Thomas Jiralerspong

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Education	Université de Montréal M.Sc., Computer Science (Expected) 2025 Supervisors: Yoshua Bengio & Doina Precup		
	McGill University2023B.Sc., Honours Computer Science2023GPA: 4.00/4.002023Supervisors: Blake Richards & Doina Precup2023Exchange semester at the National University of Singapore		
Refereed Conferences	Ezekiel Williams [*] , Avery Ryoo [*] , Thomas Jiralerspong[*] , Matt Perich, Guillaume Lajoie. "The Expressivity of Random Neural Networks with Learned Inputs." Accepted to <i>The Conference on Cognitive Computational Neuroscience (CCN)</i> . 2024.		
	Jean-Pierre Falet, Hae Beom Lee, Nikolay Malkin, Chen Sun, Dragos Secrieru, Thomas Jiralerspong , Dinghuai Zhang, Guillaume Lajoie, Yoshua Bengio. "Delta-AI: Local Objectives for Amortized Inference in Sparse Graphical Models" In <i>Twelfth International Conference on Learning Representations (ICLR)</i> . 2024.		
	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 <i>Thirty-seventh Annual Conference on</i> <i>Neural Information Processing Systems (NeurIPS)</i> . 2023.		
	Flemming Kondrup [*] , Thomas Jiralerspong[*] , Elaine Lau, Nathan de Lara, Jacob Shkrob, My Duc Tran, Doina Precup, Sumana Basu. "Towards Safe Mechanical Ventilation Treat- ment Using Deep Offline Reinforcement Learning." In <i>Thirty-seventh AAAI Conference on Artificial Intelligence (AAAI)</i> . 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* , Xiaoyin Chen*, Yash More, Vedant Shah, Yoshua Bengio. "Efficient Causal Graph Discovery Using Large Language Models." In <i>How Far Are We From</i> AGI? Workshop at ICLR. 2024.		
	Thomas Jiralerspong* , Flemming Kondrup*, Doina Precup, Khimya Khetarpal. "Fore- caster: Towards Temporally Abstract Tree-Search Planning from Pixels." In <i>Seventh Work-</i> <i>shop on Generalization in Planning at NeurIPS</i> . 2023.		

^{*} Equal Contribution

	Flemming Kondrup [*] , Thomas Jiralerspong [*] , Elaine Lau, Nathan My Duc Tran, Doina Precup, Sumana Basu. "Deep Conservative R for Personalization of Mechanical Ventilation Treatment." In <i>The N ference on Reinforcement Learning and Decision Making (RLDM)</i> . 2	einforcement Learning Multi-disciplinary Con-		
Under Review	Ezekiel Williams, Avery Hee-Woon Ryoo [*] , Thomas Jiralerspong [*] , Alexandre Payeur, Matthew G Perich, Luca Mazzucato, Guillaume Lajoie. "Expressivity of Neural Networks with Random Weights and Learned Biases." Under review at <i>The Thirty-Eighth Annual Conference on Neural Information Processing Systems (NeurIPS)</i> . 2024.			
Preprints	Yu Lu Liu [*] , Thomas Jiralerspong [*] . "Network Analysis of the iNaturalist Citizen Science Community." arXiv preprint arXiv:2310.10693.			
Research Experience	Occam AI LLM Research Intern Project: Automated SQL query generation using multi-agent	Jun 2024 - Present LLMs		
	Waabi Deep Learning Research Intern J Mentored by Kelvin Wong and Chris Zhang Project: Realistic and controllable traffic simulation using variational autoencoder	<i>un 2023 – Aug 2023</i> a transformer based		
	Reasoning and Learning Lab, Mila/McGill University Research InternJSupervised by Prof. Doina PrecupJProject: Model-based reinforcement learning with affordam planning directly from pixels	<i>Ian 2022 – Aug 2023</i> ce aware tree-search		
	Learning in Neural Circuits Lab, Mila/McGill Universe Research Intern Supervised by Prof. Blake Richards Project: Contrastive learning to discover critical states for re- in sparse reward environments	Sep 2022 – Aug 2023		
	Vector Institute for A.I.Machine Learning Research InternMentored by John Willes and Marshall WangProject: Model-based reinforcement learning for HVAC contra	Sep 2022 – Dec 2022 rol		
	Project X, Machine Learning Research Competition Co-leader of McGill's Team Received the highest score out of 25 submitted papers Project: Deep offline conservative reinforcement learning for mathematical treatment	Jun 2021 – Feb 2022 nechanical ventilation		

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Industry Experience	Amazon Web Services (AWS) – S3 TeamSoftware Development Engineer InternMay 2022 – JulProject: JavaScript/Python tool to automate the Incremental Backup redsystem for AWS S3 (stores ~14 trillion objects)		
	Square EnixMay 20Software Development InternMay 20Project: Localization system to allow a MOBA game to be translatlanguages	221 – Aug 2021 zed into over 10	
	ExpediaMay 20Software Development InternMay 20Project: React/TypeScript tool to identify which elements of a webpand conveniently display them to developers	921 – Aug 2021 page are broken	
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 Guest Lecturer, Theory of Machine Learning	$2021 - 2022 \\ 2022$	
Honors	PRONT Master's Scholarship (20000\$) (Rank #1 among all applicants) 20		
11011015	Chosen to attend the 10th Heidelberg Laureate Forum	ents) 2024 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\$) 20 Marianopolis College Valedictorian	021, 2022, 2023 2020	
	Governor General of Canada's Academic Medal	2020	
Invited	Canadian Undergraduate Conference on AI (CUCAI)	2022	
Talks	University of Toronto AI Conference	2022	
	McGill AI Society Learnathon	2022	
Professional	Mila		
Activities	Chairman of Lab Representatives	2023 - Present	
	Student Representative on Recruitment Committee	2023 - Present	
	Student Representative on Social Committee	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++ SQL, HTML, CSS	, C#, O0	Caml,
	Machine Learning Libraries: PyTorch, TensorFlow, Keras, Par Matplotlib	ndas, Nu	ımPy,
	Other: LAT _E X, Slurm, Jupyter Notebooks, Perforce, GitHub, Jira, U	nity	
Press	SciLogs. Nina Beier. Jan 24, 2024. What Do Food and Research Hav More Than You Might Think.	e in Com	mon?
	The McGill Tribune . Mikaela Shadick. March 15, 2022. Six McG win UofT international artificial intelligence competition.	ill under	grads
	McGill Reporter. Richard Deschamps. March 1, 2022. Undergr machine learning to create a better hospital ventilator.	rad team	uses
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