

Emily Xuyin Dai

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EDUCATION

Yorba Linda High School (YLHS), Yorba Linda, California

Expected Graduation: May 2026

- GPA: unweighted 3.90, weighted 4.65 (**Top 2% in class**) | SAT: 1540 (Math 790, Reading 750)
- Courses: AP Statistics (5), AP Calc AB (5), AP Biology (5), AP Chemistry (4), AP US History (5), AP Chinese (5), AP US Government and Politics, AP Calc BC, AP CS Principal, AP Environmental Science, AP Macroeconomics, AP Literature, AP European History
- Language: English (Native), Chinese (Native), Spanish (Fluent)

UC Scout, AP Physics 1

Aug 2025-May 2026

Johns Hopkins University Summer Pre-college, Anatomy, Physiology & Disease (Grade: B)

July-Aug 2023

Stanford Anesthesia Summer Internship Program

June-July 2024

- Capstone Project: Researched on anosmia, interviewed patients to identify quality-of-life impacts, and designed an essential oil diffuser prototype to improve scent perception and memory recall.

HONORS

[Biology] Gold Medal, iGEM 2025, *12th, International*

[Biology] Silver Awards, Industry Advisory Group Winner, Funniest Evolution Nominees, Best Presentation Winner & Best Genome Evolutionary Machines Winner, iDEC 2025, *12th, International*

[Biology] Participation Award, USA Biology Olympiad 2025, *11th, International*

[Biology] Participation Medal, Intermediate Biology Olympiad 2025, *11th, International*

[Biology] Participation Medal 2023, Commended Medal 2024, Highly Commended Medal 2025, British Biology Olympiad, *9th-11th, International*

[Academic] National Honor Society, *10th-12th, National*

[Academic] California Scholarship Federation, *9th-12th, Regional*

[Academic] Academic Mustang Achievement Awards 2023, *9th-11th, School*

[Academic] AP Scholar with Distinction Award, *11th, International*

[Academic] AP Scholar Award, *10th, International*

[Academic] 1st Place in Bridge Challenge in Yorba Linda Science Olympiad Competition 2023, *9th, School*

[Arts] CM Certificate Level 10 (Piano), Music Teacher's Association of California, *10th, Regional*

[Arts] Participation Winterfest Award, Music Teachers' Association of California 2023, *9th, Regional*

[Arts] 2nd Place in Springfest Orange County 2023, *9th, Regional*

[Arts] Piano Solo Winner, Musical Arts Competition of Orange County 2022, *9th, Regional*

[Arts] 1st Place in Musicfest Orange County 2022, *9th, Regional*

[Community Service] President's Volunteer Service Award-Gold 2023, *9th-10th, National*

[Community Service] High Honor Tutors, Glad Academy, *11th, International*

RESEARCH EXPERIENCE

Lab Intern & Researcher, Molecular Bio Lab at Shenzhen Sun Yat-sen Uni., 40 hrs/wk, 6 wks/yr 10th-12th

- 10th-11th: Researched protein interaction mechanisms in cancer biology, and investigated the role of YAP1 in tumor immune evasion by conducting immunoprecipitation assays to map binding domains between proteins; co-authored a peer-reviewed paper published in *Oncogene* (Aug 2025) on prostate cancer ([DOI: 10.1038/s41388-025-03548-0](https://doi.org/10.1038/s41388-025-03548-0));
- 11th-12th: Conducted Western Blot, troubleshoot the co-immunoprecipitation protocol; researched on immune invasion in breast cancer cells; co-authored a peer-reviewed paper published in *Science Signaling* Vol. 18, No. 909 ([DOI: 10.1126/scisignal.adx2532](https://doi.org/10.1126/scisignal.adx2532)).

Independent Researcher & Wet Lab Leader, iGEM HS-Alpha, 10 hrs/wk, 32 wks/yr

11th-12th

- Researched sustainable bioconversion of paper waste using synthetic biology, performed molecular biology experiments, e.g., agarose gel electrophoresis, gel extraction, protein electrophoresis, etc., recorded, organized, and summarized experimental data, and conducted expert interviews;
- Completed in iGEM 2025 (team page <https://2025.igem.wiki/hs-alpha/>).

