Shiyue Li

Research interests: Algebraic Geometry, Combinatorics, Tropical Geometry.

EMPLOYMENT

University of Michigan, Ann Arbor, MI
Donald J. Lewis Assistant Professor Fall 2025–
Mentor: David Speyer

Institute for Advanced Study, Princeton, NJ
Member 2023–2025
Mentor: June Huh

EDUCATION

Brown University, Providence, RI
Ph.D. in Mathematics 2019–2023
Thesis: K-rings and Hodge structures in graphs, matroids, and moduli spaces of curves
Advisor: Melody Chan

Yale University, New Haven, CT
M.Sc. in Mathematics 2017–2019
Lang Fellow

Harvey Mudd College, Claremont, CA
B.Sc. in Mathematics with Honors and Distinction 2013–2017
Thesis: Chow rings of heavy/light Hassett spaces via tropical geometry
Advisor: Dagan Karp

PUBLICATIONS

Multimatroids and rational curves with cyclic action
with Emily Clader, Chiara Damiolini, Christopher Eur, Daoji Huang.
International Mathematical Research Notices. (2024)

K-rings of wonderful varieties and matroids
with Matt Larson, Sam Payne, Nicholas Proudfoot.
Advances in Mathematics **441**. (2024)

Equivariant log-concavity of independence sequences of claw-free graphs
Séminaire Lotharingien de Combinatoire **89**B, 6. (2023)

Wonderful compactifications and rational curves with cyclic action
with Emily Clader, Chiara Damiolini, Rohini Ramadas.
Forum of Mathematics, Sigma **11**. (2022)

Equivariant log-concavity of graph matchings
Algebraic Combinatorics **6**(3). (2023)

Permutohedral complexes and rational curves with cyclic action
with Emily Clader, Chiara Damiolini, Daoji Huang, Rohini Ramadas.
manuscripta mathematica. (2022)

Intersecting psi-classes on tropical Hassett spaces
with Marvin Anas Hahn.
Combinatorial Theory **2**(3). (2022)

Relative Bott–Samelson varieties
La Matematica **2**. (2023)

Topology of tropical moduli spaces of weighted stable curves in higher genus
with Siddarth Kannan, Stefano Serpente, Claudia Yun.
Advances in Geometry, **23**(3). (2023)

Chow ring of heavy/light Hassett spaces via tropical geometry
with Siddarth Kannan, Dagan Karp.
Journal of Combinatorial Theory, Series A **178**C. (2021)

Preprints

Kapranov degrees
with Joshua Brakensiek, Christopher Eur, Matt Larson.
arXiv 2308.12285.

Fellowships, Grants and Awards

NSF Grant DMS-1926686	2023–2025
Coline M. Makepeace Fellowship, Brown University	2021–2022
Robert Willets Carle Scholarship, Yale University	2018–2019
Kenneth and Mary Wang Fellowship, Yale University	2017–2018
Lang Fellowship, Department of Mathematics, Yale University	2017–2019
Harvey S. Mudd Merit Award (annually), Harvey Mudd College	2013–2017
Yu Yuen Kit So International Scholarship, Harvey Mudd College	2013–2017
Dean's List, Harvey Mudd College (all semesters)	2013–2017
China National Linguistics Olympiad 3rd Place	2013
China National Linguistics Olympiad Team 2nd Place	2013

Invited Talks

Algebraic Geometry Seminar University of Pennsylvania	Apr 2025
AMS Special Session on "*Cohomology of Arithmetic Groups, Mapping Class Groups, and Moduli Spaces*" Joint Mathematics Meetings, Seattle, USA	Jan 2025
Workshop on "*Geometry of Matroids*" Institute for Advanced Study	Oct 2024
"What is...?" Seminar Institute for Advanced Study	Oct 2024

Workshop on "*Moduli spaces of curves, moduli spaces of graphs and graph complexes*" Sep 2024
    ETH Zürich, Switzerland

Workshop on "*Matroid Theory*" Jul 2024
    Suzhou University, Suzhou, China

Workshop on "*Arrangements, Matroids and Logarithmic Vector Fields*", Jun 2024
    Oberwolfach, Germany

Algebraic Geometry Seminar Apr 2024
    Columbia University

Algebra Seminar Apr 2024
    Tufts University

"What is...?" Seminar Mar 2024
    Institute for Advanced Study

Mathematical Conversations Mar 2024
    Institute for Advanced Study

Combinatorics Seminar (online) Feb 2024
    University of Minnesota

F_1 *World Seminar (online)* Jan 2024

Special Session on "*Combinatorial perspectives on algebraic curves and their moduli*" Jan 2024
    Joint Mathematics Meetings, San Francisco, USA

Preparatory Lectures for *Chow Lectures* Oct 2023
    Max Planck Institute, Leipzig, Germany

Workshop on "*Curves: Algebraic, Tropical, and Logarithmic*" Aug 2023
    Banff International Research Station, Canada

The 35th Formal Power Series and Algebraic Combinatorics (FPSAC 2023) Jul 2023
    University of California, Davis

Workshop on "*GEMS in Combinatorics*" Mar 2023
    American Institute of Mathematics, USA

Workshop on "*Algebraic Aspects of Matroids*" Banff, Canada Mar 2023
    Banff International Research Station, Canada

Lecture series on "*Growing up in Sciences*" Feb 2023
    Bowdoin College

Association of Women in Mathematics Student Seminar (online) Feb 2023
    University of Pittsburgh

