

Andrew Shin

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Education

The Harker School — San Jose, CA

Class of 2027

GPA (Unweighted) 3.98/4.00 | SAT 1580/1600 (Aug 2024 Exam) | National Merit Semifinalist

Advanced (Post-AP) Coursework: Multivariate Calculus, Differential Equations; *Senior Year Courses*: Linear Algebra, Discrete, Information Theory I/II, Game Theory

AP Coursework: Physics C Mechanics (5), Physics C E&M (5), Calculus BC (5), Biology (5), Computer Science A (5), Chemistry (5), European History (5), U.S. History (5), Spanish Language (4); *Senior Year Courses*: English Literature, Government, Microeconomics, Macroeconomics

Research Experience

Yale School of Medicine | **Vaccarino Lab**

Jun 2026 – Present

Research Intern

- Sole high school student among four research interns studying human neurodevelopment and neural activity using stem cell-derived brain organoid models (Mentor: Riya Rauttan)
- Analyzed multielectrode array (MEA) recordings from Tourette syndrome-derived organoids, examining neural waveforms, functional connectivity, population dynamics, and excitatory–inhibitory characteristics across experimental conditions
- Continue remote data analysis with Vaccarino Lab; developing research for submission to 2027 Regeneron Science Talent Search (STS)

University of California–Santa Cruz | **Sharf Lab**

Jun 2025 – Present

Research Intern

- Investigate effects of dopaminergic toxicity on human midbrain organoids using spatiotemporal analysis of neural activity and network connectivity (Mentor: Aidan Morson)
- Developed Python pipelines for high-density MEA analysis, incorporating spike/burst dynamics, spike time tiling coefficient (STTC) functional connectivity, graph/network analysis, and information-theoretic measures
- Presented research on Parkinson's disease-related network changes at INBC 2026 and QX-Bio 2026 poster sessions

Computational Biology & AI Research

Feb 2024 – Present

Independent Researcher

- Developed AGEOptimizer, multi-technique optimization framework for improving transcriptomic age prediction across human tissues
- Built CNN (VGGNet) image classifiers, neural networks for codon-based pattern recognition, and supervised/unsupervised machine learning models for clinical classification
- Named Columbia Junior Science Journal Semifinalist (2025); published research in NHSJS Reports (2026)

Publications

Andrew S. (2026). AGEOptimizer: An Optimization Framework for Improving Transcriptomic Age Prediction Across Human Tissues. NHSJS Reports.

Awards & Honors

Scientific Research

- **Grand Prize Alternate, Biological Sciences** — Synopsys Championship / Santa Clara Valley Science & Engineering Fair; qualified for California Science & Engineering Fair (CSEF) (2026)
- **4th Place, Senior Division** — California Science & Engineering Fair (CSEF) (2026)
- **2nd Award, Biological Science & Engineering** — Synopsys Science & Technology Championship (2025)
- **Semi-finalist** — Columbia Junior Science Journal (2025)

Mathematics

- **USA Mathematical Olympiad (USAMO) Qualifier (2026); 4× AIME Qualifier (2022–2025); AMC 10 Distinguished Honor Roll (Top 1%) (2024); AMC 12 Top 2.5% (2025)**
- **Gold Award** — USA Mathematical Talent Search (USAMTS) (2026)
- **Stanford Math Tournament Team 1st Place, Overall 2nd Place (2026), 2x Distinguished Honor Roll (2025), Berkeley Math Tournament — General Round 7th Place (2023), 2x Distinguished HM (2024)**
- **Harvard–MIT Math Tournament — Overall 27th Place (2024)**

Artificial Intelligence

- **Silver Medal, Round 2** — USA AI Olympiad (2026); High Honor Roll, Round 1 (2026)

Finance & Investment

- **6th of 5,955 Nationally — The Stock Market Game**; qualified for DECA International Career Development Conference (**ICDC**) (2024–2025)
- **1st Place, Personal Financial Literacy** — Silicon Valley Career Development Conference (SVCDC) (2025)
- **Semifinalist (Top 50 of 1,800 Teams; 66 Countries)** — Wharton Global High School Investment Competition (2024–2025)

Service

- **Gold Award** — President's Volunteer Service Award (2024)

Neurodiversity & Disability Community Engagement

The NeuroBridge Project

Nov 2025 – Present

Founder & President

- Founded intergenerational initiative connecting neurodivergent youth with older adults through structured, sensory-friendly activities
- Recruited and led six-member team; developed activity curriculum and coordinated pilot program engaging 15+ participants
- Assembled advisory panel spanning City of San José Parks, Recreation & Neighborhood Services, UC Berkeley, UC Riverside, Yale Child Study Center, Northern California Milal Mission, and Successful Aging Solutions
- Pursuing expansion through key partnerships with community centers, senior facilities, and organizations; developing replicable curriculum and volunteer training model to support additional program sites

