

Shiyue Li

Department of Mathematics, Brown University
151 Thayer Street, Providence, RI 02912, USA

Research	Combinatorial algebraic geometry: K -theory, Chow cohomology, Hodge structures, and intersection theory of algebraic varieties; geometric models and invariants of matroids; tropical geometry; algebro-geometric applications in combinatorics; Schubert calculus.		
Education	Brown University. Providence, RI.		
	Ph.D. in Mathematics.		2019-Present
	M.Sc. in Mathematics.		May 2022
	Advisor: Melody Chan.		
	Yale University. New Haven, CT.		
	M.Sc. in Mathematics. Lang Fellow.		May 2019
	Harvey Mudd College. Claremont, CA.		
	B.Sc. in Mathematics, with Distinction and Honors.		May 2017
	HSA Concentration in Music.		
	Thesis: <i>Tropical derivation of cohomology rings of heavy/light Hassett spaces.</i>		
Publications & Preprints	9. Equivariant log-concavity of independence sequence of claw-free graphs		2022
	Draft available at shiyue.li		
	8. K-rings of wonderful varieties and matroids		2022
	with Matt Larson, Sam Payne, Nicholas Proudfoot, arXiv 2210.03169 .		
	7. Wonderful compactifications and rational curves with cyclic action	2022	
	with Emily Clader, Chiara Damiolini, Rohini Ramadas, arXiv 2208.05463 .		
	6. Equivariant log-concavity of graph matchings		2022
	arXiv 2202.08828 .		
	5. Intersecting psi-classes on tropical Hassett spaces		2021
	with Marvin Anas Hahn, Combinatorial Theory 2(3) , DOI:10.5070/C62359165. arXiv 2108.00875 .		
	4. Premutohedral complexes and rational curves with cyclic action		2021
	with Emily Clader, Chiara Damiolini, Daoji Huang, Rohini Ramadas, manuscripta mathematica . DOI:10.1007/s00229-022-01419-6. arXiv 2104.06526 .		
	3. Relative Bott-Samelson varieties		2020
	arXiv 2011.04814 .		
	2. Topology of tropical moduli spaces of weighted stable curves in higher genus		2020
	with Siddarth Kannan, Stefano Serpente, Claudia Yun. Advances in Geometry (to appear) . arXiv 2010.11767 .		
	1. Chow ring of heavy/light Hassett spaces via tropical geometry		2019
	with Siddarth Kannan, Dagan Karp. Journal of Combinatorial Theory, Series A . 178C (2021) 105348.		

Awards & Fellowships	Coline M. Makepeace Fellowship at Brown	2021-2022
	Robert Willets Carle Scholarship at Yale	2018-2019
	Kenneth and Mary Wang Fellowship at Yale	2017-2018
	Lang Fellowship at Yale	2017-2018
	Harvey S. Mudd Merit Award	2013-2017
	Yu Yuen Kit So International Scholarship at Harvey Mudd	2013-2017
	Dean's List at Harvey Mudd (all semesters)	2013-2017
	China National Linguistics Olympiad 3rd Place	2013
	China National Linguistics Olympiad Team 2nd Place	2013
Invited Talks	Fields Institute Seminar (online)	Dec 2022
	University of Washington Algebra and Algebraic Geometry Seminar	Nov 2022
	MIT-Harvard-MSR Combinatorics Seminar, Harvard University	Nov 2022
	AMS Special on Combinatorial Algebraic Geometry, UMass Amherst	Oct 2022
	AWM Research Symposium, University of Minnesota	Jun 2022
	RATCOW, University of Oregon	Jun 2022
	BATMOBILE, Brown University	May 2022
	Combinatorial and Nonlinear Day, Brown University	Apr 2022
	Joint Mathematics Meetings AWM Special Session	Apr 2022
	Canadian Math Society: Combinatorics and Geometry of Moduli Spaces	Dec 2021
	Front Range Algebraic Geometry and Number Theory	Sep 2021
	SIAM Conference on Applied Algebraic Geometry	Aug 2021
	Moduli Across the Pandemic	Apr 2021
	Tropical Geometry in Frankfurt (TGiF) Seminar	Apr 2021
	AMS Spring Eastern Sectional Meeting on Moduli of Curves	Mar 2021
	Algebra Seminar, Brown	Nov 2020
Outreach Talks	American Graduate Student Algebraic Geometry Seminar	Oct 2020
	AMS Spring Eastern Sectional Meeting on Moduli of Curves (cancelled)	Mar 2020
	Growing up in Sciences, Bowdoin College	Apr 2023
	Summer Undergrad Math Research at Yale (SUMRY) Colloquium	Jul 2020
	Johns Hopkins Center for Talented Youth Colloquium	Mar 2020
	Yale Undergraduate Mathematics Society (YUMS) Colloquium	Nov 2019
	Department Undergrad Group (DUG) Colloquium at Brown	Oct 2019
Professional Service	Referee	
	International Mathematics Research Notices	
Teaching	Sheridan Teaching Certificate I	Fall 2021
	Brown University , Providence, RI	
	Math 100 Introductory Calculus, Part II, TA	Fall 2022
	Math 100 Introductory Calculus, Part II, TA	Spring 2022
	Math 100 Introductory Calculus, Part II, TA	Spring 2021
	Math 100 Introductory Calculus, Part II, TA	Fall 2020
	Canada/USA Mathcamp 2019 , Portland, OR	Summer 2019
	Introduction to Group Theory	
	Young tableaux and Representation Theory	
	Young tableaux and Combinatorics	
	Young tableaux and Probability	

