

MOYI TIAN

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🌐 <https://moyi-tian.github.io/moyi-tian>

EDUCATION

Brown University, Providence, RI *2019 - Present*

Doctoral candidate in Applied Mathematics

Thesis Advisor: Dr. Björn Sandstede, Division of Applied Mathematics

MS, Applied Mathematics *May 2021*

Dickinson College, Carlisle, PA *2015-2019*

B.S. in Mathematics & Physics

Phi Beta Kappa Honors, Honors in Mathematics, *Summa Cum Laude*

RESEARCH EXPERIENCE

Brown University, Providence, RI *June 2020 - Present*

Topic: Snaking Bifurcation on Lattices and Networks

Advised by Dr. Björn Sandstede, Division of Applied Mathematics

Analyzing snaking patterns arising in lattice and graph dynamical systems through the use of numerical and analytical techniques

Dickinson College, Carlisle, PA *September 2018 - May 2019*

Honors project in mathematics

Advised by Dr. David Richeson, Department of Mathematics & Computer Science

Used various algebraic descriptions of the annular braid group to analyze maypole dancing

Dickinson College, Carlisle, PA *September 2018 - May 2019*

Physics senior research

Advised by Dr. Lars Q. English, Department of Physics & Astronomy

Investigated symmetry breaking in coupled logistic maps through experimental realization on electronic circuit

PUBLICATIONS

Articles in Press

2021 **M Tian**, JJ Bramburger, and B Sandstede, *Snaking Bifurcations of Localized Patterns on Ring Lattices*, IMA Journal of Applied Mathematics (2021), hxab023

2019 H Mhiri, **M Tian**, E Wynne, S Jones, A Mareno, and LQ English, *An Experimental Survey of Chaos and Symmetry Breaking in Coupled and Driven Logistic Maps*, European Journal of Physics **40** (2019), no. 6, 065802

SELECTED AWARDS, HONORS AND MEMBERSHIPS

Awards

- 2019 **James Fowler Rusling Prize**, Dickinson College
Presented to a member of the senior class whose scholarly achievements have been judged most superior by the All-College Committee on Academic Program and Standards
- The Lance E. Kohlhaas Memorial Prize in Mathematics**, Dickinson College
Awarded to a graduating mathematics major who has demonstrated excellence in that field and shows promise in an actuarial or mathematics career
- 2018 **The Caroline Hatton Clark Mathematics Scholarship**, Dickinson College
Awarded for outstanding achievement in mathematics
- 2017 **The Henry P. Cannon Memorial Prize**, Dickinson College
Awarded to a member of the sophomore class who excels in mathematics
- The Junior Class Sophister Prize**, Dickinson College
Awarded to the junior with the highest academic ranking at the start of the academic year
- 2016 **The John Patton Memorial Prize**, Dickinson College
Awarded to a rising sophomore for high scholastic standing

Honors

Phi Beta Kappa Honor Society
Pi Mu Epsilon National Honorary Mathematics Society
Sigma Pi Sigma National Physics Honor Society
Alpha Lambda Delta Honor Society

Memberships

- 2019 - Present American Mathematical Society
- 2019 - Present Society for Industrial and Applied Mathematics

PRESENTATIONS

Talks

- 2021 **Brown / BU / UMass Dynamics & PDE Seminar**
Snaking Bifurcations of Localized Patterns on Ring Lattices, University of Massachusetts Amherst, Amherst, MA, November, 2021
- 2019 **Mathematics Honors Presentation**
Maypole Braids: An Analysis Using the Annular Braid Group, Dickinson College, Carlisle, PA, April, 2019
- 2019 **Physics Senior Research Talks**
Bifurcation, Symmetry Breaking, and Synchronization in a Coupled-Logistic Map Circuit, Dickinson College, Carlisle, PA, April, 2019

Posters

- 2021 **SIAM Conference on Applications of Dynamical Systems (DS21)** (virtual)
Snaking Bifurcations of Localized Patterns on Ring Lattices, May, 2021
- 2019 **34th Annual All Science Symposium**
1. *Maypole Braids: An Analysis Using the Annular Braid Group*
2. *Using LabView to Explore Symmetry Breaking in a Coupled Logistic Map Circuit*, Dickinson College, Carlisle, PA, April, 2019

- 2019 **American Physical Society March Meeting 2019**
Using an Arduino in a Coupled Logistic Map Circuit to Explore Basins of Attraction for Symmetry-broken States, Boston, MA, March, 2019

WORKSHOPS AND SUMMER SCHOOLS ATTENDED

- 2020 IMSD Module: Introduction to Statistical Analysis of Data 2020, Brown University, November 5, 12 and 19, 2020 (virtual)
- 2020 IMSD Module: Scientific Presentations, Brown University, June 4, 5 and 11, 2020 (virtual)
- 2018 Budapest Semesters in Mathematics Program, completed with honors, Budapest, Hungary, Summer 2018

LEADERSHIP AND SERVICE

Leadership

- Fall 2020 **Brown Division of Applied Mathematics - Directed Reading Program**, Brown University
 Mentoring an undergraduate student on mathematical optimal control theory and applications
- Summer 2020 **5-week Undergraduate Program in Experimental Math**, Brown University
 Supervised a team of 3 undergraduate students on studying the dynamics and patterns of graphing fleas
- 2019 - 2020 **Brown Applied Math Undergraduate/Graduate Mentoring Program**
 Mentored an undergraduate student with regards to study plans and academic/career goals

Service

- 2021 - Present **Brown SIAM Student Chapter**, Brown University
 Serving as the secretary and helping organize events
- 2021 - Present **Sheridan Center Departmental Graduate Student Liaison**, Brown University
 Maintaining communications and forwarding events information between the Sheridan Center for Teaching and Learning and the Division of Applied Mathematics
- 2016 - 2019 **Math & CS Major's Committee**, Dickinson College
 Gave feedback on personnel reviews and provided a student voice in departmental issues

TEACHING

Experience

- Spring 2021 **Applied Ordinary Differential Equations**, Teaching Assistant, Brown University
- Fall 2020 **Operations Research: Deterministic Models**, Teaching Assistant, Brown University
- Fall 2018 **Single Variable Calculus**, Teaching Assistant, Dickinson College
- Fall 2017 **Introduction to Calculus**, Teaching Assistant, Dickinson College
- Fall 2016 **Single Variable Calculus**, Teaching Assistant, Dickinson College

Pedagogical Training

Fall 2020 **Sheridan Center Certificate I: Reflective Teaching**, Brown University
Introductory seminar in a cross-disciplinary setting that helps develop and refine
fundamental, evidence-based teaching skills and strategies

Tutoring

2017 - 2019 **Quantitative Reasoning Center**, Dickinson College
Tutored college entry-level math, physics and economics students/classes

2016 - 2019 **Math Help Room**, Dickinson College
Tutored walk-in students from college entry-level mathematics classes