

Welcome to

FIRST

!!!!!!!!!!!!



What is FAST?

Future

Advancers in

Science and

Technology



1

Ask Exciting
Questions

2

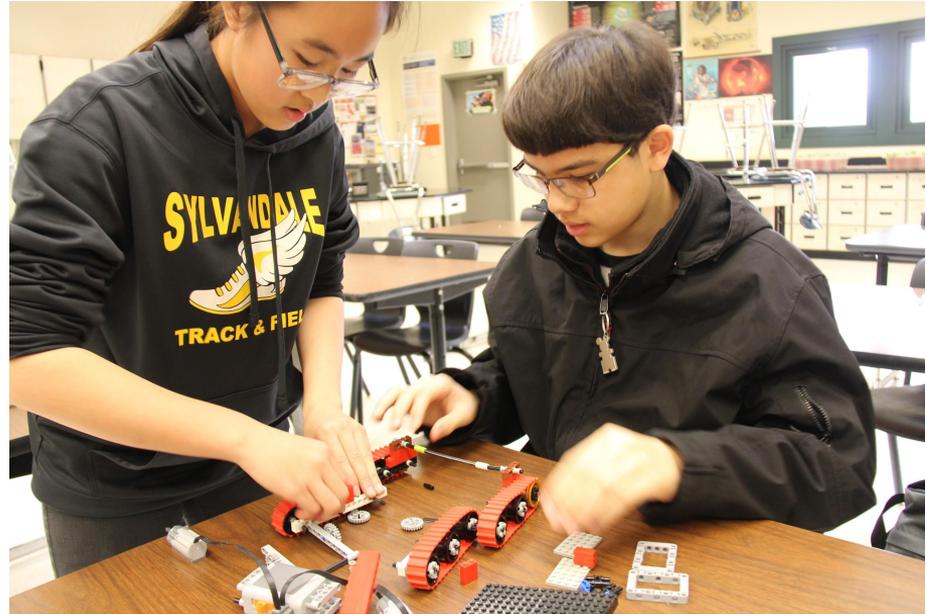
Design
Experiments

3

Get guidance
from Mentors

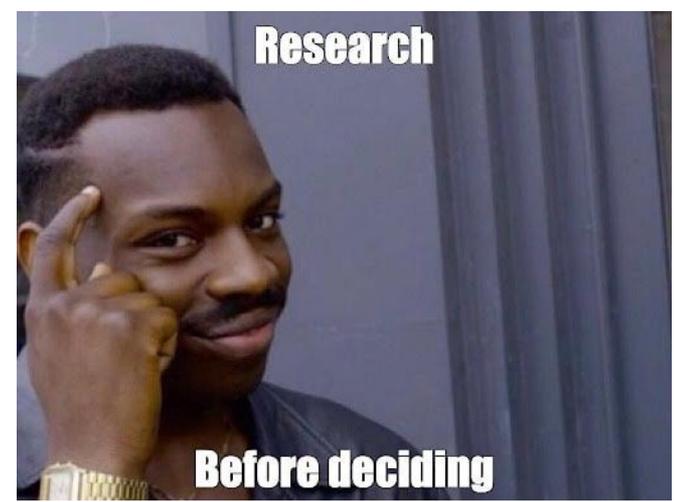
What are the goals of FAST?

- Ask questions
- Design projects
- Yearlong science project
- Science Fair(s)
- Stanford Symposium
- Have fun!
- Meet new friends :)



→ You can work on a FAST project solo, or in a team of 2 or 3!

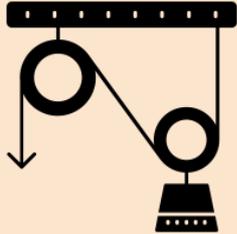
Explore any subject area you want!



