

Sacha Goldman

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Education

PhD in Mathematics [University of Toronto](#)

September 2023 -

Supervised by Alexander Kupers.

MSc in Mathematics [University of Toronto](#)

September 2023 - September 2024

Program encompassing both course work and research. Supervised by Alexander Kupers.

BSc in Mathematics and Computer Science [University of Toronto](#)

September 2019 - June 2023

Focused on mathematics and relations with computer science.

Research

Master's Thesis [Properties of Automorphisms of Spaces with Cyclic-by-Finite Fundamental Group](#)

Showing finiteness results for automorphism groups of some manifolds combining techniques from geometric topology, rational homotopy theory, K -theory, and surgery theory.

Undergraduate Summer Research [The Centre of the Torelli Lie Algebra](#)

Working with Alexander Kupers and Daniel Litt on studying the centre of the Torelli Lie algebra.

Awards

Ontario Graduate Scholarship [Province of Ontario](#)

2025 - 2026

Canadian Graduate Scholarship - Master's [National Sciences and Engineering Research Council](#)

2024 - 2025

Coxeter Scholarship in Mathematics [University of Toronto](#)

2024

Undergraduate Summer Research Award [National Sciences and Engineering Research Council](#)

2023

Raptors Foundation In-Course Scholarship [New College](#)

2023

In-Course Scholarship [New College](#)

2022

In-Course Scholarship [New College](#)

2021

William and Shirley Reed Scholarship [VSB](#)

2019

Teaching

MAT257 Teaching Assistant [University of Toronto](#)

September 2024 - April 2025

Running tutorials, office hours, and grading for a course covering calculus on manifolds.

MAT1300 Teaching Assistant [University of Toronto](#)

September 2024 - December 2024

Grading for a graduate course on differential topology.

MAT185 Teaching Assistant [University of Toronto](#)

January 2024 - April 2024

Running tutorials and grading for a proof based linear algebra course.

Math Learning Centre Teaching Assistant [University of Toronto](#)

January 2024 - April 2024

Helping students at the math learning centre.

MAT186 Teaching Assistant [University of Toronto](#)

September 2023 - December 2023

Running tutorials and grading for a differential and integral calculus course.

CSC236 Teaching Assistant [University of Toronto](#)

September 2021 - December 2021

Running tutorials and grading for a course introducing mathematics for computer science.

Speaking

Synthetic Spectra Learning Seminar [University of Toronto](#)

2025

An expository talk about Patchkoria–Pstragowski's proof of Franke's algebracity conjecture.

Locally Trivial Seminar [University of Toronto](#)

2025

A talk about ongoing joint work with Jonathan Sejr Pedersen and Marco Volpe studying signatures of manifold bundles.

Summer Kan Seminar [University of Toronto](#)

2025

An expository talk about the Sullivan conjecture.

Simple Homotopy Week [University of Toronto](#)

2025

Two talks, one on Waldhausen's construction of the assembly map and the other on a proof of the topological Dwyer-Weiss-Williams theorem.

Locally Trivial Seminar [University of Toronto](#)

2025

Speaking about local systems in geometric topology, specifically relating to the Euler characteristic, the Wall finiteness obstruction, and the Whitehead torsion.

Cohomology of the General Linear Group Learning Seminar [University of Toronto](#)

2024

An expository talk about the K-Theory of finite fields.

Ontario Graduate Mathematics Conference [University of Waterloo](#)

2024

Speaking about finiteness properties of some automorphism groups of manifolds.

Birds Eye Conference [University of Toronto](#)

2024

An expository talk about rational homotopy theory and Sullivan's minimal models.

Graduate Student Seminar [University of Toronto](#)

2024

An expository talk about the calculation of homotopy groups of spheres.

Canadian Undergraduate Mathematics Conference [University of Toronto](#)

2023

An expository talk about using the Hopf fibration to calculate $\pi_3(S^2)$.

Service

Locally Trivial Seminar [University of Toronto](#)

January 2025 -

A student seminar I started with Jonathan Pedersen on topics loosely related to algebraic topology.

Readings in Topological K-Theory [Directed Reading Program](#)

January 2025 - April 2025

Supervising a group of undergraduate students reading about Topological K-Theory and the Hopf invariant one problem.

Graduate Student Seminar Organizer [Math Graduate Student Association](#)

September 2024 - August 2025

Organizing the University of Toronto's mathematics graduate student seminar.

Academic Committee [Math Graduate Student Association](#)

September 2023 - August 2024

Helping to organize academic events and the graduate student seminar.

Employment

Software Engineer Intern  Apple

May 2022 - August 2022

Worked on the team architecting Apple Media Apps solving unique technical challenges.

Software Developer Intern SSENSE

May 2021 - August 2021

Worked on the iOS team facilitating a transition to the composable architecture and SwiftUI.

Software Developer Intern Altairix

May 2020 - August 2020

Worked on the web based learning platform for students with disabilities.

Misc

Canadian Citizen

American Citizen