Minh-Nam Tran

+84 382 563 952 | @ trminhnam20082002@gmail.com
LinkedIn | GitHub | Portfolio | Google Scholar

Research Interests

- **Large Language Models**: Natural language understanding, logical reasoning, hallucination, and their applications in both real-world problems and traditional NLP tasks.
- **Training/Learning Methods**: Learning strategies for improving the performance of language models and making them think like humans.
- **Vision Language Models**: Multi-modal reasoning and understanding.

Education

University of Science, VNU-HCM — Ho Chi Minh, Vietnam
B.Sc. in Computer Science, Advanced Program — Sep. 2020 – Oct. 2024

- **GPA:** 3.98/4.00 (Degree class: Excellent).
- **Thesis title:** "*Exploring and Improving Language Understanding Abilities of Vietnamese Language Models*," advised by Prof. Dien Dinh and Dr. Long HB Nguyen.

Selected Publications

1 **Minh-Nam Tran**, Phu-Vinh Nguyen, Long Nguyen, and Dien Dinh. 2024. Dual-level learning for Vietnamese medical natural language inference. In in the review process of the conference.

2 Tuan-An To, **Minh-Nam Tran**, Trong-Bao Ho, Thien-Loc Ha, Quang-Tan Nguyen, Hoang-Chau Luong, Thanh-Duy Cao, and Minh-Triet Tran. 2024. Multi-perspective traffic video description model with fine-grained refinement approach. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops*. (June 2024), 7075–7084.

3 **Minh-Nam Tran**, Phu-Vinh Nguyen, Long Nguyen, and Dien Dinh. 2024. ViGLUE: a Vietnamese general language understanding benchmark and analysis of Vietnamese language models. In *Findings of the Association for Computational Linguistics: NAACL 2024*. Kevin Duh, Helena Gomez, and Steven Bethard, editors. Association for Computational Linguistics, Mexico City, Mexico, (June 2024), 4174–4189. DOI: 10.18653/v1/2024.findings-naacl.261.

Experience

Users and Information Lab, KAIST — Daejeon, South Korea
Visiting Research Student — Jun. 2023 – Aug. 2023

- Worked under the supervision of Prof. Alice Oh.
- Studied the length-penalized loss to help language models focus on short output tasks.
- Investigated adapting the BLOOM model family for four Vietnamese downstream tasks using low-rank adaptation and multitask instruction tuning (code).

Viettel Group — Hanoi, Vietnam
AI Engineer Internship, Viettel Digital Talent 2023 — Apr. 2023 – Oct. 2023

- Completed a 6-month internship in machine learning/deep learning under the supervision of Dr. Nguyen Van Nam and finished two projects: a simple table-to-text challenge and applying large language models to solve the text-to-SQL problem.
- Fine-tuned encoder-decoder Transformer models, including BART and T5, for table-to-text generation with synthesized data created by gpt3.5.
- Utilized QLoRA method to fine-tune CodeLLama-7B and CodeLlama-14B models on a single H100 GPU for the text-to-SQL problem, achieving the performance at 72.7% execution accuracy and 61.5% exact match on the test subset of Spider benchmark.

- Deployed text2sql models under 4-bit quantization on the Viettel Machine Learning Platform system with FastAPI, Docker, and `Llama.cpp`.

Computational Linguistics Center, University of Science Ho Chi Minh, Vietnam
Undergraduate Research Assistant May 2022 – Present

- Created in-lab seminars about the Transformer architecture, BERT, GPT families, and language models like CodeBERT to find the solution for the text-to-code problem.
- Started my project to evaluate Vietnamese language models and finally published a Vietnamese general language understanding evaluation benchmark (ViGLUE) with findings about the pre-trained language models, using both few-shot learning and direct fine-tuning (code).
- Designed a dual relationship learning method for improving language models on the natural language inference task in the Vietnamese medical domain and outperformed the baseline methods on the ViMedNLI and $\text{ViNLI}_{\text{health}}$ datasets.

Awards & Achievements

Scholarships at The University of Science, including Half-fee scholarship for the 2020-2021 academic year, Full-ride scholarship for the 2021-2022 academic year, Excellence scholarship for semesters I, II, and III in the 2022-2023 academic year.

Award for being in the Top 5 of Class 2020 in the 2021-2022 academic year.

Honor of being placed on the Faculty of Information Technology Dean's List for grades earned during the 2022-2023 academic year.

Awards for excellent achievements in Research activities in the 2023-2024 academic year.

2nd prize in the AI Challenge Ho Chi Minh City 2023, Event Retrieval from Visual Data.

Skills and Technologies

Programming: Python, C/C++, Java, R, Shell, JavaScript.

Frameworks: NumPy, Pandas, PyTorch, TensorFlow, Scikit-learn, FastAPI, llama.cpp, LangChain.

Tools and Technology: Git, Docker, Linux server, Slurm, LaTex

Specialized skills: Deep Learning, Natural Language Processing, Large Language Model.

Certificates

TensorFlow Developer Certificate *Jul. 2023*
Developing CV, NLP models with TensorFlow

Deep Learning *Jun. 2022*
by DeepLearning.AI

References

Assoc. Prof. Dinh Dien
Director of Computational Linguistics Center
Faculty of Information Technology
Ho Chi Minh University of Science
Tel: (+84) 908 278 207
Email: ddien@fit.hcmus.edu.vn

Dr. Nguyen Hong Buu Long
Lecturer
Faculty of Information Technology
Ho Chi Minh University of Science
Tel: (+84) 985 187 289
Email: nhblong@fit.hcmus.edu.vn