

# Tristan Shin

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## Education

### University of California, San Diego

Ph.D. student in Mathematics

San Diego, CA

Sep 2024–present

### University of Cambridge

M.A.St. in Pure Mathematics

Cambridge, UK

Oct 2023–June 2024

- Essay: *Sets avoiding three-term arithmetic progressions*

### Massachusetts Institute of Technology (MIT)

S.B. in Mathematics, S.B. in Music, Minor in Computer Science

Cambridge, MA

Sep 2019–June 2023

## Awards

- William Lowell Putnam Competition 18th place (N2), 2021

## Research and reading

### UCSD Reading and Research

- **Additive combinatorics**, mentor: Frederick Manners

Oct 2024–present

### Cambridge Part III Essay

- **Kelley–Meka bound for Roth's theorem**, essay setter: W.T. Gowers

Nov 2023–May 2024

### MIT Undergraduate Research Opportunities Program (UROP)

- **Sieve theory**, mentor: Larry Guth
- **Schubert polynomials**, mentor: Alexander Postnikov
- **UROP+: Branched polymers**, mentor: Vishal Patil

June 2023–Sep 2023

Feb 2022–Apr 2022

June 2020–Aug 2020

### MIT Directed Reading Program (DRP)

- **Harmonic analysis**, mentor: Pu Yu
- **Symmetric functions**, mentor: Yibo Gao

Jan 2023

Jan 2022

## Teaching

### UCSD (TA)

Term	Course
Winter 2025	Math 104B (Analytic Number Theory)
Fall 2024	Math 184 (Enumerative Combinatorics)

### MIT (TA)

Term	Course	TA Evaluation
Fall 2022	18.01 (Calculus)	6.5/7

Instructor for various programs (including MOP, MIT Splash, San Diego Math Circle, AlphaStar Summer Math Camp)

## Work experience

**Instructor:** USA Mathematical Olympiad Program (MOP) June 2023

Taught advanced Olympiad and academic classes to 60-student camp for USA Math Olympiad team. Coordinated scores for USA team in multiple competitions, including the International Mathematical Olympiad (IMO). Previously Lead Teaching Assistant (2021), IMO Observer A (2021), Teaching Assistant (2020).

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

**Tournament Director:** Harvard–MIT Math Tournament (HMMT) 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).

**Problem Writing Team:** American Regions Mathematics League (ARML) Aug 2019–present

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

**Instructor and Coach:** San Diego Math Circle (SDMC) Oct 2014–present

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.

## Other experiences and awards

- **Music Director**, MIT IAP Orchestra, 2023
- **Laya and Jerome B. Wiesner Student Art Award**, MIT, 2023
- **Austin Kelly III Essay Prize**, MIT, 2023
- **Emerging Composers Commission**, San Diego New Music, 2022