

Tyler Genao

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Curriculum Vitae

Updated October 22, 2026
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ACADEMIC EMPLOYMENT

Assistant Professor Tennessee Tech University, Cookeville, TN	2026–present
Zassenhaus Visiting Assistant Professor The Ohio State University, Columbus, OH	2023–2026
Graduate Teaching/Research Assistant University of Georgia, Athens, GA	2017–2023

EDUCATION

Ph.D., Mathematics University of Georgia, Athens, GA Advisor: Pete L. Clark Dissertation: “Typical and Polynomial Bounds on Torsion of Elliptic Curves, and Torsion Upon Base Change”	May 2023
B.Sc., Mathematical Sciences Florida Atlantic University, Boca Raton, FL	May 2017

RESEARCH INTERESTS

Broadly: Number theory, arithmetic geometry

Specifically: Uniformity results in torsion groups and Galois representations of elliptic curves, modular curves

PUBLICATIONS AND PREPRINTS

[†] Indicates an undergraduate coauthor.

Preprints

15. **The possible adelic indices for elliptic curves admitting a rational cyclic isogeny**, with K. Finnerty, J. Mayle and Rakvi. [\[arXiv\]](#)
14. **Uniform bounds on the level of cyclotomic division fields of elliptic curves**, with S. Allen[†]. [\[arXiv\]](#)

Published and Accepted

13. **Counting points on some genus zero Shimura curves**, with T. Phillips, F. Saia, T. Santens and J. Yin. *Math. Proc. Cambridge Phil. Soc.* (2026), First View, 1–25. [\[journal\]](#) [\[arXiv\]](#)
12. **Uniform polynomial bounds on torsion from rational geometric isogeny classes**, with A. Bourdon. To appear in *Math. Res. Lett.* [\[arXiv\]](#)

11. **A uniform bound on the smallest surjective prime of an elliptic curve**, with J. Mayle and J. Rouse. *Ramanujan J.* 70 (2026), art. no. 22, 1–19. [[journal](#)] [[arXiv](#)]
10. **New isogenies of elliptic curves over number fields**. *Int. J. Number Theory* 21 (2025), no. 10, 2343–2357. [[journal](#)] [[arXiv](#)]
9. **Polynomial bounds on torsion from a fixed geometric isogeny class of elliptic curves**. *J. Théor. Nombres Bordeaux* 36 (2024), no. 2, 661–670. [[journal](#)] [[arXiv](#)]
8. **Growth of torsion groups of elliptic curves upon base change from number fields**. *Ramanujan J.* 63 (2024), no. 2, 409–429. [[journal](#)] [[arXiv](#)]
7. **Computational study of non-unitary partitions**, with A.P. Akande, S. Haag[†], M.D. Hendon, N. Pulagam, R. Schneider and A.V. Sills. *J. Ramanujan Math. Soc.* 38 (2023), no. 2, 121–128. [[journal](#)] [[arXiv](#)]
6. **Typically bounding torsion on elliptic curves isogenous to rational j -invariant**. *Proc. Amer. Math. Soc.* 151 (2023), no. 5, 1907–1914. [[journal](#)] [[arXiv](#)]
5. **Typically bounding torsion on elliptic curves with rational j -invariant**. *J. Number Theory* 238 (2022), 823–841. [[journal](#)] [[arXiv](#)]
4. **The least degree of a CM point on a modular curve**, with P.L. Clark, P. Pollack and F. Saia. *J. Lond. Math. Soc. (2)* 105 (2022), no. 2, 825–883. [[journal](#)] [[PDF](#)] [[code](#)]
3. **Chevalley-Waring at the boundary**, with P.L. Clark and F. Saia. *Expo. Math* 39 (2021), no. 4, 604–623. [[journal](#)] [[PDF](#)] [[code](#)]
2. **Faltings heights of CM elliptic curves and special gamma values**, with A. Barquero-Sanchez, L. Cadwallader, O. Cannon, and R. Masri. *Res. Number Theory* 3 (2017), Paper No. 13, 16 pp. [[journal](#)] [[PDF](#)]
1. **The density of primes dividing a particular non-linear recurrence sequence**, with A. Block Gorman, H. Hwang, N. Kantor, S. Parsons and J. Rouse. *Acta Arith.* 175 (2016), no. 1, 71–100. [[journal](#)] [[arXiv](#)]

GRANTS AND AWARDS

AMS-Simons Travel Grant	July 2023–June 2026
NSF RTG Graduate Student Fellowship DMS 1344994.	Sept. 2018–Aug. 2019
NSF Graduate Research Fellowship Grant No. 1842396.	Sept. 2017–Aug. 2022

Honors and Awards

William Armor Wills Memorial Scholarship Award University of Georgia mathematics department research award. [award information]	April 2023
David Galewski Outstanding Graduate Teaching Award University of Georgia mathematics department teaching award. [award information]	April 2023
Outstanding Teaching Assistant Award University of Georgia Center for Teaching and Learning. [award information]	April 2023

STUDENT RESEARCH AND MENTORING

Cycle program mentor, The Ohio State University 2025–2026

Year-long undergraduate reading project on elliptic curve torsion points with Mohith Muddasani and Steven Wu.

