

Mathematics PhD candidate with experience in algebraic topology, topological data analysis (TDA), machine learning, and biomedical sciences. I hope to apply topological data analytic methods to advance biomedical research.

Experience

- 2021, 2023 Instructor, Summer Enrichment Workshop, *University of Illinois at Chicago*, Chicago, IL.
Instructor of record for tuition-free, intensive summer workshops in college algebra and intermediate algebra for incoming first year students, with a **100% pass rate in 2021** and **94% pass rate in 2023** for my students.
- 2020–2022 Research Assistant, *University of Illinois at Chicago*, Chicago, IL.
Assisted in research administrative duties, **mentored students** in reading courses, and performed **research in algebraic topology**.
- 2017–present Teaching Assistant and Grader, *University of Illinois at Chicago*, Chicago, IL.
Led discussion sections, tutored and/or graded homework for mathematics courses **ranging from remedial undergraduate to introductory graduate level**.
- 2015, 2016 Teaching Assistant, *Birmingham-Southern College*, Birmingham, AL.
Graded homework and held problem-solving sessions for **upper-level undergraduate courses** in abstract algebra and probability theory.
- 2014-2015, Distinguished Vail Fellow, *Birmingham-Southern College*, Birmingham, AL.
2016
 - One year of work on a research project in **computational biology** culminating in a **poster presentation**:
 - "An Agent-Based Model of Yellow-Bellied Marmots (*Marmota flaviventris*)," 7th International Symposium on Biomathematics and Ecology: Education and Research, Harvey Mudd College.
 - Two summers of work on a research project in **computational algebraic number theory** leading to the following **publication**:
 - A. Pratt, M. Stadnik, and M. Wachter, *Units in Quadratic and Multi-Quadratic Fields*, *Alabama Journal of Mathematics* **41**, 2017.

Education

- 2017–present **Ph.D. Candidate in Mathematics**, *University of Illinois at Chicago*, Chicago, IL.
Expected May 2024. Advisor: Brooke Shipley
- 2013–2017 **B.S. in Mathematics**, *Birmingham-Southern College*, Birmingham, AL.
Minor in Studio Art, *cum laude*, Phi Beta Kappa, Harrison Honors Scholar

Certifications, and Technical and Language Proficiencies

- Certifications Spring 2023 Data Science Bootcamp, *The Erdős Institute*, Columbus, OH.
An intensive bootcamp leading to a certification in data science, covering basic Python, various **data analytics/visualization packages**, collecting/organizing data, applied **machine learning**, and **statistical analysis**, culminating in a group data analysis project that utilized the skills we learned.
- Technical Python (including NumPy, pandas, Matplotlib, GUDHI, Biopython, RDKit), UNIX/bash, Microsoft Office
Languages English (native speaker), French (intermediate)

Leadership, Service, and Other Professional Activities

- 2021–2022 Facilitator, *Good Trouble Abolition Collective*, UIC, Chicago, IL.
Organized biweekly meetings for a **large group of student leaders** from several campus organizations to discuss strategies for campus organizing around racial justice.
- 2020–2022 Co-President, *Graduate Employees' Organization*, Local 6297, AFT-IFT, AFL-CIO, Chicago, IL.
Elected **chief executive** the union **representing over 1500 graduate workers** at UIC; lead the union through a contract negotiation **culminating in a 16% raise** for our workers. **Supervised a team of ten volunteers**, along with **two full-time employees**, including **hiring and negotiating contracts** for the current employee.
- 2019–2020 Chief Steward, *Graduate Employees' Organization*, Chicago, IL.
Elected as the liaison between the union leadership and the volunteer departmental representatives, maintaining regular contact with each of the **roughly 100 stewards** to discuss departmental recruitment and labor issues.
- 2018–present Departmental Steward, *Graduate Employees' Organization*, Chicago, IL.
GEO representative for MSCS department; **recruit an average of 15 card-signing members per orientation event**, maintain departmental union membership numbers, and provide representation at disciplinary meetings between workers and their supervisors.
- 2018, Seminar Organizer, *University of Illinois at Chicago*, Chicago, IL.
2022–2023 **Wrote syllabi, identified speakers, and proposed budgets** for several graduate seminars at UIC, including a seminar on **topological data analysis**, along with the graduate student colloquium.
- 2018–2019 Co-President, *Mathematics Graduate Student Association*, UIC, Chicago, IL.
Oversaw budget for departmental events including weekly honorarium teas; acted as **liaison to departmental administration** to address graduate student concerns.