CURRICULUM VITAE

Thai Hung, Le

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RESEARCH INTEREST

My current research focus is machine learning, deep learning and artificial memory. Inspired by biological systems and traditional computer architectures, I am deeply passionate about advancing the capacity of neural networks for representational (the what) and functional (the how) learning in computer science. In particular, I am keen to invent new deep models with access to artificial neural memory and have created a body of work in advancing this area including multi-modal and generative memory, theoretical foundation for memory operations, general-purpose neural computers and memory-based reinforcement learning agents. Applications include health, dialog system, reinforcement learning, machine reasoning and natural language processing.

EDUCATION

2017 - 2020	**Deakin University, Australia. Ph.D.** Thesis: Memory and Attention in Deep Learning. .
2010 - 2015	**Hanoi University of Science and Technology (HUST), Vietnam.** **BSc.** Computer Science. Honors Program. Thesis: Fuzzy Clustering Using Linguistic-Valued Exponent.

EMPLOYMENT

Fall, 2022 - now	**Research Lecturer**, Deakin University, Australia.
Fall, 2019 - now	**Associate Research Fellow**, Deakin University, Australia.
Fall, 2018 - Summer, 2018	**Graduate Teaching Assistant**, Deakin University. Undergraduate class SIT-112 Deakin University, Australia.
2017 - 2019	**AI Researcher**, Cinnamon AI LAB, Vietnam.

2015 - 2017 **ML Researcher**, Viettel Research and Development Institute, Vietnam

HONORS AND AWARDS

2021 **Best Paper of KDD'21 Workshop: Document Intelligence**
HYCEDIS: HYbrid Confidence Engine for Deep Document Intelligence System.

2021 **Global Talent Program**
Awarded Distinguished Talent Visa (permanent residency) in Australia.

2020 **Alfred Deakin Medal for Doctoral Thesis**
Memory and attention in deep learning

2016 **Viettel RD Innovation Award of the Year**
Polynomial regression in digitizing scanned military graphs
Optimal interceptor trajectory under constraints

2015 **Honors Distinction**
Thesis: "Fuzzy clustering using linguistic-value exponent"

2013 **Research Contest Award**
Awarded by HUST for student research project: "Vietnamese license plate recognition using tree-based multi-labels SVM algorithms"

2010 **Mathematics Prizes**
Second Prize at American Regions Mathematics League - ARML

INVITED TALKS & TUTORIALS

2022 **AJCAI, Perth, Australia**
Memory-Based Reinforcement Learning

2022 **FPT Software AI Center, Vietnam (virtual seminar)**
Memory for Lean Reinforcement Learning

2021 **KDD, Singapore (virtual seminar)**
From deep learning to deep reasoning

2021 **IJCAI, Canada (virtual seminar)**
Neural machine reasoning

2018 **Cinnamon AI Marathon, Vietnam**
Generalization for Good: A story on OCR evolution

2017 **Topdev Vietnam Mobile Day, Vietnam**
Theory behind conversational agents

2017 **Codecamp, Vietnam**
AI Bot landscape

SUPERVISION

2023 **Principle Supervisor**
PhD. Candidate Hoang Nguyen. Causal Reinforcement Learning. 2023-2026
2022 **Associate Supervisor**
PhD. Candidate Ragja Palakkadavath. Domain Generalization. 2022-2025
2021 **Associate Supervisor**
PhD. Candidate Kha Pham. A theoretical investigation on AI. 2021-2024
2021 **Associate supervisor**
PhD. Candidate Bao Duong Nguyen. Causal Reasoning. 2021-2024

REVIEWING SERVICES

Journals

Machine Learning, Knowledge and Information Systems (KAIS), Transactions on Knowledge and Data Engineering (TKDE)

Conferences

Senior Program Committee: AAAI 23
Program Committee: ACML 2018-2020, NeurIPS 2020-2022, ICLR 2021-2022, ICML21-2022
Reviewer: ICML, NeurIPS, ICLR, IJCAI, AAAI, CVPR (2017-2019)

GRANTS

1. Kerri Morgan, Frank Jiang, Julien Ugon, Sergiy Shelyag, **Hung Le**, Nicholas Parsons, Govinda Poudel, Alex Hocking, “Elucidating Human Brain Connectivity Through Deep Learning and Network Analysis.”, Mini ARC Analog Programme- MAAP, 25K + 1 PhD scholarship, 2021-2023.

PUBLICATIONS

Peer-reviewed conferences

1. *Social Motivation for Modelling Other Agents under Partial Observability in Decentralised Training*. Dung Nguyen, **Hung Le**, Kien Do, Svetha Venkatesh, Truyen Tran. Accepted at IJCAI’23.

2. *Improving Out-of-distribution Generalization with Indirection Representations*. Kha Pham, **Hung Le**, Man Ngo, Truyen Tran. Published in ICLR'23.

3. *Memory-Augmented Theory of Mind Network*. Dung Nguyen, Phuoc Nguyen, **Hung Le**, Kien Do, Svetha Venkatesh, Truyen Tran. Published in AAAI, 2023.

4. *The Application of Machine Learning in Micrometeoroid and Orbital Debris Impact Protection and Risk Assessment for Spacecraft*. Shannon Ryan, Neeraj Mohan Sushma, **Hung Le**, Arun Kumar A V, Santu Rana, Sevvandi Kandanaarachchi, Svetha Venkatesh. Published in HVIS'22.

5. *Learning to Constrain Policy Optimization with Virtual Trust Region*. **Hung Le**, Thommen Karimpanal George, Majid Abdolshah, Dung Nguyen, Kien Do, Sunil Gupta, Svetha Venkatesh. Published in NeurIPS'22 (Spotlight).

