

DAVID BREWSTER

github.com/davidb2 — brewster.cc — dbrewster@g.harvard.edu

EDUCATION

- Harvard University** Fall 2022 - Present
Ph.D. Applied Mathematics
- University of Illinois at Urbana-Champaign** Spring 2021
B.S. Computer Science *Dean's List*
B.S. Mathematics

AWARDS

- Harvard University Graduate School of Arts and Sciences Prize Fellowship** Fall 2022 - Present
- H. Roy Brahana Prize** — *Most Exceptional Undergraduate Mathematics Career* Spring 2021

TALKS

- “**Fixation times on directed graphs**”, *Workshop on Modeling and Applications of Evolutionary Game Theory*, December 8, 2023
- “**Evolutionary Graph Theory**”, *UIUC Algebra-Geometry-Combinatorics Seminar*, November 2, 2023
- “**Coxeter Groups and Properness**”, *Central Cornfields Combinatorial Conference*, May 24, 2021

PAPERS

- D. A. Brewster**, M. A. Nowak, and J. Tkadlec, *Fixation times on directed graphs*, 2023, Submitted, preprint, arXiv: 2308.02762
- D. Inafuku, K. L. Kirkpatrick, O. Osuagwu, Q. An, **D. A. Brewster**, and M. Z. Nakib, *Channel capacity of the ribosome*, *Physical Review E* **108** (2023), 044404
- J. Balogh, D. A. Brewster, and R. Hodges, *Proper elements of Coxeter groups*, 2022, Submitted, preprint, arXiv: 2111.15105
- D. A. Brewster, R. Hodges, and A. Yong, *Proper permutations, Schubert geometry, and randomness*, *Journal of Combinatorics* **13** (2022), 561–574

TEACHING

- Topics in Theory for Society: The Theory of Algorithmic Fairness (COMPSCI 226r)** — *Teaching Fellow* Spring 2024
- Mathematical Biology - Evolutionary Dynamics (MATH 242/243)** — *Teaching Fellow* Fall 2023, Spring 2024
- Algorithms for Data Science (COMPSCI 224)** — *Teaching Fellow* Fall 2023
- Future Techleaders Workshop** — *Co-instructor, Co-organizer* — *Perspective Charter Schools* Fall 2020 - Spring 2021
- Intro to Algorithms & Models of Computation (CS 374)** — *Course Assistant* Fall 2020 - Spring 2021
- Software Design Studio (CS 126)** — *Senior Course Assistant* Fall 2017, Spring 2019 - Spring 2020
- Honors Intro to Computer Science (CS 196)** — *Homework Writer* Fall 2017
- New Horizons GSST STEM Camp: Web Design** — *Instructor* — *TNCC* Summer 2016

GROUPS

- Greener Scott Scholars Mentorship Program** — *Mentor* Fall 2023 - Present
- Blacks and African Americans in Computing (BAAC @ Illinois)** — *Organizer* Spring 2019 - Spring 2021
- National Society of Black Engineers (NSBE) - UIUC Chapter** — *Member* Fall 2016 - Spring 2021
- Illinois Programming League (IPL)** — *Bronze at 2017 Mid-Central Regional ACM-ICPC* Fall 2016 - Fall 2017

UNDERGRADUATE RESEARCH EXPERIENCE

- New Horizons in Theoretical Computer Science** Summer 2021
- Illinois Combinatorics Lab for Undergraduate Experiences (ICLUE)** — *Algebraic Combinatorics* Spring 2020 - Spring 2021
- Biocomputation Group** — *Protein Folding and Ribosomal Modeling* Fall 2019 - Spring 2021
- Supercomputing Genomics Group** — *Predicting Tumor Cell Line Responses* — *Institute for Genomic Biology*¹ Spring 2017

PROFESSIONAL EXPERIENCE

- Akuna Capital** — *Junior Quantitative Developer, Trade Quality* — *Chicago, IL* Fall 2021 - Spring 2022
- Citadel Securities** — *Software Engineering Intern, Options Market Making* — *New York, NY* Summer 2019
- Citadel** — *Software Engineering Intern, Global Quantitative Strategies* — *Chicago, IL* Fall 2018

¹In collaboration with Argonne National Laboratories

- **Two Sigma IQ** — *Software Engineering Intern, Data Engineering* — New York, NY Summer 2018
- **Microsoft** — *Software Engineering Intern, Azure Compute* — Redmond, WA Spring 2018
- **Google** — *Software Engineering / Site Reliability Engineering Intern, Zipit (Reviews)* — New York, NY Summer 2017

TOOLS

Programming Languages	Python, C/C++, TypeScript, SageMath, Mathematica, F#, J (APL Dialect)
Frameworks	NumPy, Torch, Node.js, React, Tensorflow
Other Tools	AWS, Azure, Bazel, CMake, GCP, OpenMP, OR-Tools, PyBind