

# ASCE BRUIN

A photograph of a group of students and a teacher working on a bridge model. The teacher, a man with glasses and a light blue shirt, is smiling and pointing at the model. Three students are gathered around the table: a boy in a red hoodie, a boy in a blue hoodie, and a girl in a red and white shirt. They are all looking at the model with interest. The model is a complex structure made of colorful sticks and connectors, resembling a truss bridge. It is built on a black table. The background is a simple indoor setting with a white wall and a grey curtain.

WINTER 2018

**NETWORKING NIGHT 13**

**ASC 67 15**

**STEEL BRIDGE 26**

# CONTACT US

## ASCE BRUIN NEWSLETTER

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# WE'RE SOCIAL!



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

Dear Alumni, Faculty, Students, and Sponsors,

I am very excited to present the Winter 2018 Edition of ASCE Bruin to you. We had a very busy fall quarter, and it all began with our Fall Officer Retreat. At the end of September, our officer board members went to Big Bear Lake, California for three nights to prepare for the year and bond with each other.

During the first few weeks of the fall quarter, we were extremely active in recruiting new members. We reached out to new freshmen and transfer students, as well as students who had not been highly involved with ASCE in the past. In the week leading up to our Officer Retreat, we were busy recruiting new members. From the Enormous Activities Fair and Engineering Welcome Day to the MentorSEAS Training and MentorSEAS Mixer, we were able to speak with many students two or three times in just two days. In addition to these events, we held our Fall General Meeting and Open House. At our General Meeting, we introduced the officer board and invited a guest speaker, Zach McFann, who was our 2015-2016 ASCE at UCLA President. He spoke about his time in ASCE and how it helped him gain experience and people skills that he has been able to utilize following his graduation from UCLA. Then, in the following week at our Open House, we showcased all eleven of our projects to interested members.

Our projects had their first workdays of the quarter, with project leaders teaching new members about their respective projects and preparing for the busy winter quarter leading up to big competitions like the ASC Regions 6 & 7 construction management competition, Pacific Southwest Conference (PSWC), and EERI's Undergraduate Seismic Design competition. Our community service projects were quite busy too, with Seismic Outreach hosting a very successful fall finale day in mid-November and the Navajo Project performing a site assessment trip over Thanksgiving Break.

In addition to successful project work this quarter, we had great turnouts at all of our professional events. We held company information sessions nearly every week with a variety of companies. A few of our projects also invited professionals from the industry to give insightful workshops that will help our student members in the projects. In addition, we had much success in running our own Résumé Workshop and Career Fair Bootcamp, which helped led to the largest turnout at our Fall Career Fair in years. There were 39 companies and over 200 students in attendance!

*"Our projects had their first workdays of the quarter, with project leaders teaching new members about their respective projects and preparing for the busy winter quarter leading up to big competitions."*

Another notable event was the ASCE Los Angeles Younger Member Forum Student Chapter Mixer, which UCLA hosted in the Pauley Pavilion Club for about 70 students and professionals from the Los Angeles area. Additionally, the ASCE National President Kristina Swallow spoke at UCLA as part of the Leslie A. and Dennis J. Drag Distinguished Lecture Series in Civil Engineering! It was inspiring to hear about the careful planning and bold decision making involved in moving forward with ASCE's Strategic Initiatives. #womeninstem

We would like to thank our alumni, advisors, sponsors, and members of the UCLA Civil and Environmental Engineering Department for all the help and support throughout the year, as they make all that we do possible. This past quarter, we had the bittersweet honor of celebrating Dr. William Goodin's retirement from his role as our organization's Practitioner Advisor. Dr. Goodin has been an enthusiastic Practitioner Advisor to our student organization for over 10 years. From helping our many projects to consistently attending our officer meetings, Dr. Goodin and his positive presence (and colorful ties) have helped bring ASCE at UCLA to where we currently are. Thank you Dr. Goodin for your many years of service! Jamie Harlan, PE (class of '09) has joined us as our new Practitioner Advisor.

As always, if you have any questions or comments about anything regarding ASCE at UCLA or would like to increase your involvement, please feel free to reach out to me or any of our officers. In addition, if you ever have any new ideas for our chapter, I would love to hear them.

Cheers,



**Allison Woodworth**, President  
ASCE at UCLA 2017-2018

"We would like to thank our alumni, advisors, sponsors, and members of the UCLA Civil and Environmental Engineering Department for all the help and support!"

