

# Biomedical Engineering Society at UCLA



2021-2022  
Chapter Development Report

Established in 2003, the Biomedical Engineering Society (BMES) chapter at University of California, Los Angeles (UCLA) aims to connect students interested in Bioengineering and support them through professional development, community outreach, technical skills development, and mentorship and social opportunities. We represent the only Bioengineering-related student organization at UCLA at the undergraduate level and hope to connect undergraduates, graduate students, alumni, staff, and faculty in our organization to the Bioengineering Department and greater engineering community on campus. Whether students are interested in joining social activities to make new friends or build professional development skills for their futures, we strive to help students succeed during both their college and career journeys. Reflecting back on this past 2021-22 academic year, BMES at UCLA has encouraged more interpersonal connections between students and leaders in industry, introduced a new technical workshops series, and pushed for greater diversity and inclusion through increased mental health events. Our achievements and areas of growth are highlighted further in the following chapter development report.

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# A Letter From Our Advisor

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Dear Student Chapter Award Committee Members,

This past year, BMES at UCLA has shown growth across all of our professional, outreach, mentorship, and technical aspects despite the unique challenges presented by the ongoing COVID-19 pandemic. While transitioning many of our events back in-person, our student organization has focused its efforts in expanding three specific areas: greater connections with leaders in industry, increased accessibility to technical workshops, and more diverse mental health events.

UCLA BMES strives to set up our members for success after graduation by providing a wide variety of resources and opportunities for professional and career development. Many of these events that we have continued from previous years include our Biotechnology Career Fair, Company Infosessions, and Resume and Cover Letter Workshops. During the 2021-22 academic year, we launched a new Coffee Chat series with professors in the Bioengineering Department as well as with leaders in Industry. The purpose of these coffee chats was to offer a more intimate environment, compared to panels and infosessions, where students can have a prolonged conversation with speakers. These also provided the opportunity for students to ask professors and industry representatives about their academic journey that led up to choosing their specific career path.

Additionally, our technical projects sector expanded skills development opportunities to be more accessible for students. UCLA BMES spearheaded a new board position this past year, the Workshops Officer position, to hold and lead several technical skills workshops. In previous years, many of our project teams, such as Build Team, Cell Team, and Design Team, have been year-long projects requiring a longer commitment from students. To provide an opportunity for students to learn new technical skills without the year-long commitment, the Workshops Officer designs flexible, one-time workshops that have included learning Arduino, Git, and PCB.

Lastly, UCLA BMES is always working towards finding ways to create a more equitable, diverse, and inclusive environment for our members. This past year, we hoped to include a greater frequency and variety of mental health events incorporated into our mentorship branch. These have not only included discussion-type events where students can learn to practice mindfulness, share destressing tips, and talk to others about mental health support but also social activities such as our Plate Smashing event, where members learned unique ways to healthily channel their stress.

We are proud of all of the accomplishments of our BMES board and general members this year. From collaborating with others during our first in-person hackathon to developing strong relationships with alumni mentors, we are prepared to continue setting up our members for success. As we look towards the future, we are excited for all of the possibilities and directions for growth while learning from the experiences this past year has brought.

Sincerely,  
Dr. Daniel T. Kamei  
Chapter Advisor  
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# Administrative Report

The BMES chapter at UCLA is classified as a medium-sized engineering student organization by the UCLA Henry Samueli School of Engineering. Our Executive Board consists of one President and three Vice Presidents who lead our General Board of 35 members. Our Executive and General Boards work together to execute and host all BMES events for our over 200 members.

The BMES General Board is divided into three branches: internal, external, and technical. Each of the three Vice Presidents oversees one of the branches, while the President oversees all club-wide chapter operations. The officers identified in the leadership diagram within this report do not include the 8 committee members who help chairs with event planning.

BMES membership is open to any undergraduate or graduate student interested in Bioengineering. While a large majority of our members are Bioengineering majors, members also come from other engineering and science backgrounds who hope to participate in our professional, outreach, technical, and mentorship programs.

# BMES BOARD

## Administrative Overview

### CHAPTER PRESIDENT

Angela Lu  
*angelaluclu@ucla.edu*  
Oversees Chapter Operations

### Internal Vice President

Aditya Sivakumar  
*asivakumar11@ucla.edu*  
Oversees internal operations, mentorship, and social events

### Mentorship Coordinator

Juhi Mehta

### Mentorship Family Heads

Yaser Khokhar  
Julia Zhong  
Kelly Tamura  
Camille Rodriguez

### Secretary

Diana Ly

### Publicity Chairs

Sharon Tam  
Shannon Li

### Historian

Jonathan Phan

### External Vice President

Rakhi Banerjee  
*rakhib@ucla.edu*  
Oversees external events, finances, and acts as industry liaison

### Treasurer

Elaine Zheng

### Industry Chair

Neha Iyer  
Giorgio Conta  
Jay Lesny Drake

### Academic Chairs

Griffith Hughes  
Katie Wu

### Community Outreach Chairs

Rohan Chawla  
Alex Ma

### Technical Vice President

Sumedha Kanthamneni  
*skanthamneni@ucla.edu*  
Oversees internal operations, mentorship, and social events

### Cell Team Project Managers

Justin Chen  
Mary Epperson

### Build Team Project Managers

JC Largade  
Mimi Mayer  
Kyle Chen

### Design Team Project Managers

Andy Yau  
William Chong  
Alyssa Tomkinson  
Samika Karthik

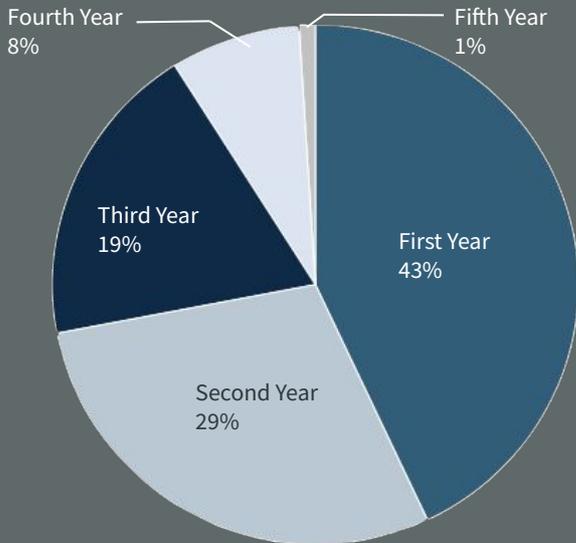
### Workshops Officer

Joseph Picchi

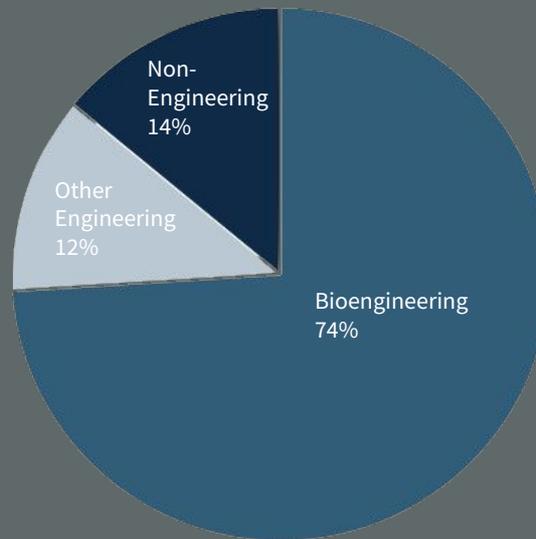
# UCLA BMES MEMBERSHIP

## General Statistics

### Membership by Year



### Membership by Major



BMES UCLA consists of 205 registered members, with 152 of these members being in the bioengineering major. Other engineering major members that are a part of BMES include chemical engineering, computer science, electrical engineering, mechanical/aerospace engineering, civil engineering, and materials science engineering. Non-engineering majors include computational systems biology, biology, physiological sciences, neuroscience, microbiology, and undeclared.

In terms of faculty, 6 of the 13 core faculty of the Bioengineering Department have participated in chapter activities over the 2020-2021 academic year.

**Total Membership: 205**

**National Membership: 10**

# UCLA BMES Meetings

## General Meetings & Executive Board and General Board Meetings

### 01 General Meetings and Agendas

	Date	Attendance	Agenda
Fall GM	09.28.2021	319	Introduce 2021-22 General Board Members, announce committee and technical projects applications, announce Fall Quarter events
Winter GM	01.04.2022	57	Introduce 2021-22 Committee Members, announce Winter Quarter events
Spring GM	03.28.2022	29	Introduce 2022-23 Executive Board Members, announce Spring Quarter events

### 02 Executive Board Meetings and Agendas

The BMES Executive Board meets on a weekly basis to cover any topics that we need to discuss with General Board members during Board Meetings as well as assign any action items for the President and Vice Presidents.

### 03 General Board Meetings and Agendas

Our General Board Meetings, led by the chapter's Executive Board, occur on a weekly basis. These hour-long meetings provide chairs the opportunity to give updates on event planning progress and ideas. Chairs are also able to discuss new event ideas with others, make announcements, and receive feedback on previous events.

General Board Meeting Dates		
Fall	Winter	Spring
10.04.2021	01.10.2022	04.04.2022
10.11.2021	01.24.2022	04.11.2022
10.18.2021	01.31.2022	04.18.2022
10.25.2021	02.07.2022	04.25.2022
11.1.2021	02.14.2022	05.02.2022
11.8.2021	02.28.2022	05.09.2022
11.15.2021	03.07.2022	05.16.2022
11.22.2021		05.23.2022

# Treasury Report

UCLA BMES prides itself in its ability to offer the majority of its events free of charge to students. The External Vice President and Finance team work together to acquire funding to help cover the costs of all chapter-related expenses. The Finance team organizes fundraisers over the course of the year, including the sale of food and the annual Talent Show, to support activities put on by UCLA BMES. Additionally, the External Vice President and Finance team obtain funds through UCLA by applying to funding sources that help to support student organizations in accomplishing their missions. UCLA BMES has also developed an accomplished sponsorship program, working with biotechnology companies to gain support for the events it puts on for its members.

