

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 **Fall 2018 – present**
PhD candidate in mathematics.

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

Undergraduate.....

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

Harvard College: Undergraduate (and took math 55) *2014 – 2015*

UC Berkeley: Concurrent enrollment during high school *2012 – 2013*

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

Programming experience.....

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

Selected teaching and mentoring

Assistant academic director: Math Olympiad Summer Program (MOP) *2018 – present*
Also **head grader (2016-2017)**. 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.

Exam coordinator: USA Olympiad Team Selection Tests *2017 – present*
Together with *Ankan Bhattacharya*, coordinating both the design and grading of team selection tests for International Math Olympiad, European Girls' Math Olympiad, and Romanian Masters in Mathematics. Reference: Po-Shen Loh.

Co-Editor-in-Chief: USA Math Olympiad (USAMO) *Starting July 2019*
Also **grader (2015-)**, **problem author (2016-)**, **committee member (2018-2019)**. Co-EiC with *Jenny Iglesias* starting July 2019. Reference: Bela Bajnok.

Director: Olympiad Training for Individual Study (OTIS) *2015 – present*
Director of private individualized classes for students who are preparing for USAMO/IMO type exams. Details available at <http://web.evanchen.cc/otis.html>.

Selected fellowships and awards

NSF graduate fellowship: awarded April 2018

MIT presidential fellow: awarded March 2018

International Math Olympiad (IMO): Gold medal, awarded 2014, rank 12th

USA Math Olympiad (USAMO): National winner, awarded 2014, rank 2nd

William Lowell Putnam Competition: N1, 2015, rank 13th

Selected work experience

Research internships.....

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

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

RSI participant: CEE Research Science Institute Summer 2013
Worked on high-school project on Bott-Samelson bimodules. Directed by Center for Excellence in Education.

Volunteer and outreach.....

USA Observer A: International Math Olympiad (IMO) 2017 – present
Part of the USA delegation to the International Math Olympiad.

Chief of staff: Harvard-MIT Math Tournament (HMMT) 2018 – present
Also **problem czar** (2014-2016), **software director** (2016-2017), **historian** (2017-2018). See <https://github.com/vEnhance/helium> for a software example.

Problem writing team: American Regional Math League (ARML) 2016 – present
Problem author team for the American Regional Math League (ARML), an annual high-school math meet.

More teaching.....

Mentor and exam designer: MIT PRIMES 2016 – present
Was **mentor** (2016-2017), **entrance exam designer** (2016 - present). Mentored for high-school/college collaborative research project (PRIMES / AoPS CrowdMath); design project, oversee and guide discussion. Reference: Tanya Khovanova.

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

Counselor: Summer Program for Applied Rationality&Cognition 2015 – present
Was **junior counselor** (2015, 2017, 2018), **admissions staff** (2017, 2018). Reference: Yan Zhang.

Software.....

Software developer: ExpII Inc. 2013 – 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

Publications and preprints

- Avoiding algebraic integers of bounded house in orbits of rational functions over cyclotomic closures.
E. Chen, *Proc. Amer. Math. Soc.*, 2018, **146**, 4189–4198. [arXiv:1608.04146](https://arxiv.org/abs/1608.04146).
- 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](#).
- 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](#).
- The 26 Wilf-equivalence classes of length five quasi-consecutive patterns.
E. Chen and S. Narayanan, *Discrete Mathematics & Theoretical Computer Science*, 2018, **vol. 20 no. 2**. [arXiv:1609.04626](#).
- A family of partially ordered sets with small balance constant.
Single author. Submitted for publication. [arXiv:1709.05753](#).
- Multiplicative and exponential orthomorphisms.
Single author. To appear in *Journal of Combinatorics*. [arXiv:1710.02734](#).
- 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. 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.