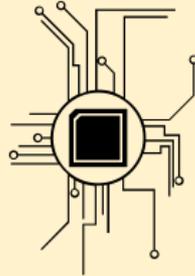
DATA SCIENCE



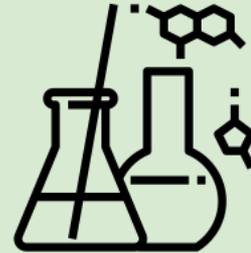
PHYSICS



ENGINEERING



CHEMISTRY



BIOLOGY



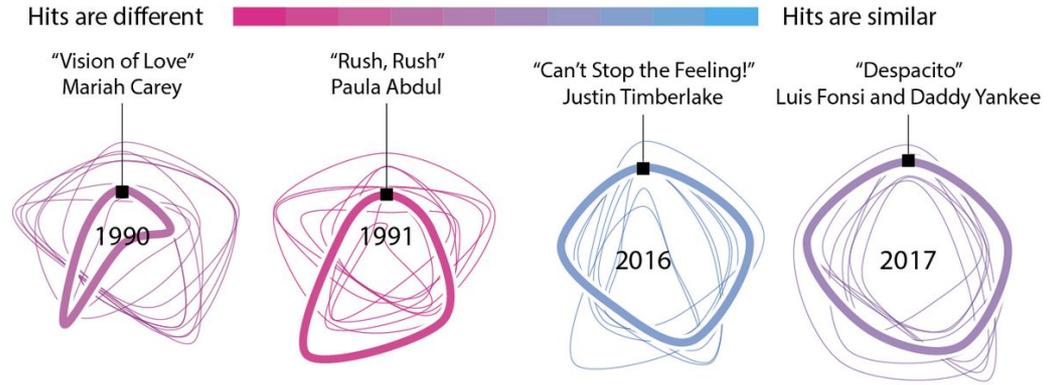
Data Science Inspiration



Generative AI and Chatbots



Do all summer songs sound the same? 👁️



Sports Analytics

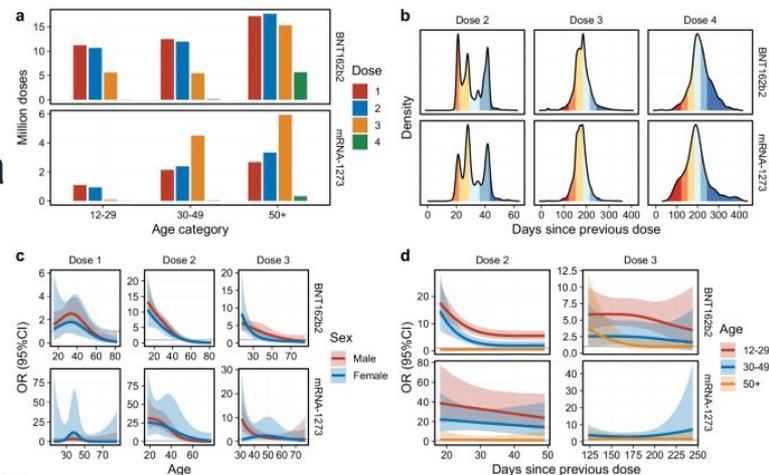


Climate Modeling



What's new in data science?

