

# Tristan Shin

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## EDUCATION

### University of California, San Diego, San Diego, CA

Sep 2024–present

- Ph.D. student in Mathematics

### University of Cambridge, Cambridge, UK

Oct 2023–June 2024

- M.A.St. in Pure Mathematics (Part III of the Mathematical Tripos)
- Selected coursework (all graduate): Additive Combinatorics, Approximation Theory, Computational Complexity, Elliptic Curves, Modular Forms, Ramsey Theory, Stochastic Processes in Biology

### Massachusetts Institute of Technology (MIT), Cambridge, MA

Sep 2019–June 2023

- S.B. in Mathematics and S.B. in Music with a Minor in Computer Science
- GPA: 4.8/5.0
- Selected coursework—Mathematics: Abstract Algebra (I+II), Algebraic Combinatorics, Analytic Number Theory<sup>GRAD</sup>, Fourier Analysis, Graph Theory and Additive Combinatorics<sup>GRAD</sup>, Number Theory I<sup>GRAD</sup>, Probabilistic Methods in Combinatorics<sup>GRAD</sup>, Seminar in Algebra, Seminar in Number Theory, Statistics
- Selected coursework—Computer Science: Communication Networks, Design and Analysis of Algorithms, Fundamentals of Programming, Machine Learning, Software Construction, Theory of Computation

## AWARDS

- **William Lowell Putnam Competition 18th place (N2)**, Mathematical Association of America
- **Laya and Jerome B. Wiesner Student Art Award**, MIT
- **Austin Kelly III Essay Prize**, MIT
- **San Diego New Music Emerging Composers Commission**, San Diego New Music

## RESEARCH EXPERIENCE

### MIT Undergraduate Research Opportunities Program (UROP)

- Analytic number theory project about sieve theory. June 2023–Sep 2023
- Algebraic combinatorics project about Schubert polynomials and the symmetric group. Feb 2022–Apr 2022
- (UROP+ program) Probability project about continuous model of branched polymers. Wrote paper detailing results and methods for specific cases of previous conjectures. June 2020–Aug 2020

## WORK EXPERIENCE

### USA Mathematical Olympiad Program (MOP): *Instructor*

June 2023

Taught advanced Olympiad and academic classes to 60-student camp for USA Math Olympiad team. Previously Lead Teaching Assistant (2021). Managed team of teaching assistants. Coordinated logistics and grading of tests. Organized activities including staff office hours and score coordination. Coordinated scores for USA team in multiple competitions, including the International Mathematical Olympiad.

### MIT Mathematics Department: *Undergraduate Teaching Assistant*

Sep 2022–Dec 2022

Taught recitation sections for Calculus. Provided office hours and wrote solutions to problem sets and exams.

### Susquehanna International Group (SIG): *Quantitative Trading Intern*

June 2022–Aug 2022

Learned about financial market making through interaction with Index desk and education classes on option theory. Developed quantitative skills through strategic games and mock trading. Applied Bloomberg API to analyze market trends for trading models.

## VOLUNTEER/OUTREACH EXPERIENCE

### MIT IAP Orchestra: *Music Director*

Dec 2022–Feb 2023

Directed university-sponsored student-run orchestra in winter term. Conducted performance, rehearsals, and sectionals. Engaged in score study and interpretation as well as research of performance practice. Recruited full orchestra of 42 members from MIT community and Boston area. Led promotional efforts and grant fundraising. Conducted members of MIT Symphony Orchestra in other occasions including performance for outreach.

### Harvard-MIT Math Tournament (HMMT): *Tournament Director*

Mar 2021–Mar 2022

Directed international tournament with thousands of participants. Managed team of 100 officers and staff members. Organized logistics and redesigned contest rooms for virtual events. Led initiatives in Diversity, Inclusion, and Belonging (DIB), including outreach to math programs worldwide. Previously Schedule Coordinator (2020–2021), Chief Proctor (2019–2020).

### American Regions Mathematics League (ARML): *Problem Writer*

Aug 2019–Present

Wrote original problems for international competition with thousands of participants. Reviewed and proofread contest documents.

### San Diego Math Circle (SDMC): *Lecturer, Coach*

Oct 2014–June 2021

Taught advanced classes to students in middle and high school on various topics. Coached county team to award placement in multiple nationwide competitions. Organized virtual math circle in 2020 along with team of alumni.