

MARK DEACONU

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EDUCATION

Queen's University

Bachelor of Computing and Mathematics

Kingston, Ontario

Sep 2021 - May 2026

- Core GPA: 4.0/4.3, 2x Dean's honor list.

Perimeter Institute

PSI Bridge Program

Waterloo, Ontario

May 2025 - Dec 2025

- Single Canadian student to be accepted into the 2025 PSI bridge cohort, consisting of only 16 students.

WORK EXPERIENCE

Comma AI

Autonomy Engineer Intern

San Diego, California

May 2026 - Present

- Developing the distributed model training infrastructure for the in-house cluster.

SoftwareQ

Research Intern

Waterloo, Ontario

Jan 2025 - April 2025

- Investigated distributed quantum computing methodologies, with a focus on detecting and localizing errors, along with the implementation of hyperbolic Floquet codes.
- Designed a stochastic process in which circuit synthesis and device scheduling methods could inform each other and iteratively improve.

Institute For Quantum Computing

Undergraduate Researcher - Dr. Michele Mosca

Waterloo, Ontario

April 2024 - April 2025

- Leveraged methods from number theory, namely Bruhat Tits theory, to progress the understanding of the subgroup of $SU(3)$ associated with quantum circuits over the gateset Clifford + R.
- Researched bounds on the stabilizer rank of states, and on a characterization of stabilizer states based on the Barnes-Wall lattice.

Ad Astra Math

Math Instructor

Kingston, Ontario

Jun 2017 - Apr 2024

- Served as the sole instructor for over 200 classes, teaching problem solving for math olympiads.

PUBLICATIONS

Preprints

- Mark Deaconu, Nihar Gargava, Amolak Ratan Kalra, Michele Mosca, and Jon Yard, Buildings for Synthesis with Clifford+R, arXiv e-prints, 2025. arXiv:2510.11526.
- Mark Deaconu, Kaveh Mousavand, and Charles Paquette, Infinite string bricks and Sturmian words over some gentle algebras, arXiv e-prints, 2025. arXiv:2510.22377.

AWARDS & HONORS

- **FoQaCiA Conference (June 2025):** Selected for a talk and poster presentation titled “*Arithmeticity of Qutrit Clifford+R Gate Set*”.
- **Math Olympiad Champion:** 2nd Place in Canada (Galois Contest), 6 gold medals in national contests, and qualification to Repêchage in the Canadian Open Mathematics Challenge (COMC).
- **Innovation Award (2025):** Recipient of the innovation award from the Association of Romanian Engineers in Canada (AREC) for outstanding academic and industrial accomplishments.
- **Featured Startup:** Automation project *Cordax* showcased at the NEXT36 venture day; recipient of "best use of AI" award at Queen's Entrepreneurs' Competition (\$2,000 prize).

TECHNICAL SKILLS

- **Programming Tools:** Python, Git, Bash, PennyLane, Stim, Pytorch, SQL