# THOMAS JIRALERSPONG

+1 514 625 9308 | thomasjiralerspong@gmail.com | LinkedIn | GitHub | Website | Google Scholar

## EDUCATION

**Université de Montréal/Mila**
*M.Sc. – Computer Science – Co-supervised by* ***Prof. Yoshua Bengio*** *&* ***Prof. Doina Precup*** *Sep 2023 – Present*
- **Awards:** FRQNT Master's Scholarship (40 000$) (Rank #1), NSERC Canada Graduate Scholarship (17 500$)

**Massachusetts Institute of Technology (MIT)**
*Brains, Minds & Machines Summer Course* *2024*

**McGill University**
*B.Sc. – Honours Computer Science –* ***GPA:4.00/4.00*** *Sep 2020 – May 2023*

## RESEARCH EXPERIENCE

**Occam AI** PyTorch, Python
*LLM Research Intern - New York City, United States* *Jun 2024 –Present*
- **Project:** Automated SQL query generation using multi-agent LLMs

**Waabi** PyTorch, Python
*Deep Learning Research Intern - Toronto, Canada* *Jun 2023 – Sep 2023*
- **Project:** Realistic and controllable traffic simulation using a transformer based variational autoencoder

**Learning in Neural Circuits Lab – Mila/McGill University** PyTorch, Python
*Research Intern – Montreal, Canada – Supervised by* ***Prof. Blake Richards*** *Sep 2022 – Aug 2023*
- **Project:** Contrastive learning to discover critical states for reinforcement learning in sparse reward environments

**Vector Institute for A.I.** PyTorch, Python
*Machine Learning Research Intern – Toronto, Canada* *Sep 2022 – Dec 2022*
- **Project:** Model-based reinforcement learning for HVAC control

## SOFTWARE DEVELOPMENT EXPERIENCE

**Amazon Web Services (AWS) – S3 Team** Python, JavaScript
*Software Development Engineer Intern – Vancouver, Canada* *May 2022 – Jul 2022*

**Expedia Group** JavaScript, TypeScript, React
*Software Development Intern – Montreal, Canada* *Jun 2019 – Aug 2019*

## SELECTED PUBLICATIONS

***Expressivity of Neural Networks with Random Weights and Learned Biases*** (Submitted)
E. Williams, A. Ryoo*, **T. Jiralerspong***, A. Payeur, M. Perich, L. Mazzucatto, G. Lajoie. ***NeurIPS 2024***

***Efficient Causal Graph Discovery Using Large Language Models***
**T. Jiralerspong***, X. Chen*, Y. More, V. Shah, Y. Bengio ***ICLR Workshop 2024***

***Delta-AI: Local Objectives for Amortized Inference in Sparse Graphical Models***
J. Falet*, H. Lee*, N. Malkin*, C. Sun, D. Secrieru, **T. Jiralerspong**, D. Zhang, G. Lajoie, Y. Bengio. ***ICLR 2024***

***Contrastive Retrospection: honing in on critical steps for rapid learning and generalization in RL***
C. Sun, W. Yang, **T. Jiralerspong**, D. Malenfant, B. Alsbury-Nealy, Y. Bengio, B. Richards. ***NeurIPS 2023***

***Forecaster: Towards Temporally Abstract Tree-Search Planning from Pixels***
**T. Jiralerspong***, F. Kondrup*, D. Precup, K. Khetarpal. ***NeurIPS Workshop 2023***

***Towards Safe Mechanical Ventilation Treatment Using Deep Offline Reinforcement Learning***
F. Kondrup*, **T. Jiralerspong***, E. Lau*, N. de Lara, J. Shkrob, M.D. Tran, D. Precup, S. Basu. ***AAAI 2023***

*Equal Contribution

## AWARDS & ACHIEVEMENTS

Chosen as one of the 200 most promising young researchers in the world by the **Heidelberg Laureate Forum** 2023
Winner of **Project X 2021** (25 000$) 2021