

KATHERINE HEE-YEON TAE

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EDUCATION

Phillips Academy, MA

Class of 2027

ACT 36 (36 in all sections); National Merit Semifinalist (PSAT/NMSQT 1500); AP Scholar with Distinction

Herberger Young Scholars Academy, AZ

2022–2024

Accelerated program for gifted students; skipped Grade 8; National Honor Society

ENVIRONMENTAL RESEARCH

AltaSea at the Port of Los Angeles

2025–2026

Ocean STEM Fellow; Group Research Lead

San Pedro, CA

- Renewable Energy Research

- **2026:** Led a 3-person engineering team evaluating polyhydroxybutyrate (PHB) bioplastic synthesis; built a prototype testing rig and quantified a yield–quality trade-off in which outdoor cultures produced 1.57× more PHB yield but with 29% lower molecular weight and film strength; manuscript under revision at *Journal of High School Science* (JHSS).
- **2025:** Designed and constructed a photovoltaic–thermal (PVT) solar heat-recovery system to cultivate *Chlorella* sp. for PHB bioplastic production, increasing biomass density by ~40% over ambient controls; published in *IYRC Journal*, 2026.

University of California San Diego, Scripps Institution of Oceanography

2025

Marine Biology Research Scholar; Group Research Co-Lead

La Jolla, CA

- Marine Climate Impact Research

- Co-led a 4-person team investigating effects of elevated temperatures on California mussel (*Mytilus californianus*) byssal-fiber strength using tensile testing and FLIR thermal imaging; found increased fiber strength at elevated temperatures and recorded a 2.6% decline in field coverage per 1 °C increase; published in *IYRC Journal*, 2026.

Seacoast Science Center

2024

Marine Science Fellow

Rye, NH

- Marine Climate Impact Research

- Evaluated the impacts of ocean acidification on invasive European green crab (*Carcinus maenas*) feeding rates and predatory behavior.

University of Arizona, College of Public Health

2024

Young Global Leaders Program; Student Research Intern

Tucson, AZ

- Environmental Health Research

- Supported environmental epidemiology research on disinfectants and sanitizer efficacy across porous and non-porous surfaces.

FILM & MEDIA EXPERIENCE

PBS SoCal (Producer: Bonnie Boswell)

2025–Present

Documentary Production Intern

Los Angeles, CA / Remote

- Media & Production Support

- Transcribe, review, and organize 200+ video and audio assets; conduct archival research, coordinate production communications, edit grant materials, and select music for documentary sequences.

- Production Credits

- Credited on *Becoming America with Bonnie Boswell*: Episode 1, “Life, Liberty and the Pursuit of Happiness,” and Episode 2, “EE Just: The Groundbreaking Black Biologist History Almost Forgot” (both premiered 2026); Episode 3 in progress.

Independent Filmmaking & Festival Selections

2024–Present

Director / Cinematographer / Editor / Actress / Music Arranger

- [*Patjuk*](#) (Documentary, 2025): Retelling Korean folklore, family rituals, and food as forms of cultural memory and connection.
 - **Awards:** National Academy of Television Arts and Sciences (NATAS) Regional Student Emmy® Winner and National Student Production Awards Nominee (2026); Arizona Student Film Festival, Fifth Place (2026); Scholastic Silver Key in Film (2026).
 - **Selections:** All American High School Film Festival, International Kids N Film Festival, Experiments in Cinema, and Las Cruces International Film Festival.
- [*Entangled*](#) (Experimental Documentary, 2026): Exploring the deadly consequences of everyday discarded plastic to marine organisms.
 - **Award:** Documentaries Without Borders International Film Festival Merit Award (2026).
 - **Selections:** SunChild International Environmental Festival, Chesapeake Film Festival, Friday Harbor Film Festival, and Climate Changemaker Teen Film Festival.
- [*Ttanggtaeokgi*](#) (Narrative Short, 2026): Drawing parallels between the Korean game *ttanggtaeokgi* and themes of immigration and breaking beyond boundaries to pursue dreams.