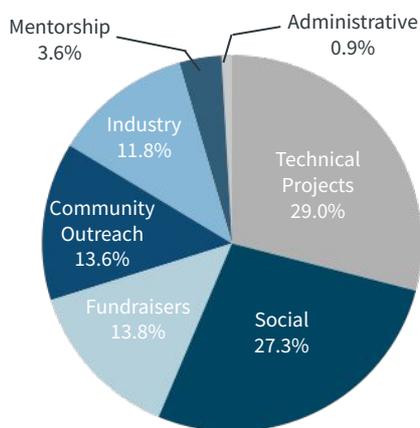
The funding obtained from each of these sources was used to support events for the school year, from 9/23/21 to 6/10/22. No further balance changes are expected, with the expected costs of future events included within this report. Ultimately, this report shows that UCLA BMES has spent \$33431.95 over the past year to put on chapter activities. No officers are monetarily compensated for their work, with all obtained funds used solely for BMES activities.

# Expense Breakdown

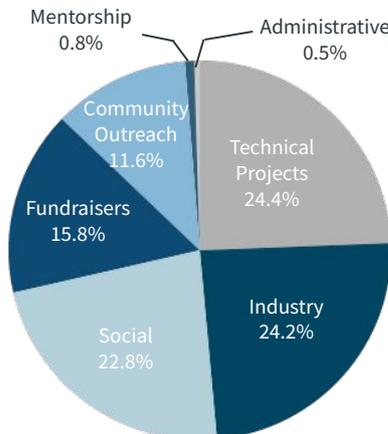
## Overview of expenditures and deposits by event category

Event Type:	Expenditures:	Deposits:
Administrative	\$298.20	\$181.78
Fundraisers	\$4616.61	\$6194.55
Social	\$9115.29	\$8968.19
Community Outreach	\$4544.00	\$4544.00
Mentorship	\$1202.64	\$306.64
Industry and Professional Development	\$3945.09	\$9491.25
Technical Projects	\$9710.12	\$9576.81
<b>Total:</b>	<b>\$33431.95</b>	<b>\$39263.22</b>
<b>Net Change in Balance:</b>		<b>+\$5831.27</b>

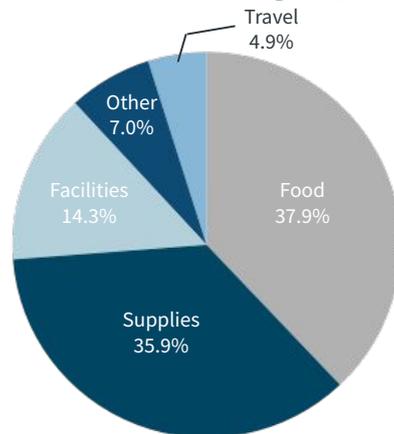
### Expenditures by Event Types



### Deposits by Event Types



### Expenditures by Event Category



## Membership Dues & T-Shirt Sales

**Date:** Ongoing      **Net Amount Raised:** \$326.89

Over the course of the school year, UCLA BMES asks its members to pay a one-time registration fee to help cover the costs of the events and program we put on over the course of the year. We also sell T-shirts for members to show their pride for UCLA BMES!

## Ralph's Community Program

**Date:** Ongoing      **Net Amount Raised:** \$68.83

BMES has an ongoing partnership with Ralphs in which members have the opportunity to donate their Ralphs rewards points to the UCLA BMES chapter.

## Chipotle Fundraiser

**Date:** 11.21.2021      **Net Amount Raised:** \$95.98

BMES collaborated with Chipotle to hold its first in-person fundraiser in nearly two years. Students participated by enjoying a meal at the restaurant or ordering takeout. Some members walked to the restaurant together as part of a small social activity, while others invited their friends from outside of BMES.

## Talent Show

**Date:** 02.03.2022      **Net Amount Raised:** \$79.50

BMES hosted its annual Talent Show, which aims to provide students with an open platform to demonstrate their creativity while also raising funds to support future BMES programming. Students prepared and performed a variety of solo and group acts, including singing, dancing, and baking. This event promoted collaboration and camaraderie between students and allowed students to take a fun break in the middle of the quarter.

## Krispy Kreme Fundraiser

**Date:** 02.28.2022      **Net Amount Raised:** \$125.00

The BMES Mentorship branch held a fundraiser to raise money for their upcoming events, primarily to help cover the costs of their annual Bake-Off (see page 15).

## Corner Bakery Fundraiser

**Date:** 03.04.2022      **Net Amount Raised:** \$40.85

BMES collaborated with Corner Bakery to fundraise for the organization. A large group of BMES students enjoyed lunch together at the restaurant, while other students stopped by on their own. This event provided students with an opportunity to have a meal together and get to know one another more.

## Krispy Kreme Fundraiser

**Date:** 04.22.2022      **Net Amount Raised:** \$181.89

Seeing the success of the first, BMES held another fundraiser selling Krispy Kreme doughnuts on Bruinwalk. This fundraiser was extremely successful, as over 50 dozen doughnuts were sold by early afternoon. Since there were many visitors on campus that day, this event also allowed us to promote BMES to prospective UCLA students and members of the community.

## Boba and Banh Mi Fundraiser

**Date:** 05.10.2022      **Net Amount Raised:** \$559.00

BMES held a fundraiser selling Boba and Banh Mi sandwiches in the Court of Sciences. This event generated the most profit among all of our food fundraisers and was highly anticipated by students. Students had fun while managing the fundraiser booth, and many students stopped by for a snack and learned more about the organization.



**Total Amount Raised: \$1477.94**

### Overview of External Funding:

Name	Amount
[UCLA] Campus Support for Student Programming	\$8679.14
Industry Sponsorships	\$6270.30
[UCLA] Contingency Finance Application	\$5180.60
[UCLA] Community Activities Commission	\$4464.31
[UCLA] Bioengineering Department	\$3017.97
[UCLA] Engineering Alumni Association	\$1850.00
[UCLA] Recreation Event Fund	\$1697.50
[UCLA] Student Union Event Fund	\$1139.85
[UCLA] Residential Life Funding	\$1000.00
[UCLA] Academic Success Referendum Fund	\$120.00
<b>Total:</b>	<b>\$33431.95</b>

# Chapter Activities

UCLA BMES strives to offer its members with a wide range of events to support them for the duration of their undergraduate career as well as prepare them for their futures in the field of bioengineering. Events and activities offered by the organization are split into six overarching categories: social, community outreach, mentorship, industry and professional development, academic support, and technical skill advancement. Social events include both undergraduate-specific events, as well as department-wide events, that help to facilitate relationships between members of BMES and the larger bioengineering community. Our community outreach programs are focused on connecting our members to the community around us. The UCLA BMES mentorship program is focused on creating bonds between upper and lowerclassmen, with the goal of providing students guidance during their undergraduate journey. Similarly, the academic events of BMES hope to better prepare UCLA BMES members to succeed in undergraduate classes and beyond, creating accomplished students. We also have made significant strides in improving our professional development branch, creating more opportunities for students to interact with industry professionals and gain experience in the biomedical industry. Finally, our technical project teams help to provide our students with hands-on skills to better prepare them for their future careers.

Each of the events within each category have been implemented with the goal of helping our members succeed as bioengineering professionals as well as individuals. As we continue to grow, UCLA BMES hopes to continue to expand upon our collaborations, specifically with other UCLA organizations, other BMES chapters, and finally, on the national level.

# Social

Each year, BMES hosts a variety of social events with the goal of fostering relationships between our members and the larger UCLA bioengineering community. Our social events are largely split into two categories: department-wide events and undergraduate focused.

While departmental events are held at UCLA's campus to encourage participation from graduate students, faculty and staff, a number of undergraduate events are held within the LA area, encouraging members to explore the community around them. In these activities, students have the opportunity to bond with others with similar interests and better adjust to college life.

This year, we've worked towards implementing more events bringing together the undergraduate student population as we recognize the importance of these events given the status of the pandemic. While we continued these events in the virtual format, members were extremely excited to return in person and we met this demand with increased capacity for attendance and additional activities.

## Department-Wide Celebrations

Once to twice a quarter, UCLA BMES hosts a departmental wide social gathering to bring together the entire UCLA bioengineering community, allowing our members the opportunity to interact with graduate students, faculty and staff in the department. Over the course of this year, we held four such events, often kicking off or ending the quarter with a celebration together.

### Fall Barbecue

**Date:** 10.03.2021 **Attendance:** 104 (3 graduate, 1 faculty) **Cost:** \$799.32

The BMES Fall Barbeque is our annual kickoff event, held during the first week of the quarter. Members come together to enjoy a fun day of carnival-style games and a freshly grilled barbecue dinner.

### Holiday Party

**Date:** 11.29.2021 **Attendance:** 127 (17 graduate, 4 faculty) **Cost:** \$2178.95

Every year, BMES holds an annual Holiday Party where faculty and students come together to celebrate the coming holiday season, play fun games, and share a catered meal together. This year's theme was Polar Express, and we had train-inspired activities and a photo booth.

### Bioengineering Ball

**Date:** 03.11.2022 **Attendance:** 60 **Cost:** \$1207.97

The Bioengineering Ball is BMES's annual dance providing students the opportunity to relieve their prom days. Students are invited to socialize by dancing to a live DJ and enjoy catered snacks.

