

# SAMVAR SHAH

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## Education

National Public School, Bengaluru

Expected May 2026

SAT 1540 Superscore (Math 790, EBRW 750) | AP CS A (5), AP Calculus BC (5)

Relevant Coursework: PROMYS | UPenn CIS 1600 (audit) | CIS 1210 (audit) | PACT- Theoretical CS

## Research Publications

Published Author, AI Hallucination Mitigation Research

June 2024–August 2025

- Developed Bayesian-fuzzy graph framework to reduce LLM hallucinations
- Speaker at AITA 2025 conference (only HS student among 13-country lineup)
- Awarded CREST Gold (UK's highest STEM recognition for high school research)

Co-Author, Arithmetic Function Trees

April 2024–March 2025

- Derived 7 new theorems/corollaries; devised new function  $\xi(x)$  confirming Chebyshev's bias
- Designed new  $O(n \log n)$  algorithm (improved from  $O(n^2)$ )
- Under review in Rose-Hulman UG Math Journal; 3rd place at IISc Pravega Science Fair

Researcher, Combinatorics & Number Theory

July 2022–March 2024

- Solved and proved the unsolved "Smarties Sandwiches" problem using combinatorics.
- Published in Pi in the Sky Journal (MathSciNet indexed); distributed to 500+ North American schools

## Professional Experience

AI Engineering Intern at Socratic AI (Stanford/IIT-B founded)

June 2025–August 2025

- Only HS intern; built AI UI tester with Playwright to automate Salesforce ERP UAT
- Reduced manual QA load; improved enterprise workflow reliability with video traceability

## Leadership & Entrepreneurship

Founder – AlgoThreads

June 2024–Present

- Launched algorithmic art business on Amazon / Flipkart; 20+ products
- Generated \$4K+ social impact donation through Art for Action drive
- Trained 500+ students via algorithmic art blogs, workshops and contests
- Collaborated with Padma Shri Gafur Bhai Khatri on Rogan Kala revival
- Featured in national press for AlgoThreads

Founder – SwiftPatch

June 2024–June 2025

- Built civic issue reporting platform; 60+ reports resolved 12 hazards, aiding 3,000+ residents
- Partnered with NGOs/RWAs

Teaching Assistant

July 2023–August 2024

- PACT TA - Led sessions, ran office hours, exam reviews and graded 50+ assignments
- Delivered lectures (Network Flows, Bellman-Ford, Floyd-Warshall) at Online Math Club 2.0

## Community Engagement & Outreach

- Organizer, Nexus and Regium Fests: Led two large school festivals (tech + culture) with 500+ attendees; managed 10+ teams, event logistics and technical + creative direction
- Performed Hindustani vocals at charity events for cancer patients; blended music and service as therapeutic support

## Honors & Awards

- USACO Gold (Top 7%), CALICO Silver Brick (UC Berkeley)
- PROMYS Scholar – Youngest admit; co-authored 18-page NT expository paper
- Honorable Mention in Stanford Math Tournament; Purple Comet Int'l Math Contest - India Rank 4
- School House Captain; Elected by a body of 360 teachers and 500+ students

## Technical Skills

- CompSc/Math: Graph Theory, Number Theory, Data Structures, Probabilistic Analysis, Formal Proof Writing
- Programming: Python, Java, C++, HTML