Influence of mRNA Covid-19 vaccine dosing interval on the risk of myocarditis

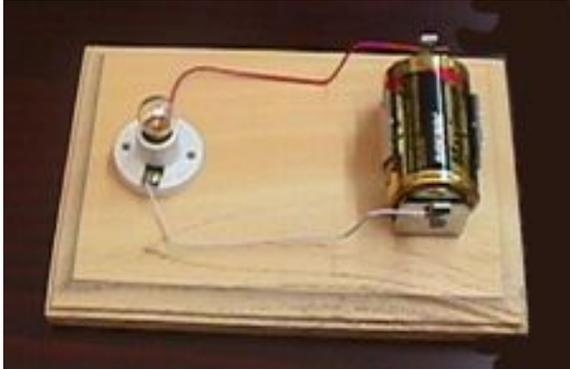


Pretrainable geometric graph neural network for antibody affinity maturation



Physics Phenomenon

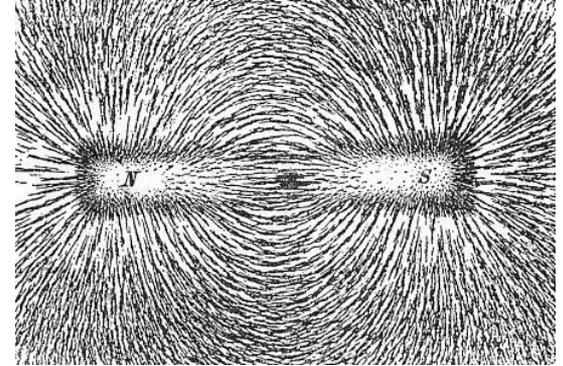
Electricity



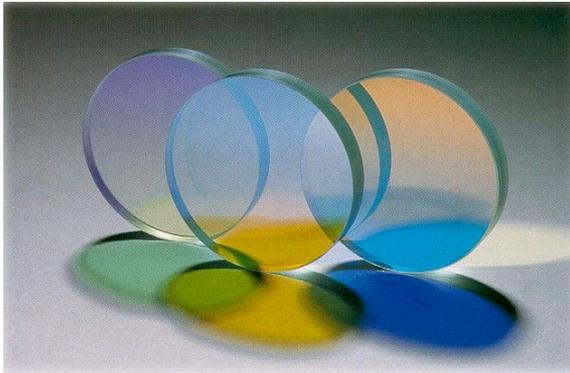
Mechanical Forces and Kinetics



Magnetism



Light



Astrophysics

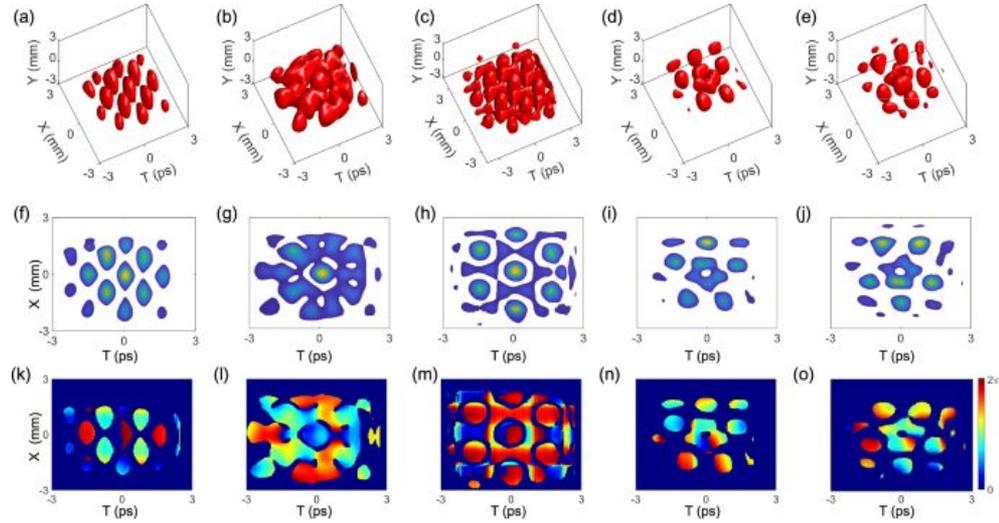


Quantum Computing

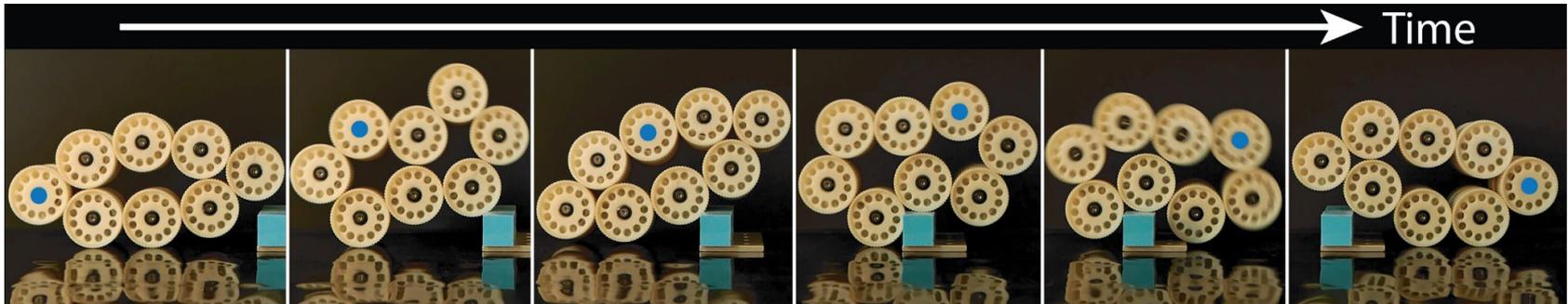


What's new in physics?

Spatiotemporal hologram



Robot swarms meet soft matter physics



Engineering Devices, Life,... Whatever You Want

3D Printing



Architecture



