MICHAEL RIZVI-MARTEL

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PROFILE

PhD student in Computer Science at Université de Montréal and Mila. My main research focus is better understanding reasoning in language models.

EDUCATION

PhD Computer Science, Université de Montréal/Mila — Expected 2027
Fast tracked from the MSc. program

Major of Computer Science, Université de Montréal — 2022
Relevant Coursework: Fundamentals of Machine Learning, Data Science, Quantum Computing

B. Eng. Electrical Engineering, Polytechnique Montréal — 2020
Specialization in applied mathematics

SELECTED PUBLICATIONS

Conference Publications

1. **Michael Rizvi-Martel**, Satwik Bhattamishra, Neil Rathi, Guillaume Rabusseau, and Michael Hahn. Benefits and Limitations of Communication in Multi-Agent Reasoning. In *The Fourteenth International Conference on Learning Representations (ICLR 2026)*, 2026
2. Maude Lizaire, **Michael Rizvi-Martel**, Étienne Dupuis, and Guillaume Rabusseau. On the Role of Depth in the Expressivity of RNNs. In *The 29th International Conference on Artificial Intelligence and Statistics (AISTATS 2026)*, 2026 **(Spotlight)**
3. **Michael Rizvi-Martel**, Maude Lizaire, Clara Lacroce, and Guillaume Rabusseau. Simulating Weighted Automata over Sequences and Trees with Transformers. In *The 27th International Conference on Artificial Intelligence and Statistics (AISTATS 2024)*, 2024
4. Maude Lizaire, **Michael Rizvi-Martel**, Marawan Gamal, and Guillaume Rabusseau. A Tensor Decomposition Perspective on Second-order RNNs. In *The 41st International Conference on Machine Learning (ICML 2024)*, 2024 **(Spotlight)**

Workshop Publications

1. **Michael Rizvi-Martel** and Marius Mosbach. The Illusion of Superposition in Latent Chain-of-Thought. In *Latent & Implicit Thinking Workshop at ICLR 2026*, 2026
2. **Michael Rizvi-Martel**, Satwik Bhattamishra, Guillaume Rabusseau, and Michael Hahn. From Expressivity to Sample Complexity: Narrow Teachers for Transformers via C-RASP. In *What Can(’t) Transformers Do? Workshop at NeurIPS 2025*, 2025

TEACHING EXPERIENCE

Teaching Assistant, IFT 1065 - Discrete Mathematics — Sep. 2025 - Present
Université de Montréal — *Montréal, QC*

- Prepared and taught the tutorials.
- Corrected assignments.

Teaching Assistant, IFT 3395 - Fundamentals of Machine Learning — Sep. 2023 - Dec. 2023
Université de Montréal — *Montréal, QC*

- Prepared and taught the lab portion of the course.
- Prepared and coordinated assignments.
- Corrected assignments.

Teaching Assistant, IFT 1227 - Computer Architecture — Sep. 2021 - Dec. 2021
Université de Montréal — *Montréal, QC*

- Prepared and taught the lab portion of the course.
- Corrected assignments.

AWARDS & HONORS

- **University of Montréal AI scholarship (MSc)**: 5000$
- **University of Montréal AI scholarship (PhD)**: 10000$
- **NSERC Canada Graduate Research Scholarship Award**: 120 000$

TALKS

- *Simulating Weighted Automata over Sequences and Trees with Transformers* − FLaNN Seminar Series, May 2024.
- *LLMs and How to Use Them* − Seminar at the Center for Advanced Research in Sleep Medicine, February 2024.

SERVICE

- **Reviewer for TMLR**.
- **Reviewer for ICLR 2026**.
- **Evaluator - Mila Supervision Comittee**: I evaluated applications of potential candidates to the professional MSc program for the 2025 academic year.
- **Reviewer for ICLR 2025**.
- **Coorganizer - Tensor Network Reading Group**: I help organize a reading group on Tensor Networks. We meet weekly, and I help with organizing the list of speakers and hosting the sessions. (2023−2024)
- **Mentor - Directed Readings in Mathematics program**: I acted as a mentor in a directed readings program aimed to introduce undergrads to research in applied mathematics. (2022−2023)
- **Departmental tutor in Computer Science:** I worked as a tutor for Université de Montréal CS department. I held office hours where undergraduate students could come ask questions about (basically any) course from the first or second year curriculum. (2021−2023)

SKILLS

Fluent Languages: English, French, Spanish
Operating Systems: Linux, Windows, Mac
Programming Languages: advanced knowlege: Python, MATLAB, LaTeX, C/C++; familiar with: Rust, Java, JavaScript SQL Bash
Machine Learning Libraries: Pytorch, JAX, Numpy, Scikit-Learn
Machine Learning Accelerators: advanced knowledge in GPU CPU and SLURM protocol