

Van Dai Do

APPLIED ARTIFICIAL INTELLIGENCE INITIATIVE (A2I2), DEAKIN UNIVERSITY

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Education

Applied Artificial Intelligence Initiative, Deakin University , PhD. in Artificial Intelligence	Aug 2023 – Present
• Research Topic: <i>Efficient and Safe Large Language Models With Reinforcement Learning</i>	
Hanoi University of Science and Technology , BS in Electronics and Telecommunications - class for the gifted	Sep 2018 – Aug 2022
• GPA: 3.4/4.0	
• Thesis: <i>Optimizing Edge Computing Models Using Deep Reinforcement Learning</i>	
Hanoi-Amsterdam High School For The Gifted , Major: Mathematics	Sep 2015 – Aug 2018
• GPA: 9.0/10	

Research & Professional Experience

Research Assistant , Deakin University – Waurn Ponds, Australia	Feb 2025 – Present
• Research on time series forecasting under the DECRA grant funded by Australian Research Council: <i>Complex Time-series System Forecasting Reinforced by Expert Knowledge</i> .	
• Developed a physics-informed time-series forecasting framework for molecular dynamics simulations, predicting atomic trajectories via displacements and enforcing physical plausibility through DFT-based potential functions. Published a paper at International Conference on Data Mining (ICDM 2025) [3]	
• Research on reasoning capabilities of Small Language Models by combining intrinsic reward with Reinforcement Learning finetuning of Language Models. Published a paper at Transactions on Machine Learning Research (TMLR) [2]	
Ph.D Research on Efficient and Safe Large Language Models , Deakin University – Waurn Ponds, Australia	Aug 2023 – Present
• Delivered a tutorial on improving Reinforcement Learning (RL) exploration efficiency through memory-driven intrinsic motivation, presenting a taxonomy of curiosity-based agents and exploring recent advances using language models and causal reasoning for exploration. Delivered a tutorial at The 23rd International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS 2024) [7]	
• Developed a RL-based prompt optimization approach that efficiently selects few-shot examples from episodic memory to enhance language model performance and generalization across diverse NLP downstream tasks. Published a paper at European Conference on Artificial Intelligence (ECAI 2024) [6]	
• Developed a training-free framework for token-level activation steering in LLMs, using episodic memory and nearest-neighbor retrieval to provide adaptive alignment across safety, style transfer, and role-playing tasks. Published a paper at The 63rd Annual Meeting of the Association for Computational Linguistics (ACL 2025) [5]	
• Developed a non-parametric alignment framework that leverages episodic control to guide LLM outputs during inference, achieving effective alignment with minimal human feedback or fine-tuning. Published a paper at The 2025 Conference on Empirical Methods in Natural Language Processing (EMNLP 2025) [4]	
AI Research Engineer , VinBigdata – Hanoi, Vietnam	Sep 2022 – Aug 2023
• Designed and implemented passage retrieval and aspect-based sentiment extraction systems for both Vietnamese and English languages.	
• Implemented Deep Passage Retriever for Open-Domain QA System for Vietnamese questions.	
AI Research Intern , CinnamonAI – Hanoi, Vietnam	Jun 2022 – Aug 2022

- Agile software development (SCRUM, Git, SOLID, Docker)
- Designed and developed the text recognition module in a table information extraction.

Selected Honours And Awards

Deakin Applied Artificial Intelligence Initiative - 3MT Heat	2025
Winner of 3 Minute Thesis Contest, Deakin Applied Artificial Intelligence Initiative 2025. Title: Word-by-word: Better responses with memory.	
Deakin University Postgraduate Research Scholarship	2023
Offered Higher Degree by Research scholarship for bachelor students	
Honors Distinction	2022
Thesis: Optimizing Edge Computing Models Using Deep Reinforcement Learning	
CinnamonAI - Minimum Viable Product (MVP) Competition	2022
2nd place in Minimum Viable Product competition with Table Information Extraction system.	
WorldQuant - WorldQuantChallenge 2019	2019
Bronze medalist (solo) in WorldQuantChallenge 2019	
Hanoi Mathematics Olympiad for Students	2018
The annual regional mathematics competition for high school students	
• Third prize	

Publications (Total Citations: 42, H-Index: 3)

1. **Van Dai Do**, Manh Nguyen, Svetha Venkatesh, Hung Le, "SPaRFT: Self-Paced Reinforcement Fine-Tuning for Large Language Models". *Under Review, 2025*
2. Hung Le, **Van Dai Do**, Dung Nguyen, Svetha Venkatesh, "Reasoning Under 1 Billion: Memory-Augmented Reinforcement Learning for Large Language Models" - **TMLR 2025**
3. Hung Le, Sherif Abbas, Minh Hoang Nguyen, **Van Dai Do**, Huu Hiep Nguyen, Dung Nguyen, "Accelerating Long-Term Molecular Dynamics with Physics-Informed Time-Series Forecasting" - **ICDM 2025**
4. **Van Dai Do**, Quan Tran, Ahmed Kirmani, Lu Zhang, Hung Le, "Sample Efficient Alignment Learning With Episodic Control" - **EMNLP 2025**
5. **Van Dai Do**, Quan Tran, Svetha Venkatesh, Hung Le, "Dynamic Steering With Episodic Memory For Large Language Models" - **ACL 2025 [pdf] [code]**
6. **Van Dai Do**, Quan Tran, Svetha Venkatesh, Hung Le, "Large Language Models Prompting With Episodic Memory" - **ECAI 2024 (Oral) [pdf] [code]**
7. Hung Le, Hoang Nguyen, **Van Dai Do**, "Unlocking Exploration: Self-Motivated Agents Thrive on Memory-Driven Curiosity" - **AAMAS Tutorials, 2024**
8. Nguyen Tien Hoa, **Van Dai Do**, Le Hoang Lan, Nguyen Cong Luong, Duc Van Le, Dusit Niyato, "Deep Reinforcement Learning for Multi-Hop Offloading in UAV-Assisted Edge Computing" - **IEEE Transactions on Vehicular Technology, 2023 [pdf]**

Skills

- Strong foundation in research methodology, with the ability to design, analyze, and interpret both theoretical and empirical studies.
- Broad experience across AI/ML and Large Language Models, Time Series research, encompassing data analysis, model development, evaluation, and optimization, with a keen interest in advancing state-of-the-art performance on public benchmarks.
- Capable of conducting independent research as well as leading and collaborating effectively within research teams.

Languages

Vietnamese

Fluent (native speaker)

French

DELF (diplôme d'études en langue française) - A2

2022

English

IELTS - Overall band: 8.0

2021

Referees

Assistant Professor Hung Le

Deakin University

Email: thai.le@deakin.edu.au

Associate Professor Loan Pham-Nguyen

Hanoi University of Science and Technology

Email: loan.phamnguyenthanh@hust.edu.vn