Independent Researcher & Wet Lab Intern, iDEC PIM-VAC, 10 hrs/wk, 20 wks/yr

11th-12th

- Researched and developed MP6-UTT, a genetic tool that accelerates microbial adaptation and boosts strain performance in diverse environments, and conducted plasmid extraction, etc.;
- Completed in iDEC 2025 (team page https://idec-teams.github.io/2025_PIM-VCA/).

Independent Researcher, with PhD. Candidate Yang at JHU, 10 hrs/wk, 24 wks/yr 10th-11th

- Researched the correlation between carbon dioxide emissions and malaria transmission in Africa;
- Authored a research paper published in the *Journal of Research High School, October issue, 2025*; https://www.journalresearchhs.org/_files/ugd/ebf144_4a1d049bde234372aa2b7647d975ae0f.pdf

LEADERSHIP EXPERIENCE

Founder, iGEM Club, YLHS, 3 hrs/wk, 36 wks/yr 12th

- Established the first iGEM Club for students to explore synthetic and molecular biology;
- Recruit 35+ members, contact local community colleges to gain lab access, and lead weekly workshops.

Teacher Assistant, AP Literature at YLHS, 5 hrs/wk, 44 wks/yr 12th

- Grade AP Literature student assignments and provided detailed feedback to support students' learning;
- Answer curriculum questions, clarify writing techniques, and offer guidance to improve students' work.

Student Representative, School Site Council, YLHS, 2 hrs/wk, 8 wks/yr 11th-12th

- Voiced student perspectives on school policies, events, and initiatives and collaborated with school leadership to provide suggestions for improving academic and extracurricular programs.

Vice President, California Scholarship Federation, YLHS, 3 hrs/wk, 36 wks/yr 11th-12th

- Organize school-wide volunteer events, e.g., beach cleanups, holiday card writing for faculty, and creating handicrafts donated to the local library.

Vice President & Co-founder, YLHS Applied Justice, YLHS, 2.5 hrs/wk, 20 wks/yr 10th-11th

- Advocate for social justice through legal studies, including studying legal cases, watching trials, etc.;
- Designed posters and promoted the club, and recruited over 100 club members at school;
- Organize biweekly club meetings; prepare meeting agenda and study materials.

Treasurer, YLHS Pre-med, YLHS, 2.5 hrs/wk, 20 wks/yr 10th-11th

- Manage social media campaign for the club and create promotional posters every quarter;
- Attend biweekly club meetings, help with club fundraising, and manage all the club expenses;
- Learn about various diseases with club members to raise awareness of personal health.

Team Lead & Member, Science Olympiad, YLHS, 3 hrs/wk, 36 wks/yr 9th-12th

- Meet weekly to study advanced science knowledge and work on challenging projects, e.g., bridge building, weight and velocity tests, etc.;
- Team up to compete in the Orange County Regional Science Olympiad 2023.

VOLUNTEER EXPERIENCE

Student volunteer, Providence Hospice, 5 hrs/wk, 20 wks/yr 11th-12th

- Conduct administrative work, e.g., preparing first aid and blood draw kits, archiving the patients' profiles, organizing the medical inventories, etc.

English tutor, Glad Academy, 1 hr/wk, 32 wks/yr 9th-12th

- Teach second language learners English speaking skills, prepare lecture notes, and practice sheets;
- Successfully helped 5+ learners improve their oral communication skills.

Volunteer, Sunrise Senior Living, 1 hr/wk, 40 wks/yr 9th-12th

- Visit weekly during the school year to accompany seniors and provide emotional support, e.g., playing the piano at dinner, organizing holiday events, reading stories, making bracelets, etc.;
- Volunteered full-time during the summer break, preparing meals, cleaning the dining hall, etc.

Volunteer, Yorba Linda High School Library, 1 hr/wk, 10 wks/yr 9th-12th

- Sort, organize, and return books; guide visitors to locate specific books and use the library resources.

Volunteer, Yorba Linda Public Library, 3 hrs/wk, 16 wks/yr 9th-12th

- Volunteer to manage event booths at the library, and provide toddlers with guidance in the events, e.g., Lego Building and STEM Exploration activities for toddlers;
- Clean up the conference room or the children's section of the library.