

Lynn Cherif

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EDUCATION

McGill University and Mila - Quebec AI Institute

M.Sc., Computer Science (Thesis) | CGPA: 4.00/4.00

Montreal, Canada

Aug. 2023 – Expected Apr. 2025

Co-supervisors: Prof. Doina Precup, Dr. Khimya Khetarpal

McGill University

B.Eng., Honours Mechanical Engineering, minor in Computer Science | CGPA: 3.73/4.00

Montreal, Canada

Sep. 2018 – May 2023

Supervisor: Prof. Yaoyao Fiona Zhao

PUBLICATIONS AND SCIENTIFIC WORKS

- ‡ W. Chung, **L. Cherif**, D. Meger, and D. Precup, “Parseval Regularization for Continual Reinforcement Learning,” arXiv preprint arXiv:2412.07224. Accepted at *The Thirty-eighth Annual Conference on Neural Information Processing Systems (NeurIPS 2024)*.
- ‡ S. Lee, M. Kim, **L. Cherif**, D. Dobre, J. Lee, S. J. Hwang, K. Kawaguchi, G. Gidel, Y. Bengio, N. Malkin, and M. Jain, “Learning diverse attacks on large language models for robust red-teaming and safety tuning,” arXiv preprint arXiv:2405.18540. Accepted to *Red Teaming GenAI Workshop (NeurIPS 2024)*. Under review at *The Thirteenth International Conference on Learning Representations (ICLR 2025)*.
- ‡ **L. Cherif**, E. Meriaux*, J. Qin*, V. Patel, M. Klissarov, D. Precup, and K. Khetarpal “Leveraging Affordances for Reinforcement Learning in Large Discrete Action Spaces,” In *Women in Machine Learning (WiML) Symposium at The Forty-first International Conference on Machine Learning (ICML 2024)*. [Poster]
- ‡ **L. Cherif***, M. Safdar*, G. Lamouche, P. Wanjara, P. Paul, G. Wood, M. Zimmermann, F. Hannesen, and Y. Zhao, “Evaluation of Key Spatiotemporal Learners for Print Track Anomaly Classification Using Melt Pool Image Streams,” *IFAC-PapersOnLine*, vol. 56, no. 2, pp. 4733–4739, Jan. 2023.
- L. Cherif**, Y. Zhao, “Development and Implementation of Computer-Vision-Based Deep Learning Models for Anomaly Classification in Laser Powder Bed Fusion,” *McGill Univ.*, Dec. 2022. [Undergraduate thesis]
- L. Cherif**, E. Duplay, M. Larrouiturou, Z. F. Bao, and A. Higgins, “Radiative Heat Transfer in Laser Thermal Propulsion for Rapid Spaceflight,” McGill University Summer Undergraduate Research in Engineering Poster Presentations, Aug. 2020. [Poster]

* Equal Contribution ‡ Peer-reviewed

RESEARCH EXPERIENCE

Reasoning & Learning Lab, McGill University/Mila - Quebec AI Institute

Aug. 2023 – Present

Machine Learning Graduate Researcher | Advisors: Prof. Doina Precup, Dr. Khimya Khetarpal

- Leverage large generative models (e.g., LLMs/VLMs) to improve reinforcement learning agents’ learning and performance, in collaboration with Google DeepMind
- Presented poster at ICML 2024 on 4x hit-rate prediction improvement over considered baseline on real-world Amazon recommender system data
- Co-authored two papers on a novel regularization technique for continual reinforcement learning (accepted to NeurIPS 2024) and automated red-teaming method (accepted to NeurIPS 2024 Red Teaming GenAI Workshop, under review at ICLR 2025)

Additive Design & Manufacturing Lab, McGill University

Jan. 2022 – Dec. 2022

Machine Learning Undergraduate Researcher | Advisor: [Prof. Yaoyao Fiona Zhao](#)

