

## Education

- **Columbia University** 2020–2025  
*Ph.D. Mathematics*
- **University of Massachusetts Amherst.** 2017–2020  
*B.S. Mathematics, second major in Computer Science.*  
Senior thesis: *The Mirror of a Particular Q-Fano Threefold*. Advisor: Paul Hacking.
- **Worcester Polytechnic Institute** 2016–2017  
*Concurrent enrollment in high school.* Completed one year of courses in mathematics, computer science, and the humanities.

## Research

- **Honors Thesis**, UNIVERSITY OF MASSACHUSETTS AMHERST. 2019–2020  
Studied the mirror of a Q-Fano variety as a family of K3 surfaces over  $\mathbb{P}^1$  and as a curve in a Humbert surface, comparing it to a Teichmüller curve of McMullen under Paul Hacking.
- **REU in Mathematics**, UNIVERSITY OF CHICAGO. Summer 2019  
Wrote expository paper: [Plane Curves and Quantum Cohomology](#).
- **REU in Mathematics**, UNIVERSITY OF MASSACHUSETTS AMHERST. Summer 2018  
Worked with Luca Schaffler on equations for varieties of point configurations on rational normal curves.

## Teaching

- **Fundamental Concepts of Mathematics**, *Teaching Assistant*: Fall 2018, Spring 2019, Fall 2019, Spring 2020.  
Designed and taught discussion sections and graded homework.
- **Algorithms**, *Undergraduate Course Assistant*: Spring 2020. Received commendation from instructors.  
Assisted with discussion sections and graded homework.
- **Introduction to Computation**, *Undergraduate Course Assistant*: Fall 2019.  
Assisted with discussion sections and graded homework.
- **Multivariable Calculus**, *Grader*: Spring 2018.

## Talks

- **Math Club**, UMASS AMHERST. Local-Global Principles in Mathematics. 1/2020
- **Algebraic Geometry Reading Seminar**, UMASS AMHERST. K3 Surfaces of High Picard Rank. 11/2019
- **CS Theory Seminar**, UMASS AMHERST. Geometric Complexity Theory. 10/2019

## Awards

- **Dean's List**, UMASS AMHERST. 2017–2020  
Achieved a GPA of at least 3.50 every semester.
- **Leon Emory Lincoln and Robert Bradley Lincoln Scholarship**, UMASS AMHERST. 2019  
Awarded for outstanding performance in mathematics major.
- **First Place, Jacob-Cohen-Killam Math Competition**, UMASS AMHERST. 2018, 2019  
Won math competition for first- and second-year undergraduates at UMass Amherst.
- **Dean's Scholarship**, UMASS AMHERST. 2017–2020  
Awarded scholarship for outstanding academic and personal achievement for entering students.

## Outreach and Miscellany

- Attended **AGNES** at UMASS AMHERST. 3/2019
- **AMSA-MAMS Pi Day Math Tournament**, WORCESTER POLYTECHNIC INSTITUTE. 3/2017  
Co-founded and served as head problem czar for middle school math tournament.  
– Tournament webpage: <http://www.pdmt.us/>

- Competed in **Who Wants to be a Mathematician** at JOINT MATHEMATICS MEETINGS. 1/2017  
Appeared in two news articles:
  - [Mass. Academy's Patrick Lei Chosen for National Math Contest](#), *WPI News*.
  - [Holden: High school senior Patrick Lei competes in 'Who Wants to Be a Mathematician' Jan. 7 in Atlanta](#), *telegram.com*.