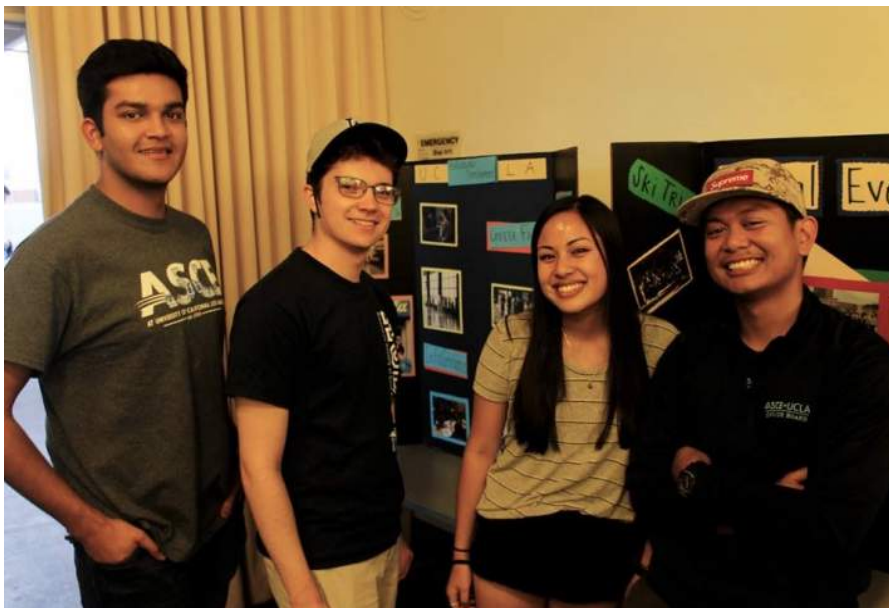
# MEMBERSHIP

ALYSSA YIM

ASCE at UCLA proudly continues to grow from year to year, as we welcome over 170 new members to our club this year! Overall, we ended 2017 with an amazing 293 members, as compared to the 272 members we had last year at this time, and it's not just civil engineering majors joining! Over 10% of our current members are from other majors, both engineering and liberal arts, creating a unique space of unity and diversity where we can all embrace opportunities in hands-on experience, leadership, professional development, and a multitude of other experiences.

A big reason for our successful recruitment of so many new members is, as always, the campus-wide Enormous Activities Fair. Here, we not only unveiled our one-of-a-kind annual member t-shirts, but also set up various displays and handed out hundreds of flyers to advertise our events and attract new members to the club. Many of our officers, project managers and directors volunteered to represent ASCE and answer any questions curious potential members may have. Similarly, we were able to recruit at HSSEAS' Engineering Welcome Day. By advertising our many social and professional events, as well as our eleven projects, ASCE was able to gain a strong member base and amazing attendance at our Fall General Meeting.

The most important part of having a strong member base, however, is to have strong member participation in our events and projects. Our member tracking system is still in-effect, and we continue to try to take attendance at all of our events. Info session attendance averaged 27 students per session, with the best attended one having a whopping 42 students come out. Field trips averaged 15 people per trip and community service events averaged about 10 people per event. ASCE encourages member involvement at all of our events, and we can never have too many people. Additionally, our projects are always looking for new project members and they all welcome people throughout the year. By attending events and work days, members are able to take advantage of all the resources ASCE at UCLA offers. Being involved in the club is the absolute best way to meet people and make lifelong friendships. By attending both our general club events and specific events, members can ensure that they're not just developing career-building skills, but also networking with the people in their classes, the same people they could very well be working with in the future.



**PROJECTS OPEN HOUSE** ASCE Members at the annual event for the eleven projects

# INFO SESSIONS

CLAIRE KILLIAN

ASCE at UCLA had a very successful quarter in professional development; specifically, we hosted a grand total of nine info sessions during the fall quarter, which is nearly one info session per week. In addition to construction, we held info sessions in water resources, general civil, and structural engineering. We worked with many of the companies to create more interactive segments—some examples include a VR experience of a large construction project, a plan reading exercise, and an in-depth interview panel.

ASCE members presented a strong showing, with an average of almost 30 students per info session and an attendance high of 45 students for two info sessions. Interactions between chapter members and company representatives went well for each event, and the food provided was well-received! Expect more diversity in civil engineering fields, fun food, great networking opportunities, and even those internships everyone wants!



**TURNER INFO-SESSION** Company representatives holding an interactive panel with students

# FIELD TRIPS

SIDDHANT JAIN

ASCE at UCLA went on 2 field trips during the fall quarter of this year. We visited the Englekirk office in Downtown LA, and the Upper Stone Canyon Reservoir hosted by LADWP. The general turnout for each of the trips was about 10 students. At the Englekirk office we were given an introduction about the firm and structural engineering, then split into groups with different engineers who provided an office tour and gave us a breakdown of their day to day activities. It was a great opportunity to see firsthand, what a structural engineer does on a daily basis.

