Your Link to the Department of Civil Engineering

CE CONNECTION

SUMMER 2020 | ISSUE 32

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SACRAMENTO STATE
Department of Civil Engineering

CHAIR'S MESSAGE

Dear alumni, colleagues and friends,

I'm writing this message two weeks into the fall semester after an incredibly challenging spring semester and summer. Our department, like university departments across the world, has been forced to quickly adapt to a new way of teaching and delivering our curriculum. The uncertainty created by COVID-19, racial injustice protests, an economic downturn, political strife, and wildfires have certainly increased anxiousness in our students, staff and faculty. Undoubtedly, I have been personally shaken as I face the challenge of these times.

However, it's also been a time of incredible collaboration, compassion and support among the Sacramento State Civil Engineering family. The faculty worked incredibly hard to transition their courses to an online format, spending countless hours developing lab experiment videos, virtual learning modules, and synchronous Zoom lectures and office hours. Students are engaging in their online courses in numbers that shattered attendance expectations during the spring semester. The department staff reinvented business operations and course administration policies to help students enroll, process university forms, and deliver technology needs.

This issue of CE Connection focuses on faculty and student reflections after teaching online in spring and summer. I hope you enjoy reading about the innovative approaches being used, along with the "We can do it!" attitude of our civil engineering family. There are also a few articles that feature events from the pre-COVID era; as I read them, I couldn't help feeling a sense of nostalgia. But, I know we will see each other again when it is safe to do so. Until then, take care of each other and thank you for all of your continued support.

Ben Fell
Chair, Department of Civil Engineering

If you would like to make a donation to support students who have been impacted by the COVID-19 pandemic you can support our Sac State CARES fund by visiting https://bit.ly/SacStateCares-2020. During this time of uncertainty and evolving needs, the Sac State CARES fund allows the flexibility to provide support to the programs with greatest need as identified and determined by the Vice President of Student Affairs.

SACRAMENTO STATE
Department of Civil Engineering

Support the Department

Looking for a way to support the Civil Engineering Department? We have four different funds that enhance our ability to educate students:

- **The Ken Kerri Endowment Fund** — Provides support for faculty and student enrichment activities.
- **The CE Freshman Scholarship Fund** — Scholarships to outstanding freshmen.
- **The Graduate Environmental/Water Resources Scholarship Fund** — Scholarships to deserving graduate students in the environmental or water resources engineering areas.
- **The Department Trust Fund** — These resources support student attendance and participation at conferences and competitions, senior design project team expenses, and equipment for labs when other funds are not available.

To donate to any of these funds, go to **http://bit.ly/ceonlinedonate** and follow the directions for online donations.

- Or mail a check made out to the appropriate fund to:

  Attn: Ashley Mihok
  California State University, Sacramento
  Department of Civil Engineering
  6000 J Street, MS 6029
  Sacramento, CA 95819

- For additional questions on how to give, contact:

  Nebrisa Fish '05
  Director of Development
  (916) 278-2453
  nebrisa.fish@csus.edu

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Upcoming Events

UPDATE: PAGE 17

October 16, 2020:
9th Annual Civil Engineering Golf Tournament at TopGolf—postponed.

Please consider supporting the Department of Civil Engineering through a 2020 sponsorship. While our traditional events will not be held as usual, the funds are incredibly important at this time.

