

# Louis-Roy Langevin

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## Education

- 2024–Present **McGill University** | *M.Sc. in Mathematics and Statistics (Thesis)*  
Supervisor: Prof. Adrian Vetta  
**Research Interests:** Algorithmic Game Theory, Combinatorial Optimization, Probability, Complexity Theory
- 2021–2024 **McGill University** | *B.Sc. Honours Mathematics and Computer Science*  
Graduated with **First Class Honours and Distinction**  
**CGPA:** 3.91 / 4.0

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## Papers

- 2025 ***The Popular Dimension of Matchings***  
with F. Connor, N. Ndiaye, A. Totschnig, R. Vasishta, & A. Vetta  
Accepted to Proceedings of 21st Conference on Web and Internet Economics (WINE), 2025.
- 2024 ***Optimal Root Recovery for Uniform Attachment Trees and  $d$ -regular Growing Trees***  
with L. Addario-Berry, C. Fontaine, R. Khanfir, & S. Têtu  
Accepted to Annals of Applied Probability.
- 2024 ***Optimally Revealing Bits for Rejection Sampling***  
with A. Waese-Perlman  
MIT Undergraduate Research Technology Conference, 2025.
- 2025 ***Robotic Arm Rotation: Standing Up Is Harder Than You Think***  
with N. Bousquet, F. Connor, R. El Sabeh, A. Mouawad, N. Nishimura, A. Totschnig  
Submitted to International Symposium on Computational Geometry (SoCG), 2026.
- 2025 ***On Mobile Ad Hoc Networks for Coverage of Partially Observable Worlds***  
with G. Dudek, A. Loria, E. Mériaux, S. Wen  
Submitted to IEEE Transactions on Robotics (T-RO).
- 2025 ***Random Serial Dictatorship is  $\sqrt{2}$ -Envy-Free***  
with F. Connor, M. Dupré la Tour, V. Narayan, N. Ndiaye, N. Rahman, A. Vetta  
To be submitted to 26th ACM Conference on Economics and Computation (EC), 2026.
- 2025 ***Tight Bounds on the Best  $\theta$ -Condorcet Winner of Metric Elections***  
with F. Connor, N. Ndiaye, A. Totschnig, A. Vetta  
To be submitted to Canadian Conference on Computational Geometry (CCCG), 2026.

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## Research Internships

- 2024 **Root Recovery on Random Recursive Trees**  
Worked under Prof. Louigi Addario-Berry on root-detection algorithms for Uniform Attachment trees. Improved the asymptotic upper bound on the minimal candidate set achieving constant success probability; results to appear in the Annals of Applied Probability.
- 2023 **Burning Number Conjecture on Graphs**  
Worked under Prof. Sergey Norin on cops and robbers and graph burning bounds.
- 2022 **Subelliptic Operators & Legendre Functions**  
Studied zeros of linear combinations of Legendre functions (McGill / Dalhousie).

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## Professional Experience

- 2025–Now **Mathematics Specialist (contract) for Meta**  
Spearheaded the analysis of advanced mathematics articles and designed/solved complex problems to enhance Large Language Model (LLM) advanced reasoning capabilities.
- 2024–2025 **Mathematics Specialist (contract) for Scale AI**  
Designed/solved complex problems to enhance LLM advanced reasoning capabilities.

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## Teaching & Mentoring

Fall 2025 **Substitute Lecturer** | McGill University  
Gave graduate level lectures on algorithms and complexity theory (MATH553).

**Teaching Assistant** | McGill University

Fall 2025 – Algorithmic Game Theory

Winter 2025 – Calculus 2

Fall 2024 – Calculus 1

**Course Assistant** | McGill University

Winter 2023 – Discrete Mathematics

Fall 2022 – Honours Analysis 1

Winter 2025 **Research Mentor** | McGill Directed Reading Program  
Supervised two undergraduate students during one semester for game theory research.

2024 + 2025 **Summer Camp Instructor** | McGill Programming Summer Camp  
Taught algorithms and data structures to high school and college students.

2022-2025 **Founder & Educator** | *Cégepien* Online Platform  
Created an online math preparation program with over 50 participants.  
Produced educational videos with 17,000+ followers (@le\_cegepien).

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## Service & Leadership

2025 **Conference Paper Reviewer** | Symposium on Theoretical Aspects of Computer Science (STACS 2026).

2025 **Conference Co-Organizer**, 27th Institut des Sciences Mathématiques Graduate Student Colloquium.

**Conference Speaker:**

2025 – MIT Undergraduate Research Technology Conference (MIT URTC 2025).

2025 – Institut des Sciences Mathématiques Graduate Student Colloquium.

2025 – Seminars in Undergraduate Mathematics in Montreal (SUMM 2025).

2024 **Hackathon Judge**, Code.jam() (2nd place winner in 2023).

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## Scholarships & Grants

2024–2026 **Graduate Excellence Award** | McGill University.

2025–2026 **Kenneth Eade Fellowship** | McGill University, awarded based on academic merit.

2025 **Lin Graduate Award** | McGill University.

2023 + 2024 **Undergraduate Student Research Award** | Natural Science and Engineering Research Council of Canada.

2022 + 2024 **Undergraduate Research Scholarship** | Institut des Sciences Mathématiques.

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## Honors & Awards

2024 **First Class Honours with Distinction** | McGill University.

2024 **Third place at ICPC North America Northeast (NENA)** | McGill University.

2024 **Team Canada Representative, International Physics Tournament** | ETH Zürich.

2023 **W.B. Putnam Competition** — Top 600 in North America.

2020 **Canadian Open Mathematics Challenge** — 3rd National.

2019 **Association Mathématique du Québec Contest** — 1st National.