At the Upper Stone Canyon Reservoir field trip, we were briefed on what we will see on the site tour and partook in a chlorine awareness training. We then embarked on a site tour of the project that lasted around 2 hours. One of the cool things we learned was that this is where all of UCLA's water comes from! While the office visits and project site tours this quarter were successes, there are still more companies we would love to visit. With that in mind, we already have some great field trips planned for the upcoming winter quarter!





#### **UPPER STONE CANYON RESERVOIR**

A view of the reservoir on the field trip  
hosted by LADWP



#### **TREE PLANTING WITH TREEPEOPLE**

Our members posing next to a tree they  
planted at the event



This quarter, ASCE at UCLA members attended several diverse community service events. We went on the first ever ASCE tree-planting event with TreePeople, where we planted trees in a neighborhood in Central LA. We also volunteered with Inner City Arts, where we facilitated an art workshop and music performance. Students really enjoyed this event, as it was a chance to break away from civil engineering for a few hours. We also participated in the annual Explore Your Universe Fair, where we taught young children about structural and environmental aspects of civil engineering through interactive demos. Before Thanksgiving, we donated almost \$100 worth of food to a Thanksgiving Food Drive!

Next quarter, look out for more fun events, like meal service kitchen volunteering, a beach cleanup, or fruit harvesting. Hope to see you next quarter!

# COMMUNITY SERVICE

CAYLA WHITESIDE



## EXPLORE YOUR UNIVERSE FAIR

Members preparing their demos to show the children at the event



## INNER CITY ARTS BIG ORANGE DOOR

Members at The Rosenthal Theater, where the art workshop was held

# ALUMNI & PROFESSORS

**JORGE BARRIO**

This fall, ASCE successfully held several events featuring alumni and faculty. During this quarter, we had our annual CEE-ASCE Alumni Tailgate at the Rose Bowl prior to the game against Arizona State. A few weeks later we also had our Fall Student-Professor BBQ at Professor Stewart's home, where we also celebrated his 50th birthday! Students and faculty members socialized with one another in a lively and warm atmosphere while enjoying some delicious BBQ chicken. Next quarter, we are looking forward to even more events to help strengthen our organization's relationship with our alumni and professors!

# SOCIAL

**LEIGHTON PARADIS**

This fall, ASCE introduced new social events and continued previous traditions. In collaboration with Ryan Wong, the ASCE Athletics Chair, we held the first ever ASCE Fantasy Basketball draft party. Snacks were provided to all regardless of how good or bad their fantasy team was. Study marathon, a staple of ASCE every quarter, was held the weekend before finals. ASCE students gathered to help each other study and destress for their upcoming finals.

Although ice skating has been an ASCE tradition, this year we changed locations from an indoor to an outdoor rink in Santa Monica. The rink was lit up with holiday decorations and the venue offered refreshments like hot chocolate and fries. After skating, we all stopped by a liquid nitrogen ice cream shop for dessert. As we return to school for winter quarter, social events will feature ski trip, a sushi making social, and laser tag!



## ICE SKATING SOCIAL

ASCE Members at the outdoor skating rink in Santa Monica





#### **FALL STUDENT-PROFESSOR BBQ**

Outreach Chair Jorge Barrio delivering Professor Stewart his birthday cake during the event



#### **FACULTY ADVISOR DR. GOODIN**

ASCE members and Dr. Goodin, our long time practitioner advisor who retired from his role in our organization



#### **ASCE ALUMNI TAILGATE**

Members and alumni at the annual tailgate



# ATHLETICS

RYAN WONG

As tradition to start off the new school year, ASCE once again participated in the Engineering Frisbee Tournament hosted by ESUC. Going in to this tournament as the defending champion for two years, it was expected that ASCE was going to crush the competition. However, we had unfortunate circumstances that forced us to compete without enough members, which resulted in a disappointing loss. Soon after, we participated in Ultimate Frisbee intramurals. Our team, *Stay in Yo Lane*, had an extremely strong regular season and we finished with a record of 3-1 going into playoffs as the first seed. The opponent we faced at the semifinals was unlike anything we've faced before as they had athletes who've had experience in Ultimate Frisbee in the collegiate level. We put up a close and competitive fight but ultimately ended up falling 5-8.

