

Evan Chen

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US Citizen

“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: Undergraduate, transfer, math major Class of 2018

Harvard College: Undergraduate, took math 55 Fall 2014 — Spring 2015

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

College courses taken during high school.....

UC Berkeley: *Alg. Combin* (A+), *Honors Abstract Algebra* (A+) and *Real Analysis* (A+). 2012–2013

San José State University: *Algebraic Topology* (A+), *Graph Theory* (A+). 2012–2013

Programming Experience.....

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

Research and Publications

Euclidean Geometry in Mathematical Olympiads 300 pp, 248 figures

<http://web.evanchen.cc/geombook.html>

E. Chen, Mathematical Association of America, Washington, DC, 2016, pp. xv+311. ISBN 978-0-88385-839-4

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**. [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](https://arxiv.org/abs/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](https://arxiv.org/abs/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](https://arxiv.org/abs/1608.04146)

A family of partially ordered sets with small balance constant

Single author. Submitted for publication. [arXiv:1709.05753](https://arxiv.org/abs/1709.05753)

Multiplicative and exponential orthomorphisms

Single author. Submitted for publication. [arXiv:1710.02734](https://arxiv.org/abs/1710.02734)

The 26 Wilf-equivalence classes of length five quasi-consecutive patterns

With Shyam Narayanan. Submitted for publication. [arXiv:1609.04626](https://arxiv.org/abs/1609.04626)

45th United States of America Mathematical Olympiad

E. Chen and D. Ensley, *Math. Mag.*, 2016, **89**, 303–311

Selected Competition Awards

Gold Medalist at 2014 International Math Olympiad (IMO): Rank 12th (score 36), July 2014

N1 at Putnam 2015: Rank 13th (score 77), December 2015. (N2 in 2016.)

Winner of 2014 USA Math Olympiad (USAMO): Rank 2nd (score 41), April 2014

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.

Teaching.....

Mathematical Olympiad Summer Program (MOP): Head Grader Summer 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.

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 September 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 and Cognition (SPARC): Counselor Summer 2015, 2017

Returned to SPARC to assist with logistics after attending in 2013 and 2014. Reference: Yan Zhang.

Volunteer.....

USA International Math Olympiad (IMO) Team: Team Selection Coordinator September 2017 – present

Directing the design and grading of the team selection tests, selecting American team for International Math Olympiad.

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): Problem Czar, Software Director, Historian May 2014 – present

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 as well as for IMO team selection test.

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