

Thomas Jiralerspong

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Education

Université de Montréal

M.Sc., Computer Science

(Expected) 2025

Supervisors: [Yoshua Bengio](#) & [Doina Precup](#)

McGill University

B.Sc., Honours Computer Science

2023

GPA: 4.00/4.00

Supervisors: [Blake Richards](#) & [Doina Precup](#)

Exchange semester at the National University of Singapore

Refereed Conferences

Chen Sun, Wannan Yang, **Thomas Jiralerspong**, Dane Malenfant, Benjamin Alsbury-Nealy, Yoshua Bengio, Blake Richards. “Contrastive Retrospection: honing in on critical steps for rapid learning and generalization in RL.” In *Thirty-seventh Annual Conference on Neural Information Processing Systems (NeurIPS)*. 2023.

Flemming Kondrup*, **Thomas Jiralerspong***, Elaine Lau, Nathan de Lara, Jacob Shkrob, My Duc Tran, Doina Precup, Sumana Basu. “Towards Safe Mechanical Ventilation Treatment Using Deep Offline Reinforcement Learning.” In *Thirty-seventh AAAI Conference on Artificial Intelligence (AAAI)*. 2023.

Marshall Wang, John Willes, **Thomas Jiralerspong**, Matin Moezzi. “A Comparison of Classical and Deep Reinforcement Learning Methods for HVAC Control.” In *20th IEEE International Conference on Ubiquitous Intelligence and Computing (UIC)*. 2023.

Refereed Workshops

Thomas Jiralerspong*, Flemming Kondrup*, Doina Precup, Khimya Khetarpal. “Forecaster: Towards Temporally Abstract Tree-Search Planning from Pixels.” In *Seventh Workshop on Generalization in Planning at NeurIPS*. 2023.

Flemming Kondrup*, **Thomas Jiralerspong***, Elaine Lau, Nathan de Lara, Jacob Shkrob, My Duc Tran, Doina Precup, Sumana Basu. “Deep Conservative Reinforcement Learning for Personalization of Mechanical Ventilation Treatment.” In *The Multi-disciplinary Conference on Reinforcement Learning and Decision Making (RLDM)*. 2022.

Under Review

Thomas Jiralerspong*, Xiaoyin Chen*, Yash More, Vedant Shah, Yoshua Bengio. “Efficient Causal Graph Discovery Using Large Language Models.” Under Review at *International Conference on Machine Learning (ICML)*. 2024. arXiv preprint [arXiv:2402.01207](https://arxiv.org/abs/2402.01207).

Preprints

Yu Lu Liu*, **Thomas Jiralerspong***. “Network Analysis of the iNaturalist Citizen Science Community.” arXiv preprint [arXiv:2310.10693](https://arxiv.org/abs/2310.10693).

* Equal Contribution

Research Experience

Waabi

Deep Learning Research Intern

Jun 2023 – Aug 2023

Mentored by Kelvin Wong and Chris Zhang

Project: Realistic and controllable traffic simulation using a transformer based variational autoencoder

Reasoning and Learning Lab, Mila/McGill University

Research Intern

Jan 2022 – Aug 2023

Supervised by Prof. Doina Precup

Project: Model-based reinforcement learning with affordance aware tree-search planning directly from pixels

Learning in Neural Circuits Lab, Mila/McGill University

Research Intern

Sep 2022 – Aug 2023

Supervised by Prof. Blake Richards

Project: Contrastive learning to discover critical states for reinforcement learning in sparse reward environments

Vector Institute for A.I.

Machine Learning Research Intern

Sep 2022 – Dec 2022

Mentored by John Willes and Marshall Wang

Project: Model-based reinforcement learning for HVAC control

Project X, Machine Learning Research Competition

Co-leader of McGill's Team

Jun 2021 – Feb 2022

Received the highest score out of 25 submitted papers

Project: Deep offline conservative reinforcement learning for mechanical ventilation treatment

Industry Experience

Amazon Web Services (AWS) – S3 Team

Software Development Engineer Intern

May 2022 – Jul 2022

Project: JavaScript/Python tool to automate the Incremental Backup recovery system for AWS S3 (stores ~14 trillion objects)

Square Enix

Software Development Intern

May 2021 – Aug 2021

Project: Localization system to allow a MOBA game to be translated into over 10 languages

Expedia

Software Development Intern

May 2021 – Aug 2021

Project: React/TypeScript tool to identify which elements of a webpage are broken and conveniently display them to developers

Teaching

Université de Montréal

Teaching Assistant, Representation Learning

2023

	McGill A.I. Society	
	Organizer/Teaching Assistant, Accelerated Intro to ML	2021 – 2023
	McGill University	
	Teaching Assistant, Software Systems	2021 – 2022
	Guest Lecturer, Theory of Machine Learning	2022
Honors	Chosen to attend the 10th Heidelberg Laureate Forum	2023
	NSERC Canada Graduate Scholarship (17500\$)	2023
	University of Montreal Master's Scholarship (5000\$)	2023
	McGill Mobility Bursary for Exchanges (6000\$)	2022
	Winner of UofT AI's Project X competition (25000\$)	2022
	J.W. McConnell Major Entrance Scholarship (9000\$)	2020 – 2022
	CIBPA Foundation Bursary (1000\$, 2500\$, 1000\$)	2021, 2022, 2023
	Marianopolis College Valedictorian	2020
	Governor General of Canada's Academic Medal	2020
Invited Talks	Canadian Undergraduate Conference on AI (CUCAI)	2022
	University of Toronto AI Conference	2022
	McGill AI Society Learnathon	2022
Professional Activities	Mila	
	Lab Representative	2023 – Present
	McGill AI Society	
	Senior Advisor	2023 – Present
	Technical Project Manager	2021 – 2023
	Montreal AI & Neuroscience Conference	
	Organizer – Introduction to deep learning with PyTorch workshop	2022
	McGill NeuroTech	
	Machine Learning Developer	2021 – 2022
	McGill Robotics	
	Software Developer	2020 – 2021
Languages	Native: English, French	
	Advanced: Italian, Spanish	
	Beginner: Mandarin, Japanese	
Skills	Programming Languages: Python, Java, JavaScript, R, C, C++, C#, OCaml, SQL, HTML, CSS	

Machine Learning Libraries: PyTorch, TensorFlow, Keras, Pandas, NumPy, Matplotlib

Other: L^AT_EX, Slurm, Jupyter Notebooks, Perforce, GitHub, Jira, Unity

Press

SciLogs. Nina Beier. Jan 24, 2024. [What Do Food and Research Have in Common? More Than You Might Think.](#)

The McGill Tribune. Mikaela Shadick. March 15, 2022. [Six McGill undergrads win UofT international artificial intelligence competition.](#)

McGill Reporter. Richard Deschamps. March 1, 2022. [Undergrad team uses machine learning to create a better hospital ventilator.](#)

Advanced
Coursework

Université de Montréal

Representation Learning

Reinforcement Learning & Optimal Control

Scaling Laws

Causal Inference & Machine Learning

Probabilistic Graphical Models

McGill University

Reinforcement Learning

Brain Inspired Artificial Intelligence

Honours Math for Machine Learning

Probabilistic Programming

Network Science

National University of Singapore

Quantum Computing

Information Theory