Xingyu Cheng xcheng1@unc.edu (317)-965-0515

Education

University of North Carolina at Chapel Hill

PhD Mathematics Advisor: Prakash Belkale

Purdue University, West Lafayette, IN

2017 - 2021

2021—2026 (Expected)

BS Mathematics (Honors) with distinction Minors: German, Computer Science

Online

Website: https://www.tigercheng.xyz/ Github: https://github.com/Xyxyxx

Publications

Undergraduate Publications:

- 2. Linking number of monotonic cycles in random book embeddings of complete graphs (joint with Yasmin Aguillon, Eric Burkholder, Spencer Eddins, Emma Harrell, Kenji Kozai, Elijah Leake, Pedro Morales). J. Knot Theory Ramif.. https://www.worldscientific.com/doi/pdf/10. 1142/S0218216523500438
- 1. The Mean Sum of Squared Linking Numbers of Random Piecewise-Linear Embeddings of K_n (joint with Yasmin Aguillon, Spencer Eddins, Pedro Morales). Rose-Hulman Undergrad. Math. J. https://scholar.rose-hulman.edu/rhumj/vol24/iss2/3/

Conferences attended

- SRI in Algebraic Geometry (week 2), Colorado State University, 2025.
- GAGS 2025, University of Georgia Athens, 2025.
- MAAGC, Virginia Commonwealth University, 2023.
- SLMATH/MSRI Summer School Commutative Algebra and its Interaction with Algebraic Geometry, Notre Dame University, Summer 2023.
- Georgia Algebraic Geometry Symposium, University of Georgia, 2023.
- Summer 2020 Indiana REU Conference, Indiana University, 2020. Talk given: 'Extensions of the uniform random polygon model' (joint talk with Pedro Morales).

Teaching

Courses taught:

- Summer 2025: Math 533 Elementary Number Theory
- Fall 2024: Math 152 Business Calculus
- Summer 2023: Math 118 Aspects of Modern Mathematics
- Fall 2022: Math 110 College Algebra

Recitations lead:

- Spring 2024: Math 233 Multivariate Calculus
- Fall 2022:
 - Math 231H Calculus I Honors
 - Math 110L Recitation for College Algebra
- Spring 2022: Math 233 Multivariate Calculus
- Fall 2021: Math 233 Multivariate Calculus

Service

Graduate Mathematics Associaton Visions Seminar Organizer 2024 - 2025Geometry/topology comprehensive exam review Summer 2024

This is a 9 week review session designed to prepare students for the written comprehensive exams.

Tea Time Coordinator

Directed Reading Program

From https://math.unc.edu/undergraduate/opportunities/: "The Directed Reading Program (DRP) pairs undergraduate students with graduate student mentors for semester-long independent study projects. It is an opportunity for motivated students to get one-on-one mentorship as they learn about a math topic of their interest but is out of the scope of the courses offered at UNC."

- Spring 2025: With Yuxin Ge. We learned some basics of Galois theory through Milne's notes. In particular, we focused on learning about fields and field automorphisms.
- Spring 2024: with Yan Zhu. We learned some basic number theory and abstract algebra from Ireland and Rosen.
- Fall 2023: with Paul Hamrick. We went through Reid's Undergraduate Algebraic Geometry with a particular focus on the proof of the 27 lines on a cubic.
- Spring 2023: with Aryan Kokkanti. 'Foundations of Knot Theory.'
- Fall 2022: with Marleigh Purgar-Mcdonald. 'Hilbert Nullstellensatz, Affine Varieties and Ideals.'

2023 - 2024