

# Sunny Yang Xiao

---

CONTACT INFORMATION	Box 1917, 151 Thayer Street Brown University Providence, RI, USA, 02912	yang_xiao@brown.edu <a href="http://sunnyyangxiao.weebly.com/">http://sunnyyangxiao.weebly.com/</a>
RESEARCH INTERESTS	My primary research is on hyperbolic geometry and low-dimensional topology. Specifically, I focus on incompressible surfaces, veering triangulations, and arc and curve complexes. I am also interested in topological data analysis and machine learning.	
EDUCATION	<b>Brown University</b> , Providence, RI PhD Candidate in Mathematics (expected completion date: June 2020) Advisor: Professor Jeffrey Brock  M. Sc in Mathematics	2014-   2016
	<b>Amherst College</b> , Amherst, MA B.A. in Mathematics and English Summa Cum Laude with honors in Mathematics	2010-2014
RESEARCH AND PUBLICATIONS	<i>Non-archimedean connected Julia sets with branching</i> , with BAJPAI, D., BENEDETTO, R.L., CHEN, R., KIM, E., MARSCHALL, O., and ONUL, D. <i>Ergodic Theory and Dynamical Systems</i> , 37(1), pp. 59–78. (2017)	
HONORS, AWARDS AND MEMBERSHIPS	Dissertation Fellowship, Brown University Graduate Ambassadorship, Institute of Advanced Studies SIAM Student Travel Award, SIAM 3rd Prize at Brown University Datathon, Brown University The Amherst Memorial Fellowship, Amherst College The John Woodruff Simpson Fellowship, Amherst College The John Woodruff Simpson Fellowship, Amherst College Post-Baccalaureate Summer Research Fellowship, Amherst College Robert. H. Breusch Prize in Mathematics, Amherst College Undergraduate Summer Research Fellowship, Amherst College	Fall 2018 2017-2018 Summer 2017 Spring 2017 2016-2017 2015-2016 2014-2015 Summer 2014 Spring 2014 Summer 2013
TEACHING AND EDUCATIONAL OUTREACH	<b>Instructor, Brown University</b> Math 0180 – Intermediate Calculus (3rd Semester Calc) Math 0100 – Introductory Calculus II (2nd Semester Calc)  <b>Teaching Assistant, Brown University</b> Data 1010 – An Introduction to Topics in Probability, Statistics, and Machine Learning Math 0060 – Analytic Geometry and Calculus Math 0090 – Introductory Calculus I Math 0190 – Advanced Placement Calculus for Physics and Engineering Majors  <b>Teaching Assistant, Institute for Computational and Experimental Research in Mathematics (ICERM)</b> Summer@ICERM: support an 8-week research program as a teaching and research assistant for undergraduates on the topic of low dimensional topology and geometry (2018) and topological data analysis (2017).	Spring 2018 Fall 2016  Fall 2017 Spring 2017 Spring 2016 Fall 2015  Summer 2017, 2018

GirlsGetMath@ICERM: taught and developed curriculum at a week-long mathematics summer program for 9th and 10th grade high school girls in the Providence, RI area. The topics I taught include Matrices, Image Processing, and Support Vector Machine. Summer 2017, 2018

**Instructor, Summer@Brown STEM I Program** Summer 2018  
Teach a one-week introductory course on data science to 8th and 9th graders.

**Instructor, Summer@Brown STEM II Program** Summer 2016  
Taught a two-week summer course on fractal geometry to gifted 9th and 10th graders.

**Visiting Lecturer, Canada/USA Mathcamp** Summer 2015  
Taught a week-long seminar on Apollonian Circle Packings to talented high school students.

