

# Jack Yu

Incoming Freshman at Caltech

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## Education

Albuquerque Academy ([aa.edu](https://www.aacademy.org))

6400 Wyoming Blvd NE, Albuquerque, NM 2020 - 2025

California Institute of Technology ([caltech.edu](https://www.caltech.edu))

1200 E California Blvd, Pasadena, CA 08/2025

- Majoring in Physics, graduating in June 2029

## Work Experience

Optoelectronics Intern, Sandia National Labs ([SNL Photonics Center](https://www.snl.gov)) Albuquerque, NM Jun 2024 – Aug 2025

- Contributed to simultaneous projects in laser technology and semiconductor device development
- Advanced R&D for [DARPA's H6 Project](#), supporting development of a piezo-tunable etalon for chip-scale atomic clocks
- Performed hands-on testing and characterization of VCSELs (vertical cavity surface-emitting lasers) using a probe station
- Fabricated custom optomechanical components through precision manual machining to enable experimental setups
- Constructed an external cavity diode laser (ECDL) in Littman–Metcalf configuration to evaluate AR coatings for diode lasers
- **Principal Investigators:** Dr. Darwin Serkland, Dr. Alejandro Griñe

## Volunteer Experience

ABC Sunscreen Founder ([ABCsunscreen](https://www.abc-sunscreen.org))

Albuquerque, NM Jun 2021 - present

- 501(c)(3) Nonprofit providing sunscreen to 2000+ people throughout New Mexico: for community events, swimming meets, daycares, etc. Received \$500 total grant from Harry Messec Fund.

Albuquerque Chinese Folk Dance Ensemble ([ACFDE](https://www.acfde.org))

Albuquerque, NM Oct 2023 - present

- I help arrange music for the Albuquerque Chinese Folk Dance Ensemble, a local dance group dedicated to performing Chinese ethnic, folk, and classical dances, using a DAW (Ableton) and Audacity.

Albuquerque Prospect Chinese Academy ([PCA](https://www.pca.org))

Albuquerque, NM Aug 2022 - May 2024

- Working to develop Chinese bilingual skills for preschool and elementary children. Gaining teaching and leadership skills in the classroom

## Extracurriculars

Piano

Albuquerque, NM 2011 – Present

- Participating in state-wide, regional, national, and international competitions
- Invited to perform at Carnegie Hall, Bargemusic Hall, and Popejoy Hall

NCAA Division III Varsity Swim Team *California Institute of Technology*

Pasadena, CA 2025 – Present

- Competing as a student-athlete on Caltech's NCAA Division III varsity swim team

## Selected Awards

- First Class Distinction, [NCTE Achievement Awards in Writing](#) for Essay: *Once in a Germination*; recognized nationally for excellence in analytical and creative writing
- **Grand Prize, BMTG Intercontinental Competition** [Brooklyn Music Teachers' Guild](#) New York City, NY 2023
  - Invited to perform at Carnegie Hall, one of the world's most prestigious concert venues
- 2nd Place, UNM-PNM State-Wide Math Competition; AIME Qualifier, demonstrating advanced problem-solving skills at the state level
- Albuquerque Academy Team Record, 200 Medley Relay (previous record stood for 7 years); NISCA All-American, 200 Medley Relay, recognized nationally for elite swimming performance
- National Merit Finalist – Top 0.5% of PSAT/NMSQT score nationwide, highlighting academic excellence and standardized-test achievement