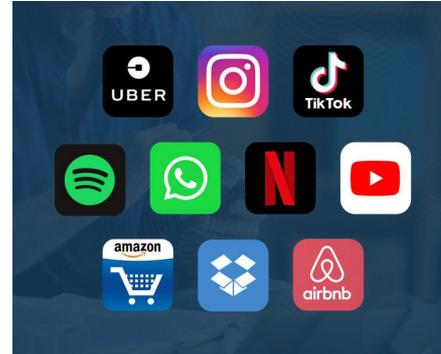
Clean Energy/Self-driving Cars



Robotics



Coding Applications



What's new in engineering?

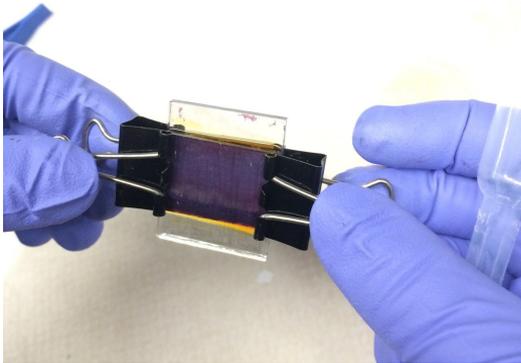
Biohybrid robots controlled by electrical impulses — in mushrooms



[Video](#)

Calling for Chemists!

Solar energy (overlap w/
engineering & physics)



Environmental testing



How do eggs affect bread
dough?



Where did all the gold in
the universe come from?

What's new in chemistry?

NEWS

CHEMISTRY

Chemists turned plastic waste into tiny bars of soap

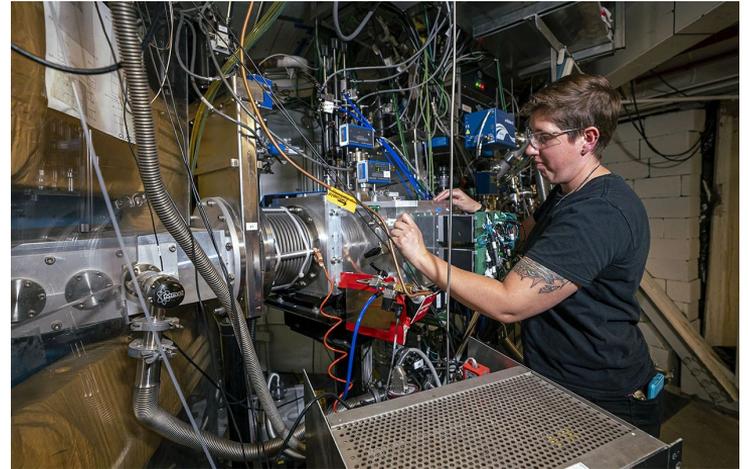
A new technique could one day help turn plastic waste into valuable raw materials



