Nikhil Shah

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Education

Yale University — New Haven, CT
B.S. in Computer Science and Mathematics — *Aug. 2026 – May 2030*

Research

Diophantine Approximation and Continued Fractions – PROMYS — July 2025
Expository Research

- Studied classical results in Diophantine approximation and continued fractions and wrote an expository paper synthesizing the underlying theory; presented the work at the conclusion of the program.

Expedition Aya – Cohere AI — March-April 2025
Research Team Lead

- Led a team investigating cross-lingual differences in Cohere's Aya multilingual LLM using Google's TyDi QA dataset and BERT-based sentiment analysis. Presented findings at the end of the 6-week challenge.

Extracurricular

Yale AI Alignment (YAIA) — Summer 2026 – Present
Summer Fellow; Organizing Team Member

- Completed an 8-week fellowship on AI safety, studying misalignment, misuse, scalable oversight, control, mechanistic interpretability, and evaluations. Now building the curriculum for the fall fellowship, and working to organize speaker events. Attended a MAIA/AIST retreat on AI safety.

Yale Effective Altruism — Summer 2026 – Present
Summer Fellow; Member

- Completed an 8-week fellowship examining cause prioritization, intervention impact, and different cause areas, like Biosecurity, Alignment, and Animal Welfare. Represented Yale at the 2026 Northeast EA retreat (students from Princeton, Cornell, MIT, etc), as well as EA Global NYC 2026.

Yale Existential Risk Initiative — Fall 2026 – Present
AI Policy Team Member

- Member of a team working with Connecticut State Rep. Roland Lemar to pass frontier AI safety legislation in CT.

Mathematics

Hackley Math Team — 2022 – 2026
Captain, 2025 – 2026

- Expanded team membership from roughly 10 to 30 students and gave recreational talks on various problems.
- Competed nationally, including 2nd place in AreteLabs Math Madness Division IIA and 35th nationally in Purple Comet 2025.

Hampshire College Summer Studies in Mathematics (HCSSiM) — 2023
Student

- Studied advanced mathematics, including disciplines in Discrete Math, and Category Theory

Programs

Columbia University Science Honors Program — 2024 – 2026
Advanced Weekend Coursework

- Studied topology and its connections to set and group theory; data structures with a competitive-programming emphasis; quantum and classical computing systems; and astronomy and astrophysics.

Program in Algorithmic and Combinatorial Thinking (PACT) — 2024 – 2025
Summer and Year-Round Program

- Studied graph theory, combinatorics, probability, proof techniques, and algorithm design and analysis, including randomized, approximation, streaming, and sublinear algorithms.

Skills

Programming: Python, Java, LaTeX
Computer Science: Data Structures, Algorithm Design & Analysis
Mathematics: Graph Theory, Combinatorics, Probability, Number Theory, Set Theory, Group Theory, Linear Algebra