Hieu Tran

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RESEARCH INTERESTS

My primary research interest is enabling LLMs to understand, generate, and reason about human language to enhance their ability to perform complex cognitive and language-related tasks. Recently, I have expanded my work to advanced topics such as Reinforcement Learning and Test Time Computing, with a particular emphasis on improving the reasoning capabilities, factual accuracy, and efficiency of language models in both general and domain-specific applications.

EDUCATION

University of Massachusetts, Amherst (UMass)   Aug. 2022 - now
Computer Science PhD student   *Massachusetts, USA*
- CPA: 3.94/4.0

Hanoi University of Science and Technology (HUST)   Aug. 2014 - Aug. 2019
Engineer's Degree in Computer Science   *Hanoi, Vietnam*
- CPA: 3.6/4.0 (top 1.3%), graduated with Excellent Degree

Bien Hoa High School for The Gifted   Sep. 2011 - Sep. 2014
Specialized in Informatics   *Hanam, Vietnam*

RESEARCH EXPERIENCE

Computer Science PhD student   Aug 2022 - now
BioNLP lab (https://bio-nlp.org)   *Massachusetts, USA*
- Advisor: Prof. Hong Yu (google scholar)
- Research Topic: Large Language Models for Medical

Research Intern   May 2024 - Aug 2024
United Imaging Intelligence (http://www.uii-ai.com)   *Boston, USA*
- Supervisor: Dr. Weijing Huang (google scholar)
- Working on fact-checking of LLMs responses

AI Research Resident   Nov 2019 - Jun 2022
VinAI Research (www.vinai.io)   *Hanoi, Vietnam*
- Supervisor: Prof. Thien Huu Nguyen (google scholar)
- Research Topic: Information Extraction

Applied Rotation Program   May 2021 - Sep 2021
VinAI Research   *Hanoi, Vietnam*
- Supervisor: Dr. Duy Tin Vo (google scholar), Dr. Dat Quoc Nguyen (google scholar)
- Working on knowledge-based question answering and machine translation problem

PUBLICATIONS

Chatbot To Help Patients Understand Their Health
2025
Won Seok Jang*, **Hieu Tran***, Manav Mistry, SaiKiran Gandluri, Yifan Zhang, Sharmin Sultana, Sunjae Kwon, Zonghai Yao, Hong Yu
Proceedings of EMNLP 2025 (Findings)

RARE: Retrieval-Augmented Reasoning Enhancement for Large Language Models   2025
Hieu Tran, Zonghai Yao , Junda Wang, Yifan Zhang, Zhichao Yang, Hong Yu
Proceedings of ACL 2025

BioInstruct: Instruction Tuning of Large Language Models for Biomedical Natural Language Processing
2024
Hieu Tran, Zhichao Yang, Zonghai Yao, Hong Yu
Journal of the American Medical Informatics Association, ocae122

Readme: Bridging medical jargon and lay understanding for patient education through data-centric nlp
2023
Zonghai Yao, Nandyala Siddharth Kantu, Guanghao Wei, **Hieu Tran**, Zhangqi Duan, Sunjae Kwon, Zhichao Yang, Hong Yu
Proceedings of EMNLP 2024 (Findings)

A Vietnamese-English Neural Machine Translation System 2022

*Thien Hai Nguyen, Tuan-Duy H. Nguyen, Duy Phung, Duy Tran-Cong Nguyen, **Hieu Minh Tran**, Manh Luong, Tin Duy Vo, Hung Hai Bui, Dinh Phung, Dat Quoc Nguyen*

Proceedings of InterSpeech 2022 - Show & Tell Demonstrations

Exploiting Document Structures and Cluster Consistencies for Event Coreference Resolution 2021

***Hieu Tran**, Duy Phung, Thien Huu Nguyen*

Proceedings of ACL-IJCNLP 2021 (oral presentation)

Learning Cross-lingual Representations for Event Coreference Resolution with Multi-view Alignment and Optimal Transport 2021

*Duy Phung, **Hieu Tran**, Thien Huu Nguyen*

Proceedings of the first Workshop on Multilingual Representation Learning (MRL 2021) at EMNLP 2021

Vietnamese Speech-based Question Answering over Car Manuals 2021

*Tin Duy Vo, Manh Tien Luong, Duong Minh Le, **Hieu Tran**, Nhan Tri Do, Duy Nguyen, Thien Hai Nguyen, Hung Hai Bui, Dat Quoc Nguyen, Dinh Quoc Phung*

Proceedings of Data-Centric AI workshop NeurIPS 2021

The Dots Have Their Values: Exploiting the Node-Edge Connection in Graph-based Neural Models for Document-level Relation Extraction 2020

***Hieu Tran**, Minh Trung Nguyen, Thien Huu Nguyen*

Proceedings of EMNLP 2020 (Findings)

Honors and Awards

The Excellence Scholarship - Level A *2015*

School of Information and Communication Technology, HUST

Each semester top 5% of students with greatest academic performance are awarded

National Excellent Student Award *2014*

Vietnam Ministry of Education and Training

Third prize in Informatics subject, National Excellent High School Student Contest

Activities

Technical Talk *August 2021*

AI Day 2021: Empowering Innovations – website: https://www.vinai.io/aiday2021

Present at AI Day 2021 - the event which welcomed technical talks from top researchers around the world and attracted over 20,000 views online

Invited speaker *October 2021*

Public Natural Language Processing workshop organized by VinAI Reseasrch.

Certificates

Deep Learning Specialization by deeplearning.ai
- Neural Networks and Deep Learning
- Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization
- Structuring Machine Learning Projects
- Convolutional Neural Networks
- Sequence Models

Languages

- **Vietnamese**: Native

- **English**: Fluent
    IELTS: Overall 7.0, Listening 7.5, Reading 8.5, Writing 6.5, Speaking 6.0