Another intramural sport that we participated in this past quarter was Flag Football. We had an up and down season and eventually lost in the playoffs, but despite the outcome of our last game, we are proud of our improvement and the synergy we created with the plays we made.

In Dodgeball, we started off with a 1-0 record but then fell to 1-2 due to our inability to close out extremely close games. However, we quickly learned from our mistakes and came back strong in our final regular season game with a comeback victory led by Santiago Leal-Berretta. We put up a strong performance against the top seeded playoff team in the playoffs, but unfortunately, our exciting season had to end there.

For our first ASCE Fantasy Sports season, we hosted our first annual ASCE Fantasy Basketball Draft Party which included snacks, friendly trash talk, and a great time overall. Our winners for the thrilling Fantasy Football season were Isaac Carrera and Francis Paras. As we are around the half-way point of the NBA season at the time of this writing, our top members for Fantasy Basketball include Cheston Cheung, Brandon Duong, Dario Qiu, and Francis Paras. So far, fantasy sports has been extremely successful and brought something unique to a club that is dedicated to creating new and enriching experiences.

In the winter quarter, we plan to participate in 5v5 Basketball and 7v7 Soccer intramurals on top of continuing our Fantasy Basketball leagues. We are also going to start preparing for the sporting competitions at PSWC to further prove to other schools that ASCE at UCLA is more than just an ordinary engineering club!



**ESUC FRISBEE TOURNAMENT**

Students at the annual ultimate frisbee tournament

# MENTORSHIP

FRANCIS PARAS

Fall Quarter was a great start for ASCE Mentorship! It all kicked off with an event new to ASCE Mentorship, the Mentorship Mixer. Here, prospective mentors and mentees participated in a speed-dating style event aimed for mentors and mentees to meet new people and potential pairings. Afterwards, the Mentorship application was sent out, and the mentor/mentee pairings, as well as the mentorship families, were created. This culminated to the big Mentorship Reveal Day, where mentorship families were announced, as well as all the mentor/mentee pairings! This year we have 4 mentorship families: Pineapple Express led by Yash Kansal and Heather Wong, JordAhn & Co. led by Stephan Ahn and Jordan Coe, So.Bae(sic) led by Michael Weyant and Trini Inouye, and Broken Beaver Beliebers [BBB] led by Zohair Zulfiqar and Asia Reeves! This year we implemented a photo sharing program where family members post photos of mentorship in action and earn points for their respective family! There has been great participation, as over 40 photos of mentorship have been posted!

To end the quarter, ASCE Mentorship celebrated with a delicious Holiday Potluck! Each family was assigned to cook a certain amount of dishes, and then all the families met for a night of fun, food, and family. Each family even got to take Holiday Card Pictures! It was a great way to end the fall quarter, but there is still plenty of fun in store for Winter Quarter! There are currently 70 people in the program, but it is never too late to join in on the fun! If you are interested in joining a mentorship family, please don't hesitate to contact me, we can make it happen!



# NETWORKING NIGHT

**LUCAS HAMERA**

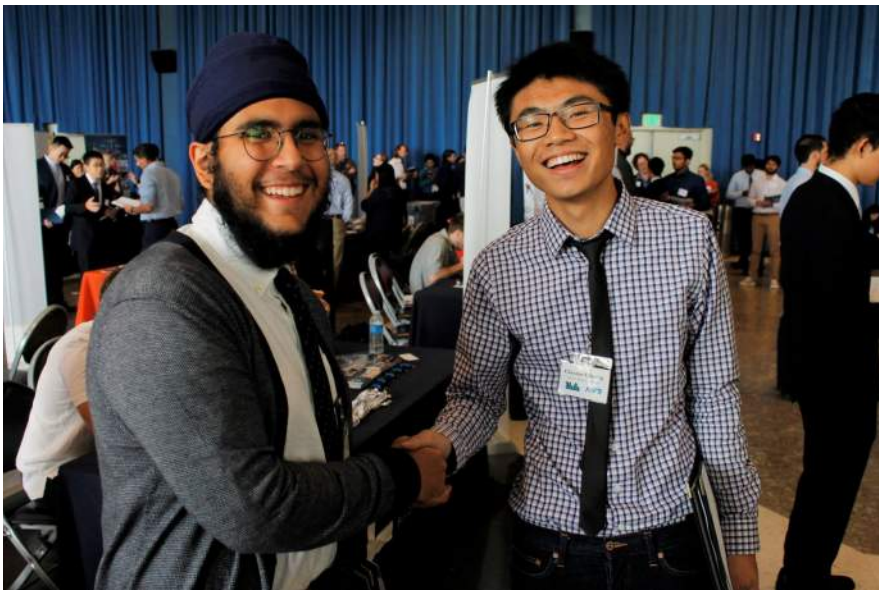
I am very pleased at how Networking Night turned out this Fall quarter. Locanda Del Lago in Santa Monica once again provided us with a comfortable space functioning as an adequate social environment. Additionally, their unique selection of Italian hors d'oeuvres were a hit among the attendants. With 44 students and 23 professional representatives in attendance, ASCE members were able to learn a great deal about various civil engineering and construction companies. After three hours of pleasant conversation, the atmosphere still hadn't died down, suggesting that the majority of students had a rewarding experience and took advantage of this opportunity to network with industry professionals.

