

Sho Glashausser

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Research Interests

Database theory, theoretical computer science, information theory, graph theory

Education

University of Massachusetts Amherst, Amherst, MA Fall 2026–Present
Ph.D. in Computer Science

Swarthmore College, Swarthmore, PA Fall 2022–Spring 2026
B.A. in Computer Science and Mathematics
GPA: 3.87
Honors: Morris Monsky Prize in Mathematics

Publications

- Julianne Cruz, **Sho Glashausser**, Xiaoyuan Li, and Neil Lutz. *Adaptive Multi-Head Finite-State Gamblers*. In *Timeless Machines: Computability Across Eras*, Lecture Notes in Computer Science, vol. 16674, pp. 224–239, 2026. DOI
- Julianne Cruz, **Sho Glashausser**, and Neil Lutz. *One Adaptive Trailing Head Can Outperform Many Oblivious Trailing Heads*. To appear in *Machines, Computations and Universality*. arXiv:2606.00127.

Research Experience

Research Assistant: *Distance Laplacian Cospectrality in Digraphs* Summer 2025–Spring 2026
Swarthmore College, with Prof. Reinhart

- Generated and proved conjectures concerning cospectral constructions and spectrally determined digraphs.
- Proved a sufficient condition for cospectrality based on transitive tournament subgraphs.

Research Assistant: *Multihead Finite-State Dimension* Fall 2025–Summer 2026
Swarthmore College, with Prof. Lutz

- Studied adaptive and oblivious multi-head finite-state gamblers and their associated dimensions and predimensions.
- Developed results comparing the computational power of adaptive and oblivious multi-head finite-state gamblers.

Presentations

- *Adaptive Multi-Head Finite-State Gamblers*. Computability in Europe, July 2026.
- *Triple Grid Diagrams*. Park City Mathematics Institute, July 2026.
- *Distance Laplacian Cospectrality in Digraphs*. Joint Mathematics Meetings, January 2026.
Supported by American Mathematical Society conference funding.
- *Distance Laplacian Cospectrality in Digraphs*. Swarthmore College Sigma Xi Poster Session, September 2025.

Academic Programs

Park City Mathematics Institute Undergraduate Summer School Summer 2026
Took a course on differential topology, conducted a project on triple grid diagrams.

Teaching Experience

Teaching Assistant Swarthmore College Fall 2023–Spring 2024

- Assisted professors during class and led weekly help sessions for Calculus I and Linear Algebra.

Tutor Swarthmore College Fall 2024–Spring 2025

- Assisted students one-on-one in Calculus I and Linear Algebra.

Math Clinician Swarthmore College Spring 2026

- Held weekly sessions to help students with courses including Abstract Algebra and Differential Equations.

Math Tutor Chester Children's Chorus Fall 2022–Spring 2026

- Helped high school students prepare for the SAT.

Honors and Distinctions

Morris Monsky Prize in Mathematics Swarthmore College Spring 2023

- Awarded to a first-year student who demonstrates mathematical promise.

National Master United States Chess Federation 2022–Present

- #3 ranked player in Kansas.
- 1st place, 2025 McLaughlin Open.
- Tied 1st place, 2025 Chicago Open (U2300 section).
- Tied 16th place, 2024 U.S. Open.
- Tied 7th place, 2023 Continental Open.

Skills

Programming: Python, C, C++, HTML, CSS, JavaScript, LaTeX

Spoken Languages: Japanese, Spanish