

# Shiyue Li

Brown University, Department of Mathematics  
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## Research Interests

Algebraic geometry, combinatorics, topology.

## Education

<b>Brown University</b> PhD in Mathematics. Advisor: Melody Chan.	2019-present
<b>Yale University</b> M.Sc. in Mathematics, Lang Fellow, with advancement to PhD candidacy.	2017-2019
<b>Harvey Mudd College</b> B.S. in Mathematics, with Distinction and Honors. HSA Concentration in Music.	2013-2017

## Research

5. **Topological zeta functions of families of matroids**  
with Max Kutler, Dawit Mengesha, Robert Miranda, Brian Sun, in preparation.
4. **Relative Bott-Samelson varieties**  
in preparation.
3. **Topology of tropical moduli spaces of weighted stable curves in higher genus**  
with Siddarth Kannan, Stefano Serpente, Claudia Yun.  
*arXiv e-preprint 2010.11767.*
2. **Chow ring of heavy/light Hassett spaces via tropical geometry**  
with Siddarth Kannan, Dagan Karp.  
*Journal of Combinatorial Theory, Series A.* 178C (2021) 105348.
1. **Tropical derivation of cohomology rings of heavy/light Hassett spaces**  
undergraduate thesis under supervision of Dagan Karp, Dhruv Ranganathan

## Awards Honors

<b>Robert Willets Carle Scholarship</b> Yale University	2018-2019
<b>Kenneth and Mary Wang Fellowship</b> Yale University	2017-2018
<b>Lang Fellowship</b> Yale University, Department of Mathematics	2017-2023
<b>Harvey S. Mudd Merit Award</b> Harvey Mudd College, awarded to students who demonstrate superior academic achievement and ability to contribute to the College community.	2013-2017

	<b>Yu Yuen Kit So International Scholarship</b>	2013-2017
	Harvey Mudd College, awarded to one international recipient for each entering class based on superior academic performance.	
	<b>China National Linguistics Olympiad Individual 3rd Place</b>	2013
	<b>China National Linguistics Olympiad Team 2nd Place</b>	2013
<b>Invited Talks</b>	Algebra Seminar, Brown University	Nov 2020
	American Graduate Student Algebraic Geometry Seminar	Oct 2020
	AMS Spring Eastern Sectional Meeting on Moduli of Curves, Hilbert Schemes, and Tropical Geometry (cancelled due to COVID-19)	Mar 2020
<b>Seminar Talks</b>	Graduate Student Seminar at Brown	Nov 2020
	Graduate Student Seminar at Brown	Mar 2020
	Graduate Student Seminar at Brown	Oct 2019
	Graduate Student Seminar at Brown	Feb 2019
	Graduate Student Seminar at Yale	Feb 2019
	Graduate Student Seminar at Yale	Oct 2017
<b>Outreach Talks</b>	Summer Undergraduate Mathematics Research at Yale 2020 Colloquium	Jul 2020
	Johns Hopkins Center for Talented Youth Colloquium	Mar 2020
	Yale Undergraduate Mathematics Society Colloquium	Nov 2019
	Department Undergraduate Group Colloquium at Brown University	Oct 2019
<b>Teaching</b>	<b>Brown University</b> , Providence, RI	
	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 and 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>	<b>Summer Undergraduate Math Research at Yale</b>	Summer 2020
	Co-mentor: Max Kutler.	
	Mentees: Dawit Mengesha, Robert Miranda, Brian Sun.	
	<b>Canada/USA Mathcamp Projects</b>	
	Research. Mentee: Ilaria Seigal.	Summer 2019
	Enumerative Geometry. Mentees: Alice Jenkins, Jeremy Zhou.	Summer 2019
	Primes of the Form $x^2 + ny^2$ . Mentee: Reed Jacobs.	Summer 2018
	Schubert Calculus. Mentees: Simran Khunger, Rupert Li.	Summer 2018

	Group action and Sylow's Theorems. Mentees: Serena An.	Summer 2018
	<b>Brown Mathematics Directed Reading Program</b>	
	Ideals, Varieties and Algorithms.	Fall 2020
	Mentees: Deven Carmichael, Joseph Hlavinka.	
	Foundations of Algebraic Geometry.	Spring 2020
	Mentees: Dominick Joo, Elliott Lehrer, Joshua Lebo.	
	<b>Women in Sciences at Yale</b>	Fall 2018
	Mentee: Alara Değirmenci.	
<b>Other Professional Activities</b>	<b>Google Research</b> , Mountain View, CA	Summer 2016
	Mentors: Caroline Pantofaru, Malcolm Slaney.	
	Research on Machine Learning algorithms to solve a human saliency event detection problem using machine hearing and computer vision.	
	<b>Howard Hughes Medical Institute</b> , Claremont, CA	Summer 2014
	Advisor: Blerta Shtylla	
	Mathematical modeling on DNA Segregation. Implemented Gillespie algorithms and Next Sub-volume Method to simulate diffusion and reactions of ParA and ParB proteins.	
	<b>Summer Science Program</b> , 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.	
<b>Service</b>	<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>Intersections: Women and Gender Minority Groups in Mathematics at Yale</i> , Co-organizer	2018
	<i>Yale Math Directed Reading Program</i> , Organizer	2018
	<i>Yale Graduate and Professional Student</i> , Senator	2018
	<i>Harvey Mudd College Math Club</i> , President	2016
	<i>Caltech Harvey Mudd Math Competition</i> , Organizer	2016
<b>Languages</b>	Mandarin Chinese, English, French, C++, Python	
<b>Hobbies</b>	Piano, running, rock climbing.	
<b>References</b>	References are available on request.	