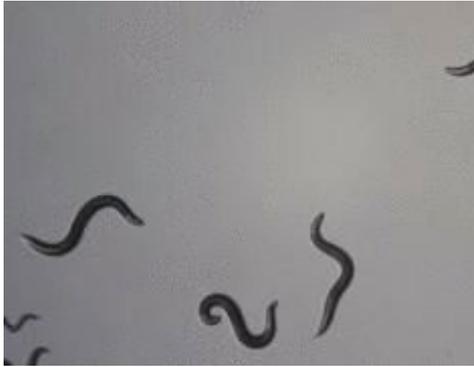
What's new in chemistry?

Heaviest element yet within reach after major breakthrough

Success with a new route to producing superheavy elements paves the way to making the elusive element 120.



Biology at its Best



Could microbes eat your plastic trash?



Strawberry-Powered Aquarium: Creating a self-sustaining ecosystem



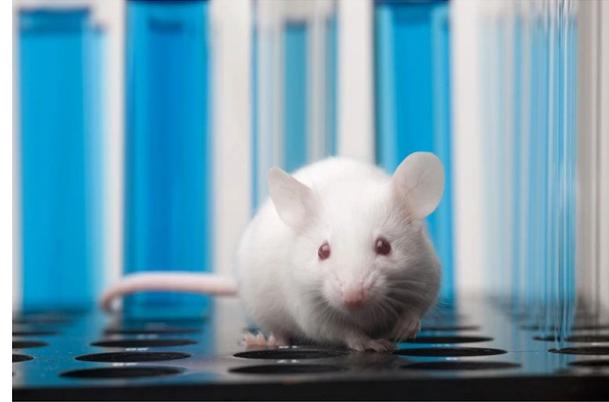
Why is it so hard to cure the common cold?



How is whalesong like pop music? (And why?)

What's new in biology?

Transparent mice made with light-absorbing dye reveal organs at work

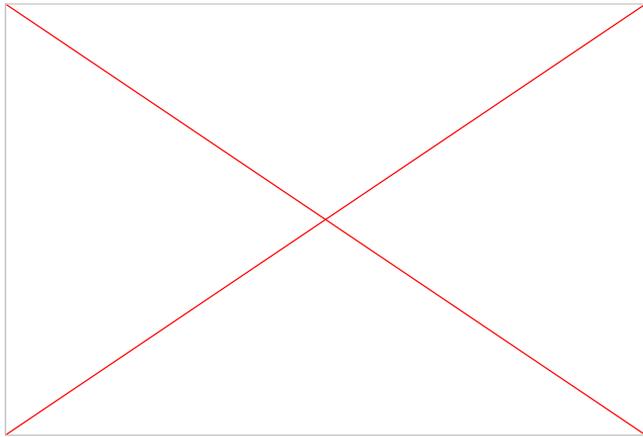


[Video](#)

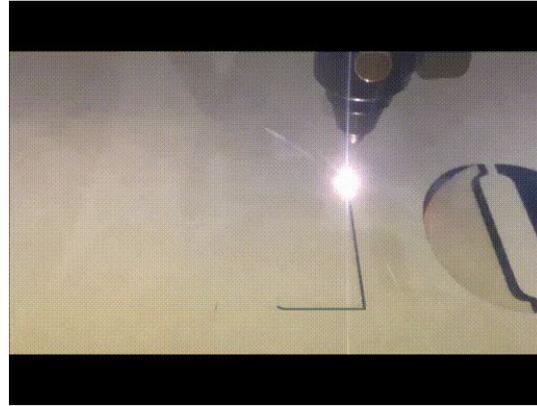
Resources Available for Your FAST project

\$100 per person for project supplies!

 seen by the FAST high speed camera!