This Winter Quarter, Networking Night will occur again for the second and final time this year. It will take place on January 31<sup>st</sup>, the day before Winter Career Fair. This quarter's Networking Night will likely be hosted on the UCLA campus, making it easy for students to get to the event, which will hopefully increase attendance. Since Winter Career Fair usually marks the end of the academic year's hiring period, Winter Networking Night will be a timely opportunity for students interested in jobs and internships to meet with potential employers.

# CAREER FAIR

**HEATHER WONG**

ASCE Fall Career Fair took place on November 2nd, 2017 in Grand Ackerman Ballroom at UCLA. Thirty-nine civil engineering and construction management firms attended the Fair to recruit from ASCE's talented student body. This year's Fall Career Fair had the most company attendees in the last decade! The companies came from different civil engineering fields, including structural, hydrological, geotechnical, environmental, transportation, and construction. Over 200 student members attended the Fall Fair, and some have already been offered 2018 summer internship positions from companies who were at the Fair. Goals for the upcoming Winter Career Fair include pushing for more company diversity and encouraging good turnout from companies and students alike.



## FALL CAREER FAIR

Two students dressed ready to impress at the career fair



# PSWC 2017

**MAHSA SHEYKHSOLTAN**

This year's Pacific Southwest Conference will be at Tempe, Arizona on April 12-14th. Our projects have been working hard to prepare for their competition and they are all looking forward to conference. The projects competing will be Concrete Canoe, Steel Bridge, Environmental Design, GeoWall, Concrete Sports, Construction, Surveying, and Transportation. We will also be competing in various sports such as basketball, soccer, frisbee, volleyball, kan jam, and tug of war, as well as other miscellaneous events.

This quarter we hosted a PSWC Info Session where new and returning members were able to learn about PSWC and what to expect, as well as get their questions about the conference answered. To stay updated on this year's competition, visit [pswc2018.weebly.com](http://pswc2018.weebly.com). Our members are looking forward to traveling to Arizona and eating at Waffle House!



**PSWC 2017** Student members celebrating their strong performance after the competition last spring

## CONCRETE SPORTS

**ADAM WONG**

Concrete Sports is known by many as ASCE's oldest and most prestigious project, where individuals passionate about concrete and sports come together to cast sports-related items completely out of concrete. Last year marked the reintroduction of frisbees into the Concrete Sports repertoire, and this year we are again tasked with creating a concrete frisbee to be thrown at the PSWC competition.

We got off to a strong start this year by quickly optimizing the weight and durability of our concrete mix. This enabled us to shift our focus to the most important aspect of the project: a molding method that would allow us to cast an aerodynamic frisbee. To improve last year's "pie-tin" molding method, we plan to model our concrete frisbees after actual frisbees, and we have narrowed our choices down to a few methods that would achieve this goal.

Next quarter we hit the ground running. To finalize our molding method, we will cast a large number of prototypes and hold throwing workdays to test the properties of each method. High quality frisbees demand high quality aesthetics, so theme development will be ongoing throughout the quarter to determine our theme and matching costumes. Near the end of the quarter, we will cast and decorate our final competitive frisbees, and spend the weeks leading up to PSWC mastering the art of concrete frisbeeing.

# ASC 67

## CHESTON CHEUNG

February 2018 marks UCLA ASCE's fifth trip to the annual Associated Schools of Construction Regions 6&7 Student Competition in Sparks, Nevada. With the primary goal of building a student's general understanding of fundamental construction principles and concepts, UCLA ASC 67 Construction Management participates in three of the many sub-competitions that comprise the competition, each of which condenses a portion of the construction management industry into a two-day experience where teams of eight students solve and present their solution to a discipline-specific problem statement. Participants are asked to complete tasks commonly encountered in the construction industry, which include creating a project schedule, performing quantity takeoffs, preparing a cost estimate, and assembling a complete project proposal. Teams are scored by judges and industry professionals based on the accuracy, the logic, and the execution of their project.

