

# ASCE BRUIN

WINTER 2019



**ATHLETICS 08**  
**CAREER FAIR 12**  
**STEEL BRIDGE 23**

# CONTACT US

## ASCE BRUIN NEWSLETTER

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# WE'RE SOCIAL!



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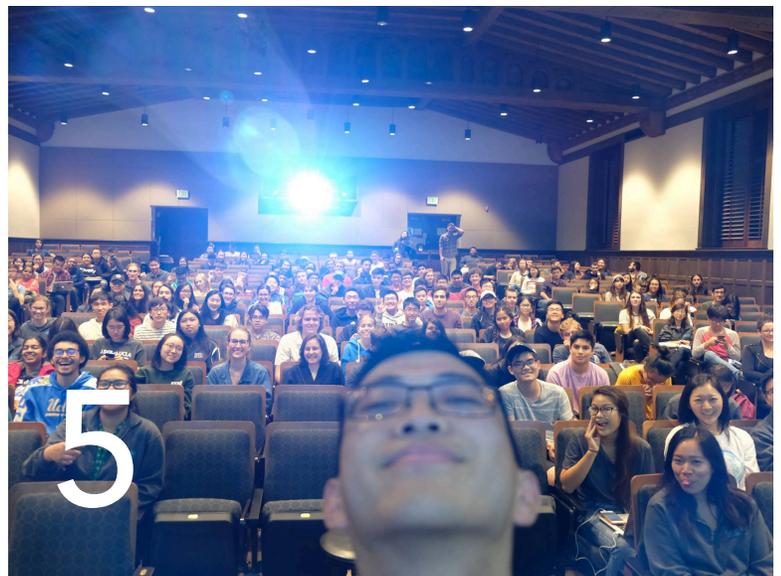
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# *A Letter* **FROM THE PRESIDENT**

Dear Alumni, Faculty, Students, and Sponsors,

ASCE at UCLA had another great quarter, and I am very excited to present the Winter 2019 Newsletter. We began before the school year started, as our officers worked hard over the summer to prepare for this year. Our recruitment efforts began at various orientation sessions throughout the summer and continued in September with events such as the Enormous Activities Fair, Engineering Welcome Day, and CEE 1 outreach. Following zero week and before the start of classes, our officers went up to Big Bear for our annual Officer Retreat. They were able to bond with one another and plan events for the school year while coming up with new and innovative ideas for our chapter.

*“This gave new members the chance to interact with project managers and get exposure to the projects they want to get involved with.”*

When we came back to UCLA, we held our Fall General Meeting with over 200 students in attendance. Our officers and project managers presented our upcoming events and project workdays, while students were able to sign up for membership. The following week we hosted our annual Project Open House where our 11 technical projects set up booths and talked about their respective projects to interested students. This gave new members the chance to interact with project managers and get exposure to the projects they want to get involved with.

Our projects spent the quarter working hard to prepare for their respective competitions. Seven of our projects will be competing at PSWC (Pacific Southwest Conference) in early spring. Construction Management will be competing at the ASC67 Competition in February, and Seismic Design will be competing at the EERI (Earthquake Engineering Research Institute) in March. Our two community service-based projects were also busy this quarter, with Seismic Outreach hosting another successful fall finale day and the Navajo Project preparing for their end-of-quarter site visit.

The professional development side of ASCE also had great success. We hosted 11 company info sessions, two field trips, and a resume workshop and career fair boot camp. Our annual fall career fair had a record-breaking 45 companies in attendance across a diverse range of civil engineering companies.

Additionally, we had another successful quarter of our new Industry Shadow Program and partnered with three different companies across various disciplines of civil engineering. This program allowed students an opportunity to get one-on-one experience shadowing an engineer in a professional setting.

We held many valuable social events this quarter, including a succulent planting and paint night and our quarterly study marathon. Our community service grew by partnering with new organizations such as Kindred Spirits while we continued to work with organizations we had already established relationships with, such as Explore Your Universe. Mentorship had a strong start, with over 130 members signing up to be a part of our successful mentorship program. With events like our first-ever mentorship ice cream social and mentorship reveal day, underclassmen were paired with upperclassmen mentors and placed into one of four families.

Of course none of this would be possible without the generosity of our alumni, advisors, and sponsors. Thank you for your continued support throughout the years, and thank you to the UCLA Civil and Environmental Engineering Department for their constant help and guidance with our chapter. Our officers and members greatly appreciate all the support we receive and look forward to continuing to work with our alumni, advisors, sponsors, and the department.

Please do not hesitate to reach out if you have any questions or comments about our chapter or how to get further involved. We would love to hear any suggestions or new ideas you have for our chapter, so feel free to reach out to myself or any other officer.

Thank you,



**Mahsa Sheykhsooltan**, President  
ASCE at UCLA 2018-2019

“Our officers and members greatly appreciate all the support we receive and look forward to continuing to work with our alumni, advisors, sponsors, and the department.”

# MEMBERSHIP

YUEN LENH



**ENGINEERING WELCOME DAY** Current members pose for a photo with Dr. Goodin at Engineering Welcome Day, one of our first member recruiting events of the year.