ACEing Autism	<i>Sep 2025 – Present</i>
<i>Adaptive Tennis Coach</i>	
Coach neurodivergent children through individualized tennis instruction, adapting drills and communication to different learning styles while promoting confidence and social engagement	
Immanuel Presbyterian Church, Special Education Ministry	<i>Aug 2026 – Present</i>
<i>1:1 Buddy Volunteer</i>	
Provide one-on-one companionship and activity support for children and young adults with disabilities, helping foster participation and belonging within the church community	
Northern California Milal Mission	<i>Jun 2026 – Present</i>
<i>Volunteer</i>	
Support programs serving children and young adults with developmental disabilities and their families.	
World Tutors	<i>Nov 2023 – Present</i>
<i>Regional Leader</i>	
- Maintained 2.5+ years of individualized mathematics tutoring for underserved neurodivergent student, adapting instruction to individual learning needs and progress - Provide cross-cultural tutoring, teaching students in Mexico in Spanish and supporting Francophone students learning English through French-language instruction	

Leadership

Harker Student Council	<i>May 2024 – Present</i>
<i>Class Representative & Student Events Committee Head</i>	
- Elected representative for sophomore, junior, and senior classes on Associated Student Body - Lead Student Events Committee in planning school-wide socials, talent shows, fundraisers, and spirit events - Oversee event planning and execution, coordinating student volunteers, logistics, and programming across grade levels	
Harker Link Crew	<i>May 2025 – Present</i>
<i>Leader</i>	
Mentor incoming students through orientation events, peer guidance, and community-building activities supporting transition into high school	
Harker Investing and Personal Finance Club	<i>Aug 2024 – Present</i>
<i>Vice President</i>	
- Co-produce <i>The Harker Bull</i>, biweekly newsletter covering financial markets, investment strategies, student contributions, and interactive financial literacy content - Organize educational meetings, guest speaker sessions, and participation in competitions including National Personal Finance Challenge and Wharton Investment Competition	
Harker Korean American Society Association (KASA)	<i>May 2025 – Present</i>
<i>Co-Founder</i>	
Co-founded and grew cultural organization to 20–30 members; organized Korean Appreciation Week, community game nights, and charitable rice-cake fundraiser	
Financial Freedom Project	<i>Jun 2025 – Present</i>
<i>Co-Founder & Curriculum Developer</i>	
- Co-founded financial literacy initiative reaching five under-resourced elementary and middle schools through eight-week after-school program - Developed age-appropriate instructional curriculum and learning activities to introduce students to foundational personal finance concepts	
Cupertino Middle School	<i>Aug 2023 – Aug 2024</i>
<i>Teaching Assistant</i>	
- Assist in teaching, grading exams, creating practice competitions for preparation, preparing fun events - Volunteer as grader, proctor for Central Santa Clara Chapter of middle-school MATHCOUNTS - Contribute as a problem writer for annual Mustang Math Tournament held with 250+ students in NorCal	

Extracurricular Activities

Eagle Fustar Tennis & Harker Varsity Tennis Team:	<i>Aug 2024 – Present</i>
- Compete in singles and doubles tournaments (6+ UTR); train 10+ hours weekly during varsity season - Team Achievements: Silicon Valley Tennis Classic Champions (Mar 2026); CCS 2026 Finalist & CIF 2026 Finalist (Team; May 2026)	
Harker Math Club	<i>Aug 2023 – Present</i>
- Prepare for regional and national mathematics tournaments, including BMT, HMMT, and SMT; delivered student lecture on Prisoner's Dilemma and game theory - Write competition problems; serve as proctor for Harker Math Invitational and Santa Clara MATHCOUNTS initiatives - Develop mathematical games and puzzle hunts for Math Club Lower School Initiative, introducing younger students to creative problem-solving - Participate in student-led discussions exploring advanced mathematical concepts, problem-solving strategies, and applications beyond standard coursework	
Harker Research Club	<i>Aug 2023 – Present</i>
- Selected as 1 of 15 non-RRI students to represent Harker at 2025 Synopsys Science & Technology Championship - Participate in journal reviews and research workshops covering scientific literature, abstract writing, project presentations, and research opportunities	
Music Production & Independent Artist	<i>Aug 2023 – Present</i>
Compose and produce original tracks spanning lo-fi, hip-hop, and shoegaze; publish music through Spotify and YouTube	

Skills

Technical Skills: Programming: Python, Java, Colab, Mathematica Data Science/ML: PyTorch, Keras, Transformers (Hugging Face), Neural Networks Environments: Google Colab, Anaconda Typesetting: LaTeX (Overleaf)	
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