The Design-Build and Mixed Use Teams – led by Alexander Lee and Claire Killian, respectively – have returned, but in response to an increased student interest in the increasingly popular industry trend of sustainable construction, we've introduced an all-new Sustainability Team led by Amberly Bark and Ryan Rizeq. Our team of 24 students that will attend the competition come early February have been finalized as of November and preliminary preparation workdays have since begun.

A large part of our quarters-long preparation efforts have included and will continue to include regular workshops and workdays that establish a firm foundation of construction concepts and practices for our competing members. In October, W.E. O'Neil Construction started us off with an introduction to the basics of Bluebeam, and in November, Swinerton Builders and C.W. Driver each hosted a workshop of their own – one with a focus on pre-construction and scheduling and one with an emphasis on the project management software Viewpoint and estimating.

As preparation efforts ramp up in January, we look to host more construction companies to further solidify our understanding of construction on a variety of topics. These efforts will be supplemented by an experienced industry professional who coaches the team by designing and providing practice problems similar to ones encountered in competition, hosting and attending mock presentations, and sharing and offering advice and additional assistance as needed.

Building on the team's promising newfound success in 2017, our teams are excited for what's in store at this year's competition as UCLA aims to find its way onto the podium with an increasingly diverse and knowledgeable team.



**ASC 67 COMPETITION** Two returning members presenting during the 2017 ASC 67 competition

# CONCRETE CANOE

ADA CHANG

This past quarter has been a fun, busy quarter for Concrete Canoe, filled with endless learning and challenges. The project entails engineering and constructing a strong, durable, fast, and aesthetically-pleasing concrete canoe that can float, while also incorporating innovation and efficiency. Teams compete in four equally-weighted categories: final product and display, oral presentation, design paper, and paddling races.

This year's project leadership team, one of the largest in UCLA Concrete Canoe history, consists of two Project Managers and nine Project Directors. This past quarter, we led a pack of new and returning members, including a crew of tight-knit freshmen and transfer students, in gaining hands-on experience, technical skills, and technical knowledge through a variety of tasks during our workdays. Together, we have already contributed over 1,300 person-hours to the project, all the while creating concrete bonds with one another through post-paddling breakfasts, post-workday dinners, and Paint Night socials!

This Fall, we researched mix materials, experimented with concrete construction techniques, began analysis of our past hull shapes by drafting 3D models, designed our concrete mix, practiced paddling techniques, 3D printed and laser cut aesthetic molds, and refurbished the canoe mold and pretensioning system from the previous year. We also implemented a new mini project wherein members design and create their own one-foot-long canoe. We taught new members about the entire process behind constructing a canoe, beginning with how to shape and create their foam molds using a hot-wire cutter.

Meanwhile, our mix team was hard at work developing a stronger and more workable concrete mix. Our increase in member involvement allowed for increased efficiency and accuracy of test results, as we created at least two test samples for each of our test mixes, for a total of over 100 test cylinders. The results have been promising, as we have seen some of the highest strengths in recent team history!

As we continue to prepare for our Casting Day on January 11, 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!



## CONCRETE CANOE PADDLING KICKOFF

Concrete Canoe members at the annual event in Marina Del Rey



# ENVIRONMENTAL DESIGN

THIEN PHAN

Environmental Design Project is a project in which students can learn more about water and wastewater treatment techniques and get hands-on experience. Each year, we are given the task of building a filtration system to treat water that has been contaminated with specific constituents. This year, those constituents are kaolin clay, lavender extract, soluble fertilizer, and wastewater treatment plant effluent. Similar to last year, the system must be built in under thirty minutes, and run handsfree to treat the water in another thirty. This set of rules challenges us to design a system that is not only effective, but also inexpensive and easy to construct. The leadership of the Environmental Design Project comprises of Project Manager Thien Phan, Assistant Project Manager Emma Suchard, and Project Directors Jordan Coe, Pauline Nguyen, and Gurjot Kohli.



In early Fall quarter, our project focused on teaching younger members about treatment processes, so that all members could design the treatment system. We then researched this year's water contaminants and determined the best techniques to remove them. In preparation for the PSWC competition, Environmental Design will spend Winter quarter constructing, testing, and improving our treatment system based on the design created collaboratively by the project members during Fall quarter.