**FALL GENERAL MEETING** New members find their seats within the auditorium for the first general meeting of the 2018-2019 school year.

With a total of 295 members, 130 of which are new members, ASCE at UCLA proudly continues to grow this year. We had a total of 259 members at the end of fall quarter last year and 326 members by the end of the 2017-2018 school year. Using last year as a model, we expect our membership to increase over the course of this academic year. We welcome members of all majors in both STEM and humanities. Over 10% of our members are non-Civil Engineering majors.

We successfully recruited new members at the campus-wide Enormous Activities Fair and at the Samueli School of Engineering's Engineering Welcome Day. At both of these events, our general officers and project managers and directors played a big part in our membership recruitment by setting up various displays, handing out flyers to advertise our organization, and explaining what ASCE is to individuals who showed interest in joining. Recruitment efforts at these two events culminated in a total attendance of 220 members at our Fall General Meeting.

In order to monitor our member participation beyond the first general meeting, we use a membership tracking system where we record attendance at various events and project workdays. This quarter, we had an average of 32 members in attendance at info sessions, 10 members at community service events, and 19 members at field trips. On the projects side, we have roughly 5 - 20 active members in each of our 11 projects. Members, both new and returning, are welcome and encouraged to attend general events and project workdays throughout the year!

This year, we implemented a new program called "Officers of the Week" with the goal of strengthening the relationship between officers and general members. Each week, one to three officers had a literature with personal fun facts and a description of their position displayed across our social media platforms. The purpose of our "Officers of the Week" is to have members get to know their officers and feel more comfortable reaching out to them. We look forward to seeing new members in the coming quarter. Membership is open to all and it is never too late to join!

# INFO SESSIONS

SOHAM GUPTA

Fall of 2018 proved to be a very successful quarter for info sessions here at ASCE at UCLA. In terms of numbers, we had a total of 11 info sessions, occurring from Week 2 to Week 7, with an average attendance of 35 students per event. Since most students are trying to get a head-start in securing internships and job for this summer, fall info sessions usually result in the highest attendance. All but two info sessions this quarter were held in Boelter Penthouse, which is equipped with audio and visual equipment and serves as a beautiful venue for these events. The fall quarter info sessions featured companies in Construction and General Contracting, Structural Design, Architecture, Civil, Mechanical, Electrical, Environmental and Transportation Engineering. CDM Smith (Environmental), SOM (Architecture and Structural), Arup (Structural, Mechanical, Electrical), Kimley-Horn (Transportation and Civil), and MATT Construction yielded the highest number of attendees, and held some of the most engaging info sessions.

As ASCE at UCLA continues to grow and prosper, so does our outreach with companies. With SOM, a leading design firm, we have created a new relationship that has the potential to grow into something special. Likewise, Arup is back after three years and once again heavily interested in recruiting UCLA engineers. Due to such a large number of companies interested in holding info sessions for ASCE at UCLA, we currently have a back log of companies that are scheduled for next quarter. Info sessions were strategically planned in order to keep a diverse alternating schedule of design versus construction firms.

ASCE at UCLA is set for another solid quarter in terms of info sessions and professional connections, and we hope to help both companies and students while creating a long-lasting relationship between the school and the professional world.

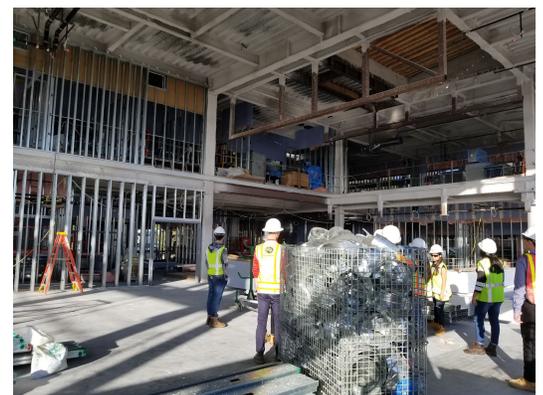
# PROFESSIONAL OUTREACH

KERI SCHOLTE

We kicked off the school year with a field trip to the Skidmore, Owings & Merrill (SOM) office in DTLA, where a group of 25 members heard from a structural engineer and architect about their LA Federal Courthouse project. We toured the office space as well as the impressive, completed Courthouse nearby.

A couple weeks later, a group of 12 members toured the UCLA Anderson Project (Marion Anderson Hall) with PCL Construction. We met with the Project Manager who briefed us on the project - the new flagship building for the Anderson School of Management - and walked us through the site.

About 10 students participated in the Industry Shadow Program (ISP) this Fall. They spent a few hours observing the typical work day of engineers at Black & Veatch, as well as the ASCE at UCLA alumni at KPFF Structural. We are looking forward to bringing on more companies to host Shadows in the coming months, as well as hosting field trips in the geotechnical and environmental fields.



