

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

Supervised by Alexander Kupers. Thesis: Properties of Automorphisms of Spaces with Cyclic-by-Finite Fundamental Group

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

September 2019 – June 2023

Papers and Preprints

The Torsion of Automorphisms of Nilpotent Spaces [arXiv](#)

January 2026

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 2026

Running tutorials, holding 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

Birds Eye Conference [University of Toronto](#) 2026

An expository talk about Configuration spaces and braid groups.

Synthetic Spectra Learning Seminar [University of Toronto](#) 2025

An expository talk about Patchkoria–Pstrągowski's proof of Franke's algebricity 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.

Local Systems and Simple Homotopy Thoery [Young Homotopy Theorists Meeting](#) 2025

A poster about work, partially joint with Marco Volpe, on simple homotopy theory using local systems of spectra.

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 on Signatures of High-Dimensional Knots [Directed Reading Program](#) January 2026 – April 2026

Supervising a group of undergraduate students reading about high dimensional knots and signatures of knots.

Readings on 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