

Evan Chen

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"It's hard to do a really good job on anything you don't think about in the shower." — Paul Graham

Education

Massachusetts Institute of Technology 2018 – present
PhD candidate in mathematics, MIT Presidential Fellowship.

Undergraduate.....

Massachusetts Institute of Technology: B.S. Math (transfer). 2015 – 2018

Harvard College: Undergraduate (and took math 55) Fall 2014 — Spring 2015

UC Berkeley: Concurrent enrollment during high school 2012–2013

San José State University: Concurrent enrollment during high school 2012–2013

(Full list of major coursework at <http://web.evanchen.cc/upload/math-coursework.pdf>.)

Programming Experience.....

Python (and Django), \LaTeX , Linux (Arch Linux on i3).

Selected Teaching and Mentoring

Mathematical Olympiad Summer Program (MOP): *Assistant academic director* 2016 – present
Was **head grader** in 2016 and 2017, and **assistant academic director** starting 2018. Training program for the USA team at the International Math Olympiad (IMO). Gave lectures, coordinate grading, manage assistant teams, direct logistics, exam design, coordinate team selection testing. Reference: Po-Shen Loh.

USA Olympiad Team Selection Testing: *Head coordinator* 2017 – present
Coordinating both the design and grading of team selection tests for International Math Olympiad, European Girls' Math Olympiad, and Romanian Masters in Mathematics.

Olympiad Training for Individual Study: *Main instructor* 2017 – present
I run a small individualized training program for students preparing for USAMO/IMO type exams. Details available at <http://web.evanchen.cc/otis.html>.

Publications and Preprints

- **Elliptic curve variants of least quadratic nonresidue and Linnik's theorem.**
E. Chen, P. S. Park and A. A. Swaminathan, *Int. J. Number Theory*, 2018, **14**, 255–288. [arXiv:1507.07122](https://arxiv.org/abs/1507.07122)
- **Linear polychromatic colorings of hypercube faces.**
E. Chen, *Electr. J. Comb.*, 2018, **25**, P1.2. [arXiv:1609.01247](https://arxiv.org/abs/1609.01247)
- **Linnik's theorem for Sato-Tate laws on CM elliptic curves.**
E. Chen, P. S. Park and A. A. Swaminathan, *Research in Number Theory*, 2015, **1**, DOI: 10.1007/s40993-015-0028-0. [arXiv:1506.09170](https://arxiv.org/abs/1506.09170)

- **On logarithmically Benford sequences.**
E. Chen, P. S. Park and A. A. Swaminathan, *Proc. Amer. Math. Soc.*, 2016, **144**, 4599–4608. [arXiv:1507.02629](#)
- **Schur-concavity for avoidance of increasing subsequences in block-ascending permutations.**
E. Chen, *Electr. J. Comb.*, 2017, **24**, P4.4. [arXiv:1708.01350](#)
- **Avoiding algebraic integers of bounded house in orbits of rational functions over cyclotomic closures.**
Single author. Accepted for publication to Proceedings of the AMS. [arXiv:1608.04146](#)
- **A family of partially ordered sets with small balance constant.**
Single author. Submitted for publication. [arXiv:1709.05753](#)
- **Multiplicative and exponential orthomorphisms.**
Single author. Submitted for publication. [arXiv:1710.02734](#)
- **The 26 Wilf-equivalence classes of length five quasi-consecutive patterns.**
With Shyam Narayanan. Submitted for publication. [arXiv:1609.04626](#)
- **Euclidean Geometry in Mathematical Olympiads.**
E. Chen, *Euclidean geometry in mathematical olympiads*, Mathematical Association of America, Washington, DC, 2016, pp. xv+311. ISBN 978-0-88385-839-4.300 pp, 248 figures. Errata and synopsis at <http://web.evanchen.cc/geombook.html>
- **45th United States of America Mathematical Olympiad.**
E. Chen and D. Ensley, *Math. Mag.*, 2016, **89**, 303–311.

Selected Awards

2014 International Math Olympiad (IMO): Gold medal	<i>Rank 12th</i>
2014 USA Math Olympiad (USAMO): Winner	<i>Rank 2nd</i>
Putnam 2015: N1	<i>Rank 13th</i>

Selected Work Experience

Research.....

Duluth REU: *Research Experience for Undergraduates* *Summer 2016, 2017*
Worked on research project in number theory and combinatorics. Directed by Joe Gallian.

Emory REU: *Research Experience for Undergraduates* *Summer 2015*
Worked on research projects in analytic number theory on the distribution of primes. Directed by Ken Ono.

More Teaching.....

MIT PRIMES: *Mentor, Exam Designer* *June 2016 – present*
Designed entrance exam for PRIMES program. Mentor for high-school/college collaborative research project (PRIMES / AoPS CrowdMath); design project, oversee and guide discussion. Reference: Dr. Tanya Khovanova.

Art of Problem Solving: *Assistant, Curriculum Design* *2014 – present*
Designed curriculum and materials, and worked as teaching assistant, primarily for Worldwide Online Olympiad Training class (WOOT). Reference: Richard Rusczyk.

Summer Program for Applied Rationality&Cognition: *Counselor, Admissions* *2015 -*
Returned to SPARC to assist with logistics after attending in 2013 and 2014, and helped coordinate admissions. Reference: Yan Zhang.

Volunteer and Outreach.....

International Math Olympiad (IMO): *USA Observer A* *July 2017*

Part of the USA delegation to the 2017 International Math Olympiad in Rio, Brazil.

Harvard-MIT Math Tournament (HMMT): *Chief of Staff* *May 2014 – present*

Problem czar in 2014, 2015, **software director** in 2016, **historian** in 2017, and **chief of staff** henceforth.

Problem author and system administrator for the Harvard-MIT Math Tournament, one of the largest on-site math contests in USA. HMMT draws about 2000 high-school students every year, and is run entirely by Harvard/MIT students. See <https://github.com/vEnhance/helium> for a software example.

USA Math Olympiad (USAMO): *Grader, problem author, reviewer* *April 2015 – present*

Graded the national USA Math Olympiad, and submitted problems and reviewed proposal for USA national math olympiad.

American Regional Math League (ARML): *Problem writing team* *January 2016 – present*

Part of the problem author team for the American Regional Math League (ARML), an annual high-school math meet.

Software.....

ExpII Inc.: *Software developer* *December 2013 – April 2015*

Developer for expii.com, an online education platform. Main task was the development and maintenance of the website's markup language, both specifications and implementation. Reference: Po-Shen Loh