

## Education

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**2011 – 2018**                      **University of California, Berkeley**                      **Berkeley, CA**  
Ph.D. in Mathematics  
Thesis: *The Generalized External Order, and Applications to Zonotopal Algebra*  
Advisor: Olga Holtz

**2006 – 2010**                      **The Pennsylvania State University**                      **University Park, PA**  
B.S. in Mathematics  
B.S. in Computer Science  
Graduated with Honors and Highest Distinction  
GPA 3.98 / 4.00

## Employment

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- Graduate Student Instructor, University of California Berkeley, 2011 – 2018
- jStart Software Development Intern, IBM, Spring 2011

## Papers

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- M. DiPasquale, B. Gillespie, C. Peterson. Algebra and Combinatorics of Uniform Random Arc Arrangements. In preparation.
- M. DiPasquale, B. Gillespie, C. Peterson. Ehrhart Theory of Numerical Semigroup Structures. In preparation.
- G. Averkov, A. Chavez, J. De Loera, B. Gillespie. The Lattice of Cycles of an Undirected Graph. *Linear Algebra and its Applications*, 611(3), 2020.
- B. Gillespie. Convexity in Ordered Matroids and the Generalized External Order. *The Electronic Journal of Combinatorics*, 27(3):P3.41, 2020.
- B. Gillespie. The Generalized External Order, and Applications to Zonotopal Algebra. PhD Thesis, UC Berkeley. 2018.

## Presentations

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- B. Gillespie. “Convexity in Ordered Matroids and the Generalized External Order.” KU Combinatorics Seminar, The University of Kansas. Lawrence, KS. 16 Apr. 2021.
- B. Gillespie. “Discrete Convexity and the Active Matroid Orders.” Algebra and Algebraic Geometry, I, 2020 Joint Mathematics Meetings. Denver, Co. 17 Jan. 2020.
- B. Gillespie. “Convexity in Ordered Matroids and the Generalized External Order.” Topology Seminar, Colorado State University. Fort Collins, CO. 10 Dec. 2019.
- B. Gillespie. “Circuit Lattices of Graphs and Matroids.” CACAO Seminar, University of California, Davis. Davis, CA. 5 Mar. 2019.
- B. Gillespie. “Matroids, Antimatroids, and the External Order.” Algebra and Discrete Mathematics Seminar, University of California, Davis. Davis, CA. 20 Nov. 2017.
- B. Gillespie. “Combinatorics of Forward Exchange Matroids.” Combinatorics Seminar, University of California, Berkeley. Berkeley, CA. 17 April 2017.

- B. Gillespie. “Zonotopal Algebra.” Graduate Student Combinatorics Conference, University of Kentucky. Lexington, KY. 29 Mar. 2015.
- B. Gillespie. “Planar Bond Percolation: An Example of a Nontrivial Phase Transition.” Many Cheerful Facts, University of California, Berkeley. Berkeley, CA. 11 April 2012.
- B. Gillespie and T. London. “Semi-dispersing Billiards and Infinite Topological Entropy.” Young Mathematicians Conference, Ohio State University. Columbus, OH. 17 Aug. 2007.

## Teaching

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*Graduate Student Instructor*, University of California, Berkeley

- Complex Analysis (Math 185), Spring 2018
- Linear Algebra (Math 110), Fall 2017
- Multivariable Calculus (Math 53), Spring 2017
- Discrete Mathematics (Math 55), Fall 2016
- Graduate Introduction to Topology and Analysis (Math 202A), Fall 2015
- Linear Algebra and Differential Equations (Math 54), Spring 2014
- Calculus 1 (Math 1A), Fall 2013
- Honors Multivariable Calculus (Math H53), Spring 2013
- Multivariable Calculus (Math 53), Fall 2012
- Calculus 2 (Math 1B), Spring 2012
- Calculus 1 (Math 1A), Fall 2011

*Co-director and Instructor*, Prove it! Math Academy

- Research Mentor, 2020
- Surreal Numbers, 2015 – 2018
- Mathematical Writing Style, 2016 – 2018

*Private Tutor*, 2008 and 2013

## Honors and Awards

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- Recipient, UC Berkeley Outstanding Graduate Student Instructor Award, 2014
- Student Marshal, Pennsylvania State University Computer Science, Spring 2011
- Recipient, Evan Pugh Scholar Award, Spring 2011
- Participant, University of Georgia Mathematics REU, Summer 2010
- Recipient, Leonhard Euler Memorial Scholarship, Spring 2010
- Participant, Budapest Semesters in Mathematics, Spring 2009
- Participant, Pennsylvania State University MASS Program, Fall 2007
- Recipient, Mathematics Advanced Study Semesters Excellence Award, 2007
- Participant, Pennsylvania State University Mathematics REU, Summers 2007 – 2008

## Grants

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- NSF/XSEDE Startup Allocation Grant, “Combinatorial Classification of Vietoris-Rips Complexes on the Circle”, \$415. Dec. 2020 – Nov. 2021

## Professional Activities

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- Journal Referee, *Discrete Mathematics*
- *Mathematics Graduate Student Association*, University of California, Berkeley  
Officer, 2013 – 2016  
Treasurer, 2014 – 2015  
Chair, 2016
- Open Source Software Development, *Sagemath Project*, 2015 and 2018 – 2020
- Volunteer, Colorado State University Little Shop of Physics, 2020
- Volunteer, Colorado State University Math Day, 2019
- Volunteer, Julia Robinson Math Festival, 2013
- Speaker, Stanford Math Circle, 2015 – 2017