**PCL FIELD TRIP** Students tour the UCLA Anderson Project.

# COMMUNITY SERVICE

DOUG CHAMBLISS

This quarter, ASCE at UCLA members gave back to the greater Los Angeles community in several exciting ways. Our quarter of volunteering commenced with a lovely trip to the Kindred Spirits Care Farm, where we offered our assistance in clearing up yard waste and feeding the wonderful animals. The next event we helped with was Explore Your Universe at UCLA, an annual science fair for local children in the greater Los Angeles area. ASCE at UCLA ran a booth that instructed kids how to design a water filter and how to construct a mini bridge. The final volunteering opportunity of the quarter was with Be The Match, where several of our members ran their 5K in Long Beach alongside LA YMF members to benefit those with bone marrow cancer. We also closed out the quarter accepting food donations to be added to the Biomedical Engineering Society at UCLA's food drive.

Fall quarter was a very successful string of events that could not have run so smoothly without the willingness and charity of ASCE at UCLA members. Next quarter, members can look forward to more relevant and engaging community service events, such as tree planting with Tree People and food preparation for Midnight Mission.



**BE THE MATCH EVENT** ASCE at UCLA members and LA YMF members come together to run a 5K for Be the Match. Be the Match is the largest and most diverse marrow registry in the world that works to save lives through transplant.

**KINDRED SPIRITS EVENT** 15 ASCE at UCLA members pose for a picture after volunteering at the Kindred Spirits Care Farm where all animals are rescues who will get to live their natural lives and express their natural behaviors.



# ATHLETICS

GIANNA FURUMOTO

We started the year off with another great season of Fantasy Football. We had two leagues again this year, and our champions for this season are Trevor Davis and Rabby Kankolongo. We also brought back Fantasy Basketball, which began with a small draft party. We shared snacks, a little smack talk, and ended up studying together after the draft was done. Midway through the season, our current leaders are Eliot Yang, Joshua Manesh, and Dario Qiu. Fantasy sports have been a fun way to have a little friendly competition within our club.

As for competing against other groups, we participated in three intramural sports this quarter. Our men's flag football team had a record of 2-2 going into playoffs, but had to forfeit in the first round due to scheduling conflicts. We also played co-ed dodgeball this quarter, and finished with a record of 1-3. At least we can say that we beat the team that went on to win championships! Lastly, our co-ed volleyball team had a record of 2-2 going into playoffs. We lost first round in a tough game, but overall we had a good season and a competitive team. We are definitely looking forward to PSWC volleyball!

Next quarter we will continue our Fantasy Basketball league, and we are planning on participating in at least two more intramural sports including 5-on-5 basketball and 7-on-7 soccer. We will also start preparing teams for the sports and miscellaneous competitions at PSWC to show the other schools how versatile and skilled ASCE at UCLA is.

This winter, we will be introducing Mentorship Olympics. Mentorship Olympics will be a cool new way to stay active and bond with our Mentorship families. It will also inspire a little competition between families and further prove how multifaceted our club is.



**VOLLEYBALL PLAYOFFS** ASCE at UCLA's intramural volleyball team after their playoff game in Pauley Pavilion.



**DODGEBALL GAME** After a dodgeball game, the ASCE at UCLA dodgeball intramural team poses for a group photo.

# SOCIAL

## ANNA PHILIPP

Fall quarter was great for the social side of ASCE. We had three main events throughout the quarter, namely the Midterm Stress Relief: Succulent Planting, the Fall Student-Professor BBQ, and the Finals Study Marathon, which all helped to create an even greater ASCE at UCLA community.

The first event of the year was our Succulent Planting social where ASCE members gathered at our Vice President's apartment to paint little terra cotta pots and plant little succulents in order to relieve the stress we were all facing during midterm season. It was a great opportunity for our members to showcase their creative sides and take their minds off of the rigors of school work for a couple hours.

Our next event was the Fall Student-Professor BBQ. ASCE members went to Professor Stewart's home in Santa Monica for a Hawaiian themed BBQ. Professors Stewart, Sant, and Margulis (and his family), along with our Administrative Specialist Helen, attended along with 42 graduate and undergraduate students. Great conversation was had between faculty members and the students. Students compared their own fun ASCE memories with Professor Stewart's memories of his days as a member of ASCE's Berkeley Chapter. There was plenty of time to eat, chat, and even celebrate Professor Stewart's birthday with cake.



Our final event was our Annual Finals Study Marathon where ASCE members gathered in Boelter 4275 for twelve hours of studying. We provided a quiet environment for our members to independently study in during hectic finals week when it is often difficult to find a calm study space. We also supplied members with their favorite snacks to inspire great studying that would get us all through finals week and help us finish the quarter off strongly.

The overall turnout at all of our social events throughout the quarter was great, ranging from 20 to 50 members per event. There is even more fun coming up in the next quarter with our Annual Ski Trip where about 45 members will travel to Big Bear for a weekend of bonding, skiing and snowboarding, and other fun winter activities. We hope to see even more members coming out to ASCE's social events!