Cycle program mentor, The Ohio State University 2024–2025Year-long undergraduate reading project on elliptic curve Galois representations with Sam Allen and David Kruzel. This project continued into summer research with Sam Allen, resulting in the preprint *Uniform bounds on the level of cyclotomic division fields of elliptic curves*. [arXiv]**Cycle program mentor, The Ohio State University** Spring 2024

Reading project on algebraic curves with Kabir Belgikar.

Directed Reading Program mentor, University of Georgia 2019–2023

Mentored undergraduates Ethan Boos, Summer Haag, Russell Mathison, and Cole Wittbrodt in separate projects. Participating semesters: Fall 2019, Spring 2020, Fall 2020, Spring 2021, Spring 2022, Summer 2022, and Spring 2023.

Project assistant, undergraduate research project Summer 2020Project on non-unitary partitions, resulting in *Computational study of non-unitary partitions*. [arXiv]

Peer mentor for first-year mathematics graduate students at the University of Georgia.

TEACHING EXPERIENCE

*Instructor of record unless otherwise noted.***Tennessee Tech University**

MATH 6110: Abstract Algebra I (graduate) Fall 2026**MATH 2010: Introduction to Linear Algebra** Fall 2026

106 students.

The Ohio State University

MATH 4573: Elementary Number Theory Spring 2026; Spring 2024**MATH 1151: Calculus I** Fall 2025; Fall 2023

Fall 2025: two sections, 341 students total.

Fall 2023: two sections, 320 students total.

MATH 8120: The Arithmetic of Elliptic Curves (graduate) Spring 2025**MATH 6111: Abstract Algebra I** (graduate, two sections) Fall 2024

- *Recitation instructor.*

University of Georgia

MATH 2250: Calculus I Spring 2023; Fall 2022**MATH 1113E: Virtual Precalculus** Summer 2022**MATH 1113: Precalculus** Spring 2021; Fall 2020

Spring 2021: two sections.

COURSE NOTES

Elementary Number Theory

Spring 2026

Undergraduate lecture notes, 172 pages. [\[notes\]](#)**Arithmetic of Elliptic Curves**

Spring 2025

Graduate lecture notes, 192 pages. [\[notes\]](#)TALKS

JMM: Joint Mathematics Meetings; CTNT: Connecticut Summer School in Number Theory. TTU, OSU and UGA are Tennessee Tech, Ohio State, and Georgia, respectively.

Research Talks*Uniform bounds on cyclotomic division fields of elliptic curves*

AMS Southeastern Sectional Meeting, Kennesaw, GA

October 2026

Special Session on “Recent Developments in Number Theory”

*Canceled due to hurricane.**Elliptic curves, torsion points and Galois representations*

CTNT 2026 Conference, Storrs, CT

June 2026

Small division fields of elliptic curves

JMM 2026, Washington, DC

January 2026

Special Session on “A Showcase of Research in Number Theory with Undergraduate Contributions”

Growth of torsion groups of elliptic curves in geometric isogeny classes

AMS Fall Eastern Virtual Sectional Meeting (online)

October 2025

Special Session on “Unveiling Connections: Number Theory Meets Algebraic Geometry”

Growth of torsion groups of elliptic curves in geometric isogeny classes

Applied Algebra Days II, Boca Raton, FL

October 2025

Polynomial bounds on torsion from geometric isogeny classes

ICERM, Providence, RI

June 2025

Uniform polynomial bounds on torsion from rational geometric isogeny classes

UIC Number Theory Seminar, Chicago, IL

April 2025

Uniform polynomial bounds on torsion from rational geometric isogeny classes

UConn Algebra Seminar, Storrs, CT

February 2025

Uniform polynomial bounds on torsion from rational geometric isogeny classes

AMS Eastern Sectional Meeting, Albany, NY

October 2024

Special Session on “Explicit Methods in Arithmetic Geometry”

