

Espen Slettnes

• espen@slett.net •

Education

Abel Academy	Fall 2016 - Present (Homeschool)
UC Berkeley	Fall 2016 - Present (Concurrent Enrollment)
Stanford Online High School	Fall 2019 - Present (Part-time Enrollment)

Undergraduate to Graduate-level courses taken while in high school

MATH 249 Algebraic Combinatorics Graduate-level; received a grade of A-	Spring 2021
ECON C103 Introduction to mathematical Economics (UCB) Received a grade of A+	Fall 2020
PHYSICS 5B Introductory Electromagnetism, Waves, and Optics (UCB) Received a grade of A+	Spring 2020
MATH 202A Introduction to Topology and Analysis (UCB) Audited; graduate-level	Fall 2019
PHYSICS 5A Introductory Mechanics and Relativity (UCB) Received a grade of A+	Fall 2019

Undergraduate upper-division math courses taken while in middle school

MATH H185 Honors Introduction to Complex Analysis (UCB) Received a grade of A	Spring 2019
MATH 104 Introduction to Analysis (UCB) Received a grade of A+	Fall 2018
MATH 172 Combinatorics (UCB) Received a grade of A+	Spring 2018
MATH 130 The Classical Geometries (UCB) Received a grade of A	Fall 2017
MATH 113 Abstract Algebra (UCB) Received a grade of A+	Spring 2017
MATH 110 Linear Algebra (UCB) Audited; Scored a perfect 100 on final exam	Fall 2016

Programming Languages & Software

Python, C++, Java, The Wolfram Language, \LaTeX /TeXStudio, Asymptote, GeoGebra, etc.

Research and Publications

Minimal Embedding Dimensions of Rectangle k -Visibility Graphs (January 2018 – August 2019)

E. Slettnes. Journal of Graph Application and Algorithms, Vol. 25, no, pp. 59-96, January 2021. DOI: [10.7155/jgaa.00550](https://doi.org/10.7155/jgaa.00550), ISBN: 1526-1719. Meantor: Dr. Jesse Geneson of San Jose State University.

Extracting Tree-statistics from the Quasisymmetric Bernardi Polynomial (January 2019 – March 2020)

L. Cai, E. Slettnes, and J. Zhou, mentored by Dr. Duncan Levear of MIT. ([link to the paper](#))

Expected Capture Time and Throttling Number for Cop versus Gambler (May 2019)

J. Geneson, C. Quines, E. Slettnes, and S. Tsai. [arXiv: 1902.05860](https://arxiv.org/abs/1902.05860)

Variations of the Cop and Robber Game on Graphs (October 2017)

E. Slettnes, C. Quines, S. Tsai, and J. Geneson. [arXiv: 1710.11352](https://arxiv.org/abs/1710.11352)

Selected Competitions and Achievements

USA Mathematical Olympiad (USAMO) & USA Junior Mathematical Olympiad (USAJMO)

February 2016 – May 2021

2020 MOP attendee; 2020 USAMO Honorable Mention; 2019 USAMO qualifier; 2018 USAJMO qualifier.

5 times AIME (American Invitational Mathematics Examination) qualifier, 2016 – 2021.

USA Computing Olympiad (USACO)

December 2016 -
April 2019

Gold Division contestant ranked 115 among 572 pre-college students who were qualified to compete in this division, 2018-2019.

Scored a perfect 1000/1000 at both Bronze and Silver divisions in 2016 - 2017.

USA Physics Olympiad (USAPhO)

April 2018

Bronze Medal winner.

The American Regions Math League (ARML)

June 2017 - 2021

SFBA/NorCal A1 team: nationally 1st Place team in 2021 & 3rd Place team in 2019.

USMCA National Championship, Premier Division

May 2019 – May 2021

4th place team, Youth Euclid Association, 2021

3rd place team, Youth Euclid Association, 2020

4th place team, AlphaStar Academy, 2019

Caltech/Harvey Mudd Math Competition (CHMMC)

November 2017 – January 2021

1st Place team YEA SPICE among 140+ teams in 2021, individually placed top #20.

3rd Place team AlphaStar 2 in 2018; 4th Place team AlphaStar 2 in 2017.

Berkeley Math Tournament (BMT)

March 2018 & 2019
October 2020

3rd Place team YEA Ada among 191 teams in 2020; individually placed top #3 in discrete math and top #6 in algebra.

3rd Place team AlphaStar Academy AIR in 2019.

7th Place team AlphaStar Academy A* Fire among 100+ teams in 2018.

Stanford Math Tournament (SMT)

February/March 2019-2020

1st place team, AlphaStar Academy, in 2019 and 2020. Individually placed top #5 in Algebra in 2020.

Princeton University Mathematics Competition (PUMaC)

November 2019

7th place team, AlphaStar Academy. Individually placed top #12 in Advanced Combinatorics, Division A.