	Canada/USA Mathcamp 2018 , Golden, CO Algebraic Number Theory Geometric Group Theory Modular Forms Tropical Plane Curves Rational Points on Elliptic Curves	Summer 2018
	Yale University , New Haven, CT Math 225 Linear Algebra and Matrix Theory, TA Math 112 Calculus, TA	Fall 2018 Spring 2018
Mentoring	Summer Undergraduate Math Research at Yale 1. Topological zeta functions of matroids Co-mentor: Max Kutler. Mentees: Dawit Mengesha, Robert Miranda, Brian Sun.	Summer 2020
	Canada/USA Mathcamp Projects 1. Research project. Mentee: Ilaria Seigal. 2. Schubert calculus. Mentees: Alice Jenkins, Jeremy Zhou. 3. Primes of the form $x^2 + ny^2$. Mentee: Reed Jacobs. 4. Enumerative geometry. Mentees: Simran Khunger, Rupert Li. 5. Group actions and Sylow's theorems. Mentees: Serena An.	Summer 2019 Summer 2019 Summer 2018 Summer 2018 Summer 2018
	Brown Mathematics Directed Reading Program 1. Ideals, Varieties and Algorithms. Mentees: Deven Carmichael, Joseph Hlavinka. 2. Foundations of Algebraic Geometry. Mentees: Dominick Joo, Elliott Lehrer, Joshua Lebo.	Fall 2020 Spring 2020
	Women in Sciences at Yale 1. Mentee: Alara Değirmenci.	Fall 2018
Organizing	American Mathematics Society Student Chapter at Brown, Chair Brown Math Diversity and Inclusiveness Committee, Member Brown University ACCRIP, Graduate Representative AMS Graduate Conferences, Organizer Brown Math Directed Reading Program, Organizer Yale University Womxn in Mathematics (Intersections), Co-organizer Yale Math Directed Reading Program, Organizer Yale Graduate and Professional Student Senate, Senator Harvey Mudd College Math Club, President Caltech-Harvey Mudd Math Competition, Organizer	2019-2021 2019-2020 2019-2020 2020 2019-2020 2018 2018 2017-2018 2016-2017 2015-2016
Other Professional Positions	Google Research , Mountain View, CA Mentors: Caroline Pantofaru, Malcolm Slaney.	Summer 2016

Designed pipelines and algorithms using deep learning models and computer vision techniques on synchronized audio and video signals to solve a saliency detection problem.

Howard Hughes Medical Institute, Pomona, CA

Summer 2014

Mentors: Blerta Shtylla.

Mathematical modeling on parA and parB proteins in bacterial DNA segregation.

Summer Science Program, Socorro, NM

Summer 2012

Research on orbit determination of solar-system body. Implemented programs in Python using iterative Gaussian method to determine the orbit elements based on the observation data of Asteroid 1998QS52 in Etscorn Observatory.

Paper and results archived in Harvard-Smithsonian Center for Astrophysics.

Languages

Mandarin Chinese (Native), English (Bilingual), French (Conversational).

Hobbies

Alpinism, piano, poetry.