Combinatorics Seminar Feb 2023
    University of Michigan

Matroid Seminar (online) Dec 2022
    Fields Institute

Algebra and Algebraic Geometry Seminar Nov 2022
    University of Washington

MIT-Harvard-MSR Combinatorics Seminar Nov 2022
    Harvard University

AMS Special Session on "*Combinatorial Algebraic Geometry*" Oct 2022
    University of Massachusetts, Amherst

AWM Research Symposium Jun 2022
    University of Minnesota

RATCOW Seminar Jun 2022
    University of Oregon

BATMOBILE	Jun 2022
Brown University	
Combinatorial and Nonlinear Day	Apr 2022
Brown University	
Joint Mathematics Meetings AWM Special Session (online)	Apr 2022
Canadian Math Society: Combinatorics and Geometry of Moduli Spaces (online)	Dec 2021
Front Range Algebraic Geometry and Number Theory	Sep 2021
Colorado State University	
SIAM Conference on Applied Algebraic Geometry (online)	Aug 2021
Moduli Across the Pandemic (online)	Apr 2021
Tropical Geometry in Frankfurt (TGiF) Seminar (online)	Apr 2021
AMS Spring Eastern Sectional Meeting on "*Moduli of Curves*" (online)	Mar 2021
Algebra Seminar (online)	Nov 2020
Brown University	
American Graduate Student Algebraic Geometry Seminar (online)	Oct 2020

SERVICE

Referee for
Duke Mathematical Journal
European Journal of Combinatorics
Forum of Mathematics, Sigma
International Mathematics Research Notices
Journal of the London Mathematical Society
Journal für die reine und angewandte Mathematik (Crelle's Journal)*
Mathematische Zeitschrift†
Proceedings of the American Mathematical Society
Proceedings of the London Mathematical Society
Séminaire Lotharingien de Combinatoire
(* means quick opinions only. † means detailed reports after giving quick opinions.)

Organization

IAS Graph Complexes Learning Seminar, Organizer	Fall 2024
IAS School of Mathematics Monthly Women's Lunch, Co-organizer	2023–2025
IAS "What is...?" Seminar, Co-organizer	2023–2025
AMS Student Chapter at Brown University, Chair	2019–2021
Diversity and Inclusiveness Committee at Brown University, Member	2019–2020
Directed Reading Program at Brown University, Organizer	2019–2021
Directed Reading Program at Yale University, Co-organizer with Fernando Al Assal	2017–2018
Intersection: Womxn in Mathematics at Yale University, Co-organizer	2018
Yale Graduate and Professional Student Senate, Senator	2017–2018
Harvey Mudd College Math Club, President	2016–2017

TEACHING

University of Michigan, Instructor

Math 275 Introduction to Cryptography (Inquiry-Based Learning)	Fall 2025

Brown University Sheridan Teaching Certificate I	Fall 2021

Brown University, Teaching Assistant

Math 90 Introduction to Calculus	Spring 2023
Math 100 Calculus Part II	Fall 2022

Math 100 Calculus Part II	Spring 2022
Math 100 Calculus Part II	Spring 2021
Math 100 Calculus Part II	Fall 2020

Canada/USA Mathcamp, Mentor — Summer 2019
Introduction to Group Theory
Young tableaux and Representation Theory
Young tableaux and Combinatorics
Young tabelaux and Probability

Canada/USA Mathcamp, Mentor — Summer 2018
Algebraic Number Theory
Geometric Group Theory
Introduction to Modular Forms
Tropical Plane Curves
Rational Points on Elliptic Curves

Yale University, Teaching Assistant
Math 225 Linear Algebra and Matrix Theory — Fall 2018
Math 112 Single Variable Calculus — Spring 2018

MENTORING

Summer Undergraduate Math Research at Yale — 2020
Dawit Mengesha, Robert Miranda, Brian Sun. Co-mentor: Max Kutler.
Topological zeta functions of matroids.

Canada/USA Mathcamp Learning Projects — Summer 2019
Ilaria Seidel.
Alice Jenkins, Jeremy Zhou. *Schubert calculus.*
Reed Jacobs. *Primes of the form $x^2 + ny^2$.*
Simran Khunger, Rupert Li. *Enumerative Geometry and Young Tableaux*
Serena An. *Group actions and Sylow's theorems.*

Brown Mathematics Directed Reading Program — 2019
Deven Carmichael, Joseph Hlavinka. *Ideals, Varieties and Algorithms.*
Dominick Joo, Elliott Lehrer, Joshua Lebo. *Foundations of Algebraic Geometry.*

Women in Sciences at Yale — 2018
Alara Değirmenci.

OUTREACH

Princeton Noetherian Rings Seminar	Apr 2024
Brown Math Slam	Apr 2023
Growing up in Sciences Lecture Series, Bowdoin College	Feb 2023
Summer Undergraduate Math Research at Yale (SUMRY) Colloquium	Jul 2020
Yale Undergraduate Mathematics Society (YUMS) Colloquium	Nov 2019
Department Undergraduate Group (DUG) Colloquium at Brown	Oct 2019

OTHER SCIENTIFIC POSITIONS

Google Research. Mountain View, CA. — Summer 2016
Research Intern. Mentors: Caroline Pantofaru, Malcolm Slaney

Howard Hughes Medical Institute. Pomona, CA. — Summer 2014
Research Assistant. Mentor: Blerta Shtylla.