6. *Functional Indirection Neural Estimator for Better Out-of-distribution Generalization*. Kha Pham, **Hung Le**, Man Ngo, Truyen Tran. Published in NeurIPS'22.

7. *Momentum Adversarial Distillation: Handling Large Distribution Shifts in Data-Free Knowledge Distillation*. Kien Do, **Hung Le**, Dung Nguyen, Dang Nguyen, HARIPRIYA HARIKUMAR, Truyen Tran, Santu Rana, Svetha Venkatesh. Published in NeurIPS'22.

8. *HYCEDIS: HYbrid Confidence Engine for Deep Document Intelligence System*. Bao-Sinh Nguyen, Quang-Bach Tran, Tuan-Anh Nguyen Dang, Duc Nguyen, **Hung Le**. Published in ICONIP'22.

9. *Improving Document Image Understanding with Reinforcement Finetuning*. Bao-Sinh Nguyen, Dung Tien Le, Hieu M. Vu, Tuan-Anh D. Nguyen, Minh-Tien Nguyen**, Hung Le**. Published in ICONIP'22.

10. *Towards Effective and Robust Neural Trojan Defenses via Input Filtering.* Kien Do, Haripriya Harikumar, **Hung Le**, Dung Nguyen, Truyen Tran, Santu Rana, Dang Nguyen, Willy Susilo, Svetha Venkatesh. Published in ECCV'22.

11. *Neurocoder: General-Purpose Computation Using Stored Neural Programs*. **Hung Le**, Svetha Venkatesh. Published in ICML'22 (Spotlight).

12. *Make The Most of Prior Data: A Solution for Interactive Text Summarization with Preference Feedback*. Duy-Hung Nguyen, Nguyen Viet Dung Nghiem, Bao-Sinh Nguyen, Tien Dung Le, Minh-Tien Nguyen, Shahab Sabahi, **Hung Le**. Published in NAACL-Findings'22.

13. *Generative Pseudo-Inverse Memory*. Kha Pham, **Hung Le**, Man Ngo, Truyen Tran, Bao Ho, Svetha Venkatesh. Published in ICLR'22.

14. *Learning Theory of Mind via Dynamic Traits Attribution*. Dung Nguyen, Phuoc Nguyen, **Hung Le**, Kien Do, Truyen Tran, Svetha Venkatesh. Published in AAMAS'22.

15. *Episodic Policy Gradient Training*. **Hung Le**, Thommen Karimpanal George, Majid Abdolshah, Kien Do, Dung Nguyen, Svetha Venkatesh. Published in AAAI'22 (Oral).

16. *Model-Based Episodic Memory Induces Dynamic Hybrid Controls*. **Hung Le**, Thommen Karimpanal George, Majid Abdolshah, Truyen Tran, Svetha Venkatesh. Published in NeurIPS'21.

17. *DeepProcess: Supporting Business Process Execution Using a MANN-based Recommender System*. Asjad Khan, Aditya Ghose, Hoa Dam, **Hung Le**, Truyen Tran, Kien Do. Published in ICSOC'21.

18. *Robust Deep Reinforcement Learning for Extractive Legal Summarization*. Duy-Hung Nguyen, Bao-Sinh Nguyen, Nguyen Viet Dung Nghiem, Dung Tien Le, Mim Amina Khatun, Minh-Tien Nguyen, **Hung Le**. Published in ICONIP'21.

19. *From Deep Learning to Deep Reasoning (Tutorial)*. Truyen Tran, Vuong Le, Hung Le, Thao M Le. Published in KDD' 21.

20. *A New Representation of Successor Features for Transfer across Dissimilar Environments.* Majid Abdolshah**, Hung Le**, Thommen George Karimpanal, Sunil Gupta, Santu Rana, Svetha Venkatesh. Published in ICML'21 (Spotlight).

21. *Self-attentive Associative Memory.* **Hung Le**, Truyen Tran, Svetha Venkatesh. Published in ICML'20
https://proceedings.icml.cc/static/paper_files/icml/2020/1397-Paper.pdf

22. *LODENet: A Holistic Approach to Offline Handwritten Chinese and Japanese Text Line Recognition.* Huu Tin Hoang, Chun-Jen Peng, Hung Tran, **Hung Le**, Huy Hoang Nguyen Published in ICPR'20

23. *Neural Stored-program Memory*. **Hung Le**, Truyen Tran, Svetha Venkatesh. Published in ICLR'20
https://openreview.net/pdf?id=rkxxA24FDr

24. *Learning to Remember More with Less Memorization.* **Hung Le**, Truyen Tran, Svetha Venkatesh. Published in ICLR'19 (Oral)
https://openreview.net/pdf?id=r1xlvi0qYm

25. *Variational Memory Encoder-Decoder*. **Hung Le**, Truyen Tran, Thin Nguyen, Svetha Venkatesh. Published in NeurIPS'18
https://papers.nips.cc/paper/7424-variational-memory-encoder-decoder.pdf

26. *Dual Memory Neural Computer for Asynchronous Two-view Sequential Learning.* **Hung Le**, Truyen Tran, Svetha Venkatesh. Published in KDD'18
https://dl.acm.org/doi/abs/10.1145/3219819.3219981?download=true

27. *Dual Control Memory Augmented Neural Networks for Treatment Recommendations.* **Hung Le**, Truyen Tran, Svetha Venkatesh. Published in PAKDD'18

https://link.springer.com/chapter/10.1007/978-3-319-93040-4_22

MEDIA

https://a2i2.deakin.edu.au/2020/08/07/introducing-our-staff-dr-hung-le/