Sabine Chu

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Education

Massachusetts Institute of Technology — Cambridge, MA
S.B. in Mathematics with Computer Science; GPA: 5.0/5.0 — *Aug. 2022 – May 2026*

- **Coursework:** Real Analysis, Abstract Algebra, Complex Analysis, Probability, Topology, Differential Geometry, Knot Theory, Functional Analysis, Combinatorics, Representation Theory, Python, Classical Mechanics II
- **Fall 2024:** Commutative Algebra*, Algebraic Topology*, Theory of Computation, Algorithms, Quantum II

**Graduate classes marked with an asterisk.*

The Spence School — New York, NY
GPA: 4.0/4.0; SAT: 1590; National Merit Scholar; AIME qualifier — *Sep. 2014 – May 2022*

- **Activities:** Captain of school math team, selected as four-year member of New York City Math Team

Experience

Department of Mathematics, MIT — Cambridge, MA
Undergraduate researcher, advised by Dr. Giada Franz — *Feb. 2024 – present*

- Researching topology of free boundary minimal surfaces in three-dimensional unit ball
- Conducted thorough review of relevant literature, synthesized findings to postdoctoral mentor in weekly meetings
- Reached conclusive results on a notable open question, currently writing paper on findings

Grader — *Sep. 2023 – May 2024*

- Graded proof-based problem sets for 50-student real analysis course, emphasizing correctness and style

Department of Mathematics, University of Michigan — Ann Arbor, MI
Undergraduate researcher, advised by Professor Alex Wright — *Jun. - Jul. 2024*

- Selected for competitive research experience for undergraduates
- Collaborated with two other undergraduates to conduct NSF-funded research on geometric group theory
- Led daily briefings with professor and concluded program with hour-long presentation to peers
- Currently writing paper on findings related to Cayley graphs of the free group

Nuclear Reactor Laboratory, MIT — Cambridge, MA
Undergraduate researcher, advised by Dr. Boris Khaykovich — *May – Sep. 2023*

- Created in-house Python-based hardware-software interface incorporating data translation and analysis tools
- Programmed ray-tracing simulations, authored code documentation, summarized key findings in scientific report

Sloan School of Management, MIT — Cambridge, MA
Undergraduate researcher, advised by Professor Charles Angelucci — *Jan. - Apr. 2023*

- Assisted in research project on state laws by gathering, coding, and cleaning historical census data

Department of Astronomy, Columbia University — New York, NY
High school researcher, advised by Professor Marcel Agüeros — *Mar. 2020 – Aug. 2022*

- Used Python and Markov chain Monte Carlo methods to measure magnetic activity of thousands of stars
- Gave virtual poster presentation at January 2021 American Astronomical Society conference
- First author on conference proceeding: at time of writing, most extensive investigation of its kind

Activities

Theta Lambda Chapter, Sigma Kappa Sorority — Cambridge, MA
Vice President of Standards and Values — *Jan. 2024 – present*

- Act as confidential resource and settle interpersonal differences between members in weekly standards meetings
- As member of executive council, maintain documentation and plan social and educational events

Skills

Programming: Python (NumPy, SciPy, Astropy, Matplotlib), HTML/CSS, LaTeX, Git
Interests: Running, literature, sustainability, constitutional law