**SUCCULENT PLANTING SOCIAL** Tori Mok poses with her succulent and the succulent-themed pot that she painted.

# MENTORSHIP

VIVIAN CHONG

The first quarter of mentorship has been amazing. A total of 140 members are in our mentorship program, sorted into 4 different families: \$wagon wheel\$, salt., BrockFAMpton, and Alphabet Schlurp, with 8 wonderful family heads: Alex Lee, Claire Killian, Mahsa Sheykholtan, Lucas Hamera, Doug Chambliss, Kasey Murakami, Ada Chang, and Brandon Duong. This quarter, we held our very first Ice Cream Social, where new members and active members got to meet potential mentors and mentees through Officer Bingo. Mentorship Reveal was a complex event with an easter-egg scavenger hunt around south campus where clues were given so mentors and mentees could try to figure out who was in their pairing. Last but not least, the quarter ended with the annual Mentorship Holiday Potluck, themed after the UCLA Dining Halls.

Next quarter, we want to outreach to more students looking to get involved in ASCE and integrate them into the mentorship program. It is never too late to apply! Applications are accepted on a rolling basis and I will sort you into a family with a pairing of your own! We also have a couple inter-family events planned, such as Mentorship Family Olympics.

The mentorship program means so much to me, as someone who was looking for ways to get involved in ASCE, but didn't know how. The mentorship program last year has given me so much and I am so happy to have the opportunity to give back to the members of ASCE.



**MENTORSHIP POTLUCK** All four mentorship families gather to eat the food each family has prepared for the potluck.



**POTLUCK POSE** During the mentorship potluck, Brian Ling, Kristida Chhour, and Lucas Tang smile for a photo together. As freshmen, all three are new to the mentorship program and ASCE.



**ICE CREAM SOCIAL** At the first mentorship event of the year, Eliot Yang talks to freshmen interested in joining the mentorship program. The ice cream social began with a fun fact bingo game where new members had to guess which fun fact belonged to each current member.



**ALPHABET SCHLURP** (top left) Family heads are Ada Chang and Brandon Duong. **BROCKFAMPTON** (top right) Family heads are Doug Chambliss and Kasey Murakami. **SALT**. (bottom left) Family heads are Mahsa Sheykholtan and Lucas Hamera. **\$WAGON WHEELS\$** (bottom right) Family heads are Alex Lee and Claire Killian.

# CAREER FAIR

CLAIRE KILLIAN

Professional development wise, this quarter was definitely one for the books. Record attendance at events coupled with a host of various field trips and shadow programs culminated in a myriad of industry opportunities for our student chapter members.

To kick off the job hunting season, we hosted a Career Fair Bootcamp and Resume Workshop that was well attended by nearly 80 students. The first half of the evening focused on the specifics of navigating a Career Fair and the second half took the form of breakout groups where industry professionals critiqued students' resumes and offered professional advice. Big shout-out to all those industry volunteers who took time from their busy schedules to help us college students improve!

The success of this event led directly to the success and turnout at the Fall Career Fair, which occurred on November 1st, 2018 in Ackerman Grand Ballroom from 10:00 AM – 2:00 PM. Over 100 representatives from 45 registered companies—a Career Fair record!—began arriving around 9:00 AM to prepare their booths. We opened the doors for students an hour later, and the massive flurry of 200 students networking and handing out resumes didn't end until we closed the doors four hours later. Personally, it was heartwarming to see the diversity with respect to grade level of students in attendance, as many freshman and sophomores secured interviews at the Fair. Overall, the industry representatives seemed very pleased with the quality and quantity of students they met, as well as the organization and execution of the Career Fair.

Looking ahead to the upcoming year, there are still plenty of professional opportunities to secure a job! Networking Night is back in full force and will be held on the evening of January 30th, 2019 at a venue close to UCLA. This event is designed to promote networking amongst students and professionals in a more casual setting—in other words, it is a wonderful way to get face time with companies before seeing them the next day. Fun fact #1: there is roughly a 1:1 ratio of design to construction companies attending Networking Night. The following day, January 31st, 2019, is the Winter Career Fair held in Ackerman Grand Ballroom from 10:00 AM to 2:00 PM with an identical format to the Fall Fair. Get ready for Fun Fact #2...70% of the 42 currently registered companies are design firms!

To prepare for these big professional events, we will host Mock Interviews on January 28th, 2019. Students are paired with an industry professional in a particular field of civil engineering to further tailor the interview experience. For those of you who would like to practice your interview skills, this is an event you don't want to miss! Additionally, for anyone who missed the last Career Fair Bootcamp or would like a refresher, there will be another Bootcamp during Week 3.

Finally, I would like to introduce our three Industry Liaison Interns: Kat Acero, Rodger Lee, and Cade Luongo! They will be helping our Professional Development team over the next two quarters bring the best possible events to ASCE. Thank you all for bearing with my many emails, and I'm excited to help you all secure the professional opportunities I know are out there next quarter!



**CAREER FAIR** At the Fall Career Fair, Francis Paras networks with industry professionals.

# PACIFIC SOUTHWEST CONFERENCE 2019

JOHNNY SCHMIDT

Every year, our ASCE chapter competes at the Pacific Southwest Conference, or PSWC, against 17 other schools from Southern California to Arizona. After last year's conference at Arizona State University, we will be heading back to the coast for the 2019 conference at Cal Poly San Luis Obispo. This is the first PSWC in recent years hosted in a rural area, which brings its own set of challenges, such as limited hotel selection and greater distances between venues. Another new challenge this year is that the Steel Bridge Competition is no longer a part of PSWC, but will be hosted concurrently at SLO, so we will have to coordinate our efforts to support our teams in both competitions.

