Jason Saied
jjs435@scarletmail.rutgers.edu | 570-807-6227 | https://sites.math.rutgers.edu/ jjs435/

**Education**

**Rutgers University—New Brunswick**

*PhD in Mathematics. GPA: 4.00.*

May 2022

*New Brunswick, NJ*

**Lafayette College**

*Bachelor of Science in Mathematics. Summa cum laude. Honors thesis. GPA: 3.99.*

May 2016

*Easton, PA*

**Research Interests**

I am interested in algebraic combinatorics, representation theory, and the interactions between them. My recent projects focus on combinatorial formulas for SSV polynomials (a recent generalization of Macdonald polynomials) and vertex-algebraic proofs of generalized Rogers-Ramanujan identities.

**Papers and Preprints**

“A combinatorial formula for Sahi, Stokman, and Venkateswaran’s generalization of Macdonald polynomials.” To appear in Advances in Mathematics. arXiv:2006.15086

“A Littlewood-Richardson rule for SSV polynomials.” In preparation.

“Initiation of a program to categorify “motivated proofs” of generalized Rogers-Ramanujan identities.” (With A. Ginory, S. Kanade, and J. Lepowsky.) In preparation.

“Classification of eventually periodic subshifts.” (With Benjamin Itzâ-Ortiz, Meghan Malachi, Austin Marstaller, and Sara Underwood.) Indagationes Mathematicae, Volume 27, Issue 3 (2016), pages 868-878.

**Selected Honors and Awards**

**Award for Research**, AMS Rutgers Graduate Student Chapter

May 2021

**Award for Leadership**, AMS Rutgers Graduate Student Chapter

May 2020

**Excellence Fellowship**, Rutgers University School of Arts and Sciences

2016 – 2017, 2019 – 2020

**Co-Valedictorian**, Lafayette College

May 2016

**Other Projects**

**Quantum Computation**

*NASA Ames Research Center*

Summer 2021 – present

• Advised by Dr. Eleanor Rieffel

• Working on a research problem related to quantum computation. Work ongoing, publication expected

**Wigner Functions for the Generalized Quantum Harmonic Oscillator**

*NASA Headquarters*

Summer 2021

• Advised by Dr. Nasser Barghouty and Pat Ebleen

• Made progress toward classifying the Wigner functions satisfying certain conditions, generalizing the Wigner functions associated to the stationary states of the quantum harmonic oscillator

**Erdős Institute SIG Project**

*Erdős Institute Data Science Boot Camp*

May 2021

• Using Keras, trained a neural net that predicts whether Reddit posts will get more than the median number of upvotes with 67% accuracy

• Used Github to collaborate on Python code with two other students

**Programming Skills**

**Python**: intermediate, used in several projects

**Maple**: proficient, 3 years of experience, used extensively in research

**Java**: intermediate, 2 courses taken (including Data Structures and Algorithms)
Selected Talks

Alcove Walk Formula for SSV Polynomials
- Virginia Tech Algebra Seminar (invited), Virginia Tech, November 2021
- Conference on Applications of Macdonald Polynomials (invited), Indian Institute of Science, July 2021
- Solvable Lattice Models Seminar (invited), Stanford University, April 2021
- Rutgers Lie Group/Quantum Mathematics Seminar (invited), Rutgers University, March 2021

Motivated Proofs of Rogers-Ramanujan-Type Identities and Representation Theory
- Graduate Combinatorics Seminar, Rutgers University, April 2021
- Lafayette College Mathematics Department Seminar (invited), Lafayette College, December 2019

Selected Teaching Experience

Instructor

Rutgers University
- Summer 2018, Summer 2019
- Designed and taught two six-week Linear Algebra (Math 250) courses

Teaching Assistant

Rutgers University
- Fall 2017 – Spring 2021
- Held recitations to review material, facilitate group work, and administer quizzes
- Worked with Math 151 (Calculus I), Math 152 (Calculus II), Math 250 (Linear Algebra), and Math 477 (Probability)

Instructor

Rutgers Young Scholars Program
- Summer 2018, Summer 2019
- New Brunswick, NJ
- Independently designed and implemented two week-long inquiry-based courses on graph theory for advanced high school students

Apprentice Instructor

MathILy
- Summer 2017
- Bryn Mawr, PA
- Designed and implemented inquiry-based lessons on combinatorics and linear algebra for advanced high school students
- Helped to create and assess student assignments
- Designed and taught two inquiry-based mini-courses on group theory and game theory

Various Undergraduate Teaching Positions

Lafayette College
- August 2013 – May 2016
- Easton, PA
- Teaching assistant for Calculus I (Math 161), Transition to Theoretical Mathematics (Math 290), Abstract Algebra I (Math 351), and Combinatorial Game Theory (Special Topics Course)
- Mentor, Lafayette Initiative for Malagasy Education, August 2013 – May 2014.

Selected Service and Leadership

Erdős Institute Invitations to Industry Seminar Series | Graduate student lead
- July 2021 - Present
- Assist with seminar that helps PhD students and postdoctoral researchers learn about industry and establish relationships with potential employers. Recruit speakers, hold preparatory meetings, and host the seminar

Rutgers Graduate Student–Faculty Liaison Committee | Member
- Spring 2018 – Present
- Plan open house for prospective PhD students, serve as liaison between mathematics faculty and students, hold events for graduate students

Rutgers Mathematics Department Directed Reading Program | Co-coordinator
- Spring 2018 – Present
- Pair undergraduates with graduate student mentors for semester-long independent study projects

Rutgers Graduate Algebra and Representation Theory Seminar | Organizer
- Fall 2019 – Spring 2021
- QRST Conference | Technical support
- August 2020
- Assisted a conference organized by Hadi Salmasian and Siddhartha Sahi, providing Zoom support, creating and managing a gather.town discussion room, recording talks, and uploading videos to YouTube

Rutgers Graduate Student Pizza Seminar | Co-organizer
- Fall 2017 – Spring 2018