### Spring Banquet

**Date:** 05.26.2022 **Attendance:** 108 (9 graduate, 1 faculty) **Cost:** \$4026.28

The end of the year banquet provides BMES members and faculty the opportunity to look back on all of the chapter's achievements from the past year, enjoy a meal together, and bid farewell to the graduating seniors.



## Undergraduate Socials

In addition to departmental wide events, a number of events are held over the course of the year to foster relationships within the undergraduate community. These events often include fun athletic-based events or sharing a meal together.

### Fall Board Retreat

**Date:** 10.02.2021-10.03.2021

**Attendance:** 28

**Cost:** \$739.34

Each year, within the first two weeks of the school year, the incoming BMES Board travels to Big Bear to participate in a weekend of team-building activities and bonding. The goal of this retreat is to create stronger relationships within the board and lead to successful events during the school year.

### Korean Barbecue Night

**Date:** 10.24.2021

**Attendance:** 45

**Cost:** \$50.00

BMES members enjoyed a night out in Koreatown. Members had the chance to eat all-you-can-eat Korean barbecue, and then headed over to a nearby mall for ice cream and shaved ice desserts!



### Friendsgiving

**Date:** 11.19.2021

**Attendance:** 43

**Cost:** \$71.09

BMES members came together to celebrate Thanksgiving and the BMES community by having a potluck-style dinner. We watched A Charlie Brown Thanksgiving and played board games, for a fun, wholesome Thanksgiving celebration.

### Fall Mentorship House Cup

**Date:** 11.30.2021

**Attendance:** 20

**Cost:** \$224.47

At this event, the four BMES mentorship families (see page 22) competed head to head in a scavenger across campus to win points for their family.



## (E)sports Night!

**Date:** 01.28.2022      **Attendance:** 215      **Cost:** \$0

Due to the rise in cases of COVID, all UCLA affiliated events were held online during the month of January. Members participated in online games like Gartic Phone and Bomb party, encouraging continued socialization and support while we were forced to be apart.

## The Great BMES Bake-Off

**Date:** 02.26.2022      **Attendance:** 40      **Cost:** \$155.33

As an end of the quarter celebration, we held the second annual Great BMES Bake-off where each family was tasked with pairing two classic flavors and creating a special delicacy. We invited bioengineering faculty and graduate students to participate as judges and all attendees had the opportunity to taste each family's creation.

## Winter Board Retreat

**Date:** 03.05.2022      **Attendance:** 18      **Cost:** \$163.43

While nearby storms inhibited this retreat from taking place in Palm Springs, the BMES Board still got together for a night of bonding at a member's apartment. Board members participated in a number of collaborative and communication-based games, fostering relationships for the success of the organization.

## BMES x SWE take on the Getty!

**Date:** 05.14.2022      **Attendance:** 20      **Cost:** \$0

At this event, BMES collaborated with the UCLA SWE chapter to visit the Getty Museum. Members had the opportunity to mingle with other engineering students and foster inter-club relationships.



# Inter - Chapter

Over the course of the pandemic, UCLA BMES has prided itself in its virtual connections to other BMES chapters. This year, we continued to expand upon those relationships, working with a total of seven different chapters, including the University of California at Irvine, Boston University, Georgia Institute of Technology, University of California at Riverside, University of California at Berkeley, University of California at San Diego, and the University of Southern California.

We were also finally able to reimplement our annual tradition with the USC chapter of BMES and hope to continue to expand upon relationships with other chapters, in both a virtual and in-person setting.

## Trivia Mania: Clash of the Chapters

**Date:** 11.19.2021 **Attendance:** 42 students (17 from UCLA) **Cost:** \$0.00  
**Collaborating Chapter(s):** UCI, BU, GT, UCR, and Cal

Along with the UCI, BU, GT, UCR and UCB chapters of BMES, we hosted a cross-chapter Trivia Night, encouraging members to test their knowledge on biomedical engineering related and random trivia. Students from each school had the opportunity to work together and against students from other chapters, fostering bonds between the many chapters.

## Outreach Panel (canceled)

**Date:** 02.20.2022 **Attendance:** N/A **Cost:** N/A  
**Collaborating Chapter(s):** UCR and UCSD

This event was planned to be a collaboration between the UCR and UCSD chapters of BMES. Together, we planned to host a virtual student panel for high school students interested in pursuing bioengineering in college, answering questions about the BE program, student life and post-graduation paths. Due to complications in scheduling with the high school, this event was canceled.

## UCLA x USC BMES Beach Day!

**Date:** 04.16.2022 **Attendance:** 20 **Cost:** \$42.00  
**Collaborating Chapter(s):** USC

Each year, the USC and UCLA BMES chapters come together for a friendly game of beach volleyball at Santa Monica beach. This was the first time we held this event since the pandemic hit and were excited to reignite our relationship with our neighboring chapter.

## Future Goals:

1. Extend social activities from the virtual setting to an in-person environment as the pandemic allows
2. Expand collaborations to beyond social events between chapters, such as hosting combined technical workshops or outreach programs
3. Invite members of other chapters to participate in our annual Hackathon (see page 35)
4. Develop a network of UC-wide alumni to support students in their endeavors in the bioengineering industry

Trivia Mania:  
Clash of the  
Chapters



# Community Outreach

Each member of BMES recognizes the impact and support the Los Angeles community has provided us. At UCLA BMES, we have made the effort to make meaningful strides in giving back and supporting the community around us, largely through our support of the youth population.

Two years ago, we implemented the Reaching and Inspiring Students in Engineering (RISE) program to allow students from traditionally underserved areas with the opportunity to engage with science. Additionally, we host Science Days, inviting students from the surrounding area to participate in events on UCLA's campus. Finally, we host fundraisers focused on raising money and awareness for the issues that currently affect members of the Los Angeles community.

## Reaching and Inspiring Students in Engineering (RISE)

The goal of this program is to foster a continued, year-long relationship with a small set of students. While many of our other programs allow us to work with groups of students from different schools over the course of the day, our RISE program focuses on establishing a connection with the students at James Madison Middle School as well as Fairfax High School to both foster interest in pursuing a career in the engineering field, but also promote the idea of continuing education. Both schools are Title I schools in the Los Angeles Unified School District. At James Madison, over 87% of students come from low-income backgrounds, while this number is closer to 71% for Fairfax High School. Our program focuses on providing a supportive, educational, and engaging learning experience to middle and high school students in Los Angeles County.

With both audiences, we provided step-by-step mentorship as students learned basic engineering concepts, eventually culminating in final projects demonstrating their hard work and new knowledge. In doing so, we hoped to provide students from underserved communities with the opportunity to explore the vast possibilities in science without financial limitations and introduce accessibility of learning STEM from a hands-on approach. Additionally, we hoped to instill a long-term passion for learning and exploration often associated with higher education and interests beyond the scope of the program.

We accomplished these goals through on-site and virtual interactions, where volunteers held workshops to teach various concepts, each workshop building off the previous. While our visits with James Madison Middle School were able to return in-person, our partnership with Fairfax High School remained virtual for the course of the year. Still, we were able to foster continued mentor-mentee relationships throughout the school year and beyond, by matching volunteers and students of similar interests. Our goal was for participants to feel comfortable asking for help and advice about not only the concepts they were learning but also about interests beyond the scope of the program.

Over the course of the year, we have received a great amount of positive feedback from teachers, principals of both schools, as well as our student volunteers. It has been an extremely rewarding experience to see the development of student interest in the engineering field over the course of these visits. We continue to strive to increase the quality and breadth of our programs and are excited to see how future years may continue to expand the RISE program.

### Visit Breakdown

Prior to each site visit, BMES Community Outreach chairs held in-person and virtual workshops to go over the upcoming visit's plan with volunteers. Volunteers had the opportunity to look over slides and ask questions prior to implementing the lesson plans. Volunteers were also given tips for how to most effectively teach, both in an in-person and virtual setting. In previous years, getting students to be engaged while over Zoom has been a big difficulty and this was a problem we successfully worked towards solving this year. Each of these volunteer workshops was held in the week prior to the site visit.

# James Madison Middle School

Over the past three years, students at James Madison Middle School took part in our structured learning environment that introduced them to STEM concepts such as circuitry, iterative design, and computer assisted design as well as learned about the opportunities available to them in higher education. Our workshops focused on teaching particular science and engineering topics using Arduino UNO microcontrollers, circuit breadboards and online CAD programs. Broader topics were also discussed, such as programs available to high schoolers that will allow them to continue to further their interest in STEM.