Looking ahead, the majority of winter quarter will be spent registering participants for the conference and building hype with events like the PSWC Pump-Up Day. Of course, the bulk of our preparation for PSWC is actually done through the projects, so it will truly be a group effort of organization to get ready in time for April 3rd, when we all travel to San Luis Obispo to see our hard work pay off.



**CAL POLY SLO** This year's PSWC will be hosted by CAL POY SLO.



**THE TOWN** An aerial view of San Luis Obispo where PSWC will be this year.

- 1500 civil & environmental engineering students
- 18 universities
- 9 technical events
- 6 miscellaneous events
- 4 states
- 3 days of competition

# CONCRETE CANOE

COLIN BURROWES

The Concrete Canoe project at UCLA involves designing, constructing and racing a durable, lightweight, and aesthetically-pleasing concrete canoe. We will compete at the Pacific Southwest Regional Conference in four equally-weighted categories: final product and display, oral presentation, design paper, and paddling races. This past quarter has been particularly busy for our project, as we engaged in design, research and testing to prepare for canoe casting this winter.

This year's project leadership team consists of two Project Managers and eight Project Directors. This past quarter, we led a pack of new and returning members, including a crew of friendly freshmen and transfer students, in gaining hands-on experience and technical knowledge through a variety of tasks during our workdays. Together, we have already contributed over 700 person-hours to the project, and formed a closely bonded team through director meetings, dinners and project social events.

In the Fall, we engineered a new hull design, comparing multiple 3D models for drag coefficient and turning efficiency. To bring this design to life, we are employing the use of CNC foam milling to create a brand new canoe mold. New members learned about the mold construction process by completely stripping and refurbishing last year's mold, learning to sand, paint, epoxy, and contact paper the surface of a foam mold. This same process will be applied to the new CNC milled foam mold in preparation for casting day. Finally, members have been practicing paddling techniques at Marina del Rey to gain confidence for PSWC races.

Meanwhile, our mix team was hard at work developing a lighter and more workable concrete mix without sacrificing strength. New regulations regarding aggregate proportioning and latex usage have opened a window of opportunity to reduce the density of our concrete mix, which we hope to take advantage of to reduce canoe weight and improve maneuverability. Results have been promising so far, as our busy mix design team has casted over 30 unique concrete mixes in an effort to reach these goals.

As we continue to prepare for our Casting Day on January 12th, we also look ahead to the remainder of Winter quarter, when we will continue to work hard in preparation for PSWC. Aside from sanding and patching our canoe, we will write our technical design paper, construct our display table and stands, and add aesthetic artwork to our canoe. With our team of dedicated and passionate members, we are ready to take on these tasks with fervor in order to compete with the best!



**TRAINING TIME** Concrete Canoe project engineers receive hands on experience by refurbishing last year's mold.

# CONCRETE SPORTS

JASON HEADINGTON

Over the course of fall quarter, Concrete Sports has introduced new members and refined the concrete mix. In the beginning of the quarter, we hosted a joint workshop with Concrete Canoe. This event taught the basics of concrete chemistry and allowed new members to gain hands on experience with concrete through practice mixes. During the remainder of the quarter, our work days were focused on prototyping. Last year, we used plastic Frisbees to create a mold that gives our concrete a better aerodynamic shape. This year, our experimentation has been with optimizing the mix by removing unnecessary chemical additions. Our work in the Fall was focused on the removal of air entrainment, as well as the implementation of a new type of latex.

During winter quarter, our primary goal will be to cast the final Frisbees, taking into consideration the small changes made in the Fall. We will also be holding throwing practices throughout the quarter in preparation for our first annual Concrete Sports finale tournament. This tournament is planned for Spring quarter, and will be open to all ASCE members. The competition will be similar to the PSWC ruleset, and is a great opportunity for interested members to get involved with Concrete Sports. We look forward to seeing everyone compete in the Oldest and Most Prestigious Concrete Tournament!

# CONSTRUCTION MANAGEMENT

ALEX LEE

ASCE at UCLA's Construction Management projects provide students with the opportunity to gain exposure to both the office and practical sides of construction. The ASC 67 competition is focused on the office side, placing teams of students in various situations that represent current issues in construction. UCLA is represented in three categories: Design Build, Mixed Use, and Sustainability. PSWC offers more hands-on opportunities in the Timber Strong Design Build and all-new Sustainable Dam competitions. Timber Strong DB requires the design and construction of a wood-framed structure, while the Sustainable Dam involves using recycled plastic materials to hold back water within a large container. Both projects' rules were recently released by the PSWC committee, so expect a lot more information on them! The director for Design Build is Yash Kansal, for Mixed Use is Claire Killian, for Sustainability is Alyssa Yim, and for the PSWC Timber Strong Design Build is Bailey Uy. The PSWC Sustainability Dam director is to be determined later in the quarter.

