Education

University of California, Berkeley *Aug. 2021–May 2025*
Undergraduate pursuing a Bachelor of Arts in mathematics. Current GPA: 4.0/4.0. Current math GPA: 4.0/4.0.

Programming
Python (SageMath, Jupyter), LaTeX, C++

Research Experience

University of Michigan REU *June 2023–August 2023*
Attached invariants to triples of certain representations of $\mathrm{GL}_2(\mathbb{F}_q)$ and examined properties of these invariants. Advisors: Jialiang Zou and Elad Zehlinger.

University of Michigan REU *May 2022–July 2022*
Used group cohomology to explicitly compute the Tate canonical class. Advisors: Alexander Bertoloni Meli, Patrick Daniels, and Peter Dillery.

Preprints

Interests: Algebraic number theory and algebraic geometry.

Generalized Periodicity in Group Cohomology
To appear in *Communications in Algebra*. Studied a certain generalization of periodic cohomology with computational applications. Published (arXiv:2302.06160).

Explicit Computations of Fundamental Classes
Provided an explicit computation of the local fundamental class in various cases. Gave applications to Artin reciprocity and computations of the Tate canonical class. Preprint (arXiv:2302.06163).

Talks

Gamma Factors for Representations of General Linear Groups over Finite Fields *Jan. 2023*
Joint Mathematics Meeting

One GL_2, Two GL_2, Red GL_2, Blue GL_2 *July 2023*
Summer Undergraduate Michigan Mathematics Research Conference

Group Laws for Galois Gerbs *Aug. 2022*
Young Mathematicians Conference

Groups of Wrath *July 2022*
University of Michigan REU Seminar

Outreach

Academic Officer *Dec. 2022–Present*
Math Undergraduate Student Society (MUSA)
Organized "Math Mondays," a weekly undergraduate seminar. Also Vice President (Dec. 2022–Dec. 2023), in which I ran the bureaucratic side of MUSA, in writing emails, delegating appropriately, and setting up meetings.

Problem Writer *Sept. 2021–Present*
Berkeley Math Tournament (BMT)
Collaborated making problems (writing and solving) for BMT, a high-school math contest with ~1200 participants in 2021. Attended weekly problem-writing meetings and socials. Also graded proof-based questions for the US and China contests.

Teaching

Facilitator *Fall 2023*

MUSA 154

MUSA 154 is a student-lead course discussing topics in Diophantine equations: continued fractions, Pell's equations, Dirichlet's unit theorem, Hensel's lemma, elliptic curves, SageMath. As facilitator, wrote course notes, wrote and graded homework problems, and lectured. Syllabus.

Facilitator *Spring 2023, Fall 2023*

MUSA 74

MUSA 74 is a student-lead course to help math students transition to proof-based upper-division courses. As facilitator, rewrote and reformatted course notes, wrote and graded homework problems, and lectured. Syllabus.

Peer Tutor *Mar. 2022–Dec. 2023*

Student Learning Center

Worked one-on-one in drop-in environment for real analysis and abstract algebra and lower-division math as needed. Also co-wrote, organized, and delivered lecture-style content reviews for final exam preparation.

Coursework

Course numbers beginning with 2 are graduate coursework. A * signals currently taking. Courses are listed thematically.

- 104: Real Analysis
- 185: Complex Analysis
- 202A: Topology and Measure Theory
- 215A: Algebraic Topology
- 214*: Smooth Manifolds
- 225A: Model Theory
- 198: Category Theory (student-led)
- 250A: Groups, Rings, and Fields
- 250B: Commutative Algebra
- 191: Analytic Number Theory
- 199: Arithmetic Statistics (reading course)
- 199: Modular Forms (reading course)
- 191: Automorphic Forms (reading course)
- 256A: Algebraic Geometry, Schemes
- 256B: Algebraic Geometry, Cohomology
- 191*: Étale Cohomology (reading course)
- 254B: Rational Points on Varieties
- 254B*: Complex Multiplication of Abelian Varieties