# Lynn Cherif

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## Education

**McGill University and Mila - Quebec AI Institute** — *Montreal, Canada*
M.Sc., Computer Science (Thesis) | CGPA: 4.00/4.00 — *Aug. 2023 – Expected Apr. 2025*
***Co-supervisors**: Prof. Doina Precup, Dr. Khimya Khetarpal*

**McGill University** — *Montreal, Canada*
B. Eng., Honours Mechanical Engineering, minor in Computer Science | CGPA: 3.73/4.00 — *Sep. 2018 – May 2023*
***Supervisor**: Prof. Yaoyao Fiona Zhao*

## Publications and Scientific Works

1. **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.
2. **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*]
3. E. Duplay, Z. F. Bao, S. Rodriguez Rosero, A. Sinha, and A. Higgins, "Design of a rapid transit to Mars mission using laser-thermal propulsion," *Acta Astronaut.*, vol. 192, pp. 143–156, Mar. 2022. [*Acknowledged contributions*]
4. **L. Cherif**, E. Duplay, M. Larrouturou, 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

## 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*

- Create deep reinforcement learning agents that can efficiently, continually, and robustly adapt in real-world changing environments
- Leverage large generative models to improve reinforcement learning agents' learning and performance

**Additive Design & Manufacturing Lab, McGill University** — *Dec. 2021 – 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)

## 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 **1$^{st}$ and 2$^{nd}$ 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

## Selected Social Engagement

**Lab Representative, Mila – Quebec AI Institute** *Nov. 2023 – Present*

- Empower and represent the McGill master thesis students affiliated with Mila at student assemblies, professor-admin discussions, and the equity, diversity, and inclusion (EDI) committee

**McGill AI Podcast Lead/Co-Producer, 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*

**Promoting Opportunities for Women in Engineering Conference Moderator, 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

**McHacks 9 Hackathon Competitor, 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]

**McHacks 8 Hackathon Competitor, 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]

**Engineering Undergraduate Society Orientation Leader, 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

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

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

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

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

## Honours and Awards

**Louis C. Ho Summer Undergraduate Research in Engineering Award** ($2812.5), *McGill University, 2020*

**Natural Sciences and Engineering Research Council of Canada Undergraduate Summer Research Award** ($2812.5), *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'Éduation Nationale), 2018*

## Scientific Presentations

1. *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.
2. *Radiative Heat Transfer in Laser Thermal Propulsion for Rapid Spaceflight,* McGill University Summer Undergraduate Research in Engineering Poster Presentations, Aug. 2020.
3. *Rapid Mars Transit with Laser Thermal Propulsion Preliminary Design Review,* McGill Interstellar Flight Group Public Online Presentation, Aug. 2020.
4. *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, Spark

**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