We of course aim to improve on our placements from last year in both the ASC 67 and PSWC competitions, but we also want to increase member involvement overall. The PSWC projects are also new, so a big goal for us is to set up organizational infrastructure and best practices similar to what older projects are able to draw on.

Now that rules are out for the PSWC projects, expect there to be more workdays and info sessions relating to them! For ASC 67, the mock presentations are open to anyone and are crucial to improving our performance at competition, so if you have a free moment the last week of January your support would be very much appreciated!

# ENVIRONMENTAL DESIGN

PAULINE NGUYEN & INGRID SPIELBAUER

The UCLA Environmental Design project started off the school year with three workdays a week. We had educational workshops and laboratory testing to engage members and give them some hands-on experience in water and wastewater treatment processes. This year, the competition challenges students to design and build a wastewater recycling system for a winery and olive oil producer in San Luis Obispo, California to use for irrigation; this is intended to replace their current wastewater anaerobic pond system and enhance the water resilience of the facility under drought conditions. Contaminants this year include top soil, olive oil, distilled white vinegar, iodized salt, and ferrous sulfate granules.



**ENVIRONMENTAL DESIGN TEAM** After a productive workday, 12 Environmental Design project engineers gather around their workspace for a group photo.

Leading the team are the Project Manager and Assistant Project Manager, Pauline Nguyen and Lew Xuan Yu, as well as Project Directors Vicki Friesen, Jackie Oehler, and Ingrid Spielbauer. With over 20 interested members, the project is heading into Winter quarter with promising prospects of a successful competition.

With so many ideas tested already, the Environmental Design team is hoping to continue coming up with creative and innovative ways to both filter out the given contaminants throughout the next few months and optimize our system's design. Triweekly workdays will continue throughout winter quarter to give our current and prospective members plenty of opportunities to get involved in this project. We look forward to all of the fresh ideas that the new quarter will bring!



**ENVIRONMENTAL DESIGN WORKDAY** Outside the ASCE lounge, project engineers test different water treatment processes.

# GEOWALL

CAILEEN YU & RACHEL LIEN



**LAB TESTING** GeoWall project engineers perform a lab test for one of their workdays

GeoWall is a competitive project in which students design and build a mechanically stabilized earth retaining wall out of kraft paper, and it is the only undergraduate level project at UCLA that focuses on geotechnical engineering. During the timed competition, the wall is built and tested to resist several different loading cases. The team that uses the least amount of kraft paper and allows for the least deflection wins. According to this year's prompt, we are designing a wrapped wall that can withstand 500 pounds of backfill, a 50 pound surcharge applied at the surface of the backfill, and a 20 pound static and 5 pound dynamic load applied laterally on piles.

During workdays, members and directors embraced this year's challenge, analyzing the 2018 to 2019 competition rules and brainstorming ways to efficiently design and build the wall. Members helped analyze data, come up with an initial design for the wall and determine soil properties using lab tests such as the sieve and triaxial test during workdays. These properties were then used to calculate stresses on the wall induced by the loading cases

With the completion of the initial wall design, the GeoWall team will submit our design report in early January to qualify for the national competition which will be held in Philadelphia, Pennsylvania at the annual GeoCongress Conference in late March. At nationals, Co-Project Managers Caileen Yu and Rachel Lien will be competing alongside Project Directors Justin Qiu, Michala Li, and Peter Lee, as well as GeoWall members Alan Truong, Kyle Hu, and Maan Alhamdan. During winter quarter, the team plans to finalize the wall design and perfect their wall-building technique through many more practice builds.

# NAVAJO PROJECT

VANESSA NGUYEN & KEELY WATLAND

Over Winter Break, student volunteers from the Engineers Without Borders and ASCE joint project, the Navajo Project, took a trip to the Navajo Nation, three and a half hours northeast of Flagstaff, Arizona. From December 15th to December 18th, student volunteers spent their time in Arizona creating a water system for Louise Benally, a woman of the Navajo Nation. Students took measurement of the walls and roof of the woman's house, surveyed the land, and determined which direction of the land had the steepest slope. Throughout Winter quarter, these measurements will be used by the design team to create blueprints for the water system. Once the plan is finalized, student volunteers will return to Arizona the week after Spring Quarter ends to install the system, providing fresh water for the woman of the Navajo Nation.

# SEISMIC DESIGN

LENN KUSHIGEMACHI & BRYAN ONG

Seismic Design is one of the few structural engineering projects that ASCE at UCLA offers to all undergraduate students. Our mission is to design, construct, and analyze a five-foot balsa wood tower, which will be tested with simulated ground motions on a shake table. Every year, in preparation for the annual international Earthquake Engineering Research Institute Seismic Design Competition (EERI SDC), we focus on refining our design and improving our construction techniques while recruiting new members and teaching structural and earthquake engineering concepts. This year, our competition will be held in Vancouver, Canada, and we are excited for the challenges that this year's prompt presents.

