

# Thomas Jiralerspong

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## EDUCATION

### Université de Montréal/Mila

M.Sc. – Computer Science – Co-supervised by **Prof. Yoshua Bengio** & **Prof. Doina Precup** Sep 2023 – Present

- **Awards:** NSERC Canada Graduate Scholarship (17 500\$), UdeM Discovery Scholarship (5 000\$)

### McGill University

B.Sc. – Honours Computer Science – **GPA:4.00/4.00**

Sep 2020 – May 2023

## RESEARCH EXPERIENCE

### Waabi

Deep Learning Research Intern - Toronto, Canada

PyTorch, Python

Jun 2023 – Sep 2023

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

### Reasoning and Learning Lab – Mila/McGill University

Research Intern – Montreal, Canada – Supervised by **Prof. Doina Precup**

TensorFlow, Python

Jan 2022 – Aug 2023

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

### Learning in Neural Circuits Lab – Mila/McGill University

Research Intern – Montreal, Canada – Supervised by **Prof. Blake Richards**

PyTorch, Python

Sep 2022 – Aug 2023

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

### Vector Institute for A.I.

Machine Learning Research Intern – Toronto, Canada

PyTorch, Python

Sep 2022 – Dec 2022

- **Project:** Model-based reinforcement learning for HVAC control

### Project X - Machine Learning Research Competition

Co-leader of McGill's Team – Received highest score out of 25 submitted papers

PyTorch, Python

Jun 2021 – Feb 2022

- **Project:** Deep offline conservative reinforcement learning for mechanical ventilation treatment

## SOFTWARE DEVELOPMENT EXPERIENCE

### Amazon Web Services (AWS) – S3 Team

Software Development Engineer Intern – Vancouver, Canada

Python, JavaScript

May 2022 – Jul 2022

### Square Enix

Software Development Intern – Montreal, Canada

C#

May 2021 – Aug 2021

### Expedia Group

Software Development Intern – Montreal, Canada

JavaScript, TypeScript, React

Jun 2019 – Aug 2019

## SELECTED PUBLICATIONS

### *Efficient Causal Graph Discovery Using Large Language Models*

(Submitted)

**T. Jiralerspong\***, X. Chen\*, Y. More, V. Shah, Y. Bengio

**ICML 2024**

### *Delta-AI: Local Objectives for Amortized Inference in Sparse Graphical Models*

(Accepted)

J. Falet\*, H. Lee\*, N. Malkin\*, C. Sun, D. Secieru, **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.

**GenPlan Workshop at NeurIPS 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