VIET H. PHAM

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Biography: I completed my Bachelor of Science Degree in Computer Science at the University of Science in Vietnam, advised by Assoc. Prof. Dien Dinh. My bachelor's thesis focused on Natural Language Processing (NLP) and Theoretical Linguistics, in which I integrated the Abstract Meaning Representation (AMR) semantic graph into Neural Machine Translation. After graduating, I worked in the IT industry for more than one year as an AI Engineer. Meanwhile, I am also a research assistant at the Computational Linguistic Center (HCMUS), advised by Assoc. Prof. Dien Dinh. My research interests include machine translation, language modeling, and QA.

EDUCATION

University of Science   **2016 - 2020**
B.Sc in Computer Science   *Ho Chi Minh City, Vietnam*
· Thesis: Integrating Abstract Meaning Representation into Neural Machine Translation
· Defend: 10/10 (Excellent undergraduate thesis)

WORK EXPERIENCE

💼**Auburn University**   **August 2022 - present**
Research Assistant   *Auburn, AL, USA*
· Research topics: *Interpretable Machine Learning* and *Phrase Language Modelling*
· Multiple-round reading comprehension
· Build a phrase language model that can distinguish different meanings of a phrase

💼 **Computational Linguistic Center**   **December 2019 - August 2022**
Research Assistant   *Ho Chi Minh City, Vietnam*
· Research interests: *Neural Machine Translation* (NMT) and *Semantic Representation*
· Build a Graph Encoder for encoding semantic information from semantic graphs
· Integrate semantic information into Neural Machine Translation system
· Co-Advise students for undergraduate thesis

💼 **Propzy Vietnam**   **November 2021 - July 2022**
AI Engineer   *Ho Chi Minh City, Vietnam*
· House pricing prediction:
  - Using Graph Attention Networks (GAT) to build a house-pricing model
  - Integrating edge information into GAT
  - Applied Reinforcement Learning and Self-learning for house-pricing models
· Recommendation system:
  - Augmented realty data with sequential models
  - Investigated and adapted state-of-the-art models for the recommendation system such as Transformer, Graph Convolution Networks, GAT, and Edge-GAT for real estate domain

💼 **VinAI Research**	December 2020 - September 2021
AI Engineer	*Hanoi, Ho Chi Minh City, Vietnam*

· <u>*QC Team*</u>

  - Proposed new metrics for evaluating model performance

  - Evaluated and analyzed model's errors

· <u>*Question-Answering System*</u>

  - Investigated state-of-the-art models for the Question-Answering task

  - Built QA model for Vietnamese car manual dataset

  - Optimized parallel computing with multiple GPUs for speeding up a model training process

  - Construct a golden QA dataset for car manual (Vietnamese)

  - Fine-tuning ALBERT pre-trained model for SQUAD2.0 dataset

· <u>***Virtual Assistant***</u>

  - Handled errors and edge cases

  - Labeled and constructed golden data for intent and slot-filling tasks for car manual domain

PROJECTS

<u>NMT with Consistency Regularization</u>	December 2021 - July 2022

  - A semi-supervised learning method for low-resource NMT

  - Augmenting unlabeled data by back-translation, then combine with labeled data for training

PUBLICATION

[My Google Scholar](#)

<u>Journal papers:</u>

  - Long H.B. Nguyen*, <u>Viet Pham</u>* and Dien Dinh, Improving neural machine translation with AMR semantic graphs, Mathematical Problems in Engineering, 2021, 2021. doi: 10.1155/2021/9939389. URL https://doi.org/10.1155/2021/9939389

  - Long Nguyen, <u>Viet Pham</u>, H. Minh, D. Dinh, and T. Manh, Integrating AMR semantic graphs to convolutional neural machine translation, ICIC Express Letters, vol. 12, pp. 133-141, 2021

<u>Conference papers:</u>

  - Nguyen, B., Le, B., Nguyen, L., <u>Pham, V.</u>, Dinh, D. (2022). Providing Syntactic Awareness to Neural Machine Translation by Graph-Based Transformer. In: Dang, N.H.T., Zhang, YD., Tavares, J.M.R.S., Chen, BH. (eds) Artificial Intelligence in Data and Big Data Processing. ICABDE 2021. Lecture Notes on Data Engineering and Communications Technologies, vol 124. Springer, Cham.

  - L. H. B. Nguyen, <u>V. Pham</u> and D. Dinh, "Integrating AMR to Neural Machine Translation using Graph Attention Networks," 2020 7th NAFOSTED Conference on Information and Computer Science (NICS), 2020,

- <u>Viet Pham</u>, Long H. B. Nguyen, and Dien Dinh. 2020. Semantic Convolutional Neural Machine Translation Using AMR for English-Vietnamese. In Proceedings of the 2020 International Conference on Computer Communication and Information Systems (CCCIS 2020). Association for Computing Machinery, New York, NY, USA

<u>E-print articles:</u>

- <u>Viet H. Pham</u>, Thang M. Pham*, Giang Nguyen*, Long Nguyen, Dien Dinh (2022). Semi-supervised Neural Machine Translation with Consistency Regularization. *Under review.*

($*$) Equal contributors

HONORS AND AWARDS

Excellent undergraduate thesis award	**2020**
Scientific Research Contest for Excellent Students - Semi-final Round	**2020**
Honour Certificate for Achieving Excellent Results in National High School Exam	**2016**
Long An Provincial Excellent Student in Mathematics - Third prize	**2015**

TECHNICAL STRENGTHS

Programming Language	Python, C++ (basic)
Deep Learning Frameworks	Pytorch, Tensorflow, Keras
NLP Tools	NLTK, spaCy, Pandas
Version Control	Git

LANGUAGES

Vietnamese	Native speaker
English	Fluent

REFERENCES

Ph.D. Dien Dinh: Associate Professor	ddien@fit.hcmus.edu.vn
Ph.D. Long Nguyen: Lecturer, University of Science	nhblong@fit.hcmus.edu.vn