**ENVIRO WORKDAY** Members of the project showing their results of the coagulation and flocculation experiment

# TRANSPORTATION

SUNGWOO JO

The joint ITE-ASCE Transportation Design project aims to give project members an inside scoop into the world of traffic and transportation engineering. We teach our members how to analyze road conditions for traffic, improve roadway design, and plan for a brighter, more connected future. Leading the project this year is Project Manager Sungwoo "Chip" Jo, along with Project Directors Beatrice Mititelu and Scott Kawakami. The three of us, along with new members studied and learned more about Level of Service calculations, collision analysis, site planning, and intersection design. While this was our first year having workdays during the fall quarter, we think that they were very helpful in introducing new members to the project and getting them thinking about transportation engineering before the PSWC rules are released. This year the proposed site is a lot adjacent to historic Route 66 in Flagstaff, Arizona where developers who wish to construct a restaurant and retail facility want to know the expected incoming amount of traffic into the site as well as our best take on the design of the site.

Starting in winter quarter, our first priority is to construct a concept plan for the site based on preliminary traffic analysis. The construction of this plan needs to be completed by January 31st so we're looking forward to hitting the ground running once winter quarter begins!

# EWB-ASCE NAVAJO PROJECT

## JAMES SALEM

The UCLA EWB Arizona Navajo Water Project began in the 2016-2017 school year with the goal of creating an off-grid running water system to bring clean running water to individual homes on the Navajo reservation. The location of the project poses a unique challenge due to the fact that the houses on the reservation are very far apart and lack on-grid power and water. Many residents of the reservation must store water outside their home and carry it in with buckets. This is the source of two problems: this method of water distribution is unsanitary because the water is exposed to many contaminants, and it places a physical burden on the many elderly residents that are forced to haul in the water themselves. In order to solve these problems, our team spent this year designing an off-grid water system for a Navajo family in Black Mesa, Arizona, with the plan of replicating our system in the future to reach many more homes on the reservation.

Our goal that year was a success, as we completed the design and implementation of our prototype system and brought running water to a family on the reservation that hasn't had it before. The system consists of a buried tank, underground PVC piping, a pump for water distribution, and a solar panel power system for providing power to the pump. Additionally, the system was expanded to include a shower, hot water supply, and greywater recycling to help the family with water conservation.

For 2018, we are beginning the process of scaling up our design. We will be starting on two new sites while maintaining our first site. During Thanksgiving break, four members travelled to the reservation, met the families, and took measurements at each of the sites. Using the data from the Assessment trip, this quarter we will begin designing the systems. Our team is split into four technical groups: Pipe Design, Power Systems, Drafting, and Water Quality. These groups will help pipeline the design process so we can focus on multiple sites in parallel this year.



**NAVAJO NATION TERRITORY TRIP** A group of members take surveying measurements at a new site in Navajo Nation

# GEOWALL

## TRINI INOUE

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.

Members and directors alike spent fall quarter analyzing the 2017-2018 competition rules and working on the new wall design. This year, we are tasked with designing a wrapped wall that can retain 500 lbs of backfill, and withstand both a 50 lb. surcharge applied at the surface of the backfill and a 20 lb. surcharge applied laterally on piles.

Beginning the process with lab tests such as the sieve analysis and triaxial tests, members learned to analyze data and determine soil properties. Those properties were then used to calculate stresses on the wall induced by the loading cases, and come up with an initial design for the wall.

With the completion of the initial wall design, GeoWall will submit our design report in early January to qualify for the national competition which will be held in Orlando, Florida at the annual International Foundations Congress and Equipment Expo in March. The nationals team was also finalized: Project Manager Trini Inouye will be competing alongside Project Directors Becky Zhen, Caileen Yu, Rachel Lien, Tristan Whisenant, and Wyatt Iwanaga, as well as GeoWall members Justin Qiu and Michala Li. The team plans on spending winter quarter finalizing their wall design and completing many more practice builds to perfect their technique.



**GEOWALL WORKDAYS** First successful wrapped wall design of the year (**left**), members conduct triaxial tests (**top**)



# SEISMIC DESIGN

**BRYAN HONG**

Seismic Design is one of the very few structural projects ASCE at UCLA offered 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 at the annual international Earthquake Engineering Research Institute Seismic Design Competition (EERI SDC). We are excited for this year's SDC, since it will be held in Los Angeles for the very first time.

This past fall quarter has been a busy one. In preparation for constructing the prototype next quarter, we focused heavily on member recruitment/training, structural/architectural design, and familiarizing ourselves with laser cutting machines. Furthermore, we had to submit our design proposal to the EERI Student Leadership Council (SLC) in order to enter the competition.

