

PhD Student
Department of Computer Science
University of Chicago

email: gschoenbach@uchicago.edu

web: <https://gabey.zip>

phone: 707-779-131

1 Education

- PHD, COMPUTER SCIENCE, University of Chicago 2022–Present
Advisor: Aloni Cohen.
- MS, COMPUTER SCIENCE, University of Chicago 2025
Committee: Aloni Cohen, David Cash, William Hoza.
- BA, MATHEMATICS, University of Chicago 2020

Research Interests

- CRYPTOGRAPHY: Searchable encryption, watermarks for language models, proofs of space.
- THEORETICAL COMPUTER SCIENCE: Algorithms for sampling trees and graph partitions, Markov chains for computational redistricting, fine-grained complexity theory, coding theory.

Awards and Fellowships

- Summer Fellow, Voting Rights Data Institute at Tufts University 2019
- UChicago Dean's List, Odyssey Scholar, and University Scholar Award 2016–2020
- National Merit Scholar 2016

Research Experience

- *Graduate Research Assistant*, UNIVERSITY OF CHICAGO 2022–Present
Advised by Aloni Cohen
- *Research Fellow*, TUFTS UNIVERSITY 2020–2022
MGGG Redistricting Lab, hosted by Moon Duchin

Publications

- [1] Karin C Knudson, Gabe Schoenbach, and Amariah Becker. Pyei: a python package for ecological inference. *Journal of Open Source Software*, 6(64):3397, 2021.
- [2] Moon Duchin and Gabe Schoenbach. Redistricting for proportionality. In *The Forum*, volume 20, pages 371–393. De Gruyter, 2023.
- [3] Daryl DeFord, Natasha Dhamankar, Moon Duchin, Varun Gupta, Mackenzie McPike, Gabe Schoenbach, and Ki Wan Sim. Implementing partisan symmetry: Problems and paradoxes. *Political Analysis*, 31(3):305–324, 2023.

- [4] Daryl DeFord, Natasha Dhamankar, Moon Duchin, Varun Gupta, Mackenzie McPike, Gabe Schoenbach, and Ki Wan Sim. Implementing partisan symmetry: A response to a response. *Political Analysis*, 31(3):332–334, 2023.
- [5] Aloni Cohen, Alexander Hoover, and Gabe Schoenbach. Watermarking Language Models for Many Adaptive Users. *2025 IEEE Symposium on Security and Privacy (SP)*, pp. 84-84, 2025.

Talks

- **Watermarking Language Models for Many Adaptive Users** 2025
BERKELEY SECURITY SEMINAR
- **Range-Searchable Symmetric Encryption with Minimal Communication Complexity** 2025
UCHICAGO MASTERS' PRESENTATION
- **Combinatorial Properties of Traceable Codes** 2023
UCHICAGO THEORY LUNCH SEMINAR
- **County-Aware Redistricting** 2023
UCHICAGO THEORY LUNCH SEMINAR
- **A Workflow for Testing EI** 2021
MGCG LAB SEMINAR
- **Counting Graph Partitions** 2021
MGCG GRAPH ALGORITHMS SEMINAR
- **EI Considerations** 2020
MGCG LAB SEMINAR
- **Exploring Partisan Symmetry** 2020
UCHICAGO UNDERGRADUATE MATH CLUB

Professional Service

- **Subreviewer**
 - CRYPTO 2025
 - Foundations of Responsible Computing (FORC) 2023-2024
 - Computer and Communications Security (CCS) 2023
- **Conference/Workshop Volunteer**
 - Theory and Practice of Differential Privacy (TPDP) 2023
 - ACM Conference on Fairness, Accountability, and Transparency (ACM FAccT) 2023
- **UChicago CS Theory Lunch Seminar** January 2024–Present
- **Teaching Assistant**
 - Discrete Mathematics (CMSC 27100) Winter 2025
 - Introduction to Cryptography (CMSC 28400) Autumn 2024