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

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

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.

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.