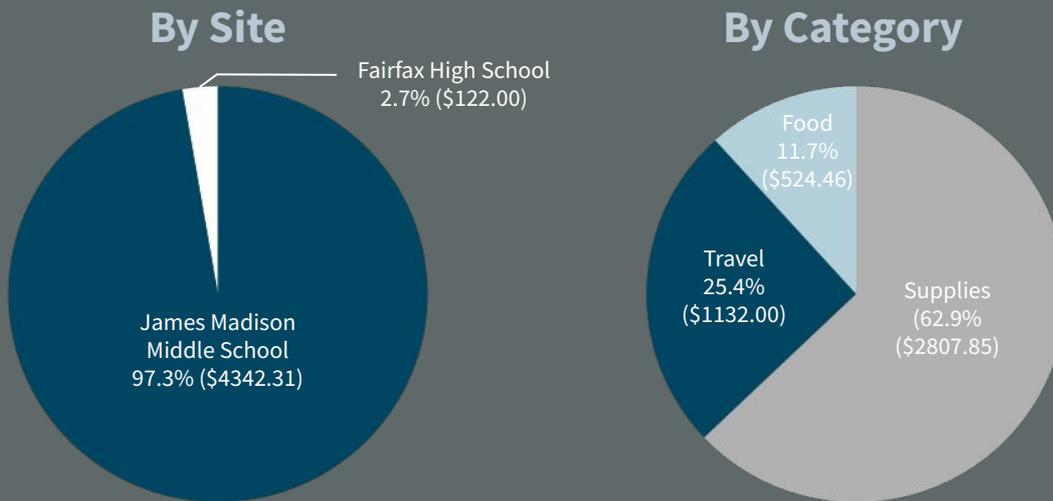
Visit	Date	Attendance	Description
Visit #1	12.01.2021	40	Went over basic 3D design and CAD; Students created their own designs based on a theme and voted on their favorite designs at the end
Visit #2	02.25.2022	42	Taught students how to use OnShape, a more advanced CAD software; Had them follow along through an activity to design a miniature figurine from the popular game Among Us; Transported a 3D printer with us to the school and used it to show students how 3D designs are printed; Utilized a more effective format of teaching with less lecture time and more student-volunteer interaction
Visit #3	04.22.2022	40	In previous visits, using the 3D printer to print while the students CADded increased interest and engagement in our lesson plan; Thus, brought the 3D printer and sought to print a more complex design; Gave students time to directly observe the printer work, explaining the process to them; Continued our CAD curriculum, finishing the design that we had planned for the students
Visit #4	05.06.2022	40	Students were extremely engaged with our demonstrations of CADded dinosaurs and gained excitement for their own projects; 3D printed more designs for students at the visit so that they can see the process of supports and their usage in 3D printing
Visit #5	05.26.2022	40	Handed out 3D prints of the designs that students made themselves; Ended the year with a physical memento of the work they have accomplished and the knowledge they have gained

# Fairfax High School

Last year, we added a new site to our program with the same goal of introducing STEM topics and opportunities to students that may not have equitable access to these resources. Through our Arduino-based program, we aimed to not only introduce students at Fairfax to the engineering and science topics covered in RISE, but to allow them to foster passions in these topics while developing valuable critical thinking and problem solving skills. As high schoolers, the students at Fairfax are in a time critical for the preparation of higher education. Hence, we view exposure to our program as a critical tool for furthering their interest and discussion of higher education and careers in STEM. Our program culminated in final projects that students completed utilizing the skills they gained throughout the course of the academic year. These projects, in conjunction with the challenges these students faced while learning the material, aimed to prepare students for the professional world where they will tackle similar open-ended problems as successful scientists and engineers.

Visit	Date	Attendance	Description
Visit #1	11.17.2021	20	Introduced students to the basics of circuitry and how to use TinkerCAD; Guided students through how to use physical Arduino kits to create basic circuits
Visit #2	02.09.2022	7	Taught students the basics of coding, including variables, operations and functions; Discussed Arduino-specific functions and gave an overview of I/O; Ended with activities allowing students to practice new concepts by coding patterns in LED lights
Visit #3	03.02.2022	25	Taught students advanced circuitry and coding with the Arduino, incorporating buttons and complex mathematical functions in code; Took advantage of our students' past experience as members of a computer science club to complete an activity involving coding a Newton's cradle in LED lights
Visit #4	04.26.2022 (Rescheduled)	–	Planned to begin an introduction of the final project; Due to scheduling errors, students were not able to attend and this was instead completed at the next visit
Visit #5	05.10.2022	25	Continued our goal of exposing students to STEM skills that can help them in their pursuit for a higher education or other STEM opportunities in the future; Continued with more advanced topics as well as provided mentorship and help to students as they try to create their final projects
Visit #6	05.31.2022	25	Final visit to our Fairfax RISE site; Finished up final projects with students and hosted a Q&A session

# RISE Cost Breakdown



Given that the program at Fairfax High School was largely virtual and we had the ability to reuse supplies from the previous years, costs were significantly diminished.

Supplies included the costs of a number of items including Arduinos, Bluetooth modules, 3D Printer, Printer filament, and more.



## Project Ropa Fundraiser

**Date:** 02.07.2022 - 02.19.2022 **Attendance:** N/A **Cost:** \$0

In previous years, BMES has held annual Food Drives to support the local community. However, last year, our organization chose to take advantage of the virtual nature of interaction and held an online Instagram fundraiser for the LA Regional Food Bank. This year, we chose to capitalize on the success of this format of fundraiser, and held another online Instagram fundraiser. This year, we chose to donate to Project Ropa, a free mobile hygiene service that brings clean clothing, hygiene kits, hand sanitizer, face masks, food and water directly to individuals experiencing homelessness in the Los Angeles area. They also help to break the cycle of homelessness by providing transitional job opportunities to people with barriers to employment, including homeless and previously incarcerated individuals. This year, we were able to raise **\$533** for this organization, and plan to continue to partner with them for future events.

## Science Day (canceled)

**Date:** 05.20.2022 **Attendance:** N/A **Cost:** N/A

Science Day is BMES Community Outreach's annual event where we host an elementary school that fits with our vision of providing STEM opportunities to help fight the rising socioeconomic inequality in STEM. This year, we are hosting STEM Preparatory Elementary, a school with a 99.6% minority population with 87% of the student population facing economic difficulty. STEM Prep was founded very recently, in 2015. Their mission is to remain "committed to disrupting the status quo of inequitable access to high quality STEM pathways for women and minorities by cultivating a family of students and staff who solve problems through collaboration, innovation, passion, and perseverance." We felt a very strong connection with STEM Prep and felt that we shared the same goal. This year, we planned to bring 50 students to UCLA for a day of hands-on experiments, a tour of campus, and a visit to UCLA's planetarium.

However, due to the rise in COVID cases in the Los Angeles area, this event unfortunately needed to be canceled for the safety of the students, teachers, and volunteers. Had they had the opportunity to come they would have participated in a campus tour, a guided show at the UCLA planetarium, a talk with graduate students about their love for science and the opportunity to extract DNA from strawberries.

## Project Bruin

**Date:** 05.21.2022 **Attendance:** 55 (45 kids, 10 BMES volunteers) **Cost:** \$0

As a whole, Project Bruin is put on the UCLA Community Service Commission. Service recipients, ages 5-12, are invited to participate in a variety of workshops and fun activities at UCLA. This year, Project Bruin followed the theme of 'Full STEAM Ahead', with the event themed to encourage children to get involved with STEAM careers and educational paths (science, technology, engineering, art, and math).

Working with the UCLA Community Service Commission, BMES put together an Edible DNA workshop. Students had the opportunity to work with BMES volunteers to put together their own models of DNA with twizzlers, gummies, and marshmallows. We taught them about the structure of DNA and how it has led to some amazing discoveries.

Rohan Chawla, a 2021-22 BMES Community Outreach co-Chair, recalls his experience being a part of community outreach efforts this past year:



"I've had the privilege to work with many underrepresented students this past year and witness their passion for STEM. I am constantly inspired by these students' curiosity and drive to learn. This year, we were finally able to return to in-person programming and it was so great to see how students responded to our lessons and enjoyed using tools like CAD and Arduino, tools I myself can find intimidating. This position was incredibly fulfilling and I can't wait to see the accomplishments our students achieve."

# Mentorship

One of the most unique aspects of UCLA BMES is our family mentorship program. We pride ourselves in our tight-knit community that has largely been created as a result of this program. At the beginning of the year, all members of BMES are encouraged to join a mentorship family. Over the course of the year, our family heads put on events to bring together their family and facilitate the creation of a smaller community within the larger BMES organization.

In addition to smaller family events, the mentorship branch also puts together “weekly challenges” to encourage continued participation of members in the family groupchats. Another one of our biggest focuses this year was the implementation of additional mental health events. As it has been for the world, the pandemic has been hard on our members and in order to continue to support them during these difficult times, we’ve implemented a number of new and creative ways of destressing. The final aspect of mentorship discussed here is our alumni mentorship program, which pairs undergraduate BMES members with alumni, so students can learn more about life after college.

## Mentorship Families

All BMES members are strongly encouraged to join our BMES mentorship families. At the beginning of the year, we sort members into four families based on shared interests, hobbies, and personalities. From there, underclassmen and upperclassmen have the option to opt in to becoming either a mentor or mentee, or remaining a family member. While events are hosted by individual mentorship heads, all events are open to all BMES members, allowing students to foster relationships with other members both inside and outside of their families.

### Adenine

Name	Date	Attendance	Cost
<b>Mentorship Family Event: Hollywood Hike</b>	10.10.2021	32	\$6.74
Adenine family members went on a fun hike at the Mt. Hollywood Trail. After the hike, we ate together at Dave's Hot Chicken.			
<b>Mentorship Family Event: BMES Basketball Bonanza</b>	10.30.2021	30	\$0
BMES members came together for a day of basketball games. We played knockout, HORSE, 5-on-5 and a number of other fun games to get our blood pumping.			
<b>Mentorship Family Event: Game Night</b>	11.23.2021	0	\$0
To encourage participation from all Adenine family members, we had an online game night where we played gartic phone and codenames.			
<b>Mentorship Family Event: Movie Night</b>	11.18.2021	7	\$25.71
Adenine family members met up at an apartment to watch a movie and enjoy dinner together.			
<b>Mentorship Family Event: Charades Night</b>	01.18.2022	0	\$0
Due to the rise in COVID cases, we held an online event, playing charades together over Zoom.			
<b>Mentorship Family Event: Cookies and Cards</b>	02.08.2022	9	\$22.06
Happy to be back in person, the Adenine family met up on campus to enjoy cookies and card games together.			
<b>Santa Monica Adventure</b>	02.24.2022	10	\$0
Explore LA time! Adenine went on an adventure around Santa Monica, stopping by the pier, then enjoying food at HiHo burger, before heading over for some boba at ShareTea.			
<b>Sunset Picnic</b>	04.20.2022	9	\$15.78
Adenine members met at the Sculpture Garden for a potluck style picnic at sunset.			
<b>BMES Volleyball</b>	05.14.2022	10	\$90.00
BMES members met up at the Student Activities Center for a day full of volleyball. Bump, set, spike!			
<b>Painting in the Botanical Garden</b>	06.04.2022	TBD	TBD
Members will paint and relax in the UCLA Mildred E. Mathias Botanical Garden for a fun, destressing, last family activity before finals begin.			

