Niranjan Rao

175 Calvert Drive
Cupertino, California, 95014
niranjanrao049@gmail.com (408) 623 - 9152

Summary of Qualifications

- Expansive background in Math and Computer Science
- Able to work deeply for long periods of time
- Strong collaboration skills and experience leading teams of people
- I take interest in what I do

Work & Volunteer Experience

Math, For Real   February 2024 - Present
Administrator and Teacher
- Aided in preparing a presentation to CA legislators on current math education status
- Contacted possible partners to widen reach and impact
- Taught at Family Supportive Housing: worked with children from financially struggling families to enhance appreciation for learning
- Teach classes every other week, working to make advanced concepts accessible to a wide variety of students

Samskrita Bharati USA   2022 - 2023
Assistant Teacher
- Taught groups of young students, getting them to collaborate rather than compete
- Worked one-on-one with struggling students to ensure they understand concepts and work to catch up

Projects

Water particle simulation   2022
- Created a program to simulate the movement of water particles in an enclosed box, with a configurable "riverbed" (floor of the enclosure)
- The physics are simplified, but the 3D rendering is homemade

Machine Learning   2023 - Present
- Working on applying ML to linguistics problems, analyzing datasets using explored as well as unorthodox techniques with a group of students
- Working to build an ML model to detect proteins as part of a Kaggle competition

Auto LaTeX compiler   2024
- Auto LaTeX compiler: integrates with any text editor and (almost) any PDF viewer so that manual compilation is unnecessary

3D Face Renderer   2023
- Homemade rendering system in JavaScript
- Works with light and shadows, and overcomes the extremely laggy solid-shape drawing system
- Key innovation was using lines instead of filled shapes without loss of image clarity
- Given a facial structure, renders a spinning face incorporating shadows (built in Javascript)

Chess Website   2020 - 2022
- Got a chess website up and working over the course of a year and a half
- Two players could make moves that show up on the other end
- My grandpa struggled to switch tabs between Google Meet and lichess.org
- The aim was to build a website on which I could play chess with my grandpa and have video streaming concurrently
- Domain now charges money, so I no longer host the site

Co-Curricular Involvement

Competitive Programming Club | Cupertino High School, Cupertino, CA   2022 - 2023
Officer, Mentor
- Teaching Intermediate group topics such as Greedy, Ad-Hoc, and Big O notation
- Helped set up and create problems for a contest (Cupertino Informatics Tournament)

Wharton Global High School Investment Competition   2024
Competitor
- In charge of and main contributor to computer-oriented trading: in charge of creating a machine learning model to analyze stock data and predict outcomes
- Gained critical team leading and cooperation experience
- Gained valuable analytical and skills, as well as experience applying techniques to real-world problems

Badminton | Cupertino High School, Cupertino, CA   2024
JV player
- Gained valuable experience in motivation and pressure
- Enriched cooperation skills through team bonding, as well as coordination, being a primarily doubles player
- Most importantly, had a lot of fun

Education

Cupertino High School | Cupertino, CA   August 2023 - Present
- Expected to graduate June 2027

Awards and Achievements

USAJMO | AMC Contest Series   2022 - Present
- 2023 AIME qualifier (American Invitational Math Examination)
- 2024 AIME qualifier
- 2024 USAJMO qualifier & honorable mention (USA Junior Math Olympiad)

USACO | USA Computing Olympiad   2023 - Present
- Went from Bronze to Gold in my first season (last year)

CALICO Informatics Tournament | UC Berkeley   2023 - Present
- Gold brick (top 1/12) in part of a duo in 2024 (competed remotely)

Berkeley (mini) Math Tournament | UC Berkeley, Berkeley, CA   2022 - Present
- BmMT (Berkeley mini Math Tournament) 2022
    - Distinguished Honorable Mention (top 20%) individually

- 19th place team round
- 12th place puzzle round
- BmMT 2023:
    - 4th place individually (2nd place before tiebreakers)
    - 5th place team round
    - 6th place puzzle round
    - 15th place relay round
    - 5th place overall (team)
- BMT (Berkeley Math Tournament) 2023:
    - 11th place individually: general round
    - 25th place guts round
- BMT 2024:
    - Honorable Mention discrete round

Stanford Math Tournament | Stanford, CA   2023 - Present
- 2023
    - Distinguished Honorable Mention (top 20%): individual, Algebra round (also top 50 individuals)
    - Honorable Mention: individual, Discrete round
- 2024 results not published to website yet

Harvard-MIT Math Tournament | Boston, MA   2023
- Top 50 teams overall

Exeter Math Club Competition | Exeter, NH   2022
- 3rd place team round (sweepstakes)
- 2nd place guts round

Silicon Valley Math Tournament | Cupertino, CA   2022 - 2023
- 13th place individually (2022)
- 20th place individually (2023)
    - Earned me a scholarship to Random Math's Together Program

Math Olympiad for Elementary and Middle Schoolers   2019 - 2020
- Silver pin in my first year of contest (2019)

Continental Math League   2019 - 2020
- Gold pin in my first year of contest (2019)

Math Kangaroo   2019 - 2021
- Tied for 10th place in 2019
- Perfect score in 2020

Tabla | Akhil Bharatiya Gandharva Mahavidyalaya Mandal | Cupertino, CA   2019 - 2023
- Taken and passed 3 levels of exams