computational Linguistics (2018).

Achievement

- City Honours in mathematics (2007).
- Regional Honours in solving mathematics by calculator (2007).
- Top 5 of the entrance examination of Cantho University (2007).
- Certificate of Ho Chi Minh Communist Youth Union for good achievements (2009).
- Certificate of Can Tho University for excellent students (2010).
- Certificate of College of Engineering Technology for the high distinction degree (2011).
- 1st Class Honours of Can Tho University (2011).

Award

- **Boeing Scholarship** (2007)
for excellent engineering students.
- **Sunflower Mission Engineering & Technology Scholarship** (2008, 2009, 2010, 2011)
for academic achievement, leadership excellence and community service.
- **Talent Holcim Scholarship** (2009)
for excellent engineering students.
- **Korean & Vietnamese Foundation Scholarship** (2009, 2010)
for excellent engineering students.
- **Biti's Scholarship** (2009, 2010)
for the poor students with good academic results.
- **LienViet Bank's Scholarship** (2011)
for excellent students.
- **Huawei & Ministry of Information and Communications Scholarship** (2011)
for outstanding achievements.
- **SUTD President's Graduate Fellowship** (2013).
- **Merit Award Winner** (2017)
for graduate research presentation at SUTD FIRST industry workshop.

Language

- Vietnamese (native); English (fluent)

Reference

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| <ul style="list-style-type: none"> • Yue Zhang, Westlake University, China
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| <ul style="list-style-type: none"> • Xiaodan Zhu, Queen's University, Canada
Assistant Professor in NLP
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