# Cytosine

<b>Name</b>	<b>Date</b>	<b>Attendance</b>	<b>Cost</b>
<b>Paint Night</b> Cytosine members got together to show off their inner Picassos with a chill night hosted at a fellow family member's apartment in Westwood. Students who attended were able to paint what they desired (free hand or via a youtube tutorial) while getting to know others over snacks and refreshments. All those who attended were able to take their canvases with them to put on display in their lovely homes!	10.15.2021	12	\$27.68
<b>Family Dinner!</b> The family came together for a fun dinner on the Hill, making use of UCLA's #1 ranked dining halls!	10.26.2021	9	\$0
<b>Board Games</b> Cytosine members were invited to play board games in Engineering V. Games that were played included Exploding Kittens and Scattergories.	11.10.2021	12	\$0
<b>Family Dinner Pt 2!</b> With finals coming up, family members enjoyed a meal together before the stress kicked in!	12.03.2021	11	\$0
<b>Powerpoint Night</b> Cytosine family members were asked to make a fun powerpoint on literally anything their heart desired. Some presented on how Kid Cudi is a musical genius and others on why they thought they would survive in the Hunger Games.	01.19.2022	10	\$0
<b>Bracelet Making</b> In the season of love, we got together to create cute but simple friendship bracelets using bracelet thread. Watching a youtube video beforehand allowed me to be able to then teach other members how to create friendship bracelets themselves. It was especially wholesome as members gifted their bracelets to other attendees, showing how tight knit the BMES community really is.	02.17.2022	14	\$29.58
<b>Picnic</b> Cytosine members will enjoy a lovely evening sunset from Janss steps while sharing pizza and refreshments. Outdoor games such as frisbee and volleyball will also be played to give attendees a chance to have some fun for at least an hour while in the middle of spring quarter.	05.07.2022	12	\$41.40
<b>Color Book Destresser</b> There is no better way to destress and take a pause from studying hard than to enjoy a nice evening of color books and snacks with BMES friends! Members will tap into their inner artist at Delta Terrace Patio and indulge in creating masterpieces to take home as memories.	05.18.2022	8	\$0
<b>One last family dinner!</b> In order to celebrate the end of the year and spend some more time together before summer set in, Cytosine family members had another dinner together.	05.25.2022	13	\$0



# Guanine

Name	Date	Attendance	Cost
<b>Strangers to Buddies</b>	10.08.2021	13	\$0
In order to give students the opportunity to interact with one another, this was a game show-esque event that fostered fun conversations and friendly competition. In the game, participants had 10 minutes to discuss a variety of icebreakers, and then went head to head with other teams to see who knew their team members best based off their short conversations. The strange, random questions brought a lot of laughter and bonding.			
<b>Blindfolded Partner Challenges</b>	10.24.2021	5	\$8.63
As a way to destress, students participated in a variety of ridiculous partner challenges. In these challenges, one partner was blindfolded and being guided by the other. The event was full of excitement, laughter, and frantic teamwork. The small, close-knit group allowed for stronger connections and bonding.			
<b>Trivia Russian Roulette</b>	11.13.2021	14	\$7.77
This event provided the opportunity for students across the BMES families to meet each other and engage in friendly competition. It was centered around a game in which players go head to head to get the closest to the correct answer to a trivia question. The player who was the furthest cracked one of three eggs on their head. Out of the three eggs, 1 was hard boiled and 2 were raw. The players answered questions back and forth until one person got the raw egg. The afternoon was filled with anticipation, excitement, and competitive spirit.			
<b>Cookies and Coloring</b>	11.23.2021	7	\$24.75
As a way to destress before final exams, this event offered a quiet night to eat cookies, drink hot chocolate, and color in coloring pages. Participants also got the opportunity to connect with others and bond over classes.			
<b>Guanine Google Game Night</b>	01.11.2022	14	\$0
As a way to stay connected while online, this event was a tourney of games centered around Google such as "Guess the WikiHow article" and "Google Feud." The event brought a night of fun and bonding over the collaborative games.			
<b>Valentine's Day Cookies and Crafts</b>	02.10.2022	14	\$37.66
With Valentine's Day coming up, this event provided students with the supplies to decorate heart-shaped cookies and decorate flower pots. The night inspired a lot of creativity and light-hearted conversations amongst attendees.			
<b>BMES Recess</b>	04.14.2022	6	\$0
As a nostalgic event, BMES Recess was an opportunity for attendees to play some of their favorite childhood games. It was also a way to get students active and playing outside.			
<b>Slacklining</b>	05.03.2022	6	\$52.53
Students participated in slacklining, a very popular activity for UCLA students.			
<b>Sharetea Field Trip</b>	06.01.2022	4	\$0
Members were invited to walk to Sharetea in Westwood to get boba drinks and chat with other students. It was a great opportunity to connect with others before going on summer break.			



## Thymine

Name	Date	Attendance	Cost
<b>Zoom Game Night</b>	10.12.2021	19	\$0
For the first Thymine event of the year, we met over Zoom to introduce ourselves and play games. In breakout rooms, small groups did icebreakers. Afterward, we all played Spyfall and DrawBattle.			
<b>Pumpkin Carving</b>	10.28.2021	24	\$102.67
To celebrate Halloween, everyone gathered at an apartment to carve pumpkins. All members were welcome, and students who attended partnered up with others to design and carve. Those who carved were also welcome to take their pumpkins home.			
<b>Ice Blocking</b>	11.22.2021	6	\$0
Students gathered on the grass by Janss Steps to slide down the hill on large blocks of ice.			
<b>Movie Night</b>	01.21.2022	7	\$0
Members of Thymine were invited to watch Ratatouille over Discord during the weeks of Winter quarter that instruction was remote.			
<b>Tie-mine Dye-mine Day</b>	02.06.2022	7	\$25.54
Members were invited to tie-dye BMES Mentorship shirts in the grass by Wilson Plaza.			
<b>Sawtelle Field Trip</b>	03.12.2022	12	\$0
Members of Thymine were invited to embark on a field trip to Sawtelle, where we purchased boba, popcorn chicken, and miscellaneous items at Daiso together.			
<b>Shrinky Dinks &amp; Petit Blocks</b>	04.21.2022	12	\$24.08
All BMES members were invited to an apartment for an arts and crafts night, where they colored sheets of polystyrene, which were then placed in the oven to harden and shrink. With these shrinky dinks, attendees made keychains and jewelry to keep. In addition, attendees were also free to build small animals out of petit blocks (miniature legos).			
<b>California Science Center</b>	05.07.2022	13	\$40.00
BMES members will either take an educational field trip to the California Science Center.			
<b>Kayaking</b>	05.27.2022	15	\$10.00
BMES members will take a field trip to the UCLA Marina Aquatic Center to participate in free UCLA student kayaking.			

Julia Zhong, a 2021-22 BMES Mentorship Family Head, shares her experience with the mentorship program:



“As mentorship chair, I’ve had the unique opportunity to serve as an older-sister figure to my peers— I found a ton of purpose in extending myself as both a resource and a friend in BMES. I’ve met many amazing people and made many unforgettable memories through events that my fellow mentorship co-chairs and I have hosted, and it’s been extremely fulfilling to provide those same experiences for all BMES members.”

## Weekly Challenges

Mentorship weekly challenges are a fun opportunity for members to be able to win their families points, simply by sending in pictures of themselves participating in some action or something they've seen or done. Each week, the mentorship coordinator comes up with a fun and unique challenge to encourage family members to participate and get to know the lives of their fellow classmates. Members are able to send in as many applicable pictures throughout the week and continue to build bonds this way!

Challenge	Date
Meet with another member of your family!	10.10.2021-10.16.2021
Send a picture with the Bruin Bear	10.17.2021-10.23.2021
Dress up in your finest Halloween costume	10.24.2021-10.30.2021
Send in a picture of you doing a self care activity	10.31.2021-11.06.2021
Midterm season: Study pics	11.07.2021-11.13.2021
Assassins edition—Send in sneaky pictures of family members	11.14.2021-11.20.2021
In honor of Thanksgiving, share something you're thankful for	11.21.2021-11.27.2021
Finals season: Make sure to keep eating and send in pictures of your food!	11.28.2021-12.04.2021
Shared playlists! Add songs to this Spotify playlist so we can hear your favorite music	01.02.2022-01.15.2022
Word Assassins! Try to get a member of your family to say a particular word in conversation	01.16.2022-01.29.2022
Twinning challenge—send in a picture wearing the same outfit as another member of your family	01.23.2022-01.29.2022
Send in your wordle scores	01.30.2022-02.05.2022
Valentine's Day edition: Send in a picture of someone or something you love!	02.06.2022-02.12.2022
Send in NYT's Mini Crossword Times	02.13.2022-02.19.2022
Share a meme/TikTok that explains how you feel about school right now	02.20.2022-02.26.2022
In honor of the sun coming out, send in a picture of you spending time outside!	02.27.2022-03.05.2022
Finals edition: Study pics round 2	03.06.2022-03.12.2022
Outfit of the day!	04.03.2022-04.09.2022
Send in a picture of any healthy habit	04.10.2022-04.16.2022
Send in a movie/TV show recommendation	04.17.2022-04.23.2022
Pet Spotting!!!	04.24.2022-04.30.2022
I spy another BMES member	05.01.2022-05.04.2022
I spy a red backpack	05.05.2022-05.10.2022
I spy our beautiful earth	05.11.2022-05.16.2022
Send in a pic of you doing something creative	05.17.2022-05.23.2022

## Mental Health Events

One of our biggest focuses this year was the putting on of mental health focused events. Family heads put together one big event each quarter, to provide a safe space for students to openly discuss mental health and situations they may be facing. Given that there was a lot of stress regarding the pandemic this year, with constant adjustments to in-person and virtual learning, these events were especially important.

