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Mitchell Gaudet

Degrees

Master's of Science, *University of Toronto*, Mathematics, Supervised by Yevgeny Liokumovich. **2024-2025**

Thesis Summary: : Almgren-Pitts min-max theory has been the driving force of many important results in Geometry and Geometric measure theory. These include the existence of a non-trivial minimal hypersurface on every Riemannian manifold of low enough dimension, as well as extending Gromov's nonlinear spectra. A key part of this is the topology of certain spaces of cycles, which are generalized submanifolds. In particular, the fact that the space of mod 2 flat cycles is **weakly** homotopic to an infinite dimensional projective space has been used recently to great effect. My thesis is focused on studying the algebraic topology of some spaces of flat cycles to get stronger results, through analogy with classical Morse theory.

Honours Bachelor of Science, *University of Toronto*, High Distinction, **2019-2023**
Mathematics.

Awards

2024-2025: Ontario Graduate Scholarship

2024-2025: Paul Mandl Graduate Scholarship in Mathematics

Work Experience

Teaching

<i>Research</i>	May, 2025-Present: Teaching Assistant, University of Toronto	MAT ₂₃₅ , Multivariable Calculus
	January-May, 2025: Mentor/Instructor, University of Toronto	Directed Reading Program. Topology and Differential equations: de Rham Cohomology and Hodge Theory
	September, 2024-May, 2025: Teaching Assistant, University of Toronto	MAT ₁₃₇ , Calculus with Proofs
Talks Given	May-August, 2022: Undergraduate Research Assistant, University of Toronto, supervised by Prof. Robert McCann and Dr. Flavien Léger	The Gradient Descent Algorithm for Computational Optimal Transport with General costs
	April 7, 2025: Junior Algebraic Geometry Seminar, University of Toronto.	Varieties, Currents, and Soap Bubbles
Conference Participation		
	June 11-13, 2025: Brown University	Workshop on Topics in Differential Geometry