In the beginning of the quarter, we personally reached out to new members and invited them to workdays, where they were split into groups led by our project leaders where the members worked on several mini projects. Meanwhile, project leaders worked tirelessly throughout the quarter on structural and architectural designs to adapt major rule changes this year. Responding to many structural constraints, we decided to implement an exterior mega bracing system (diagrid) to optimize our structural system in terms of weight and its ability to resist lateral loads. To resist the potential amount of stress built up at the columns, we incorporated mega columns in the corners to help distribute the load. With the intention of creating an organic architectural design, we branched off the idea of a palm tree, a symbol of Los Angeles laid back atmosphere.

On the Friday of final's week, we gathered all the info needed for the proposal, including: geotechnical, architectural, and structural descriptions, and submitted the design proposal to the student leadership council. As we look ahead into winter quarter, there is still a lot of work to be completed, including building our prototype!



**SEISMIC DESIGN WORKDAYS** New members and their mini projects, including constructing 6" cubes out of balsa wood sticks

# STEEL BRIDGE

CECILIA VONG

In the Steel Bridge project, we design, fabricate, and construct a bridge that is around 20 feet long and in the spring, we compete at the annual Pacific Southwest Conference, where we get timed on how quick we construct our bridge and test how much our bridge deflects with a load applied. We have a dedicated group of both new and returning members attending workdays and contributing to the design of the bridge this year.

Our project consists of three main aspects: design, fabrication, and construction. Throughout fall quarter, we worked on the design of our bridge. We started with an overall shape of the bridge and considered the parameters and constraints provided by the rules, then began modeling in AutoCAD and SketchUp. This year, we are building an arch bridge over a 6-foot river. Once we had a more detailed design, we performed many iterations on SAP2000 to predict the deflection and optimize the bridge design. We had weekly design meetings to engage younger members in the design process, and held workshops teaching the basics of AutoCAD, SketchUp, and SAP2000.

In order to prepare for fabrication in the winter quarter, we had a student machine shop project for members to learn how to use different tools and machines so that they are able to gain more experience before working on the actual bridge. Additionally, our Build Captain held several build practices for members to familiarize themselves with the general construction process using last year's bridge. We will be fabricating every piece of the bridge and forming a build team that will be competing at the Pacific Southwest Conference this winter quarter! Our goals for next quarter include fabricating the bridge as efficiently as possible while providing quality control with respect to the design and fabrication.



**STEEL BRIDGE WORKDAYS** Members work on refining their AutoCAD skills (**left**) and their bridge building skills (**top**)

This fall quarter, Seismic Outreach partnered with Paul Revere Charter Middle School to implement our program for their 6<sup>th</sup> grade classes. We visited the school a total of three times to teach the students about structural and earthquake engineering through a presentation and a hands-on building project. In addition to our school visits, we held workdays so our new project members could be introduced to the presentation that we give to the students. The workdays also allowed our project members to become familiar with working with K'NEX pieces so that we would be better equipped to help the 6<sup>th</sup> grade students with their design challenge.

On November 13<sup>th</sup>, Seismic Outreach hosted 275 students, 20 parents, 6 teachers, 40 UCLA student volunteers, 12 corporate volunteers, and 2 UCLA professors at our Finale Day Competition in Pauley Pavilion. The amount of corporate volunteers we had at the event was a record high for our program, and we look forward to continue to have an increased industry presence at our Finale Day events for the rest of the year.

Next quarter, we plan on continuing our winter program that was started last year. We will be working with Emerson Middle School, a UCLA TIE-INS school, for the first time. This will be an exciting challenge for our program and leadership team!

# SEISMIC OUTREACH

ZOHAIR ZULFIQAR

## SURVEYING

GLYNN BACA

ASCE surveying teaches members surveying techniques used today by professional surveyors. This year's director is Joshua Widjaja, a member of last year's competition team and is a great asset to ASCE surveying! During Fall quarter, we held general workdays that taught the techniques needed for us to compete at the PSWC competition. We held two workdays a week covering differential leveling, taping, and using the total station. These were used to determine horizontal and vertical distances between points, the elevation of a remote point, and the bearing of two points.

Our primary goal this quarter is to select a conference team and prepare for the 2018 PSWC competition in Arizona. We will practice weekly in order to be ready for the three surveying events and be ready to defend our first place finish from last year! Besides conference preparation, look out for general workdays and socials to keep members involved. We are excited for what's in store for ASCE surveying this quarter, and hope you can be a part of it!



**SURVEYING AT PROJECTS OPEN HOUSE** Project Manager Glynn Baca meeting a new member at Project Open House



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