Design parts for a robot on a laser cutter or 3D printer



Plus lots more!

- Microscopes 
- UV+Visible Spectrometer 
- Laptops with computational software 
- High frequency electronics + oscilloscope 
- Drones 

Fall 2025 Sessions (Always a Saturday)

Brainstorming (0-2)	Mentor Pairing (3)		
	Working with Mentors (4-6)		
September	October	November	December
06 September (0)	25 October (3)	01 November (4)	06 December (6)
13 September (1)		15 November (5)	13 December (7)
27 September (2)			

At Stanford campus! (7)



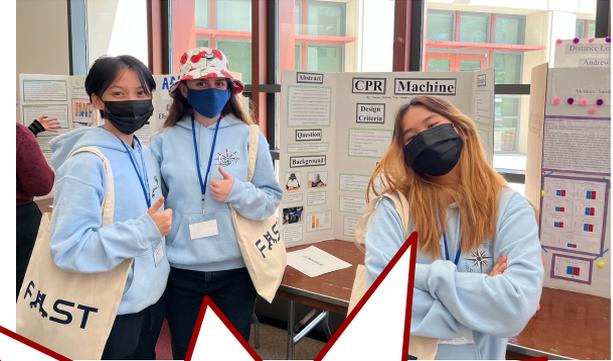
Spring 2026 Sessions (Always a Saturday)

Science Fairs (Feb - Mar)

Working with Mentors (8-13)

January	February	March
10 January (8)	14 February (10)	14 March (12)
24 January (9)	28 February (11)	21 March (13)
		<u>23-27 March</u>

Present your poster at Stanford!



Symposium!

!!

(week of 23 Mar)

Expectations for Students

- Design a project that excites YOU!
 - Mentors are just here to help :)
- Attend at least 80% of FAST sessions
 - Let your mentor know if you can't make it!
- Suggested: work between sessions
 - Eg. background reading, water plants, 3D printing
- Prepare a poster for Stanford Symposium!
 - Optional: compete in regional science fairs!



**TEACHER TELLS
YOU WHAT TO DO**



**YOU TELL
GRAD STUDENTS
WHAT TO DO**

What mentors are here for

- Support student projects
 - STUDENTS get to choose what the project is!
- Help order materials
- Respond to questions on Remind or Email
- Coordinate with an alternate mentor if they ever need to miss a session



Important Note:

FAST mentors are **mandated reporters**: we're required to follow the same rules as teachers and report/connect you with resources if we learn about abuse or neglect

Our role as CPOs

- Give YOU resources to make AWESOME projects
 - Ask us if you want to buy capital equipment! (\$1K-5K)
 - We buy the food 😊 Let us know what you want!
- Keep FAST running safely and smoothly 🇨🇭
 - Bring us any suggestions/concerns (e.g. if you'd like to change mentors partway through the year)
 - Loop us in if you want to do anything dangerous!



What will a FAST Session typically look like?

12:00 - 12:30 pm	Lunch (Provided by FAST)
12:30 - 1:30 pm	Workshop
1:30 - 4:00 pm	Project Work (+ snacks!)
4:00 - 4:30 pm	Fun Team Challenge/Activity
4:30 - 5:00 pm	Clean Up

What will today (Session 1) look like?

12:00 - 12:30 pm	Lunch (Provided by FAST)
12:30 - 1:00 pm	Intro to FAST Presentation (this one)
1:00 - 1:30 pm	Introducing our Student Leaders/Mentors!
1:30 - 4:00 pm	Hands-on Cool Science Demos
4:00 - 4:30 pm	Trivia + Raffle
4:30 - 4:45 pm	Clean up