- Researched and developed spatiotemporal convolutional neural networks for robust anomaly classification in laser powder bed fusion (a metal 3D printing process)
- Identified gaps in the literature, designed experiments, and created a large dataset
- Co-first authored a conference paper, wrote a thesis, and presented findings to 20+ academics

McGill Interstellar Flight Group, McGill University

May 2020 – Aug. 2020

Laser-thermal Propulsion Undergraduate Researcher | Advisor: [Prof. Andrew J. Higgins](#)

- Investigated and optimized the mathematical model of a cooling system for a laser-thermal rocket's combustion chamber to allow travel from Earth to Mars in 45 days (instead of 6-8 months)
- Presented findings in a poster to the faculty of engineering, and a public preliminary design review of 40 academics and industry professionals
- Published work was widely covered by the press (e.g., [Forbes](#))

HONOURS AND AWARDS (*Currency in CAD*)

FRQNT - Master's Training Scholarship (\$20,000, Ranked 4th amongst candidates), *Quebec Nature and Technology Research Fund (Fonds De Recherche Du Québec Nature et Technologie)*, 2024

Women in AI Excellence Scholarship (\$10,000), *Mila - Quebec AI Institute*, 2024

Reinforcement Learning Conference - Conference Registration Funding (\$631), 2024

International Conference on Machine Learning - Conference Registration Funding (\$728), *Women in Machine Learning*, 2024

Louis C. Ho Summer Undergraduate Research in Engineering Award (\$2,812.5), *McGill University*, 2020

NSERC - Undergraduate Summer Research Award (\$2,812.5), *Natural Sciences and Engineering Research Council of Canada*, 2020

French Baccalaureate Highest Honours (Mention Très Bien et Félicitations du Jury), *French Ministry of National Education (Ministère de l'Éducation Nationale)*, 2018

INDUSTRY EXPERIENCE

Dell Technologies – Secureworks, Montreal, Canada

May 2022 – Jul. 2023

Data Scientist Intern | Scientific Advisors: [Dr. François Labrèche](#), [Serge-Olivier Paquette](#)

- Improved vulnerability prioritization by ~20% by researching and developing novel features for the product's language and machine learning models
- Extended data fetchers to include additional sources and adapted the deployed machine learning models
- Presented results regularly in monthly all-product team demos to engineering and product executives, and 200+ people
- Received full-time offer and repeated part-time offers

Acrylic Robotics (Startup), Montreal, Canada

May 2021 – Dec. 2021

Software & Robotics Developer Intern

- Spearheaded the technical development of the 1st and 2nd robot prototypes able to autonomously paint art on canvas
- Presented weekly technical developments to the CEO and business development team
- Designed front- and back-end tools for the proprietary drawing application
- Tested the first partnership with a renowned artist

TEACHING & MENTORING

- McGill Artificial Intelligence Society (MAIS) Hacks Lecturer and Mentor** *Oct. 2022*
- Presented beginner- and intermediate-level machine and deep learning tutorials at one of Canada's largest hackathons (150+ participants)
 - Aided teams in technical tool selection and technical difficulties
- Promoting Opportunities for Women in Engineering Conference Mentor, McGill University** *Feb. 2022*
- Presented, guided, and answered technical questions during the design challenge of a conference for high school/CEGEP women⁺ students
 - Ensured the inclusion and active participation of all 8 students in the team

