Ish Shah

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Education

2022–2026 (expected) **Bachelor of Science**, *Rutgers University*, New Jersey, US, GPA: 4.0. Major: Mathematics, Minor: Computer Science.

Interests

Harmonic analysis and its applications, including analytic number theory and partial differential equations.

Research Experience

2025 **Clemson REU in Number Theory**, *Topic: Shimura operators on half-integral weight modular forms*, Mentors: Hui Xue and Tianyu Ni.

2024 **DIMACS REU**, *Topic: When Fourier analysis meets ergodic theory and number theory*, Mentors: Mariusz Mirek and Leonidas Daskalakis.

2023–2024 **Aresty Research Assistant Program**, *Topic: Mathematical adventures in one-dimensional physics*, Mentor: Shadi Tahvildar-Zadeh.

Papers

2. *Shimura lifts of nearly holomorphic modular forms* (with Abby Linscott, Tianyu Ni, and Hui Xue). Submitted, 2025.

1. *Pointwise ergodic theorems along fractional powers of primes* (with Erik Bahnson, Leonidas Daskalakis, and Abbas Dohadwala). **Int. Math. Res. Not. IMRN**, 2025(15). arXiv: 2412.07055.

Talks and Presentations

Sep. 2025 *Shimura lifts of almost holomorphic modular forms*. Number Theory Seminar, Rutgers University (Piscataway, New Jersey, US).

Jul. 2025 *A Selberg identity for nearly holomorphic modular forms*. 12th Annual Summer Undergraduate Research Symposium, Clemson University (Clemson, South Carolina, US).

Jul. 2024 *When Fourier Analysis Meets Ergodic Theory and Number Theory*. DIMACS REU Final Presentations, Rutgers University (Piscataway, New Jersey, US).

Apr. 2024 *Stability of Ground State of the Hydrogen Hamiltonian in One Dimension*. 20th Annual Aresty Undergraduate Research Symposium, Rutgers University (New Brunswick, New Jersey, US).

Awards

Nov. 2025	**Alan Marc Schreiber Memorial Scholarship**, *School of Arts and Sciences, Rutgers.* Awarded based on academic merit, with preference given to mathematics majors.
Sep. 2025	**Maurice M. and Adrienne R. Weill Scholarship**, *Department of Mathematics, Rutgers.* Awarded to six full-time students majoring in mathematics based on academic merit.
Jan. 2025	**Alan Marc Schreiber Memorial Scholarship**, *School of Arts and Sciences, Rutgers.*
Jan. 2025	**Rutgers College Scholarship**, *School of Arts and Sciences, Rutgers.* Awarded based on academic merit.
Dec. 2024	**Goldwater Scholarship Nomination**, *Office of Distinguished Fellowships, Rutgers.* One of four nominees chosen from over a dozen applicants for a prestigious national STEM scholarship.
Sep. 2024	**Excellent TA/PTL/Grader Award**, *Department of Computer Science, Rutgers.* Awarded to four undergraduate students and several graduate students based on reviews from faculty.
Aug. 2024	**Maurice M. and Adrienne R. Weill Scholarship**, *Department of Mathematics, Rutgers.*
Feb. 2024	**Alan Marc Schreiber Memorial Scholarship**, *School of Arts and Sciences, Rutgers.*

Teaching and Grading Experience

Fall 2025	**Grader**, *Math 411 (Mathematical Analysis I)*, Professor: Mariusz Mirek. **Learning Assistant**, *CS 111 (Introduction to Computer Science).*
Spring 2025	**Grader and Part-Time Lecturer/Teaching Assistant**, *CS 344 (Design and Analysis of Algorithms)*, Professor: Surya Teja Gavva. **Learning Assistant**, *Math 152 (Calculus II).*
Fall 2024	**Grader and Part-Time Lecturer/Teaching Assistant**, *CS 344 (Design and Analysis of Algorithms)*, Professor: Mario Szegedy. **Learning Assistant**, *Math 152 (Calculus II).*
Spring 2024	**Grader and Part-Time Lecturer/Teaching Assistant**, *CS 344 (Design and Analysis of Algorithms)*, Professor: Mario Szegedy. **Learning Assistant**, *CS 112 (Data Structures).*
Fall 2023	**Learning Assistant**, *BAIT 370 (Management Information Systems).*

Service

2025–2026	**President**, *Rutgers Undergraduate Math Association.*
2025–2026	**Lecturer**, *Rutgers Competitive Programming.*
2025–2026	**Workshop Instructor**, *Rutgers University Security Club.*
2024–2025	**Public Relations Officer**, *Rutgers Undergraduate Math Association.*