ACADEMIC TALKS **Young Topologists Meeting 2018**, University of Copenhagen July 2018  
*Incompressible Surfaces in 4-Punctured Sphere Bundles*

**Graduate Student Seminar**, Temple University April 2018  
*Incompressible Surfaces in Hyperbolic Mapping Tori*

**AWM Math Slam**, Brown University Fall 2017  
*What are Mapping Tori?*

**Topology Student Workshop 2016**, Georgia Institute of Technology Summer 2016  
*Heggard Splittings and Pseudo-Anosov Maps*

**Informal Geometry Seminar**, Brown University Spring 2017  
*Gromov Boundaries of Hyperbolic Groups*  
Spring 2016  
*Veering Triangulations of Pseudo-Anosov Mapping Torus*

**Graduate Student Seminar**, Brown University Fall 2015  
*Apollonian Circle Packings*

**First Chicago Summer School in Geometry and Topology**, University of Chicago Summer 2015  
Poster on *Thurston Norm Ball on the 2nd Homology Group of 3-manifolds*

OUTREACH ACTIVITIES **Founder and Co-Organizer of the Horizons Reading Group**, Brown University 2017-2018  
a bi-weekly reading group for the STEM community at Brown that focuses on investigating and reflecting on the social impact of mathematical research. I was selected by the IAS Women and Mathematics Program as a Graduate Ambassador in 2017-2018 to build a support structure for undergraduates at my university. This initiative was founded as a result.

**Co-founder and lead-organizer of the Horizons Seminar**, Brown University Fall 2016–  
a seminar dedicated to raising awareness about issues of gender/sexual/racial diversity and inclusivity in STEM fields, and promoting the work of traditionally under-represented mathematicians. With T. Aougab, S. Asgarli, M. Chan, S.Kalishnik, L. Walton, and S. Watson. In July 2017, I was invited to give a talk on the Horizons Seminar at a Diversity and Inclusion Minisymposium at SIAM Annual Meeting 2017.

**Mentor for the Peer Mentoring Network**, Brown University Fall 2015–  
a mentoring network for undergraduate women at Brown University interested in majoring in math, math/CS, or math-econ.

**Co-organizer of Diversity Panels at Summer@ICERM**, ICERM Summer 2017, 2018

organized a “Women in Math” panel and a “Members from the Historically Underrepresented Groups in STEM” panel for the undergraduate participants of Summer@ICERM 2017 with Melissa McGuirl. Also organized a “Conversation on Equity and Justice” for the participants of Summer@ICERM 2018 with Marissa Loving.

**Co-organizer of the Rose Whelan Society**, Brown University 2015- 2017  
 a group aimed at creating community among women graduate students, postdocs and faculty in Mathematics and Applied Mathematics at Brown. During 2015-2017, I helped with organizing social activities, career-oriented events (postdoc and job panels), and outreach activities for undergraduate students (finals prep study sessions, graduate school panel).

**Founder of the Math Club**, Amherst College 2013- 2014  
 a group that gathers every two weeks to discuss interesting math and math-related activities such as summer programs, study-abroad programs, research opportunities, and graduate school applications.

INVITED TALKS ON **Women and Mathematics**, Institute for Advanced Studies May 2018  
 OUTREACH Presentation on “The Horizons Reading Group”, the initiative I created as the Graduate Amba-  
 ACTIVITIES sador for WAM.

**SIAM Annual Meeting 2017**, Pittsburgh, Pennsylvania July 2017  
*Promoting Diversity in Mathematics: Bringing the Community into Conversations and Action*,  
 Minisymposium talk on “Adapting our departments to learn about and support diversity in Math-  
 ematics”.

CONFERENCE Workshop on Geometry of Teichmüller Space, The Fields Institute August 2018  
 ATTENDED Young Topologists Meeting 2018, University of Copenhagen Summer 2018  
 Workshop on Geometry and Topology of 3-Manifolds, OIST Spring 2018  
 GEAR Junior Retreat, Stanford University Summer 2017  
 SIAM Annual Meeting 2017, Pittsburgh Summer 2017  
 Shanks Lecture on Low-dimensional Topology and Geometry, Vanderbilt University Spring 2017  
 Connection for Women: Geometric Group Theory, MSRI Summer 2016  
 Topology Student Workshop, Georgia Institute of Technology Summer 2016  
 NSF-CBMS Conference: Topological Data Analysis, University of Texas, Austin Summer 2016  
 Women and Mathematics Program, Institute of Advanced Studies Spring 2016

SKILLS **Languages:** Chinese, English, French (elementary)  
**Computer Skills:** MATLAB, Java, Python