

# Shiyue Li

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

**Research Interests** Combinatorial algebraic geometry: tropical geometry, moduli spaces of curves, Schubert calculus, geometric models and invariants of matroids.

**Education**

<b>Brown University</b>	
Ph.D. in Mathematics.	Expected May 2023
M.Sc. in Mathematics.	May 2022
Advisor: Melody Chan.	

<b>Yale University</b>	
M.Sc. in Mathematics. Lang Fellow.	May 2019

<b>Harvey Mudd College</b>	
B.Sc. in Mathematics, with Distinction and Honors.	May 2017
HSA Concentration in Music.	
Thesis: <i>Tropical derivation of cohomology ring of heavy/light Hassett spaces.</i>	

<b>Publications</b>	6. <i>Equivariant log-concavity of graph matchings</i>	2022
	arxiv 2202.08828.	
	5. <i>Intersecting <math>\psi</math>-classes on <math>M_{0,w}^{\text{trop}}</math></i>	2021
	with Marvin Anas Hahn,	
	arXiv 2108.00875.	
	4. <i>Polyhedral complexes and rational curves with cyclic action</i>	2021
	with Emily Clader, Chiara Damiolini, Daoji Huang, Rohini Ramadas,	
	arXiv 2104.06526.	
	3. <i>Relative Bott-Samelson varieties</i>	2020
	arXiv 2011.04814.	
	2. <i>Topology of tropical moduli spaces of weighted stable curves in higher genus</i>	2020
	with Siddarth Kannan, Stefano Serpente, Claudia Yun.	
	arXiv 2010.11767. To appear in <i>Advances in Geometry</i> .	
	1. <i>Chow ring of heavy/light Hassett spaces via tropical geometry</i>	2019
	with Siddarth Kannan, Dagan Karp.	
	Journal of Combinatorial Theory, Series A. 178C (2021) 105348.	

<b>Awards &amp; Fellowships</b>	Robert Willets Carle Scholarship at Yale	2018-2019
	Kenneth and Mary Wang Fellowship at Yale	2017-2018
	Lang Fellowship at Yale Mathematics	2017-2022
	Harvey S. Mudd Merit Award	2013-2017
	(Awarded each year to top students who demonstrate superior academic achievement and ability to contribute to the College community.)	
	Yu Yuen Kit So International Scholarship at Harvey Mudd	2013-2017
	(Awarded to one recipient for each entering class based on superior academic performance.)	
	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

<b>Invited Talks</b>	AWM Research Symposium, University of Minnesota	Jun 2022
	BATMOBILE, Brown	May 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
	Brown University Algebra Seminar	Nov 2020
	American Graduate Student Algebraic Geometry Seminar	Oct 2020
	AMS Spring Eastern Sectional Meeting on Moduli of Curves (cancelled)	Mar 2020
<b>Outreach Talks</b>	Summer Undergraduate Mathematics 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 Undergraduate Group (DUG) Colloquium at Brown University	Oct 2019
	<b>Summer Science Program</b>	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 Etsorn Observatory.	
	Paper and results archived in Harvard-Smithsonian Center for Astrophysics.	
<b>Teaching</b>	Sherdian Teaching Certificate I	Fall 2021
	<b>Brown University</b> , Providence, RI	
	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
	<b>Canada/USA Mathcamp 2019</b> , Portland, OR	Summer 2019
	Introduction to Group Theory	
	Young tableaux and Representation Theory	
	Young tableaux and Combinatorics	
	Young tableaux and Probability	
	<b>Canada/USA Mathcamp 2018</b> , Golden, CO	Summer 2018
	Algebraic Number Theory	
	Geometric Group Theory	
	Modular Forms	
	Tropical Plane Curves	
	Rational Points on Elliptic Curves	
	<b>Yale University</b> , New Haven, CT	
	Math 225 Linear Algebra and Matrix Theory, TA	Fall 2018
	Math 112 Calculus, TA	Spring 2018
<b>Mentoring</b>	Summer Undergraduate Math Research at Yale	
	1. Topological zeta functions of matroids	Summer 2020
	Co-mentor: Max Kutler. Mentees: Dawit Mengesha, Robert Miranda, Brian Sun.	

	Canada/USA Mathcamp Projects	
	1. Research project. Mentee: Ilaria Seigal.	Summer 2019
	2. Schubert calculus. Mentees: Alice Jenkins, Jeremy Zhou.	Summer 2019
	3. Primes of the form $x^2 + ny^2$ . Mentee: Reed Jacobs.	Summer 2018
	4. Enumerative geometry. Mentees: Simran Khunger, Rupert Li.	Summer 2018
	5. Group actions and Sylow's theorems. Mentees: Serena An.	Summer 2018
	Brown Mathematics Directed Reading Program.	
	1. Ideals, Varieties and Algorithms. Mentees: Deven Carmichael, Joseph Hlavinka.	Fall 2020
	2. Foundations of Algebraic Geometry. Mentees: Dominick Joo, Elliott Lehrer, Joshua Lebo.	Spring 2020
	Women in Sciences at Yale.	
	1. Mentee: Alara Değirmenci.	Fall 2018
<b>Professional Service</b>	<i>Brown Horizons Seminar</i> , Organizer	2021-2022
	<i>American Mathematics Society Student Chapter</i> , Chair	2019-2021
	<i>Brown Math Diversity and Inclusiveness Committee</i> , Member	2019-2020
	<i>Brown University ACCRIP</i> , Graduate Representative	2019-2020
	<i>AMS Graduate Conferences</i> , Organizer	2020
	<i>Brown Math Directed Reading Program</i> , Organizer	2019-2020
	<i>Yale University Womxn in Mathematics (Intersections)</i> , Co-organizer	2018
	<i>Yale Math Directed Reading Program</i> , Organizer	2018
	<i>Yale Graduate and Professional Student Senate</i> , Senator	2017-2018
	<i>Harvey Mudd College Math Club</i> , President	2016-2017
	<i>Caltech Harvey Mudd Math Competition</i> , Organizer	2015-2016
<b>Languages</b>	Mandarin Chinese (Native), English (Bilingual), French (Conversational).	