# Rehan Shah

Mobile no:. 7575815632 | Email: Rehansnehalshah1@gmail.com | Github

## Academic Accomplishments and Standardized Test

**Ahmedabad International School (AIS), Ahmedabad, India - Advanced Subsidiary Levels** 2022 – Present
Received highest score of 4 A's in Math | Economics | Physics | Further Math

**Ahmedabad International School (AIS), Ahmedabad, India - IGCSE** 2019 – 2022
Attained A* average across 7 subjects, awarded International Certificate of Education with Distinction

**SAT:** 1560 (Math: 790, EBRW: 770) Oct 2023

**TOEFL:** 109 (Reading: 30, Listening: 29, Speaking: 24, Writing: 26) Oct 2024

**AP Computer Science A:** 5/5 May 2022

## Honors and awards

### Notable Awards and Achievements in Science, Technology, and Innovation

**School topper in IGCSE Economics, Additional Mathematics, and Further Mathematics**

**3rd National and 27th Global Ranking, AAPT Physics Bowl (8,000 participants)** Mar 2024

**Runners up in Indian and Regional Space Settlement Design Competitions** Jan 2024

**2nd prize in Silicon Valley Challenge by (SST) bested 18k+ participants, awarded $600 worth of prize** Jan 2023

**Winner of the fall Junior Academy Challenge from The New York Academy of Sciences** Dec 2023

**Received Microsoft & TKS's Future Founder Scholarship** Jun 2024

**United First and United Nations honorary certificate** for work in Scavenger Relief Aug 2024

**Awarded the best delegate** by T.I.D.E & AMC for my leadership in the think thank Sep 2024

**CREST Gold Award** for creating Global GPU Network Jan 2024

**Received Silver in Common Wealth Essay Competition** March 2024

**Plan to participate in AMC 12** Nov 2024

**Participant of Wharton investment competition** July 2024 - Present

### Industry renowned Certifications

**Multiple NSE Academy Certifications in Financial Markets (NCFM)** Aug 2023 - June 2024

Earned prestigious certifications from the National Stock Exchange of India, demonstrating expertise in Financial Markets and Mutual Funds

**Tableau Desktop Specialist Certification** Aug 2023

**Microsoft Office Specialist: Excel Associate** Sept 2023

## Research Publications for Rural Development and Welfare

**Springer-Published Research: Big Data & ML for Groundwater assessment** Oct 2021 - Feb 2023

- Explored Big Data and Machine Learning's transformative impact on Groundwater Quality Assessment and Prediction for improved management through data-driven decision-making.
- Co-authored under the guidance of Manan Shah, a top 2% ranked scientist by Stanford & Elsevier globally.
- Published in the "Archives of Computational Methods in Engineering" (Impact Factor: 9.7)

**Usage of Blockchain Technology in Welfare Schemes for Developing Countries** Feb 2023 - Jan 2024

- The study investigates blockchain's potential to transform welfare schemes in developing countries
- It examined over 60 articles, including case studies on the World Food Program and Indioids Zakat, while critically analyzing their real-world applications and challenges
- First authored under the guidance of Manan Shah, which is under publication in J. Dig Econ.

**Wrote a LitePaper & Presentation on Global GPU Network for Silicon Valley Challenge** Sep 2023 - Jan 2024

- Explores the use of mobile phone GPUs in a decentralized network and blockchain to reduce GPU costs and enhance monetization for developers. A functional prototype demonstrated a 25% reduction in GPU prices and a twofold increase in developer revenue. Link To LitePaper
- Received accolades from a CTO of a $71M tech company and garnered over 14,000 views on YouTube

**Authored a case study on socioeconomics effect of AGI** Dec 2023

- Researched Advance AI's effect on economics and how the World Coin help to solve these negative effects
- Won Future Founder Scholarship from TKS & Microsoft worth $700, ~3% acceptance rate. Link to the study

**Co-Authored a Solution Proposal for Junior Academy Challenge** Oct 2023 - Dec 2023

- Contributed to developing a solution to enhance rare earth metal supply through asteroid mining by developing a comprehensive 20-page presentation and 3 page executive summary
- Won the competition, earning an EdX scholarship and receiving high praise from NASA researchers.

## Open Source Contributions and Robotics Projects

**Core development of CubeSat Project Development** Jun 2024 - Present

We are developing a 3U CubeSat, measuring 30 x 10 x 10 cm, for forest fire detection using AI-powered cameras. This satellite will monitor forests for early wildfire signs, enhancing prevention efforts. Supported by our school and ISRO, we are finalizing the design and launch plans for successful deployment. We used a YOLO-based (You Only Look Once) detection system for real-time object detection.

**Developed MLX Web UI, achieving 100+ stars and ~6000 downloads** Aug 2022 - Nov 2023

Engineered MLX Web UI, a high-performance web server for managing, running, and downloading AI models locally. Implemented advanced retrieval techniques for enhanced response accuracy and context-awareness. Designed an intuitive interface with real-time token processing display, customizable model parameters, and efficient conversation management.

**Contribution to Chroma DB (13.4k+ github stars) Open Source Project** Jan 2024 - Aug 2024

extended the functionality of Chroma DB, a 10,000-line codebase utilized by over 10,000 developers. My enhancements improved database speed by upto 20% while reducing power consumption by implementing support for execution of code on the bare metal gpu layer.

**Created multiple educational resources** 2019 - Present

- **Minute Math**: Developed an educational resource that creates animated videos with voiceovers, featuring an AI-powered solver that delivers step-by-step solutions to various math problems. This tool enhances learning by providing explanations, received high accolades from my Homeroom/Mathemics teacher.

