

Marco Jiralerspong

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EDUCATION

Université de Montréal | *PhD in Computer Science (Mila/DIRO)* September 2023 – August 2027 (expected)
Fast track from MSc. in Computer Science, Thesis (2021 - 2023)

Reinforcement learning and generative modeling under the supervision of Gauthier Gidel.

GPA: 4.3/4.3

- **Awards:** NSERC Research Scholarship (\$40 000/year), FRQNT Scholarship (\$25 000/year, declined).

McGill University | *Bachelor of Arts - Computer Science Major*

September 2017 - December 2020

Minors in Mathematics and Economics.

GPA: 3.92/4.0

- Dean's Honor List and Keyfitz Major Undergraduate Scholarship (\$3000/year).

Notable Coursework:

- **ML & AI:** Adversarial ML, Deep Learning, ML for Economics, Applied ML, Probabilistic Graphical Models, Causal Inference and ML
- **Math:** Honors Analysis (I-III), Honors Probability, Honors Graph Theory, ML Mathematical Foundations, Algorithmic Game Theory

SKILLS:

- **Tools:** Jax, PyTorch, Python, NumPy, Matplotlib/Seaborn, Pandas, Scikit-learn, Linux, Git, Docker, Slurm, SQL, C++.

WORK EXPERIENCE

Google - *Software Development Engineer Intern*

Summer 2022

- Working on the Ads Integrity - Actor Intelligence (AI²) team developing features for detecting bad advertisers.
- Integrated retrospective evaluation and feature set comparison capabilities into framework using SQL.

Université de Montréal (IFT 6758A – Data Science) – *Teaching Assistant*

Fall 2022, Fall 2023, Fall 2024

- Amended, translated and graded main project + designed and implemented assignment on data scraping.

Amazon Robotics - *(Returning) Software Development Engineer Intern*

Summer 2020 and Summer 2021

- Developed C++ simulated robotic workcell for object pickup through perception and motion planning algorithms.
- Built C++ benchmarking system for easy evaluation of CPU/GPU/Memory performance of robotic configurations.

Squarepoint Capital – *Quantitative Developer Intern*

Winter 2021

- Building ML (trading) model interpretability pipelines, tools and visualizations.

SELECTED PAPERS

Discrete Compositional Generation via General Soft Operators and Robust Reinforcement Learning.

Under review.

M Jiralerspong, Esther Derman, Danilo Vucetic, Kolya Malkin, Bilun Sun, Tianyu Zhang, Pierre-Luc Bacon, Gauthier Gidel.

General Causal Imputation via Synthetic Interventions.

NeurIPS 2024 Workshop on Causal Representation Learning.

M Jiralerspong, Thomas Jiralerspong, Vedant Shah, Dhanya Sridhar, Gauthier Gidel.

On the Stability of Iterative Retraining of Generative Models on their own Data.

ICLR 2024 (Spotlight).

Quentin Bertrand, Avishek Joey Bose, Alexandre Duplessis, **M Jiralerspong**, Gauthier Gidel.

Expected Flow Networks in Stochastic Environments and Two-Player Zero-Sum Games.

ICLR 2024.

M Jiralerspong^{*}, Bilun Sun^{*}, Danilo Vucetic^{*}, Tianyu Zhang, Yoshua Bengio, Gauthier Gidel, Nikolay Malkin.

Feature Likelihood Score: Evaluating Generalization of Generative Models Using Samples.

NeurIPS 2023.

M Jiralerspong, Joey Bose, Ian Gemp, Chongli Qin, Yoram Bachrach, Gauthier Gidel.

Generating Diverse Vocal Bursts with StyleGAN2 and MEL-Spectrograms.

ExVo Workshop & Competition, ICML 2022.

M Jiralerspong, Gauthier Gidel.