2019 Shing-Tung Yau High School Science Award, the USA Region November 2019
Semifinalist in the Mathematics category.

2018 Broadcom MASTERS October 2018
(A program of Society for Science & the Public)
First Place in Mathematics.

2018 California Science & Engineering Fair April 2018
Project of the Year Award, Junior Division.
1st Place in the category of Mathematical Sciences.

2018 Alameda County Science and Engineering Fair March 2018
Grand Award in middle school division, ACSEF Press Release.

USA Mathematical Talent Search (USAMTS) 2016-2019
Winner on the Leaderboard for 3 consecutive years; the only middle school student who scored a perfect 75/75 in 2016-2017.

Bay Area Mathematical Olympiad (BAMO) February 2015 - 2019
(Competed in solving 5 proof-type math problems in 4 hours)
BAMO 12 for students in 12th grade and under: 2nd Place winner in 2020; Honorable Mention in 2019.
BAMO 8 for students in 8th grade and under: 2nd Place winner in 2017; Young Student Achievement Award in 2015 & 2016.

Stanford ProCo 2017 May 2017
(A computer programming contest for high school students)
Grand Prize in the Novice division, 2nd Place in Speed Round, 1st Place in Special Round.

Selected Awards & Honors

Caroline D. Bradley Scholar The CDB Class of 2023
One and the only merit-based, need-blind 4-year high school scholarship for exceptionally gifted students across the US.

Spirit of Ramanujan Fellow December 2017 - Present
Thrice SOR Fellowship winner for 2018, 2019, & 2020.

World Science Scholar 2018 Cohort – August 2020
One of 45 pre-college students selected from five countries.

Julian C. Stanley Study of Exceptional Talent (SET) at Johns Hopkins University Member since Fall 2015

Nicholas Green Distinguished Student Award 2014 Recipient for California

Davison Young Scholar (DYS) Member since November 2013

Job, Internship, & Volunteer Experience

MIT PRIMES-USA January 2018 - Present
A highly selective research internship/mentorship program for precollege students.

Berkeley Math Circle

January 2012 - Present

(UC Berkeley affiliated math program for approximately 700 students in grades 1-12)

- Monthly Math Contests Problem Designer, August 2020 - present.
- Instructor in the advanced class since August 2018.
- Grader and coordinator for the BMC Monthly Contests, a proof-type contest for students in grade 5-12, since August 2017.
- Circler since January 2012.

Youth Euclid Association

Spring 2018 – Spring 2021

- Teacher of an USAMO problem solving class, Fall 2020 - Spring 2021.
- Teacher of an AMC 10/12 problem solving class, Spring 2018 – Fall 2018.

Conferences and Summer Programs

The Summer Program on Applied Rationality and Cognition (SPARC)

Online, July 2021

Covered topics from causal modeling and probability to game theory and cognitive science.

28th British Combinatorial Conference (BCC)

Online, July 2021

Hosted by the Department of Computer Science and Mathematical Sciences, Durham University, United Kingdom.

Mathematical Olympiad Program (MOP)

Online, July 2020

Placed in blue MOP.

Joint Mathematics Meetings (JMM)

Denver, CO, January 2020
Baltimore, MD, January 2019

Received an [Outstanding Poster Presentation award](#) for my individual research project "[Minimal Embedding Dimensions of Rectangle \$k\$ -Visibility Graphs](#)" in 2019 as well as for a group research project, "Extracting Tree-Statistics from the Quasisymmetric Bernardi Polynomial" in 2020.

Presented "[Throttling Numbers for Cops vs. Gamblers](#)" at the [Eighth Annual MIT PRIMES Conference](#).

Cambridge, MA
May 2018 & 2019

Presented "[Extracting Tree-statistics from the Quasisymmetric Bernardi Polynomial](#)" at the [Ninth Annual MIT PRIMES Conference](#).

MAA MathFest

Denver, CO
August 2018

Presented "[Minimal Embedding Dimensions of Rectangle \$k\$ -Visibility Graphs](#)"

Canada/USA Mathcamp

University of Puget Sound, WA
Colorado School of Mines, CO
July 2017 & July 2018

A 5-week academic summer program for both domestic and international students age 13-18 with talent and passion for math

League of Creative Minds

Stanford University, CA
June 2017

A selective parliamentary style speech and debate program

AwesomeMath Summer Program

University of Puget Sound, WA
July 2016 & 2019

A 3-week intensive summer program for mathematically gifted students who enjoy competition math from around the world

References

Marisa Debowsky: Executive Director, Canada/USA Mathcamp; email <marisa@mathcamp.org>
Dr. Jesse Geneson: Assistant Professor, San Jose State University; email <geneson@gmail.com>
Dr. Cosmin Pohoata: Assistant Professor, Yale University; email: <andrei.pohoata@yale.edu>
Dr. Khrystyna Serhiyenko: NSF Postdoc, UC Berkeley; email <khrystyna.serhiyenko@berkeley.edu>
Dr. Roy Smith: Professor Emeritus, the University of Georgia; email <rsmith99@gmail.com>
Dr. Zvezdelina Stankova: Teaching Professor, UC Berkeley; email <stankova@berkeley.edu>