The focus of this past quarter was on member recruitment and training, and research into the structural design to combat a very new concept that was not presented in previous competitions. In the beginning of the quarter, the ASCE General Meeting and Project Open House proved to be a huge success as we saw an increase in new members that were interested in our project. We invited new and returning members to our work days, where they were split into groups led by our project leaders. In order to engage and prepare them for building the first prototype, we created a small-scale project that encapsulates the architectural, geotechnical, and structural concepts that would go into our main structure. Throughout this training period, members learned the important applications of braces for seismic resistance, and honed their attention to details in the construction process. Weeks later, they were tasked to construct important components of the first prototype.

Meanwhile, project leaders worked tirelessly throughout the quarter on structural designs to adapt to the major rule changes this year. As shown in Figure 1, our biggest challenge this year was to consider for torsional demand due to the non-concentric floor plan, a concept that was not of concern in previous years. To combat this, our first prototype will have a structural core that is symmetric in both North-South and East-West ground motions, which naturally aligns the center of mass and center of rigidity and avoids any torsion from the geometry of the structure. In addition, the prototype will use mega-column on the outermost layers of the floor plan, which will act as a tubular structure, and an exterior bracing scheme designed through topology optimization.

However, this uniqueness of the bracing scheme provides a construction challenge when fabricating each component. The angles at which each balsa wood needs to be cut is very specific, and proves to be a hard task even with proper training for the members.

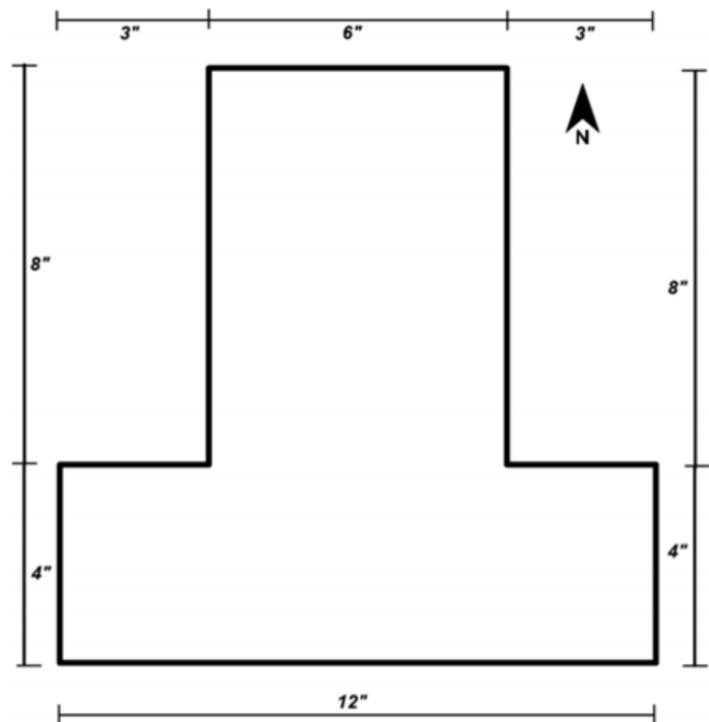


Figure 1: Maximum Floor Plan Dimensions

“Despite the amount of work given, we are fortunate enough to have many dedicated members who will best prepare us for the competition in March. ”

Yet, despite the complexity of the geometry and the cumbersome material properties, members were able to fabricate very well-crafted components using newly installed 3D printing services at the UCLA Samueli Makerspace. This not only improved the quality of construction compared to previous years, but also cut the time of construction. Thanks to this technological advancement, our future designs will have more freedom in member placement, and will have high hopes for the future of Seismic Design. With all these accomplishments, on November 2nd, we gathered all the information needed for the design proposal, including the geotechnical, architectural, and structural descriptions, and submitted it to the Student Leadership Council at EERI.

Looking ahead into winter quarter, we will be conducting our first shake table experiment. After the final touches on the prototype is done, we will be using the laser range finder and accelerometers provided by UCLA's structural engineering laboratory and assistance by our faculty advisor Eric Ahlberg, we hope that our structure will prove to resist the intense earthquakes and give us [necessary data] to make improvements and further refine our design for the final structure. Despite the amount of work given, we are fortunate enough to have many dedicated members who will best prepare us for the competition in March.



**ALL IN A DAY'S WORK** Seismic Design project engineers hover over a workspace table in the ASCE lounge to work together on the formation of a balsa wood building model.



**COLLABORATION** Project engineers for the Seismic Design team, carefully look over the work they have done so far for their balsa wood structure.

# SEISMIC OUTREACH

TYLER PENN & BRANDON DUONG

During the course of this past quarter, Seismic Outreach partnered with Paul Revere Middle School to implement our structural engineering program for their sixth-grade classes. In total, we visited the middle school three times. Each school visit was divided into different topics.

