

S M A NAHIAN

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Education

Massachusetts Institute of Technology

August 2025 – Current

Bachelor of Science

Massachusetts, USA

Relevant Courses: Randomized Algorithms

Achievements

Mathematical Olympiads: International Mathematical Olympiad Bronze Medal (2023, 2024) and Honorable Mention (2022); Asia Pacific Mathematics Olympiad Silver Medal (2022, 2023) and Bronze Medal (2024)

Competitive Programming: Asia Pacific Informatics Olympiad Finalist (2024); ICPC Asia Dhaka Regional 6th Position as a guest high school team (2023); Bangladesh Olympiad in Informatics Bronze Medal (2023, 2024); Master rank at CodeForces

Chess: Arena FIDE Master (AFM) at International Chess Federation—FIDE

Skills

Programming/Scripting Languages: Python, C++, C, Rust, PHP, Java

Technologies/Frameworks: Linux, GitHub, Flask, Verus, MongoDB

Experience

Cybersecurity at MIT Sloan (CAMS)

September 2025 – Current

Undergraduate Research Assistant

Massachusetts, USA

- Developing graph-based models to analyze and minimize risk propagation in AI supply chains.
- Designing optimization methods to identify the most critical components to harden, sign, or verify for maximum security impact.

Beneficial AI Foundation

September 2025 – Current

Undergraduate Research Assistant

Massachusetts, USA

- Contributing to Dalek-Lite, a Rust-based fork of dalek-cryptography/curve25519-dalek, aimed at the formal verification of elliptic-curve cryptography using Verus. GitHub: Beneficial-AI-Foundation/dalek-lite

Gonitzoggo

August 2023 – July 2025

Engineering Team Member

Bangladesh

- Identified a major security flaw and was recruited as a developer after reporting it.
- Built key features and redesigned contest UI and logic for version 3, improving usability.

Research

BLANT Project (Under Prof. Wayne Hayes, UCI)

October 2023 – August 2025

- Developed a method to estimate absolute graphlet counts from relative concentrations using star-motifs
- Derived normalization formulas for two existing sampling methods: NBE (Node-Based Expansion) and EBE (Edge-Based Expansion), making them usable in practice with reduced statistical noise
- Improved the α -computation algorithm in MCMC sampling, reducing runtime from hours to seconds for $k=8$

Projects

Chess Analyzer | Python, Chess

June 2025

- Built a tool that analyzes a player's games to detect recurring opening mistakes and allows replaying those positions to practice and avoid repeating them

CP Calendar | Python, Flask

February 2022

- Created a customizable online calendar stream to organize and filter competitive programming contests from a huge number of online judges, helping users track and plan participation, thus staying organized and efficient

Extracurricular Activities

Mentor and Academic Team Member

2022 – Current

Bangladesh Mathematical Olympiad and Gonitkonya - Bangladesh Girls' Mathematics Foundation

Founder

2024

NEMOP - Year Long Online Mathematics Training Program For Bangladeshi Students