

Curriculum Vitae

Jiaxuan Chen

Also known as: Carson Chen

Research interests: Algebra, Combinatorics, Geometry

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Institutional Affiliation: [Shanghai World Foreign Language Academy](#), Shanghai, China; [Krieger School of Arts and Sciences](#), Johns Hopkins University, Baltimore, Maryland, United States; [Stony Brook University](#), Stony Brook, United States; [Stanford Online High School](#), Stanford University, Red Wood City, California, United States.

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EDUCATION

- **The Fields Institute for Research in Mathematical Sciences, University of Toronto** *September 2026 - Continued*
Fields Academy Shared Graduate Courses Program, Fall 2026, Spring 2026(expected) Ontario, Canada
- **Stanford Online High School, Stanford University** *August 2026 - May 2029(expected)*
Part-time course in mathematics Stanford, USA
- **Shanghai World Foreign Language Academy** *September 2026 - June 2029(expected)*
International Baccalaureate Diploma Programme Shanghai, China
- **Krieger School of Arts and Sciences, Johns Hopkins University** *January 2026 - May 2027 (expected)*
Department of Mathematics Visiting Student Spring 2026, Fall 2026, Spring 2027 (expected) Baltimore, Maryland, USA
- **University of North Dakota** *January 2026 - May 2026*
Department of Mathematics & Economics Visiting Student Spring 2026 North Dakota, USA
- **State University of New York at Stony Brook** *January 2026 - December 2026 (expected)*
Visiting Student Winter, Spring, Summer, Fall 2026 Stony Brook, New York, USA
- **University of Illinois at Urbana-Champaign** *January 2026 - May 2027(expected)*
Visiting Student Academic Year 2025-2026,2026-2027(expected) Champaign, Illinois, USA
- **University of Indiana East** *May 2026 - December 2026*
Visiting Student Summer 2026, Fall 2026 (expected) Indiana, USA

RESEARCH EXPERIENCE

- **Research in the geometry and topology of the proof space of universal algebraic theories** *Since June 2025*
Mentored by Dugan Hammock, Wolfram Institute
- **Research in Discrete Differential Geometry (TBD)** *Fall 2026, to be started*
To be mentored by Andrew Sageman-Furnas, North Carolina State University
- **Research in the dynamics of polygon refolding** *Summer 2026*
Mentored by Max Weinreich, CUNY Baruch
- **Research in the Construction of the Metric Space Theory of Rings** *Since May 2026*
Joint work with Pragyana Manadhata et al, Mentored by James Branca of Department of Mathematics, Florida State University
- **Research in Graphs from Rings** *Since February 2026*
Joint work with Punnet Lingutla et al, mentored by James Branca of Department of Mathematics, Florida State University
- **Research in Ehrhart theory and Magic Positivity** *Since September 2025*
Joint work with Chance Crigler et al, mentored by Dr. Dana Paquin of California Polytechnic University at San Luis Obispo
 - Reference: Beck, Computing the Continuous Discretely.

PUBLICATIONS

- **Graphs induced by complemented elements of $\mathbb{Z}_n$** Submitted June 2026
Joint work with James Branca et al, Submitted to Journal of Algebra
- **On the magic positivity of the Ehrhart polynomials of dilated base polytope of minimal matroid** Submitted July 2026
Joint work with Chance Crigler et al, Submitted to Annals of Combinatorics
- **A geometric interpretation of the magic positivity of Ehrhart polynomials** Submitted April 2026
Joint work with Julian Schennach et al, Submitted to Electronic Journal of Combinatorics

ADVANCED COURSEWORKS IN MATHEMATICS

See grade and syllabi descriptions at [link](#).

TALKS

See slides and descriptions at this [link](#).

