Shiyue Li

Brown University, Department of Mathematics

Research Interests	Algebraic geometry, combinatorics, topology.

Education

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

Research

6. *Topological zeta functions of matroids*
   with Max Kutler, Dawit Mengesha, Robert Miranda, Brian Sun,
   in preparation.

5. *Polyhedral complexes and rational curves with cyclic action*
   with Emily Clader, Chiara Damiolini, Daoji Huang, Rohini Ramadas,
   arXiv e-preprint 2104.06526.

4. *Relative Bott-Samelson varieties*
   arXiv e-preprint 2011.04814.

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

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

	Yu Yuen Kit So International Scholarship	2013-2017

Harvey Mudd College, awarded to one international recipient for each entering class based on superior academic performance.

China National Linguistics Olympiad 3rd Place	2013
China National Linguistics Olympiad Team 2nd Place	2013

Invited Talks	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	Mar 2020

Outreach Talks	Summer Undergraduate Mathematics Research at Yale 2020 Colloquium	Jul 2020
	Johns Hopkins Center for Talented Youth Colloquium	Mar 2020
	Yale Undegraduate Mathematics Society Colloquium	Nov 2019
	Department Undergraduate Group Colloquium at Brown University	Oct 2019

Professional Positions	**Google Research**, Research Intern	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.

Howard Hughes Medical Institute, Research Assistant	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.

Summer Science Program	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.

Teaching	**Brown University**, Providence, RI	
	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 tabelaux and Probability

Canada/USA Mathcamp 2018, Golden, CO	Summer 2018

Algebraic Number Theory
Geometric Group Theory

Modular Forms
Tropical Plane Curves and Rational Points on Elliptic Curves

Yale University, New Haven, CT
Math 225 Linear Algebra and Matrix Theory, TA   Fall 2018
Math 112 Calculus, TA   Spring 2018

Mentoring	**Summer Undergraduate Math Research at Yale**	Summer 2020
	Co-mentor: Max Kutler.	
	Mentees: Dawit Mengesha, Robert Miranda, Brian Sun.	

Canada/USA Mathcamp Projects
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

Brown Mathematics Directed Reading Program
Ideals, Varieties and Algorithms.   Fall 2020
Mentees: Deven Carmichael, Joseph Hlavinka.
Foundations of Algebraic Geometry.   Spring 2020
Mentees: Dominick Joo, Elliott Lehrer, Joshua Lebo.

Women in Sciences at Yale   Fall 2018
Mentee: Alara Değirmenci.

Service
Brown Math Diversity and Inclusiveness Committee, Member   2019-2020
Brown University ACCRIP, Graduate Representative   2019-2020
AMS Graduate Conferences, Organizer   2020
Brown Math Directed Reading Program, Organizer   2019-2020
Intersections: Women and Gender Minority Groups in Mathematics at Yale,
Co-organizer   2018
Yale Math Directed Reading Program, Organizer   2018
Yale Graduate and Professional Student, Senator   2018
Harvey Mudd College Math Club, President   2016
Caltech Harvey Mudd Math Competition, Organizer   2016

Languages   Mandarin Chinese, English, French, C++, Python

Hobbies   Piano, running, climbing, mountaineering.

References   References are available on request.