Name	Date	Attendance	Cost
<b>Let's Talk About Mental Health: Imposter Syndrome and Burnout</b>	11.21.2021	9	\$0

This event served as a way for students to vent and contribute in candid conversations about imposter syndrome and burnout in an academically rigorous major and college. These discussions helped students deal with their struggles and feel less isolated.

<b>Coping with Remote Learning</b>	01.09.2022	13	\$0
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Upon being online for the beginning of Winter quarter, this event was centered around strategies to cope with being back to remote learning. Students had the opportunity to discuss their fears and anxieties about not being able to be in person for classes and extracurricular activities.

<b>New Year, New You</b>	01.26.2022	15	\$0
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As we welcomed the new year, members met on Zoom to share their thoughts on and goals for what they wanted to accomplish in the months ahead. The anonymous survey platform Mentimeter was used to poll people on their initial thoughts. Google slides was then put to action as all attendees created vision boards to encapsulate what they hoped their 2022 would look like via online images that depicted the goals and strategies they would use to create the best version of themselves this year.

<b>Plate Smashing Therapy</b>	04.07.2022	15	\$46.82
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This event allowed students to let out anything that has been weighing on their mind and to express their creativity through writing. At the beginning, we provided ceramic plates to write messages on. We then took the plates and broke them as a symbolic release of any stress. It was a great opportunity for students to get in the right mindset for the beginning of a new quarter.

## Alumni Mentorship

BMES puts together a yearlong mentorship program, pairing together undergraduate students with alumni based on shared interests and career goals. Each year, we have a great variety of alumni participate, who have made careers for themselves in the bioengineering industry, in product management, graduate school, medical school and more. With virtual meetings becoming the norm, we've been able to rapidly expand this program to include alumni that are remote and connect our students with great role models!



### Participating Alumni

Nicole Prusty, Gretchen Lam, Dennis Yuan, Naren Subbiah, Bryan Chong, Mit Patel, Mimi Carson, Phillip Cox, Valentine Zinchenko, Dimej, Aly Jackson, Amanda Chan, Quincy Chen, Linnet Chang, Laila Rad, Erik Reinertsen, Meagan Yuen

# Industry & Professional Development

The professional development sector of UCLA BMES encompasses both academic guidance as well as industry connections.

Academic development within BMES includes many different resources that students may utilize throughout their time at UCLA. We focus our efforts on providing a diverse set of panels, workshops, graduate school info sessions, and alumni events for students. There are both one-time, low commitment resources as well as long-term opportunities where students can build meaningful relationships with mentors.

In regards to the other branch of professional development opportunities, our student organization helps students find internships, jobs, and professional growth through industry connections. BMES holds the only Biotechnology-related career fair at UCLA. We continually meet with leaders in industry to bring new opportunities to students, such as starting Coffee Chats with industry mentors this year.

This section of the CDR focuses both on our industry and academic events.

## Biotechnology Career Fair

**Date:** 10.19.2021

**Attendance:** 238

**Cost:** \$0

The BMES Industry Chairs organized our annual Biotech Career Fair, hosting 11 different companies on a virtual platform called Gatherly. Attendees came from a range of background, including first through fourth year undergraduates, including transfer students, and graduate students. The event facilitated conversation between students and company recruiters and allowed submission of resumes. Companies that attended the career fair included Gilead, Genentech, Abbott, Grifols, Moderna, ZS Associates, Tioga Research, Partillion Biosciences, NovaSignal, Edwards Lifesciences, and BiVacor.

## Science Vendor Exposition

**Date:** 04.12.2022

**Attendance:** 172

**Cost:** \$3945.09

The BMES Industry Chairs organized our annual Biotech Career Fair, hosting 11 different companies on a virtual platform called Gatherly. Attendees came from a range of background, including first through fourth year undergraduates, including transfer students, and graduate students. The event facilitated conversation between students and company recruiters and allowed submission of resumes.

## Company Info Sessions

Company info sessions, in addition to our Biotechnology Career Fair, are another avenue for students to internship and job opportunities through BMES. At these info sessions, students have the chance to learn from recruiters about their company.

## Miroculus Info Session

**Date:** 01.18.2022

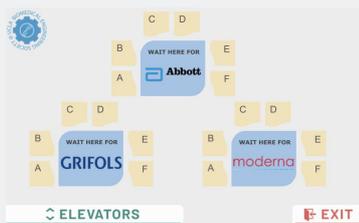
**Attendance:** 30

**Cost:** \$0

The BMES Industry Chairs reached out to Miroculus to set up a 1 hour info session for the company reps to talk about their background, mission, values and advertise any open positions to interested students. Representatives give a presentation and can bring interns to talk about previous experiences, and usually end in a Q&A session for any interested participants.



Neha Iyer, a 2021-22 BMES Industry co-Chair, highlights the impact of industry events for students:



“I think industry is really impactful because events like our Biotech Career Fair, professional development workshops, and info sessions help students gain the confidence, resources, and connections to acquire meaningful internship and job experiences to set up their future career.”

## Moderna Infosession

**Date:** 01.18.2022

**Attendance:** 30

**Cost:** \$0

The BMES Industry Chairs organized an infosession with the well-known biotech company Moderna. The panel spoke of their experience in biotech and how they eventually ended up at Moderna. They also gave a rundown on the company itself. At the end, there was a Q&A session hosted in breakout rooms.

## Professional Development Workshops

Industry hosts several Professional Development Workshops throughout each quarter to help students prepare for applying to internships and jobs for their future careers. Many of these are run by upperclassmen who have had experience with a particular skill.

## Resume, Elevator Pitch, LinkedIn, and Cover Letter Workshop

**Date:** 10.11.2022

**Attendance:** 40

**Cost:** \$0

The BMES Academic and Industry Chairs co-hosted a professional development workshop preparing students for the Biotech Career Fair. The chairs presented slides on how to write and structure resume, the difference between a LinkedIn profile and resume, and how to deliver an elevator pitch with examples. The event was followed by a resume review, where BMES students provided feedback to attendees. The event helped students prepare and feel confident for the upcoming Biotech career fair, job applications, and academic research lab applications for the upcoming year.

## Industry Skills Workshop

**Date:** 02.03.2022

**Attendance:** 21

**Cost:** \$0

The BMES Industry Chairs organized a Skills Workshop to help students attending understand what types of skills are useful for getting an internship or research lab. The workshop went over a variety of soft and hard skills that are looked for by interviewers, as well as experiences on how to develop these qualities.

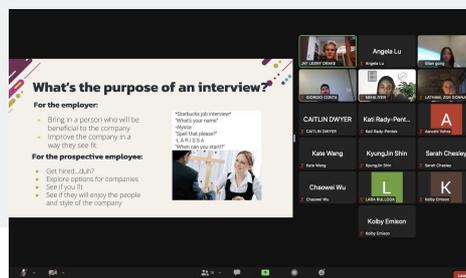
## Interview Workshop

**Date:** 03.07.2022

**Attendance:** 15

**Cost:** \$0

The BMES Industry Chairs hosted an Interview Workshop designed to help students interviewing for research labs or internship positions. The workshop went over the components of an interview, possible questions that could be asked, the etiquette of responding to and asking questions in an interview, and preparing for an interview.



## Class Planning Workshops

After the release of each quarter’s enrollment appointments, we hosted a workshops targeted at underclassmen that allowed upperclassmen to offer advice on course selection, course load, professor recommendations, and general advice about classes and four year plans for graduation. We also invited an Academic Advisor from the School of Engineering to answer questions in addition to the upperclassmen members of the club willing to offer their advice.

	Date	Attendance	Cost
Fall Workshop	11.08.2021	20	\$0
Winter Workshop	02.10.2022	25	\$0
Spring Workshop	TBD	TBD	\$0

## Transfer Resources Event

**Date:** 10.05.2021      **Attendance:** Cancelled      **Cost:** \$0

To introduce and welcome the incoming Transfer students to the Department of Bioengineering, we host this event to give Transfer students a place to learn more about resources available to help them through their time at UCLA. Additionally, we prepared a couple of Bioengineering Transfer students to co-host the workshop and answer any further questions that Transfer students may have.

## Alumni Coffee Chat

**Date:** 11.10.2021      **Attendance:** 40      **Cost:** \$0

To set up the alumni mentorship program for the 2022-2023 school year, the Alumni Coffee Chats were introduce potential alumni mentors with students and allow for organic connections to form. In this event hosted on Zoom, alumni were assigned to breakout rooms, and students were able to rotate breakout rooms over the course of the event to meet all of the alumni mentors that attended.

## Mock Interviews

**Date:** Varies      **Attendance:** Varies      **Cost:** \$0

The Mock Interviews program was set up after the Biotech Career Fair as a resource for students to have a mock interview with one of our alumni mentors in preparation for a potential job interview. We paired students up with an Alumni willing to volunteer for these mock interviews, and the student and mentor arranged for a time between themselves to host the mock interview.

Griffith Hughes, a 2021-22 BMES Academic co-Chair, recalls his experience helping students this past year:



“The most fulfilling aspect of being the academic chair is that I am able to directly connect with and impact students. The position allows me to pay what I’ve learned forward and create the same welcoming environment at UCLA BMES that I was so fortunate to experience as a freshman.”



