

ROSE SILVER

(203)-506-4156
rosesilv@andrew.cmu.edu
<https://rosesilver.github.io/>

EDUCATION

Sept 2021 – Current	PhD in Computer Science <i>Advisor: Elaine Shi</i> <i>Interests: Privacy-Preserving Algorithms</i> Completed first three years at Northeastern University	Carnegie Mellon University
Sept 2017 – May 2021	BS in Mathematics, Minor in Physics (4.00/4.00)	Northeastern University

PAPERS

Note: In theoretical computer science, it is customary to sort the authors of each paper alphabetically.

<i>Under Submission</i>	Decentralized Data Archival: New Definitions and Constructions • Mu C, Shi E, Silver R.
<i>Under Submission</i>	History Independent Load Balancing • Bender M, Kuszmaul W, Shi E, Silver R.
SODA 2025	Private Mean Estimation with Person-Level Differential Privacy • Agarwal S, Kamath G, Majid M, Mouzakis A, Silver R, Ullman J.
ITCS 2024	Differentially Private Medians and Interior Points for Non-Pathological Data • Aliakbarpour M, Silver R, Steinke T, Ullman J.
FPSAC 2022	Box-Ball Systems and RSK Tableaux • Drucker B, Garcia E, Gunawan E, Rumbolt A, Silver R.

EXPERIENCE

May 2025 – Aug 2025	<i>Research Engineer Intern, LayerZero</i> • Worked on formal verification of proof systems for zkVMs in Lean
Sept 2021 – Present	<i>Graduate Research Assistant, Carnegie Mellon University</i> • Completed first three years at Northeastern University • Advisors: Elaine Shi and Jonathan Ullman • Select coursework includes: Advanced Algorithms (student and TA), Intensive Systems, Advanced Machine Learning, and Sublinear Algorithms
Jun 2021 – Aug 2021	<i>Software-Engineering Intern, Kythera Space Solutions</i> • Worked within an agile team to develop a satellite management application • Using C++/Qt, I independently developed a full-stack, multi-featured window within the application and presented the product to 6 customer representatives • Refactored and modernized 1000+ lines of legacy code
May 2020 – Aug 2020	<i>Math Researcher, UCONN Mathematics Research Experience for Undergraduates</i> • Co-authored paper “Box-ball systems and RSK tableaux” which appeared in the 33rd Conference on Formal Power Series and Algebraic Combinatorics (FPSAC)

Jul 2019 – Dec 2019	<i>Applied Research Co-Op</i> , E Ink Corporation • Developed techniques for fundamental circuit modeling of devices • Modeled device electrical measurements and optical performance in MATLAB
Jul 2018 – Jul 2019	<i>Research Assistant</i> , Northeastern University Nanophysics Laboratory • Designed and built 3 graphene field effect transistors for testing nano-properties

AWARDS

2025-2026	CyLab Presidential Fellowship Award • CyLab recognizes high-achieving Ph.D. students pursuing security and/or privacy-related research
2020, 2021	Northeastern University President's Award • Awarded to the 10 top students in graduating class of roughly 3000
2018	Undergraduate Women in Physics Research Award • Awarded to a woman in the physics department based on research
2018, 2020	Lawrence Award for Undergraduate Scholarship • Awarded to 10-15 students in the physics department

TALKS

SODA 2025	Private Mean Estimation with Person-Level Differential Privacy
ITCS 2024	Differentially Private Medians and Interior Points for Non-Pathological Data
FPSAC 2022	Box-Ball Systems and RSK Tableaux

INVITED WORKSHOPS

Mar 2025	University of Hawaii Workshop on Parallel Algorithms and Data Structures
Jul 2024	NUS Workshop on Algorithms and Data Structures Today
Jun 2024	NII Shonan Meeting on Theoretical Foundations of Nonvolatile Memory

SERVICE & TEACHING

Jan 2025 - Present	<i>Co-organizer</i> , Carnegie Mellon University PhD Women in CSD
Aug 2023 - Dec 2023	<i>TA for CS 7800 Advanced Algorithms</i> , Northeastern University
Jul 2020 – May 2021	<i>Co-founder and Activities Chair</i> , Mathematics Engagement and Mentorship Association (MathEMA) • Created MathEMA, a Northeastern University program which connects experienced upperclassmen with young students to help them navigate the mathematics major • Planned virtual social activities and information sessions which highlighted different aspects of the math department
May 2018 – May 2019	<i>Mentorship Chair</i> , Northeastern University Physics Mentorship Program • Restarted and restructured the Northeastern University Physics Mentorship Program, which pairs incoming freshmen with experienced physics peer mentors to enable success in the physics major • Garnered 42 active undergraduate participants, starting from 0 • Coached upperclassmen on mentorship skills and hosted team building and organizational cohesion workshops

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| Jul 2020 – May 2021 | <i>Student Representative</i> , Mathematics Diversity and Inclusion Committee <ul style="list-style-type: none"> • Co-drafted the Diversity and Inclusion Mission Statement and Methods section • Provided student insights to support initiatives in mathematics department • Represented committee at University of New Mexico Mentoring Conference |
| Jun 2020 – Aug 2020 | <i>Mentor</i> , Bridge to Calculus <ul style="list-style-type: none"> • Co-mentored 16 underrepresented Boston Public School students with precalculus homework to prepare for the Advanced Placement calculus courses • Mentored on topics related to college applications, productivity, and diversity in STEM • Managed the weekly speaker series on topics such as programming, and skill-sharing, and equality in mathematical careers |
| Sept 2018 – May 2020 | <i>Peer Tutor</i> , Northeastern University Peer Tutoring Program <ul style="list-style-type: none"> • Tutored students weekly in Physics 1&2, Chemistry 1, and Calculus • Helped one student raise her quiz average from a D to an A • College of Reading and Learning Association (CRLA) Level 1 Certified |

SKILLS

C, C++, Lean, Rust, Python, Java, TensorFlow, Github, Qt, MATLAB, Sage, Mathematica