

# Anna Deng

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## Education

**BASIS Independent Silicon Valley**, Grade 12

Aug 2022 – May 2026

- GPA: 4.00 unweighted, 4.80 weighted
- SAT: 1570 (800M 770R), PSAT: 1500 (760M 740R)
- **Relevant Coursework:**
  - STEM: Multivariable Calculus, Linear Algebra, Differential Equations, Modern Physics, AP Physics 1 (5), AP Physics 2 (5), AP Physics C: Electricity & Magnetism (5), AP Physics C: Mechanics (5), AP Computer Science A (5), AP Calculus AB (5), AP Calculus BC (5), AP Statistics (5), Honors Chemistry, Honors Biology
  - Humanities: Multiversal Fiction, Existentialism & the Absurd, 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 (5), AP World History: Modern (5), AP Chinese Language and Culture (5)
- Activities & Societies: Math Circle President, TED Talks Club President, TEDxBISV Youth Speaker, Mathematical Modeling Club President and Founder

## Experience

**Intern - Aspiring Scientists Summer Internship Program (ASSIP)**

Jun 2025 - Present

- geoinformatics researcher under Dr. Ziheng Sun, predicting the risk score for one region to air quality-related cancers using remote sensing, [GitHub Repo](#)

**Researcher - Non-Trivial Research Fellow**

Feb 2025 - Present

- selected as a Research Fellow and received a \$2,000 scholarship (0.7% acceptance rate)
- conducting research on mechanistic interpretability ([GitHub Repo](#)) and post-hoc interpretability for legal prediction models ([GitHub Repo](#))

**Intern - MIT PRIMES CrowdMath Internship**

Feb 2025 - Present

- explore CrowdMath 2025 open problems while leveraging AI tools such as Large Language Models 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, [GitHub Repository](#)

**Student Researcher - North Carolina Agricultural and Technical State University**

Feb 2025 - Present

- researching multimodal 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 on LLMs, training semantic entropy probes on judge models to improve model response evaluation, [Github Repository](#)

**President and Chapter Head - INTEGIRLS Bay Area, Tech Director - INTEGIRLS**

Jul 2024 - Present

- global nonprofit bridging the gap in problem-solving through 30+ global chapters, reaching 8k+ students and 62 countries, efforts featured in various news outlets
- oversee contest administration of free biannual math contests with 100+ participants all over the world
- problem-writing for contests, monthly newsletters and other events to build community

**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

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#### 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

## Awards & Honors

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| • 4x AIME qualifier, top 2.5% of AMC 10/12 participants, 7x AMC Distinction  | • 2023 G2 Math Program Participant at CMU, top 50 girls nationwide                       |
| • 3x Math Prize for Girls at MIT Invitee, ranked 64th in top 300 girls nationwide  | • Euler Circle Student studying differential geometry, real analysis, point-set topology |
| • 2025 Canada IMO Training Camp Participant, top 16 students   | • PVSA Gold Award 2x, Bronze Award 2x  |
| • 2025 European Girls Math Olympiad (EGMO) Team Canada Selection Test Qualifier, ranked in top 11 girls in Canada                          | • 24-25 Modeling the Future Challenge Semi-Finalist                                      |
| • 2025 Canadian Math Olympiad (CMO) Qualifier  | • 2x Pre-Gold Figure Skating Medalist  |
| • 2x Berkeley Math Tournament Distinguished Honorable Mention, 2x Stanford Math Tournament Distinguished Honorable Mention, Team 3rd Place | • BISV Student Ambassador and NHS member   |
|  | • 2024 Civics Innovators Fellow  |
|  | • 2025 Scholastic Writing Regional Honorable Mention                                     |

## Extracurriculars

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#### Vice President & Treasurer - Silicon Valley Region Skating High School Team

Sep 2023 - Present

- manage funds for nationally ranked high school figure skating team, promote skating to the public
- 1st place (individual free skate), 4th place (team overall) at 2024 National High School Skating Cyber Challenge; 3rd place (team overall) at 2025 Cyber Challenge