

Sacha Goldman

Email sacha.goldman@mail.utoronto.ca

Website sachagoldman.com

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 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

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.

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