- **SAT Preparation Web App**: Created a comprehensive web app used by international by over 150+ students, offering 200+ multiple-choice questions to improve EBRW scores. Utilized an AI scraper with Chain of Thought (CoT) methodologies and a customizable template to autonomously extract data from books in any format, guiding developers in optimizing data accuracy through a multiple-reflection approach.

**Development of AI Transcription Models in Gujarati** May 2024 - Aug 2024

Created AI models using Whisper Small and Base for local language transcription in Gujarati. Currently utilized by TIDE to enhance communication with teachers and improve human computer interaction between rural educators and technology.

## Internships

**Development of AI Tools for T.I.D.E** May 2022 - Oct 2022

Developed AI tools for this non-profit organization, impacting over 32,500 lives through education across India. Led the AI department in creating an automated flashcard generator, study plan creator, and resource linking system. Implemented advanced techniques like Retrieval-Augmented Generation (RAG) and prompt caching, saving over 60 hours of manual work monthly while assisting 200+ teachers in resource management. Also contributed to the development of a React Native-based app to enhance accessibility.

**Software Engineering Intern – Backend Revamp at D2Mech** Mar 2024 - Jun 2024

Migrated part of the backend from Python to Golang and transitioned from microservices to in-house infrastructure. This resulted in a 20% cost reduction and a 2.5x increase in database speed, handling 1.5x more requests per second. D2Mech is a startup which has serviced 1000+ cars and has 200+ happy customers.

**Software Engineering Intern – CI/CD Team at Tridhya Tech** Mar 2023 - May 2023

Worked as part of the CI/CD development team, improving production time delay by 15% and reducing production crashes. Tridhya Tech is an $8 million SaaS company serving 100+ employees. The internship focused on enhancing the efficiency and reliability of the development pipeline, contributing to the company’s overall productivity.

**Scaler Internship Challenge Participant – Top 1%** July 2024 - Aug 2024

Selected as one of 2,000 from 20,000 applicants for a prestigious Scaler School program, focusing on entrepreneurial and technical skills through project-based learning with guidance from industry leaders.

## Leadership in STEM and Academic Initiatives

**VP of Structures, Nationals** & **Head of Structures, Regional Space Settlement Design** Sept 2023 - Jan 2024

**Lead Mentor of National Space Settlement Design Competition for my juniors** Sept 2024

**Head of Software department for CubeSat Project, collaborated with 20+ members** Jun 2024 - Present

**President of School's Mathematics community** Jun 2023 - Present

Expanded membership from 10 to 60 students, spearheading preparation programs for AMC 12 and 10, significantly elevating the school's competitive mathematics profile.

**Led a think tank of ~30 students which focused on slum development** Jul 2024 - Aug 2024

## Rural Development and Social Impact Initiatives

**Founder of Scavenger Relief NGO, United Nations and United First (Gujarat, India)** Apr 2023 - Present

- Fundraising Initiative: Led a campaign that raised nearly USD 20,000, including USD 2,500 of my own contributions, to provide safety kits for approximately 1,000 manual scavengers across five states: Uttar Pradesh, Maharashtra, Bihar, Tamil Nadu, and Rajasthan.
- Educational and awaraness Campaign: Created a guerrilla educational campaign to educate scavengers on the proper usage of the safety kits and to facilitate setup assistance. Additionally, outsourced materials from across India to reduce costs, enabling the distribution of more kits with higher quality.

**Volunteer with Will to Live Foundation and Guidance from Sajan Shah** Feb 2021 - Present

- Worked under the mentorship of Sajan Shah, a renowned motivational speaker and social activist, to improve the welfare of rural women.
- Contributed over 200 hours to community service initiatives impacting 500+ lives through the distribution of sanitary pads, hygiene education campaigns, UV protection kits for city cleaners, and biohazard bins for safer sanitation practices.

**Co-Author, Proposal Paper on Building Public-Friendly Cities** Jun 2024 - Sep 2024

- Collaborated with the Ahmedabad Municipal Corporation (AMC) and T.I.D.E to create a think tank which develop a proposal focusing on transforming Ahmedabad into a public-friendly city by addressing key urban challenges.
- Analyzed three critical initiatives: slum redevelopment, access to clean public washrooms, and road safety, aimed at enhancing community well-being and inclusivity.

## Educational Outreach and Program Development

**Atam Vikas - Taught 100+ Students Math and Science** Oct 2022 - July 2023

At Atam Vikas, I taught over 100 underprivileged students in grades 3 to 5, focusing on math and science. My interactive teaching methods and hands-on activities significantly improved students' grades and conceptual understanding. Many transitioned from struggling to excelling, showcasing enhanced problem-solving skills and a renewed passion for learning.

**Shreyas School - Developed Cyclical Math Education Program** Aug 2024 - Present

Currently, at Shreyas School, I developed a sustainable math program for students that emphasizes cyclical learning. Through reusable resources and peer-led review sessions, I fostered increased engagement, resulting in a significant improvement in test scores within six months. The program is designed to be adaptable and scalable, ensuring long-term benefits for future students.

## Recognizable certifications from reputed institutions

**CS50: Introduction to Computer Science by Harvard University** | ~160hrs 2024

**Innovation Through Design: Think, Make, Break, Repeat by The University of Sydney** | ~15hrs 2023

**Financial Markets by Yale University (With Honor)** | ~30hrs 2023

**Share Data Through the Art of Visualization by Google** | ~25hrs 2023

## Skills and Interests

**Languages:** Hindi (native), English (proficient), Gujarati (native)

**Technical:** Python (proficient), JavaScript (proficient), GoLang (proficient),C++ (novice), Blender (amateur)

**Interests:** Cinema, Cooking, Squash, Swimming,