PUBLICATIONS, AWARDS & RECOGNITION

Environmental Research Publications

- **Tae, K. H.-Y.**, et al. “Quantity–Quality Trade-Off in PHB Produced by *Chlorella* sp. Under PVT-Assisted Outdoor Cultivation.” *JHSS*, under revision.
- **Tae, K. H.-Y.** (2026). “Harnessing PVT Heat to Cultivate Algae for Renewable Energy Efficiency and Plastic Pollution Reduction.” *International Young Researchers Conference (IYRC) Journal*. doi:10.34614/IYRC2026119.
- **Tae, K.**, et al. (2026). “Effects of Rising Temperatures on Byssal Fiber Strength and Population Stability in the California Mussel.” *IYRC Journal*. doi:10.34614/IYRC2026136.

Environmental Research Awards

- GENIUS Olympiad Science Finalist (2026); International Greenwich Olympiad Silver Medal in Environmental Science (2026); AltaSea Ocean STEM Second Place Overall and Best Experiment (2025); California State Senate Certificate of Recognition (2025).

Literary Arts Awards & Fellowship

- GrubStreet Teen Summer Writing Fellowship — Selected as 1 of 20 fellows from 100+ applicants; awarded a stipend (2026).
- Scholastic Art & Writing Awards — Silver Key in Poetry (2025); Honorable Mention in Personal Essay (2024, 2025).
- Poetry and personal essays published in *The Pariah* (2026) and *The Courant* (2025).
- Poetry Out Loud — Herberger Young Scholars Academy Semifinalist (2024).

LEADERSHIP & COMMUNITY ADVOCACY

Environmental Leadership

U.S. Youth Leadership Council for the UN Ocean Decade

2025–2026

Fundraising Co-Head

Nationwide / Remote

- Selected as **the youngest of 45 national youth leaders**; authored an ocean-literacy toolkit used in 12+ classrooms, delivered educational programming, advocated with U.S. lawmakers for ocean and climate priorities, and led the #Roots2Ripples fundraising campaign.

Phillips Academy Sustainability Coalition (PASC)

2024–Present

President, Climate Circle; Co-Founder, Climate Reading Club and Equal Earth Podcast

Phillips Academy, MA

- Lead Climate Circle programming, climate-art workshops, and the *Equal Earth* environmental-justice podcast; represented Andover Climate Lobby at the Massachusetts Youth Climate Coalition summit.

PA Wings Initiative

2024–2026

Board Member

Phillips Academy, MA

- Organized annual campus and neighborhood clothing drives and thrift sales to raise funds for charitable causes.

Arts

Andover Moviemakers Club

2025–Present

Board Member (2026)

Phillips Academy, MA

- Direct club operations; host film screenings; lead the annual 24-hour Flash Films competition for the campus community.

The Courant, Literary and Art Magazine

2024–Present

Managing Editor (2026); Poetry Editor (2025)

Phillips Academy, MA

- Solicit, manage, and select from 130+ student submissions in writing and art; organize annual launch parties; launch the magazine’s first art and writing contest.

Community Engagement

Senior Leadership

2026–Present

EBI (Empathy, Balance, Inclusion) Senior; Student Alumni Representative

Phillips Academy, MA

- Design and facilitate weekly EBI seminars for 10th-grade students centered on empathy, inclusion, and self-awareness; represent students at Trustee and Family Weekends and alumni-engagement events.

Abbot Academy Alumnae Reunion

2026

Student Research Presenter

Phillips Academy, MA

- Sole student speaker at Abbot Academy’s annual reunion; presented original research on how Abbot Academy and Phillips Academy students depicted the 1920s “New Woman” in *The Courant* and *The Mirror*.

The Tipi Raisers

2024–Present

Gen7 Youth Lead Ambassador; Volunteer

Hopi Reservation, AZ / Remote

- Assisted with home restoration for community elders and gravesite maintenance on the Hopi Reservation as a volunteer; revitalized the organization’s social media channels.

SKILLS

Media Production & Post-Production: Adobe Premiere Pro, DaVinci Resolve Studio, Trint; archival research; transcript editing; music selection and scoring

Music Performance: Flute, **8+ years** of experience in school ensembles and selective youth orchestras, including New England Conservatory (NEC), Phoenix Youth Symphony Orchestras, and Metropolitan Youth Symphony Orchestra; arranged *Eomma Arirang* (Korean trot) as the score for *Patjuk* and recorded it as a flute duet with Native American flutist Dr. Suzanne Teng.

Languages: English and Korean (bilingual); Spanish (proficient)