Zhengyu (Byron) Zou

69 Brown St, Box 5848 | Providence, RI 02912 | Phone: (401) 855-6753 | E-Mail: zhengyu_zou@brown.edu

EDUCATION

Brown University, Providence, RI — *Sc.B. in Mathematics, Sc.B. in Applied Mathematics & Computer Science*
GPA: 4.0/4.0 | ***Expected Graduation****: May 2026*

- **Current Courses ("G" indicates graduate level classes):** Algebra II (G), Algebraic Topology II (G), Differential Geometry (G), Algebraic Geometry (G)
- **Relevant Courses**: Algebra I (G), Algebraic Topology I (G), Manifolds (G), Galois & Representation Theory, Matroid Theory, Real & Complex Analysis, Abstract Algebra, Partial & Ordinary Differential Equations, Graph Theory, Convex Analysis & Optimization (G), Stochastic Calculus, Statistical Inference (G), Data Structures & Algorithms, Theory of Computation, Algorithmic Machine Learning

McCallie School, Chattanooga, TN — *Cum Laude Graduate*
GPA 4.26/4.30 | ***Graduated****: Class of 2022*

RESEARCH/TEACHING EXPERIENCE

Brown University Department of Mathematics, *Undergraduate Researcher* June 2024 – December 2024

- Advised by ***Prof. Richard Schwartz***
- Conducting research on the geometry of twisted polygons with compact nondegenerate orbits under pentagram map variants (projective geometry, discrete integrable dynamic systems). Paper preprint: https://arxiv.org/abs/2412.15561
- Developed an online simulation using JavaScript and SageMath to visualize pentagram map actions on projective polygons and compute relevant quantities. Access to program: https://zzou9.github.io/pentagram-map
- Seminar talks: Brown University undergraduate colloquium (10/16/2024), Hamiltonian Systems Seminar (3/18/2025)

Brown University Department of Computer Science, *Undergraduate Teaching Assistant* December 2023 – May 2024

- Teaching assistant for Algorithmic Machine Learning (CSCI1952Q) under Prof. Yu Cheng
- Assisted in refining course content on low-rank matrix completion, nonnegative matrix factorization, and spectral graph theory; revised assignments and course background materials

Brown University Department of Mathematics, *Undergraduate Teaching Assistant* September 2023 – December 2024

- Teaching assistant for Real Analysis (MATH1630) under Prof. Justin Holmer
- Teaching assistant for Honors Multivariable Calculus (MATH0350) under Prof. Christine Breiner

Brown University Math Resource Center, *Tutor* October 2022 – May 2023

- Organized weekly tutoring sessions to help students with problems in intro-level math classes (and sometimes more advanced topics)

SEMINAR/CONFERENCES TALKS

Brown University, *Undergraduate Math Colloquium* October 16th, 2024

- Seminar talk on the research paper "Spirals, Tic-Tac-Toe Partition, and Deep Diagonal Maps." https://www.math.brown.edu/elarso19/undergraduate-colloquium.html.

University of Toronto, *Hamiltonian Systems Seminar* March 13th, 2025

- Seminar talk on the research paper "Spirals, Tic-Tac-Toe Partition, and Deep Diagonal Maps." https://seminars.math.toronto.edu/pages/seminars?case=view_talk&talk_id=1742315400-1742297400-460.

INTERNSHIP EXPERIENCE

Walnut Education, *Teaching Assistant; Tutor; Software Engineer* July 2023 – August 2023

- Assisted SAT and TOEFL students by organizing practice tests and vocabulary lessons; provided problem-solving support
- Developed a course scheduling and database management system using Flask and MySQL to manage information for over 50 students and employees

SKILLS & INTERESTS

Programming: [*Advanced / Proficient*]: Matlab, Python, Java, JavaScript, HTML, CSS, SQL, LaTeX | [*intermediate*] C++,
Language: English (Native), Chinese (Native), Spanish (Proficient)
Interests: jazz drumming, long-distance running, traveling, food