For Seniors: QuestBridge

Full scholarship to top colleges

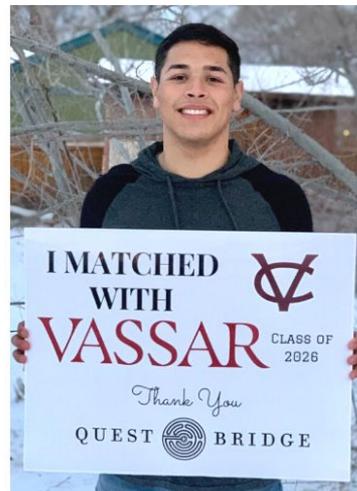
- e.g. Stanford, MIT, USC, Pomona College

Eligibility:

- Family Income < ~\$65,000
- “Primarily A’s in the most challenging courses available”
- Any citizenship/immigration status ok

Application Deadline: September 26

We can help you with the application, talk to a mentor!



James Lick Specific

Questions?

Reach out to:

- Mrs. Huynh: huynhg@esuhsd.org
- Student leaders
- Chief Program Officers (CPOs)
 - Cade Napier (cnapier@stanford.edu)
 - Daniel Howell (dkhowell@stanford.edu)
- Other FAST students + mentors!

Student Leader Introductions



(Student Leader)

Pronouns:

Hometown:

Previous FAST Project:

Hobbies:

Mentor Introductions



Cade Napier (CPO)

Pronouns: he/him/his

Hometown: San Antonio, TX

Research interests: How can we use electricity to make water treatment more energy efficient?

Hobbies: Running, swimming, watching football and reading



Daniel Howell (CPO)

Pronouns: he/him/his

Hometown: Madison County, Iowa

Research interests: Same as Cade, but like, different. Using electrochemistry to remove pollutants or turn them into valuable resources

Hobbies: board/tabletop games, watching science fiction, running

Andrew Hill Specific

Questions?

Reach out to:

- Mr. Castaños, Mr. Shih, and Mr. Sarringhaus
- Student leaders
 - My Dang, Catherine Nguyen, Ha Dinh, Nancy Martinez, Elizabeth Nguyen
- Chief Program Officers (CPOs)
- Deputy Program Officer (DPO)
- Other FAST students + mentors!

Student Leader Introductions



My Dang (President)

Pronouns: She/her

Hometown: San Jose

Previous FAST Project: The Effects of Different Chemicals in *C. elegans* Feeding Behavior



Catherine Nguyen (Vice President)

Pronouns: She/her

Hometown: San Jose

Previous FAST Project: Prosthesis Hand



Ha Dinh (Secretary)

Pronouns: she/her/hers

Hometown: San Jose, CA

Previous FAST Project: The Effects of Different Chemicals in *C. elegans* Feeding Behavior



Nancy Martinez (Treasurer)

Pronouns: she/hers

Hometown: San Jose

Previous FAST Project: Non-prescription pain medication and its impact on the gut microbiome



Elizabeth Nguyen (Publicist)

Pronouns: she/hers

Hometown: San Jose

Previous FAST Project: Orlistat Warriors

Mentor Introductions



Jessica Luu (CPO)

Pronouns: she/her

Hometown: Congers, NY

Research interests: Inorganic chemistry, Fe-based materials for batteries

Hobbies: Taking long walks, watching anime, reading webtoons, crocheting



Oliver Wu (CPO)

Pronouns: He/They

Hometown: Edmond, OK

Research interests: Chemical Biology, gut-vasculature barrier, mass spectrometry-based glycoproteomics

Hobbies: Cooking, crosswords, trivia, NBA, fighting games



Gautham Ravipati (DPO)

Pronouns: He/Him

Hometown: Hyderabad, India

Research interests: Programming Languages, Computer Hardware Design

Hobbies: Astrophotography, Running, Hiking, Travelling

To Do List:

- ❑ Fill out your paperwork!
- ❑ Join Remind
 - ❑ James Lick: @jlfast2526
 - ❑ Andrew Hill: @ahfast25
- ❑ Come to Session 2/3 on September 13th
And 27th!



Join Remind

Code: jlfast2526