## Keck Graduate School Infosession

**Date:** 11.18.2021      **Attendance:** 18      **Cost:** \$0

The Keck Graduate Institute hosted an infosession with us to teach our members and bioengineering undergraduate students about the different opportunities that their institution offers to UCLA students in the future. This event is a recurring event that typically introduces the KGI Admissions office to our members.

## Summer Opportunities and Awards

**Date:** N/A      **Attendance:** N/A      **Cost:** \$0

To help students preparing to apply for different REU and summer enrichment programs, we prepared a document of resources, deadlines, and required materials for each of the major programs that apply towards bioengineering majors interested in pursuing graduate school, medical school, or the industry pathway. Instead of hosting an event, we opted to create a document that could be edited in the future and referenced at anytime during the year by students.

## Research Mixer

**Date:** 04.22.2022      **Attendance:** 33      **Cost:** \$0

The Research Mixer event allowed for several graduate students from BGA (Bioengineering Graduate Association) to present their research projects through poster presentation, demonstrations, and more. Undergraduates were invited to attend so they could learn more about the research opportunities available within the Bioengineering Department, as well as potentially apply for research positions under the graduate students who attended.

## Academic-Related Panels

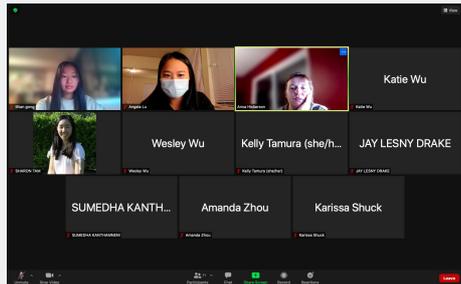
For students who may be looking towards other career paths aside from those in industry, Academic hosts several panels throughout the year aimed at preparing students for medical and graduate school as well as careers in law, academia, and research.

## Career Paths and Development Panels

**Date:** 03.03.2022      **Attendance:** 35      **Cost:** \$0

A recurring event every year, the Career Paths and Development Panel allowed students to hear from people of different backgrounds, including medical students, industry professionals, and graduate students, and how bioengineering lead them to their current career path. The panelists also offered advice and mentorship to the attendees, if desired.

**Panelists:** Alex Zheng, JD      Joseph De Rutte, PhD  
 Richard Kaner, PhD      Giovanni Acosta-Velez, PhD



## Graduate/Medical School Panel

**Date:** 05.17.2022      **Attendance:** 17      **Cost:** \$0

The Med/Grad School Panel is an annual recurring event that is split into two parts, one part tailored towards Graduate School and one part tailored towards Medical School. Both parts of the panel review all the required materials and prerequisites for applying to each path. Additionally, the panelists offer advice, as well as a background of their own journey toward graduate school and/or medical school. Often times, students ask many questions during this event and are quite engaged as application seasons are usually around the corner.

**Panelists:** Amanda Chan, Griffith Hughes, Vishwesh Shah, Dr. Daniel Kamei, Veronica Campbell, Nguyen Le, Dr. Kathryn Dern

## Alumni Panel

**Date:** 05.24.2022      **Attendance:** 12      **Cost:** \$0

The Alumni Panel is an annual recurring event that allows students to hear from different UCLA Bioengineering alumni about their career paths and any advice that they may have to offer to students about bioengineering, the future, research, industry, and more.

**Panelists:** Linnet Chang, Anya Bekhtal, Mimi Carson, Dennis Yuan, Cooper Tanquary

## Professor and Industry Coffee Chats

Coffee chats with both professors and leaders in industry allow for students to get to know more about a speaker’s background. These events provide an intimate setting to chat and hear about the professor or representative’s academic and career journeys.

	<b>Date</b>	<b>Attendance</b>	<b>Cost</b>
Professor Song Li	02.22.2022	15	\$0
Professor Dr. Kamei	04.27.2022	10	\$43
Dr. Hengchu Cao	06.01.2022	TBD	\$0



# Technical Projects

With regards to technical skills development, UCLA BMES has project teams and workshops to help students develop transferable engineering skills. Our technical projects branch focuses on collaboration and communication, wet lab research, project ideation and execution, as well as developing skills such as circuitry, coding, and CAD.

UCLA BMES has three major year-long project teams that include Build Team, Cell Team, and Design Team along with our newly established Workshops Series. Build Team, Cell Team, Workshops, and club-wide technical events will be covered in this section, while Design Team will be highlighted as a part of our Societal Impact Activities. For students just starting to build their technical skills, Build Team introduces students to medical device development. Cell Team is also an introductory project team for lowerclassmen and transfers that focuses on teaching fundamental wet lab and research skills to prepare them for joining a research lab on campus.

Lastly, our Workshops Series includes 1-2 workshops held during each quarter of the academic year. Workshops are 1-3 hour opportunities for students who are unable to commit to joining a year-long projects team but are still looking to gain some technical experience in areas such as PCB Design, CAD, and Arduino.

## Build Team

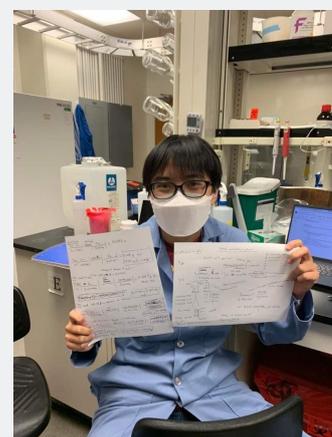
Build Team is one of our project teams aimed at introducing technical skills to lowerclassmen. The team learns skills throughout the year, such as circuitry and arduino, to work towards designing an electrocardiogram. Main goals of Build Team include: gaining hands-on engineering skills relevant for industry and tech, applying knowledge learned in courses, and expanding technical skillset with real-world applications.

	<b>Date</b>	<b>Attendance</b>	<b>Curriculum</b>
Module 1	10.20.2021	20-25	Circuitry
Module 2	11.10.2021	20-25	Coding
Module 3	01.05.2022	20-25	Arduino
Module 4	01.28.2022	20-25	Circuitry
Module 5	04.01.2022	20-25	CAD
Module 6	04.13.2022	20-25	PCB
			<b>Total Cost: \$484.99</b>

## Cell Team

Cell Team is our other introductory team geared towards first and second years. On this team, students learn the basics of wet lab research techniques, how to present data, and conduct experiments while working towards and independent project.

	<b>Date</b>	<b>Attendance</b>	<b>Curriculum</b>
Module 1	10.08.2021	12	Orientation
Module 2	10.25.2021	12	Cell and Lab Basics
Module 3	11.08.2021	12	Western Blot
Module 4	11.15.2021	12	Immunostaining
Module 5	01.10.2022	12	Cell Culture
Module 6	01.17.2022	12	PCR and ELISA
Module 7	01.31.2022	12	Genetic Editing
Module 8	02.21.2022	12	Joining a Research Lab
Module 9	04.04.2022	12	Independent Project
			<b>Total Cost: \$2350.00</b>



## Workshops

Our Workshops Series provides one-time, low-commitment opportunities for students to expand their technical skills without joining a year-long project team.

### Arduino Workshop

**Date:** 10.14.2022      **Attendance:** 15      **Cost:** \$0

A technical workshop to teach undergraduate students the basics of circuit design and programming with Arduinos. The workshop began with a series of instructional slides to introduce basic skills, and the second half of the event featured an interactive project where students applied their newly acquired skills to control a servo motor.

### PCB Workshop

**Date:** 01.25.2022      **Attendance:** 6      **Cost:** \$0

A technical workshop to teach students how to use EAGLE software to design printed circuit boards. The event began with the presentation of informational slides to provide a basic background on the interface of EAGLE and the design and printing process for integrated circuits. It featured a small-scale project where students created a circuit schematic for a noninverting amplifier and translated the schematic to a print-ready board layout.

### Git Workshop

**Date:** 04.24.2022      **Attendance:** 4      **Cost:** \$0

A technical workshop to teach students the basics of Git version control software. Informational demonstrations covered UNIX commands, Git commit trees, and merge conflict resolution. Students were assisted in downloading Git and trying out their new skills on their own computers.



Joseph Picchi, our 2021-22 BMES Workshops Officer, expands on the BMES Workshops Program— a new aspect of our student organization that started this year:

“BMES’s technical workshops empower undergraduate students to learn industry-standard engineering skills that they can use to develop cutting-edge technologies in their future workplaces. Workshops also provide valuable opportunities for hands-on learning, offering students opportunities to apply their new skills in collaborative team projects.”

# Technical Projects Infosession

**Date:** 09.29.2021      **Attendance:** 75      **Cost:** \$0

This infosession gives a detailed overview of all the technical teams, giving students the opportunity to learn about the projects and tech projects goals for the year.

# Technical Projects Social

**Date:** 11.11.2021      **Attendance:** 25      **Cost:** \$66.63

This is a small picnic and sports event to kickoff the start of technical project teams. It's an opportunity for PMs and members to get to know each other and interact with the other teams.

# BioHack

**Date:** 4.23.2022 - 4.24.2022      **Attendance:** 26      **Cost:** \$4712.84

Our first ever in-person biomedical hackathon focuses on creativity, innovation, and collaboration. During the 24-hour period students have the opportunity address one of three design prompts in the fields of bioinformatic, medical device development, and systems development. The event included keynote speakers, workshops, alumni mentoring, socials, and a judging and presentation session.

# Demo Day

**Date:** 06.02.2022      **Attendance:** TBD      **Cost:** TBD

This event is an opportunity for the year-long technical project teams to showcase their work to UCLA professors and the general public.



# Societal Impact

Our Designs as well as our annual hackathon, BioHack, made important strides in impacting our surrounding engineering community.

