

Jacob Urisman

Jacob.Urisman@colorado.edu

Ph.D. student in the theory group at the University of Colorado Boulder supervised by Dr. Joshua Grochow. Currently working on graph theoretic problems using representation theory and algebraic geometry.

Research Interests

I am interested in applications of algebra to complexity theory. This includes algebraic models of computation, geometric complexity theory, arithmetic circuits, tensors and matrix multiplication, algebraic combinatorics, polynomial computation, and algebraic proof systems.

Education

University of Colorado Boulder

Ph.D. in Computer Science

In Progress

Advisor: Joshua Grochow

University of Massachusetts Amherst

M.S. in Computer Science

May 2025

Advisors: Cameron Musco and Joshua Grochow

B.A. with Dept. Hons. in Computer Science and Mathematics

May 2023

Advisors: David Mix Barrington and Eric Sommers

Awards and Fellowships

Dean's and Departmental Excellence Fellowship, Fall 2025

University of Colorado Boulder, Department of Computer Science

Early Career Professional Development Fellowship, Fall 2025

University of Colorado Boulder, Department of Computer Science

Bay State Fellowship, Fall 2023 – Spring 2025

University of Massachusetts Amherst, Manning College of Information and Computer Sciences

Chancellor's Award, Fall 2019 – Spring 2023

University of Massachusetts Amherst

Publications

Theses

Urisman, Jacob. "Representation Theory of Graph Isomorphism". M.S. Thesis. University of Massachusetts Amherst, 2025. URL: <https://jurisman.github.io/pdfs/jurismanMSthesis.pdf>.

Urisman, Jacob. “Numerical Semigroups and the Cayley Semigroup Membership Problem”.
B.A. Hons. Thesis. University of Massachusetts Amherst, 2023. URL: <https://jurisman.github.io/pdfs/jurismanHONthesis.pdf>.

Talks

Representation Theory of Graph Isomorphism. University of Cambridge, Algorithms and Complexity Seminar, June 2026

Teaching

University of Colorado Boulder

Teaching Assistant

Fall 2025 – Present

University of Massachusetts Amherst

Foundations of Programming (undergrad, CICS 110)

Spring 2025

Ethics in Computer Science (undergrad, FYS191MCS06)

Fall 2024

Teaching Assistant

Fall 2021 – Fall 2024

Last updated: June 17, 2026