ACADEMIC EXPERIENCE

- **Referee work for the Fibonacci quarterly** Fall 2026
Fibonacci association
- **$\mathbb{RP}^2$ The Ross Math Program Online: Geometric Group Theory** Fall 2026
Ross Mathematics Foundation
- **World Science Scholar Program** Academic Year 2026-2027
World Science Festival, Organizer: Brian Greene
- **Seminar in languages, Talk: Formal Language Characterization of Cellular Automata (Work of Lyman Hurd)** Fall 2026
Department of Computer Science, Stony Brook University
- **Algebraic Geometry via Computation, Preliminary Arizona Winter School** Fall 2026
American Institute of Mathematics, & Southwestern Center of Arithmetic Geometry, United States
- **Prague Conference on Convex Geometry** August 2026
*One-week conference specializing convex geometry
Department of mathematics, Charles University*
- **Utrecht Summer School on Geometry** August 2026
*2-week topic courses on Geometry, and related topics in Abstract Algebra and Topology, for senior Bachelor's level mathematics student
Utrecht Summer School, Mathematical Institute, Universiteit Utrecht, Utrecht, Netherlands
Organized by Álvaro del Pino Gómez and Wilfred de Graaf.*
- **Nankai Logic Summer School** August 2026
*Organized by School of Mathematical Sciences, Nankai University, Tianjin, China
Attended one-week course: Amenability and Hyperfiniteness taught by Dr. Marcin Sabok, McGill University*
- **MIT Summer Geometry Initiative Tutorial Week Course: Introduction to Geometry Processing** July 2026 (1 week)
*Massachusetts Institute of Technology
Invitee of the tutorial week*
- **Polymath Jr** June 2026 - August 2026
*A collaborative mathematical research program for undergraduates
Organized by Dr. Steven Miller, Department of Mathematics and Statistics, Williams College
Project on Dynamics of Refolding Polygons, mentored by Max Weinreich (Harvard University), Steven Miller (Williams College), Anna Dietrich (Brown University)*
- **Wolfram Summer Research Program for High School Students** June 2026
*Research program for high school students in mathematics and computer science
Organized by Dr. Stephen Wolfram, Wolfram Research Institute at Bentley University, Massachusetts, United States*
- **Virtual Mathematics Research Circle** January 2026
*Organized by Department of Mathematics, College of Science, Louisiana University & LSU Gordon A. Cain Center for STEM Literacy
A research enrichment program for advanced high-school students who want to explore university-level mathematics in a supportive, collaborative environment.
Project on graph induced by complemented elements of commutative rings, under the supervision of James Branca of Department of Mathematics, Florida State University*

- **International Tournament of Young Mathematicians** January 2026
Yerevan State University, Armenia
- **British Mathematical Olympiad, Round 1, Certificate of Distinction** November 2025
Mathematics Olympiad for High School in United Kingdom and Abroad
Organized by UK Maths Trust
- **SIMIODE Challenge Using Differential Equations Modeling, Outstanding Award** October 2025 - November 2025
Joint work with Jinchun Liu, Sinian Sun, representing Shanghai World Foreign Language Academy
A Systemic Initiative For Modeling Investigations & Opportunities with Differential Equations (SIMIODE), MathWorks
- **Stanford University-Level Online Mathematics and Physics** September 2025 - December 2026
Fall 2025, Spring 2026, Fall 2026
University-level online mathematics and physics courses for high school students
Organized by Stanford Continuing Studies & Stanford Pre-Collegiate Studies, Stanford University
Courses directed by Dr. Margarita Kanarsky
Courses (expected): Linear Algebra, Discrete Mathematics, Multivariable Differential Calculus, Multivariable Integral Calculus, Ordinary Differential Equations, Number theory

DIRECTED READING AND INDEPENDENT STUDY IN ADVANCED TOPICS

- **MAT 487 Independent Study: Analytic Number Theory** Fall 2026 (expected)
Enrolled in Department of Mathematics, Stony Brook University
Supervised by Dr. Robert Hough
Reference: Apostol, Introduction to Analytic Number Theory
- **Mentorship in Algebraic and Analytic Number Theory** Summer 2026
Organized by [Paquin Institute of Mathematics](#), Mentored by Dr. Dana Paquin of Stanford University
Academic enrichment for high school students in advanced mathematics
- **MATH 497 Independent Study: Topics in Convex Geometry** Summer 2026
Enrolled in Department of Mathematics and Statistical Sciences, University of Alberta
Supervised by Dr. Vlad Yaskin
- **Directed Reading in Differential Topology** Summer 2026
Mentored by Austin Konkel of Department of Mathematics, State University of New York at Stony Brook
◦ Reference: Milnor, John, Topology from a Differentiable Point of View, Princeton University Press.
- **Directed Reading in elementary convex geometry** January 2026 - April 2026
Mentored by Dr. Vlad Yaskin of Department of Mathematics and Statistical Sciences, University of Alberta
◦ Reference: Lyusternik, Convex figures and polyhedra

SKILLS

- **Programming Languages:** Python, C++, R, MATLAB, Mathematica
- **Language:** Chinese Mandarin (Native), English (Fluent, TOEFL C1), French (Intermediate, DELF B1), German (Elementary)

REFERENCES

Available upon request.