On the first visit to the school, we introduced our amazing volunteers and gave a presentation on the fundamentals of structural and earthquake engineering. A few topics covered in this presentation include the cause of earthquakes, reasons why structural and earthquake engineering are important in our everyday lives, and ways engineers can solve problems related to earthquake damage. The second school visit consisted of the hands-on building project where the students were organized into teams and handed a packet of K'Nex pieces. Their goal was to design and build a structure that would be able to withstand the power of a portable shake table. Finally, the last school visit consisted of basic calculations regarding floor area, the cost of constructing the building as each piece had an associated price, and the cost to area ratio. In addition to our regular school visits, our team organized a workshop for incoming freshmen in the CEE 1 course to learn more about structural and earthquake engineering as well as the project itself and a Finale Day Pump-up Day where we gave our volunteers an overview of the Finale Day and got them excited to inspire the visiting middle school students.

On November 28th, the Seismic Outreach team hosted over 250 middle school students, three teachers, one corporate volunteer, five UCLA faculty volunteers, 51 UCLA student volunteers, and approximately 20 parent chaperones at our Finale Day competition at the Los Angeles Tennis Center Straus Clubhouse.

For the upcoming quarter, we plan to continue the current program of visiting one school per quarter. We will be working with Emerson Middle School, a UCLA TIE-INS school, for the second time. This will be a phenomenal opportunity for our project team to build on our partnership with this school! Thank you, and we look forward to seeing you at our next Finale Day!



**FINALE DAY LEADS** At Finale Day, the middle school students were split into a Red, Blue, or Green Team. Cheston Cheung led the Red Team, Francis Paras led the Blue Team, and Gianna Furumoto led the Green Team.



**FINALE DAY AWARDS** Students from Paul Revere Middle School wait in anticipation as the Seismic Outreach team announces awards.

# STEEL BRIDGE

JACOB STANLEY & JOCELINE SUHAIMI

The goal of Steel Bridge is to design, fabricate, and construct a 20-foot-long steel bridge that sustains a load of 2500 pounds. In the Spring, we will compete in the annual Student Steel Bridge competition, where we are scored on construction speed, deflection, and weight. We have a dedicated team of both new and returning members to help us throughout our design and fabrication process this year.

This past quarter, we held workshops in SketchUp, SAP2000, and AutoCAD to help our members develop their design skills. We decided on the general shape of our bridge over the summer, taking into consideration the parameters and constraints in the given ruleset. Once we had our shape, we tested dozens of different iterations of our long-span bridge on SAP2000, changing aspects such as tube size, lateral configurations, and truss configurations. New members also completed a fabrication project to familiarize themselves with the techniques we use in the machine shop.

This upcoming quarter will have an emphasis on fabrication for our bridge, as we work to manufacture all of the members for our bridge. As a result, we will be spending a majority of our time in the student machine shop throughout winter quarter. Additionally, we will be selecting members for the PSWC competition build team, as well as holding practice bridge building sessions throughout the quarter. PSWC takes place the first weekend of spring quarter, so we want to ensure that our bridge is completed as early as possible to give our build team as much time to practice with the new bridge as possible.

# SURVEYING

JOSHUA WIDJAJA

ASCE Surveying teaches its members techniques in equipment use and calculations for surveying. This year's project director is Catherine Nguyen, a member of last year's competition team, and she plays an important part in preparing this year's team. This past fall quarter, we went through basic techniques of surveying such as differential leveling, taping, and triangulation as we learned how to find elevations, horizontal distances, and bearings. During our biweekly workdays and workshops, 16 different members have come out to survey. At one of our workshops, we taught members from Navajo Project and Engineers Without Borders how to survey for their trip to the Arizona reservation. Don't worry if you have not been able to come to workdays yet, there will be more opportunities to learn and practice.

During the winter quarter, we will select a competition team and train them in preparation for the surveying event course at PSWC. In our conference preparation practices, we will be using a total station, which Professor Robert Kayen has kindly let us borrow. We plan to apply our elementary skills learned during fall quarter to industry techniques. With the total station to complete surveying tasks, we will be training for speed and accuracy in collecting data and solving problems involving elevation, coordinates, distances, and angles. Aside from conference preparations, look out for open workdays, workshops, and socials so members can stay involved. We are excited for the winter quarter and to be surveying again.

“ Don't worry if you have not been able to come to workdays yet, there will be more opportunities to learn and practice.”

# ITE-ASCE TRANSPORTATION

SCOTT KAWAKAMI

The joint ITE-ASCE Transportation Project is designed to introduce project members to transportation engineering through hands-on experience with real world problems. We teach our members how to analyze traffic conditions and explore innovative solutions to promote active and multimodal transportation. Our project is led this year by Project Manager Scott Kawakami and Project Directors Christian Clarion, Anita Sie, Derrick Magee, and Walker Dai. The five of us, along with ITE and ASCE project members, have been preparing for PSWC with weekly workdays this past quarter. Our workday attendance has greatly increased from last year and it has been smooth integrating the new members into the project and getting them involved.

This year we have the task of resolving congestion near the intersection of a highway and a main street in downtown San Luis Obispo. By redesigning the highway interchange, we aim to reduce traffic in residential areas and promote active transportation. Our first task in the winter quarter will be to finalize our interchange design in order to begin work on our calculations and report in preparation for PSWC.



**TRANSPORTATION WORKDAY** In the Young Research Library, Transportation project engineers gather for one of their weekly workdays.

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