Design Team includes year-long projects led by upperclassmen that allow students to build on already present technical skill sets to then expand them to more advanced projects. With personalized medicine in mind, our three Design Team projects hoped to fill current knowledge and technology gaps to enhance patient care. Both the Smart Walking Device and Therapeutic Glove projects work towards finding treatment options for regaining mobility and motor function. The Robotic Scanner Arm project serves as a diagnostic tool, assisting in medical imaging.

BioHack is our annual hackathon, a “design sprint-like event,” that we host as an opportunity for students to design creative & innovative solutions to biomedically-focused problems. Students collaborate in teams of 3-5 students to Brainstorm, ideate, and “build” solutions with tools and technology. It is our hope that this event provides students with the opportunity to learn new technical skills while networking with students and professors.



## Design Team

Design Team is our more advanced technical projects team, aimed at students who have already built a foundation of technical skills. The major goals of Design Team include gaining hands-on engineering experience, building upon prior experience to design and create more complex devices, and working with a diverse team to achieve a common goal.

### Design Team 1: Therapeutic Glove

This project is to create a glove and app that can supplement retraining of hand motor function in stroke and/or Parkinson's Disease Patients. The glove will provide mechanical stabilization and also contain flex and force sensors which can be transmitted to an app through a bluetooth module. This will allow tracking of rehabilitative exercises in real-time and provide easy training methods for hand strength, mobility, and functionality in patients.

	<b>Date</b>	<b>Attendance</b>
Weekly Meetings	Once per Week	9-10

**Description:** A weekly meeting for all subteams to update each other on project progress and set goals for the coming week

Game Nights	Once or Twice per Quarter	4-6
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**Description:** A game night for team members to unwind e.g. (Super Smash Bros, Catan, Jackbox Games)

Tennis Nights	Once every 2-3 Weeks	5-6
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**Description:** An hour or two of tennis between team members

Sub-team Meetings	Three Times every 2 Weeks	3-5
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**Description:** Sub-teams cross-collaborate to develop project components (e.g. Bluetooth integration requires both app dev team and circuitry team to implement properly)

**Total Cost:** \$1,036.98

### Design Team 2: Robotic Scanner Arm

The goal of this project is generate 3D scans of a body part by to designing and prototyping a robotic arm with an array of sensors (distance and camera) end-attachment. The robotic arm will be controlled by an Arduino microcontroller and powered by 5 stepper motors in a 3d printed structure.

	<b>Date</b>	<b>Attendance</b>
Weekly Meetings	Once per Week	3

**Description:** Work together in person to assign tasks and on hardware prototyping and integration.

**Total Cost:** \$496.00



# National BMES Meeting

BMES first received an invitation to present in the Student Chapter Awards Presentation at the National BMES Conference in 2018.

We were grateful to have received the Outstanding Outreach Award in 2018 as well as the Commendable Achievement Award in 2019. In 2020, we were honored to have the opportunity to attend the first virtual BMES national conference in accepting a second Commendable Achievement Award. This past year, we also had the pleasure of attending the hybrid national conference and receiving a second Outstanding Outreach Award in 2021.

We look forward to attending future conferences and meeting more BMES members across the country in upcoming years.

# BMES at UCLA Awards & Presenters

	<b>Award</b>	<b>Presenter</b>
2018 Annual BMES Meeting	Outstanding Outreach	Eva Chen, Meagan Yuen
2019 Annual BMES Meeting	Commendable Achievement	Mandy Hung, Izabella Samuel
2020 Annual BMES Meeting	Commendable Achievement	Linnet Chang
2021 Annual BMES Meeting	Outstanding Outreach	N/A

## Goals for Future Meetings

BMES at UCLA is honored to be surrounded in a community full of inspiring students, researchers, industry professionals, and academic professors at BMES conferences each year. We strive to continue attending these events and engaging with other BMES members at a national level to better enhance how we serve our members at UCLA. We are excited to continue attending these conferences and learning from the passionate ideas that those around us bring each year.

To continue encouraging attendance at national conferences in the future, we hope to implement the following goals:

- Bring all four executive board members to the national conference
- Encourage national member registration among members in our student chapter
- Collaborate with the Bioengineering Department to fund more students interested in attending the conference
- Emphasize networking and research showcase opportunities at the BMES national conference



Angela Lu, UCLA BMES President 2021-22, and Rakhi Banerjee, UCLA BMES External Vice President 2021-22, attended the national conference virtually this past year (right) and accepted the Outstanding Outreach Award for our organization (left).

# Future Directions

As the current UCLA BMES Executive Board for the 2021-22 school year prepares to graduate, the new BMES Executive Board has been selected based on their commitment to our student organization as well as their creative new ideas that will allow UCLA BMES to continue growing.

Reflecting back on this year, we are proud of meeting the major goals and milestones we had set at the end of the previous academic year. Looking forward, the outgoing and incoming Executive Boards have collaborated on future directions for our student organization. The goals and expectations are outlined on the following page. The incoming Executive Board has also released a statement on how they plan on implementing these goals.

# Summation of Goals

## Achieved During the 2021-22 School Year



### Greater Incorporation of Mental Health Events

To allow for greater involvement within our technical skills branch outside of our year-long projects, BMES implemented a new Workshops Officers role which was designed to teach technical skills to general members who weren't able to commit to our existing year-long project teams. Workshop Officers hosted workshops in an easily accessible, one-time, and low-commitment format.



### Increased Accessibility to Technical Skills Workshops

In continuing efforts to increase the scope of companies at events, we boosted engagement of students to Industry connections by designing and executing a new Coffee Chat Series with leaders in industry as well as with professors. Additionally, we worked closely with the Bioengineering Department and Industry Advisory Board (IAB) at UCLA to initiate a co-op program for students



### More Connections Between Students & Leaders in Industry

This past few year's introduction to mental health topics have included discussions on managing stress and navigating imposter syndrome. We have expanded these discussions into conversations of normalizing mental health challenges by providing spaces for students to learn about and utilize resources as well as events for students to cope with stress in healthy ways.

## Identified for the 2022-23 School Year



### Increase General Member Engagement and Diversity

We hope to foster a club environment that encourages engagement and celebrates diversity. We will achieve these goals by improving our website and social media outlets to streamline the spread of information to all of our members. We also hope to expand accessibility of our organization by increasing outreach to other majors. Finally, we will expand on initiatives focusing on equity, diversity and inclusion.



### Expand Breadth and Opportunity in Technical Workshops

We aim to increase accessibility to technical skills workshops for general members. We plan to achieve our goal by increasing the number of Workshops Officers and selecting Officers with a breadth of technical skills.



### Promote Corporate Sponsorships and Relations

Through increased engagement with partners in industry, we aspire to increase Corporate Sponsorships to increase industry participation at our annual Career Fair, as well as directly connect our students to industry professionals for mentorship, networking, and career advice.

# Expectations from BMES at UCLA

JUHI MEHTA, NEXT YEAR'S PRESIDENT, ELABORATES ON THE UPCOMING PRIMARY DIRECTIVES OF BMES LEADERSHIP

Looking to the upcoming academic year, BMES at UCLA has three main goals that we hope to achieve. By increasing general member engagement and diversity, expanding the breadth and opportunity of our technical workshops, and promoting corporate sponsorships and relations, we hope to take BMES to new heights for our members.

First and foremost, we hope to maintain an engaged and diverse general member body. This past year, the return to an in-person college experience was a reminder of what BMES means to all of us: community. With the online college experience, many of our members felt disconnected from each other, and we aspire to provide members with resources that will aid in the restoration of that sense of community. To streamline the spread of information to all of our members, we will improve our website and expand our social media outlets. This will ensure that members are up to date on all upcoming events and can easily find information on how to become more involved. We also aim to expand accessibility of our organization beyond the bioengineering department by increasing outreach to other majors. Amongst members, we also hope to foster an environment that celebrates diversity. Our current Diversity, Equity, and Inclusion (EDI) panel series highlights topics such as Women in BE, Underrepresented Racial Minorities in BE, and LGBTQ+ in STEM, and we hope to expand upon this by hosting more intersectional events, such as discussions about the intersection of mental health and cultural expectations. We also hope to increase the reach of these initiatives by collaborating with other organizations on campus focused on these issues.

Beyond community, technical experience is something a vast majority of our members hope to gain through our organization. In the past year, the technical workshops series, run by the newly established Workshops Officer role, hosted a series of hands-on workshops on topics such as printed circuit boards and computer aided design. We have expanded the number of Workshops Officers to facilitate more consistent workshops and allow each event to host more students. We also plan to expand the breadth of workshops offered to better reflect the scope of the bioengineering field. As an example, we will be introducing wet lab workshops next year. We will also promote collaboration with other engineering clubs to apply core engineering disciplines to bioengineering questions. Overall, these workshops will serve as a low commitment and consistent way for any BMES member to get involved and learn something new, regardless of skill level.

Finally, we strive to bring more industry connections to our members through increased corporate sponsorship, increased representation at our annual Career Fair, hosting more internship information sessions, and hosting talks with local industry professionals with connections to UCLA. In the past year, we have increased our participation with the Department of Bioengineering and its connections to industry and alumni. Through this connections, we seek to collaborate with these professionals to give them a chance to speak with our members and students, while also allowing students a chance to learn more about different industry companies and opportunities. By increasing these connections, we may also gain more revenue from corporate sponsorships and thereby fund larger general BMES projects, such as our Community Outreach Branch or Technical Projects Branch that require many supplies to help all of our members find a way to engage with our club.

Overall, we look forward to the coming year and are excited for our organization to continue to grow and flourish. In achieving these goals, we hope to foster an inclusive environment that provides members with many opportunities to develop their skills.

**Juhi Mehta**  
**BMES President 2022-23**  
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