LEADERSHIP AND SERVICE

- Volunteer, Reinforcement Learning Conference** *Aug. 2024*
- Supported sponsors at the industry-academia mixer
 - Promoted industry-academia mixer on social media
- Volunteer, Women in Machine Learning Symposium ICML** *Jul. 2024*
- Moderated breakout discussions with panelists and mentors
- Lab Representative, Mila – Quebec AI Institute** *Nov. 2023 – Present*
- Represent the student body during professor-admin discussions and decision-making processes
 - Organize and support student-led events and initiatives
- Co-founder and Head of Product Spirufoods, McGill Dobson X-1 Accelerator** *Jun. 2023 – Aug. 2023*
- Created product and technical development plans
 - Gathered and lead customer validation interviews
 - Created pitch decks
 - Supported the recruitment of engineering interns
 - Developed intern's engineering project
- Podcast Lead and Co-Producer McGill AI Podcast, McGill AI Society** *May 2022 – May 2023*
- Grew number of downloads by +60% by leading* a team of 4 producers and democratizing critical AI discussions with top contributors in the field [\[Podcast Link\]](#)
 - Themes: current and future AI research, applications, and ethical challenges
 - Guests: ACM A.M. Turing award winner, research director at Google DeepMind, students, professors, principal industry researchers
 - Promoted to senior advisor for the 2023-2024 academic year
- * *I was an acting lead as there was no designated leader*
- Conference Moderator, Promoting Opportunities for Women in Engineering McGill University** *Feb. 2022*
- Presented and moderated questions for a women⁺ engineering student speaker panel as part of a conference for high school/CEGEP women⁺ students
- Competitor, McHacks 9 Hackathon McGill University** *Jan. 2022*
- Co-developed a machine-learning-based web application in a team of 4 to provide policymakers a systematic way to recommend COVID-19 public health measures based on past policies and current public health indices
 - Published and presented the web-application at the hackathon [\[GitHub\]](#)
- Competitor, McHacks 8 Hackathon McGill University** *Jan. 2021*
- Learned HTML and CSS programming languages and developed the front-end of a web-application for random exam generation based on the course, chapter, level of difficulty, and number of students, in under 36 hours
 - Published the completed prototype web-application at the hackathon in a team of 3 people [\[GitHub\]](#)

Orientation Leader, Engineering Undergraduate Society McGill University*Aug. 2020*

- Guided and acquainted incoming engineering students to McGill, the faculty, and Montreal communities over four days, with a second orientation leader
- Ensured fun, safety, and inclusion of the team

Vice President of Finance, Sustainability in Engineering McGill University*May 2019 – May 2020*

- Created and distributed the annual budget
- Contributed to the organization of the team's events

Organizer, Mechanical Engineering First Year Committee McGill University*Sep. 2018 – Apr. 2019*

- Organized events for first-year mechanical engineering students to promote and facilitate connections

SCIENTIFIC PRESENTATIONS

1. *Reinforcement Learning with Large Changing Discrete Action Spaces using Affordances*, McGill Reasoning and Learning Lab, Apr. 2024.
2. *Development and Implementation of Computer-Vision-Based Deep Learning Models for Anomaly Classification in Laser Powder Bed Fusion*, McGill University Honours Mechanical Engineering Thesis Presentations, Dec. 2022.
3. *Radiative Heat Transfer in Laser Thermal Propulsion for Rapid Spaceflight*, McGill University Summer Undergraduate Research in Engineering Poster Presentations, Aug. 2020.
4. *Rapid Mars Transit with Laser Thermal Propulsion Preliminary Design Review*, McGill Interstellar Flight Group Public Online Presentation, Aug. 2020.
5. *Lasers*, McGill Interstellar Flight Group, May 2020.

SKILLS

Programming Languages: Python, Java, C, C++, MATLAB, Bash, SQL, HTML, CSS

Frameworks & Libraries: PyTorch, MXNet, OpenCV, Scikit-Learn, pandas, NumPy, NLTK, Gensim

Tools & Software: Amazon Web Services (AWS), Google Cloud Platform (GCP), Docker, Make, CUDA, Git, Unix, Linux/Ubuntu, CI/CD, Slurm

Languages: English (Fluent), French (Fluent), Arabic (Fluent), Spanish (Intermediate)

ADVANCED COURSEWORK

Mathematics: Ordinary Differential Equations, Intermediate & Advanced Calculus, Probability, Linear Algebra & Partial Differential Equations

Computer Science: Applied Machine Learning, Reinforcement Learning, Engineering Systems Optimization, Numerical Methods, Natural Language Processing, Representation Learning, Intelligent Robotics