

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. 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>.

Team selection 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.

Selected fellowships and awards

Morgan prize honorable mention: awarded January 2019

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

Publications and preprints

- A family of partially ordered sets with small balance constant.
E. Chen, *Electr. J. Comb.*, 2018, **25**, P4.43. [arXiv:1709.05753](#).
- 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](#).
- 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](#).
- Linear polychromatic colorings of hypercube faces.
E. Chen, *Electr. J. Comb.*, 2018, **25**, P1.2. [arXiv: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](#).
- Multiplicative and exponential orthomorphisms.
Single author. To appear in *Journal of Combinatorics*. [arXiv:1710.02734](#).
- 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](#).
- 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.

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. Advised on problem voting, helped organize trip for students, and helped defend the papers of the USA team.

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