

ISHAAN SINHA

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EDUCATION

Harvard University Cambridge, MA
S.M. in Computer Science May 2028

Harvard University Cambridge, MA
Bachelor of Arts, Mathematics and Computer Science (GPA: 4.00) May 2028
Coursework: Algebra and Group Theory (Math 55), Real and Complex Analysis, Data Structures and Algorithms, Theoretical Computer Science, Probability, Statistical Inference, Machine Learning

Activities: Harvard Machine Learning Club, Harvard Ventures, Harvard Dharma(Board), Harvard Chess, Harvard Computer Society(Board), Teaching Assistant for Math 55

Princeton University Princeton, NJ
Dual Enrollment, Mathematics September 2022 - May 2024
Single Variable Analysis, Multivariable Analysis, Honors Linear Algebra, Topology, Fourier Series, Measure Theory

South Brunswick High School South Brunswick, NJ
Valedictorian (Rank 1/750) May 2024
NJ Math Olympiad State Champion, 5x AIME Qualifier, Stanford University Mathematics Camp, Princeton University Dual Enrollment: Multivariable Analysis, Measure Theory, Topology, Fourier Series

INDUSTRY EXPERIENCE

Amazon Web Services AI New York City, NY
Software Development Engineering Intern May - August 2025

- Enhancing orchestration for LLM pipeline behind Amazon Web Service's enterprise language model solution: Amazon Q Business. Designed APIs to track and visualize LLM response steps.

Macy's Inc. Cambridge, MA
Data Analytics Group Analyst September 2024 - January 2025

- Created machine learning solutions using pytorch and statsmodels to improve the conversion rate of rewards program. Developed random forest model with over 82% accuracy to high potential targets for advertisements.

RESEARCH EXPERIENCE

Summer School on Fluid Dynamics and Computer Assisted Proofs Princeton, NJ
National Science Foundation funded program aimed at graduate students, held at Princeton University August 2025

Computational Science and Engineering Lab Cambridge, MA
Student Researcher October 2024 - Present

- Developing methods for guiding generative video models to learn physical dynamics for fluid flow.
- Utilizing numerical and high-performance computing methods for complex nonlinear differential equations.

Kreiman Lab at Harvard Medical School and Boston Children's Hospital Cambridge, MA
Student Researcher October 2024 - Present

- Utilizing biological data to identify differences in visual search mechanisms used by deep vision models and biological vision models.

Scientific Artificial Intelligence Lab Remote
Student Researcher December 2022 - May 2024

- Led a team of three researchers to forecast the spread of West Nile Virus using differential equations combined with data driven techniques.
- Submitted forecasts for the CDC competition and contributed to joint national model.

PUBLICATIONS

NiceWebRL: a Python library for human subject experiments with reinforcement learning environments. For submission to *ICLR 2025*.

Characterizing West-Nile Virus Dynamics with Explainable Machine Learning. *Regeneron Science Talent Search*

TEACHING + DIRECTED READING PROGRAMS

Teaching Assistant for Math 55

Cambridge, MA

Will hold weekly sessions to help students understand deep mathematics.

September 2025-May 2026

Graph Theory and Additive Combinatorics

Cambridge, MA

Mathematics Presenter

September 2024 - January 2025

- Presented my readings of Yufei Zhao's Graph Theory and Additive Combinatorics at weekly meetings with graduate student Yuhan Jiang, of the Harvard Mathematics Department.

Discrete Geometry

Princeton, NJ

Mathematics Presenter

September 2023 - January 2024

- Presented my readings of modern research paper mathematics in incidence geometry and finite fourier analysis at weekly meetings with graduate student Kevin Ren, of the Princeton Mathematics Department.

ACTIVITIES

Harvard Undergraduate Mathematics Association

Cambridge, MA

Sponsorships Chair

September 2024 - Present

- Secured over \$30,000 in corporate sponsorship
- Organize seven events for the Harvard math community, with hundreds of attendees

Harvard Computer Society

Cambridge, MA

Director of Academics

January 2025 - Present

- Run academic events, including course advice and panels for the computer science community.
- Work with our corporate sponsors to run recruiting events.

AWARDS

- Regeneron Science Talent Search Scholar (Won \$4000 for paper), 2024
- World Science Scholar (Top 40 people across 20 countries), 2023
- NJ Math Olympiad State Champion, 2023
- 5x American Invitational Mathematics Examination, 2020-2024
- USA Physics Olympiad Qualifier
- Perfect Score on AP Computer Science Principles (top .28% of test takers worldwide), 2023
- Associate of the Royal School of Music Violinist, 2023

INTERESTS

- Programming: Python, Lua, Pytorch, JAX, C++, Java, Pandas, Statsmodels, Sklearn, Numpy, Julia, HTML/CSS/JS, Typescript, React, NextJS, Android Studio
- Hobbies: Chess(rated 2300, top 99.8%, on chess.com)
- Violin, Tennis, Poker, Cricket

SOFTWARE PROJECTS

NeoLearn

Harvard Live AI Hackathon

Built Educational AI platform with NextJS, Google Cloud Firebase, and Gemini integration.

West Nile Virus Forecasting

Developed forecasting pipeline by implementing an ensemble of ODE and Transformer models using PyTorch.

Mine With Friends

Created online platform to play minesweeper with your friends.