AN NGUYEN THE

+(84) 0352114908 ◇ Hanoi, Vietnam

Homepage ◇ Email ◇ Linkedin ◇ Github ◇ Google Scholar

RESEARCH INTERESTS

My current research focuses on the fundamentals of Transformer models, with a particular emphasis on improving their efficiency and robustness. Besides, I'm also working on developing Neural Functional Networks. Additionally, I have experience on research topics like Continual Learning and Mixture of Experts. I am also open to diversifying my research to various aspects in the future.

EDUCATION

Bachelor of Data Science and Artificial Intelligence, 2020 - 2024
Hanoi University of Science and Technology – ***Valedictorian***
Cumulative GPA: 4.0/4.0 – *Highest GPA achieved in the school's history.*
High school degree, Bac Ninh Specialized High school 2017 - 2020
Major in Mathematics

RESEARCH EXPERIENCE

AI Research Resident Apr 2024 - Now
FPT Software AI Center *Hanoi, VietNam*
Advisors: Dr. Thieu Vo and Prof. Tan Nguyen

- Exploring the fundamentals of Transformers and their connections to other fields. Our research investigates the dynamics of tokens within self-attention blocks and leverages these insights to design new self-attention mechanisms with improved performance.
- Developing Neural Functional Networks — models capable of processing the weights of other neural networks. Our research examines the maximal symmetry groups of neural network weight spaces and introduces novel equivariant architectures to effectively operate on these spaces.

Research Member Sep 2022 - Jul 2024
Data Science Laboratory *BKAI, HUST*
Advisor: Dr. Linh Ngo Van

- Work in Continual Learning research team. Our research improve prompt-based methods in Continual Learning by exploring its connection to Mixture of Experts models, leading to faster convergence and better performance.

PUBLICATIONS

(*) denotes equal contributions.

1. Minh Le, **An Nguyen***, Huy Nguyen*, Trang Nguyen*, Trang Pham*, Linh Van Ngo, Nhat Ho. Mixture of Experts Meets Prompt-Based Continual Learning . *Advances in Neural Information Processing Systems (NeurIPS 2024)*
2. Hoang V. Tran*, Thieu N. Vo*, Tho H. Tran, **An Nguyen The**, Tan Minh Nguyen. Monomial Matrix Group Equivariant Neural Functional Networks . *Advances in Neural Information Processing Systems (NeurIPS 2024)*
3. Minh Le*, Tien Ngoc Luu*, **An Nguyen The***, Thanh-Thien Le, Trang Nguyen, Thanh Tung Nguyen, Linh Ngo Van, Thien Huu Nguyen. Adaptive Prompting for Continual Relation Extraction: A Within-Task Variance Perspective **Oral Presentation**. *AAAI Conference on Artificial Intelligence (AAAI 2025)*
4. Hoang V. Tran*, Thieu Vo*, **An Nguyen The***, Tho Tran Huu, Minh-Khoi Nguyen-Nhat, Thanh Tran, Duy-Tung Pham, Tan Minh Nguyen. Equivariant Neural Functional Networks for Transformers. *International Conference on Learning Representations (ICLR 2025)*

PREPRINTS

1. Thieu N. Vo*, Hoang V. Tran*, Tho Tran Huu, **An Nguyen The**, Thanh Tran, Minh-Khoi Nguyen-Nhat, Duy-Tung Pham, Tan Minh Nguyen. Equivariant Polynomial Functional Networks . *Under review, arXiv:2410.04213*

AWARDS

- Scholarship for Students with Excellent Academic Records (6 semesters) - Hanoi University of Science and Technology
- Valedictorian certificate - Hanoi University of Science and Technology
- Outstanding valedictorians graduating from universities and academies in Hanoi in 2024
- Rising AI Pioneer 2024 - FPT Software AI Center

SKILLS

Programming	Python, Java
Technical	Math, Statistics, Machine Learning
Libraries	Numpy, Pandas, Pytorch, Scikit-learn

LANGUAGE

Vietnamese	Native
English	Advanced (IELTS 7.5)

REFERENCES

- Professor Tan Nguyen - National University of Singapore (NUS)
- Dr. Thieu Vo - National University of Singapore (NUS)
- Dr. Linh Ngo Van - Data Science Laboratory, HUST