

WILLIAM LIU

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Education

Princeton High School, Princeton, NJ Sept. 2022 - May 2026
Grade 9-12 | GPA: Un-weighted 4.0/ 4.0, Weighted 4.38

UCLA SCIP Pre-collegiate Summer Session June 2025 – August 2025
Enrolled in undergraduate-level Multivariate Calculus, received final grade A.

Academic Experience

Uncover Risk Drivers for Wildfire Occurrence with Machine Learning Approach, Prof. Robert Rouse, University of Cambridge Sept. 2025 – Feb. 2026

- Researched Machine Learning (ML) methods in AI analysis on the complexity of event prediction.
- Research paper on wildfire prediction accepted by the 39th FRUCT Conference (IEEE) and is under review by The National High School Journal of Science (NHSJS)

An Improved Hyperbolic Neural Network for Tree Monitoring, Prof. Wei Li, Institute of Computing Technology, Chinese Academy of Science June 2025 – Oct. 2025

- Researched Tree Change Detection with Deep Learning Hyperbolic Siamese Network (HSN) trained on UAV-Camera-based dataset.
- Applied Hyperbolic Geometry to analyze challenge of forest monitoring in identifying extrinsic changes from intrinsic physiological changes.
- Research paper submitted to STS Regeneron Science Talent Search.

North Carolina Math Camp (NCMC) Advanced Session II July 2025 – August 2025

- Studied advanced topics on Multivariate Calculus, Topology, Linear Algebra, and Graph Theory.
- Wrote research article on derivation and application of Green theorem, Stoke theorem, and Divergence theorem in vector calculus.

Comparative Study on the Pricing Effectiveness of Corporate Bond Pricing Models, Prof. Mete Soner, Princeton University June 2024 – Nov. 2024

- Zhu, Z., Liu, W., Cao, J., & Chen, K. (2025). “Comparative study on the pricing effectiveness of convertible bonds pricing models.” *Advances in Economics, Management & Political Sciences*.
- Accepted by the 4th International Conference on Business and Policy Studies (CONF-BPS 2025)

Awards & Honors

- Team Top #1, Individual Geometry #13 in **Princeton University Mathematics Competition (PUMAC) 2025**
- Individual Finalist, Individual Geometry #13, Number Theory #8 in **Princeton University Mathematics Competition (PUMAC) 2024**
- Individual Top 10% Distinguished Honorable Mention, Team Guts Round Top 10% Distinguished Honorable Mention in **Stanford Math Tournament (SMT) 2025**
- Team National #6, Team High Medal in **American Regional Math League (ARML) 2024**
- Team round #25, Guts round #36 in **2025 Harvard-MIT Math Tournament (HMMT), MIT 2025**
- Honor Roll Top 5%, score 130.5/150 in **American Mathematics Competition 12 (AMC 12) 2024**
- Top 1%, score 138/150 in **American Mathematics Competition 10 (AMC 10) 2023**
- Qualified and Score 8/ 15 in **American Invitational Mathematics Exam (AIME) 2 times. 2024, 2025**

Other Extracurriculars

Princeton High School Math Team Leadership Sept. 2023 – Present

- Organized Math competition field trips to HMMT, ARML, PUMAC, and SMT as team lead.
- Organize the Princeton High School’s first-ever Princeton Math Tournament for grades 3-8 participants. Secured a venue, reached out to sponsors, wrote original problems, and coordinated logistics for nearly 450 participants from across New Jersey

- Princeton High School Card Games Club, Founder & President** Sept. 2023 - Present
- Recruited 2 Vice-Presidents & 40+ members
 - Organize weekly practices & lunch break gatherings

- Princeton High School Chinese Club, Vice President** Sept. 2023 - Present
- Translated at middle school events for non-English speaking parents
 - Assisted in organizing the school's annual Asian Festival

Community Service

- Math Corps Summer Camp at Rutgers University, Teaching Assistant** July 2024 – August 2024

- Tutored middle school campers from minority and low-income families

- Princeton Middle School Math Club, Tutor and Instructor** Sept. 2023 – Sept. 2025

- Instruct middle school math team (30 ppl) for math competition topics.
- organize the team to participate AMC8, AMC10, Math-count competitions

- Ridgeview Forest Preservation, Volunteer** Sept. 2024 - Present

- Assist in removing invasive plants and pollutants to preserve native flora and water bodies

- Princeton High School Annual Asia Festival, Interpreter & Volunteer** March 2024, 2025

- Provided event translations for non-English-speaking families and helped organize the annual event

- IEEE Integrated STEM Education Conference, Conference Volunteer** March 2024

- Assisted with attendee registration & managed conference logistics

Arts

- Princeton High School 2025 – 2026 Fall Play Cast Member** Sept. 2025 - Present

- Performed a role in a 4-day run theater stage play, “Clue: On Stage”.
- Participated in PHS annual fall play, worked closely with Director and Screenwriter, contributed to stage design.
- PHS Fall play “Clue: the Stage” that I performed in won outstanding performance from the Foxy 2025-2026 Theatre Night Awards Nominations for High School Plays..

- Classical Piano** Sept. 2021 - Present

- Trinity College London Piano Grade 8 Certificate
- Princeton High School Orchestra, pianist & concerto soloist
- 2025 the 8th US Starlight Youth Talent Competition Piano Bronze Award
- 2026 2nd Prize in the 7th Apex International Music Competition, invited to perform at Merkin Concert Hall in New York City

Sports

- Princeton High School Badminton Team Captain** Sept. 2023 - Present

- Organized practices for annual NJ High School Badminton Tournaments
- Organized the first Badminton Tournament in Princeton High School history with 40 players at different skill levels

- Princeton High School Varsity Fencing** Sept. 2022 - Present

- Trained 8 hours/week for 15 weeks/year on campus
- Participated 2023 and 2024 NJSIAA (New Jersey State Interscholastic Athletic Association) fencing tournament, won District 2nd place team award

- Princeton University Fencing Camp** June 2024 – July 2024

- Refined competitive skills at an intensive summer camp. Practiced foil fencing 8 hours a day.
- Practiced under the guidance of Princeton University Fencing Coach and played competition with campers from all over the world