Uniform polynomial bounds on torsion from rational geometric isogeny classes

PANTS XXXVIII, Winston-Salem, NC

September 2024

New isogenies of elliptic curves over number fields

CTNT 2024 Conference, Storrs, CT

June 2024

Uniform bounds on torsion of elliptic curves in geometric isogeny classes

Number Theory Seminar, OSU

September 2023

Bounds on torsion subgroups from geometric isogeny classes of elliptic curves

JMM 2023, Boston, MA

January 2023

Bounds on torsion subgroups from geometric isogeny classes of elliptic curves

PANTS XXXV, Columbia, SC

December 2022

Bounds on torsion from isogeny classes of elliptic curves

Number Theory Seminar, UGA

September 2022

Typically bounding torsion on special subfamilies of F_0 -curves

CTNT 2022 Conference, Storrs, CT

June 2022

Typically bounding torsion on elliptic curves: $j(E) \in F$ and beyond

Maine-Québec Number Theory Conference (online)

October 2021

Typically bounding torsion on elliptic curves: $j(E) \in F$ and beyond

Number Theory Seminar, UGA

September 2021

Torsion, bounds and typically bounding torsion

Graduate Student Seminar, UGA

October 2020

Faltings heights of CM elliptic curves and special gamma values

JMM 2017, Atlanta, GA

January 2017

Elliptic curves and their Faltings height

Texas A&M University

July 2016

The density of primes dividing a particular non-linear recurrence sequence

JMM 2016, Seattle, WA

January 2016

Describing the density of primes dividing a point on a particular elliptic curve

Graduate Summer Conference, UGA

July 2015

Expository Talks

Elliptic curves in practice: complex tori, cryptography, and rational points

Graduate Research Seminar, TTU

October 2026

Elliptic curves in nature: from cannonballs to Fermat's Last Theorem

Graduate Research Seminar, TTU

September 2026

Elliptic curves: dots, horseshoes and donuts

Radical Pi Math Club, OSU

February 2024

Cyclic isogenies under isogenous elliptic curves

Graduate Summer Conference, UGA

August 2021

Entanglements of Galois representations of CM elliptic curves

CRAAG II, UGA

July 2021

Serre's adelic open image theorem for non-CM elliptic curves

SeZoom, UGA

April 2021

Number theory through inquiry

SUMR Conference, UGA

July 2020

Foray into Galois representations

Graduate Summer Conference, UGA

July 2020

Constructible numbers, division points and class field theory

Graduate Student Seminar, UGA

April 2020

What are inseparable and transcendental extensions?

SMaRTS Seminar, UGA

February 2020

Why is $e^{\pi\sqrt{163}}$ almost an integer?

Graduate Summer Conference, UGA

July 2019

SERVICE AND OUTREACH

Program Leadership and Departmental Service

Co-organizer, [Cycle](#) undergraduate research program, OSU Fall 2024–Spring 2026

- **Fall 2024–Spring 2025:** 26 projects, 27 mentors, and 41 mentees.
- **Fall 2025–Spring 2026:** 32 projects, 33 mentors, and 66 mentees.

Faculty advisor, Mathematics Graduate Student Association, OSU Fall 2025–Spring 2026

Co-organizer, Directed Reading Program, UGA Summer 2021–Spring 2023

Organizer, preparatory course for the graduate algebra qualifying exam, UGA Summer 2020

Professional Service

- MathSciNet reviewer.

Outreach and Student Engagement

Panelist, mathematics department involvement, OSU Fall 2025
Panel for incoming faculty, visiting assistant professors, and lecturers on opportunities for departmental outreach and involvement.

Panelist, Connecticut Summer School in Number Theory Summer 2024
Academic advice panel for 50 undergraduate and graduate participants, covering graduate applications, program selection, research areas, and thesis advisors. [\[program\]](#)

Speaker, mathematics graduate visitation day, UGA Spring 2023
Gave a talk and met with prospective graduate students during the department's graduate visitation day.

Course assistant, virtual Arizona Winter School Spring 2021
Number theory program with more than 200 participants, mostly undergraduates. [\[program\]](#)

RESEARCH SOFTWARE

Programming in Magma, Python, and Sage. github.com/tgenao. Research code includes *The least degree of a CM point on a modular curve* and *Chevalley-Waring at the boundary*.

SELECTED RESEARCH PROGRAMS AND TRAINING

BIRS: <i>Isogeny Graphs in Cryptography</i> , Banff	August 2025
ICERM: <i>Algebraic Points on Curves</i> , Providence	June 2025
Arizona Winter School: <i>Abelian Varieties</i> , Tucson	March 2024
Mathematics Research Communities: <i>Explicit Computations With Stacks</i> , Java Center, NY	June 2023
Arizona Winter School: <i>Unlikely Intersections</i> , Tucson	March 2023
PCMI: <i>Number Theory Informed by Computation</i> (online)	July 2021
AIM: <i>LMFDB as a Microscope and a Telescope</i> , San Jose	September 2019
Texas A&M REU in Mathematics, College Station	May–July 2016
WADE INTO Research REU, Wake Forest University, Winston-Salem	June–August 2015