

Hieu Tran

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EXPERIENCE

Machine Learning Engineer

Jun. 2023 – Jul. 2024

BLACKBOX AI

Remote (Canada)

- BLACKBOX AI is an AI coding assistant powered by Code LLMs with over **6M users** and **2M downloads** on Visual Studio
- Research the best ranking pipeline for Code Search and Code Retrieval
- Trained CodeLlama-34B on synthetic instruction-following datasets, achieving **86.6%** on HumanEval, surpassing GPT-4 (Nov 2023) which scored 85.4% ([See our report](#))

Lecturer & Research Collaborator

May. 2021 – Aug. 2024

VietAI

Ho Chi Minh, Vietnam

- Taught Foundations of Deep Learning, Advanced NLP, and LLMs courses to over **200 students**
- Worked directly with Dr. [Minh-Thang Luong](#) and Dr. [Trieu H. Trinh](#) (Google DeepMind) to build English-Vietnamese machine translation systems that outperform previous SOTA by 4.5% (BLEU). Having **10K+** downloads/month
- Released the first Vietnamese generative models, achieving SOTA in Summarization and Biomedical benchmarks. Having **8K+** downloads/month

AI Research Engineer

Aug. 2021 – Aug. 2023

M_Service (MoMo) (3rd unicorn in Vietnam)

Ho Chi Minh, Vietnam

- Built Intent-based/ChatGPT-based AI chatbots for Customer Support on MoMo #1 e-wallet platform in Vietnam
- Managed the training pipeline and chatbots on Kubernetes deployed on Google Cloud Platform
- Trained base language models that outperformed open-source Vietnamese models for our internal needs

Undergraduate Research Student

Sep. 2020 – Feb. 2022

AISIA Research Lab

Ho Chi Minh, Vietnam

- Explored the efficiency of Transformer-based models for Vietnamese Punctuation Prediction

AI Software Engineering Intern

Apr. 2019 – Aug. 2021

Zalo Group - VNG Corporation (1st unicorn in Vietnam)

Ho Chi Minh, Vietnam

- Constructed RDF-triplestore Knowledge Bases for Kiki - the first Vietnamese AI virtual assistant
- Proposed a light and state-of-the-art Vietnamese Spelling Corrector. [Try it!](#)

EDUCATION

University of Maryland

Maryland, USA

CS PhD Student in Natural Language Processing, Machine Translation

Aug. 2024 – Present

VNUHCM - University of Science

Ho Chi Minh, Vietnam

Bachelor of Computer Science

Aug. 2017 – Jul. 2021

- Achievements: Outstanding Undergraduate Thesis Award

PROJECTS

Vietnamese Alpaca-LoRA | *Pytorch, Transformers, DeepSpeed, PEFT*

- Finetuned large language models (e.g., LLaMa, BLOOM) on Vietnamese instruction-following dataset using DeepSpeed and Low-Rank Adaptation technique

HackEng | *Python, Flask, Tensorflow, Git*

- Built a standardized English test website utilizing T5 model to automatically generate reading comprehension questions and correct answers from reliable text sources

NLP2SPARQL | *Python, Pytorch, Transformers, Fairseq*

- Employed Transformer-based Encoder-Decoder models (e.g., BERT2BERT) to translate between natural language and SPARQL query language on Question Answering over Knowledge Graphs

TECHNICAL SKILLS

Languages: Python, NodeJS, SQL, SPARQL

Developer Tools: Git, Docker, Google Cloud Platform, MongoDB, PostgreSQL, Kubernetes, ElasticSearch, Linux

Libraries: Pytorch, Tensorflow, Transformers, DeepSpeed, PEFT, scikit-learn, Pandas, Numpy, Flask

TALKS AND ACTIVITIES

The Art of Generative AI, talk at Google Developer Student Clubs - IU 2024, 100+ audiences

Unlocking the potential of GenAI for coding, talk at Google Devfest HCMC 2023, 100+ audiences

Explore the Power of AI - Career Trends in This Industry, USAID WISE Online Event 2023, 500+ audiences

Shaping Your NLP Career Path in 2024, talk at VietAI Online Event 2023, 150+ audiences

Challenges and Opportunities When Working In AI Industry (2022), Van Lang University, 100+ audiences

MTet: Multi-domain Translation for English and Vietnamese, talk at Google I/O Extended Hanoi 2022

How MoMo Builds an AI Chatbot, published on MoMo Technology Blog (Medium)

Participated in **BigScience Research Workshop**, mainly organized by HuggingFace

PUBLICATIONS

1. Phan Phuc*, **Hieu Tran***, Long Phan. 2024. Distillation Contrastive Decoding: Improving LLMs Reasoning with Contrastive Decoding and Distillation. *Preprint*
2. Long Phan*, Tai Dang*, **Hieu Tran***, Trieu H. Trinh*, Vy Phan, Lam D. Chau, Minh-Thang Luong. 2023. Enriching Biomedical Knowledge for Low-resource Language Through Large-Scale Translation. In *EACL 2023*
3. Teven et al. 2022. BLOOM: A 176B-parameter Open-access Multilingual Language Model. *ArXiv Preprint*
4. Laurençon et al. 2022. The BigScience ROOTS Corpus: A 1.6TB Composite Multilingual Dataset. In *Proceedings of NeurIPS 2022 Track Datasets and Benchmarks*
5. Chinh Ngo*, Trieu H. Trinh*, Long Phan*, **Hieu Tran***, Hieu Nguyen, Tai Dang, Minh Nguyen, Minh-Thang Luong. 2022. MTet: Multi-domain Translation for English and Vietnamese. In *ArXiv Preprint*
6. Long Phan, **Hieu Tran**, Hieu Nguyen and Trieu H. Trinh. 2022. ViT5: Pretrained Text-to-Text Transformer for Vietnamese Language Generation. In *Proceedings of NAACL SRW 2022*
7. **Hieu Tran**, Long Phan, James T. Anibal, Binh T. Nguyen and Truong-Son Nguyen. 2021. SPBERT: An Efficient Pre-training BERT on SPARQL Queries for Question Answering over Knowledge Graphs. In *Proceedings of ICONIP 2021*, Acceptance rate $\sim 20\%$
8. Long Phan, **Hieu Tran**, Daniel Le, Hieu Nguyen, James T. Anibal, Alec Peltekian and Yanfang Ye. 2021. CoTextT: Multi-task Learning with Code-Text Transformer. In *Proceedings of NLP4Prog @ ACL-IJCNLP 2021*
9. **Hieu Tran**, Cuong Viet Dinh, Long Phan and Son Nguyen. 2021. Hierarchical Transformer Encoders for Vietnamese Spelling Correction. In *Proceedings of IEA/AIE 2021*
10. **Hieu Tran**, Cuong Viet Dinh, Quang Hong Pham and Binh T. Nguyen. 2021. An Efficient Transformer-Based Model for Vietnamese Punctuation Prediction. In *Proceedings of IEA/AIE 2021*
11. Long Phan, James T. Anibal, **Hieu Tran**, Shaurya Chanana, Erol Bahadroglu, Alec Peltekian and Grégoire Altan-Bonnet. 2021. SciFive: a text-to-text transformer model for biomedical literature. *ArXiv Preprint*

Google Scholar: <https://scholar.google.com/citations?hl=en&user=atONCyEAAAAJ>