

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 **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: *Tropical derivation of cohomology ring of heavy/light Hassett spaces.*

- Publications & Preprints**
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 ψ -classes on $M_{0,w}^{\text{trop}}$** 2021
with Marvin Anas Hahn,
arXiv 2108.00875.
 4. **Polyhedral complexes and rational curves with cyclic action** 2021
with Emily Clader, Chiara Damiolini, Daoji Huang, Rohini Ramadas,
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.
arXiv 2010.11767. To appear in *Advances in Geometry*.
 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	AMS Special Section 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
	American Graduate Student Algebraic Geometry Seminar	Oct 2020
	AMS Spring Eastern Sectional Meeting on Moduli of Curves (cancelled)	Mar 2020
Outreach Talks	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
Scientific Professional Positions	Google Research , Mountain View, CA	Summer 2016
	Mentors: Caroline Pantofaru, Malcolm Slaney.	
	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 Etsorn Observatory.	
	Paper and results archived in Harvard-Smithsonian Center for Astrophysics.	
Teaching	Sherdian Teaching Certificate I	Fall 2021
	Brown University , 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
	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	Summer 2018

	Algebraic Number Theory Geometric Group Theory Modular Forms Tropical Plane Curves Rational Points on Elliptic Curves	
	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.	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
Professional Service	<i>Brown Horizons Seminar</i> , Organizer <i>American Mathematics Society Student Chapter at Brown</i> , Chair <i>Brown Math Diversity and Inclusiveness Committee</i> , Member <i>Brown University ACCRIP</i> , Graduate Representative <i>AMS Graduate Conferences</i> , Organizer <i>Brown Math Directed Reading Program</i> , Organizer <i>Yale University Womxn in Mathematics (Intersections)</i> , Co-organizer <i>Yale Math Directed Reading Program</i> , Organizer <i>Yale Graduate and Professional Student Senate</i> , Senator <i>Harvey Mudd College Math Club</i> , President <i>Caltech-Harvey Mudd Math Competition</i> , Organizer	2021-2022 2019-2021 2019-2020 2019-2020 2020 2019-2020 2018 2018 2017-2018 2016-2017 2015-2016
Languages	Mandarin Chinese (Native), English (Bilingual), French (Conversational).	