Anna Deng

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About Me

Hi, my name is Anna! I'm a high school junior from California who loves thinking, learning, and giving back to my community. I am very interested in mathematics, computers, physics, and really anything to help with making the world a better place. In my free time, I enjoy reading, discovering, trying out new things, and talking. I have experience with Python, C++, HTML, machine learning, mathematical modeling, and advanced undergrad-level mathematics.

Education

BASIS Independent Silicon Valley, 11th Grade — Aug 2022 – May 2026

- GPA: 4.00 unweighted, 4.80 weighted
- SAT: 1570 (800M 770R), PSAT: 1500 (760M 740R)
- **Relevant Coursework:**
  - STEM: AP Physics 1 (5), AP Physics 2 (5), AP Physics C, AP Computer Science A (5), AP Calculus AB (5), AP Calculus BC, AP Statistics, Honors Chemistry, Honors Biology
  - Humanities: AP U.S. Government and Politics (5), AP Macroeconomics (5), AP Microeconomics (5), AP U.S. History (5), AP English Language & Composition (5), AP English Literature & Composition, AP World History, AP Mandarin

Experience

Intern - MIT PRIMES CrowdMath Internship — Feb 2025 - Present

- explore CrowdMath 2025 open problems while leveraging AI tools such as Large Language Models (LLMs) and interactive theorem provers
- working towards providing the first taxonomy of classes of commutative rings/semirings based on the statement of Goldbach's conjecture using AI+math workflows with reusable AI enhancement techniques

Student Researcher - North Carolina Agricultural and Technical State University — Feb 2025 - Present

- researching violence detection from industrial surveillance videos using ensemble learning with Professor Xiaohong Yuan and PhD student Hamza Khan

Student Researcher - Algoverse — Feb 2025 - Present

- participating in AI Research program, learning and researching about large language models and mechanistic interpretability

Operations Lead - INTEGIRLS Bay Area — Jul 2024 - Present

- global nonprofit dedicated to supporting women in mathematics and bridging the gender gap in problem-solving
- oversee contest administration of free biannual math contests with 100+ participants all over the world
- problem-writing for contests + problem of the month in monthly newsletters

Participant - Program in Mathematics for Young Scientists (PROMYS) — Jun 2024 - Aug 2024

- one of 60 students selected globally for prestigious 6-week math summer program (<4% acceptance rate)
- studied number theory under Professor Glenn Stevens (Boston University) and Professor Henry Cohn (MIT), studied Galois Theory under Professor David Speyer (University of Michigan), participated in an exploratory lab on fractional linear functions

Student Researcher - Aspiring Scholars Directed Research Program — Dec 2023 - Aug 2024

- researched applications of self-organizing maps (SOMs) by using Python to implement an SOM algorithm to create 2D representations of various higher dimensional datasets, like population & knot datasets
- generated efficient railway transportation networks from a country's population and elevation dataset with edge

pruning approach, adapted algorithms from square SOM to hexagonal SOM

Projects

Math Competition Trainer - Python web frameworks, HTML/CSS, SQL, NLP problemstrainer.app

- source past AMC problems adaptively to improve practicing efficiency, evaluating users' strengths and weaknesses with problem types and categories and subsequently recommend such problems
- use of machine learning to categorize problems gathered via webscraping

Fractional Linear Functions Link to Paper

- wrote paper for exploration lab on properties of fractional linear functions with peers at PROMYS 2024 summer program

Awards & Honors

- 4x AIME qualifier, top 2.5% of AMC 10/12 participants, 7x AMC Distinction
- 2x Math Prize for Girls at MIT Invitee, ranked 64th in top 300 girls nationwide
- 2025 European Girls Math Olympiad (EGMO) Team Canada Selection Test Qualifier, ranked in top 11 girls in Canada
- 2x Berkeley Math Tournament Distinguished Honorable Mention, 2024 Stanford Math Tournament Team 3rd Place
- 2023 G2 Math Program Participant at CMU, top 50 girls nationwide
- 2025 Non-Trivial Research Foundations Fellow
- 2024 Euler Circle Student studying real analysis and point-set topology
- PVSA Gold Award 2x, Bronze Award 2x
- 24-25 Modeling the Future Challenge Semi-Finalist
- 2x Pre-Gold Figure Skating Medalist
- BISV Student Ambassador and NHS member
- 2024 Civics Innovators Fellow
- 2025 Scholastic Writing Regional Honorable Mention

Leadership & Volunteering

VP of Technology & Life - Shine4Love Teens Club Jan 2022 - Present

- organize workshops for math and sciences, raised $200+ in donations to UNICEF and $300+ for ALS research
- volunteering in tutoring & community events, leading department members in developing their own workshops

President - BISV Math Circle Sep 2022 - Present

- participated on school team in math competitions, such as BMT, SMT, CMM, BAMO, Purple Comet
- lead and give math talks and panels for middle schoolers to spread the joys of problem-solving, inform about career pathways and opportunities to explore math
- BIMCT STEM contest administrator, worked on promoting contest and obtaining sponsors

President & TEDx Speaker - BISV TED Talks Club Sep 2022 - Present

- planned events, including watching & discussing TED talks, guiding members through developing student talks
- co-organized first annual TEDxBISV Youth event at school, student speaker, sold-out event with 100 attendees
- gave TEDx Talk on mathematical problem-solving with 2k views

President & Founder - BISV Mathematical Modeling Club June 2024 - Present

- planned club meetings, including discussions of math applied in the real world, data analysis techniques, projects with MATLAB, etc.
- coordinate participation in modeling contests (e.g. HIMCM, MTFC)

Vice President & Treasurer - Silicon Valley Region Skating High School Team Sep 2023 - Present

- manage funds for nationally ranked high school figure skating team, organize webinars to promote skating opportunities to the public

- 1st place (individual free skate), 4th place (team overall) at 2024 National High School Skating Cyber Challenge