https://bit.ly/cesponsorship2020

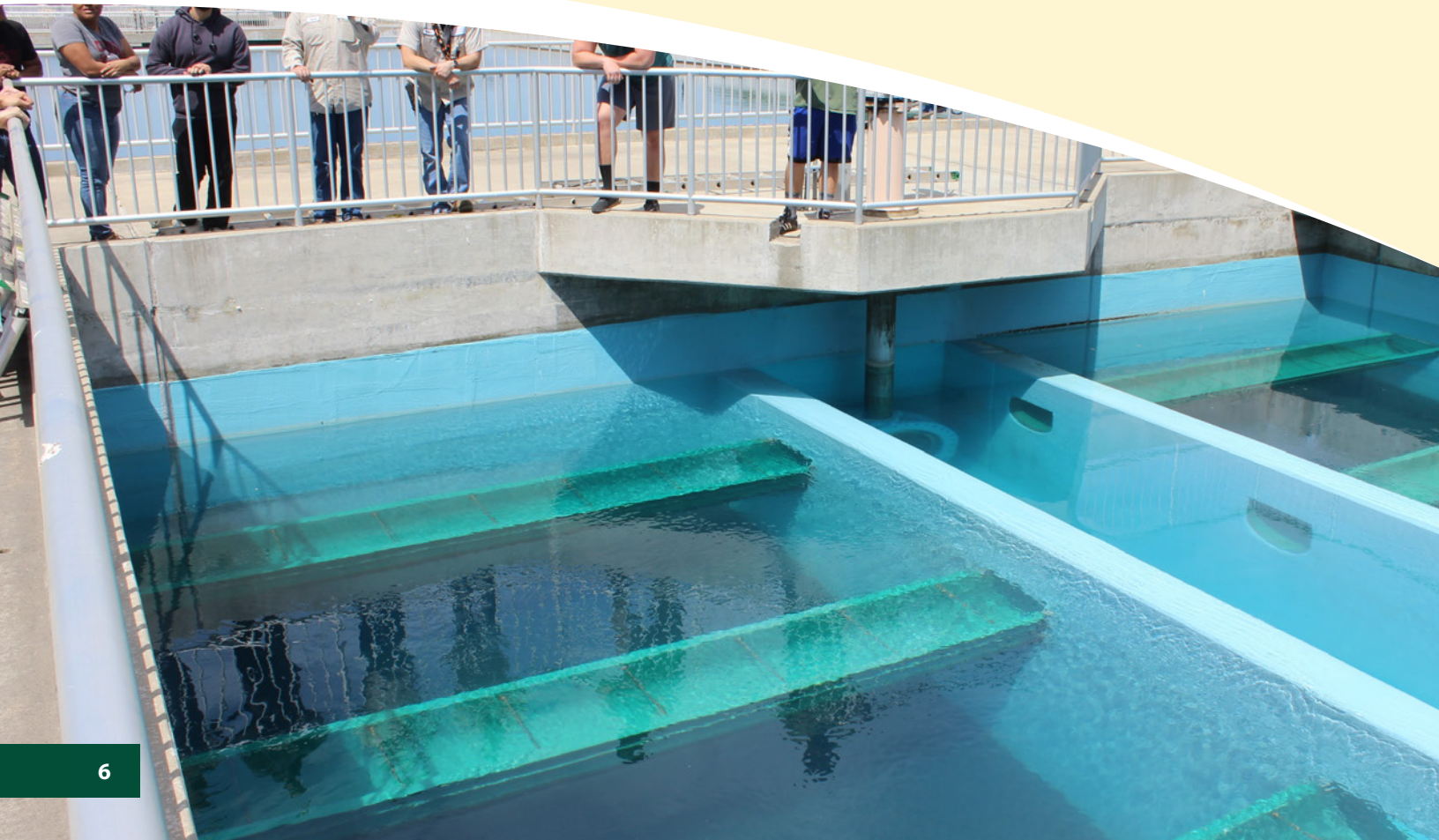
www.csus.edu/ecs/ce

Like us, and follow us to stay up to date on current CE News and Events!

Environmental Engineering

Focus Group Provides Advice and Insights from Industry

On February 7th, an advisory committee made up of representatives from Sacramento State, private industry and public agencies, met to discuss the environmental engineering program and curricular offerings. The endowment fund established by Jim Peterson last year was gifted to specifically support this area in the degree programs offered by the department, prompting a reimagining of the courses and content that is delivered to the students.



Peterson's desire to support the department is based on of his experiences in industry, and is also shaped by current events taking place worldwide.

To advance and reimagine the curriculum, professionals from the local Sacramento area were invited to a committee meeting to provide insight and offer their suggestions. Notable organizations that sent representatives included the US Army Corp of Engineers, Carollo, HDR, Brown and Caldwell, Larry Walker Associates, and the Regional Sanitation District.

"The Environmental focus group was formed to receive feedback from the community – both academic and industry – on points of emphasis and provide a starting point to begin developing what types of course offerings and topics we should have…at the undergraduate and graduate levels," said Dr. Amir Motlagh, Assistant Professor in the Dept. of Civil Engineering. This included discussions regarding the program's class objectives, faculty recruitment, and partnerships within the private and public sectors of industry.

Jim Peterson, who was present at the meeting, was especially appreciative of the alumni that participated in the conference. It was important to have their feedback, he stated, because they know more than anyone what it's like to go from a student into the professional world. "They know best, 'if we are going to hire a student, this is what they need to have,'" he explained.

Peterson's desire to support the department is based off of his own experiences in industry, and is also shaped by current events taking place worldwide. Referenced during the meeting was a report released by the National Academies Press, titled, "Environmental Engineering for the 21st Century: Addressing Grand Challenges." The report summarized challenges and obstacles current engineers deal with on a day-to-day basis, and the types of scenarios students must be equipped to handle when they graduate. These included, but weren't limited to: sustainability, pollutants, climate change, sanitation, and the development of "resilient" cities that operate on clean energy to minimize environmental impact.

Dr. Motlagh further elaborated, "With the rapid expansion in issues related to environment, there is a growing need for individuals trained to solve these environmental crises. The professionals gathered in the focus group tried to recognize current and future environmental challenges and propose courses that can effectively prepare our students to handle these issues."

The current undergraduate roadmap proposes two required courses and several elective courses, while the graduate track proposes at least five different classes. The undergraduate track allows a student to complete their degree in the standard four-year timeframe, if all prerequisites and co-requisites were completed to current academic standards.

D3 Research Poster Event:

Sac State Faculty Share Innovative Ideas

Event RECAP

On February 20th, just one month prior to the shelter-in-place orders for Sacramento County, industry professionals from around the Sacramento area were invited to attend Sac State's Annual D3 Research event. Hosted by the Colleges of Engineering and Computer Sciences, and Natural Sciences and Mathematics, the event gives faculty the chance to discuss current research to professionals, and an opportunity to catch up with colleagues from across campus, both professionally and personally.

The highlight of the evening is the opportunity to share knowledge and experiences. This takes place in the form of posters that each participant brings to showcase highlights of case studies, research, and innovative technologies.

"I really enjoy the event because it allows me to network with faculty in other departments," says Dr. Jose Garcia, of the Department of Civil Engineering. His poster, "Development of a Concrete Durability Research Center at Sac State: What Is It and Why Do We Need It?" highlighted the necessity to develop Sac State's Concrete Durability Lab, and the benefits that its completion will bring to students, faculty, and the community at large. "My area of expertise overlaps with mechanical engineering and chemistry significantly. We can all share equipment to conduct research and potentially collaborate in future research projects. I also spoke with a few industry partners that were interested in my research and they expressed their desire to tour the concrete lab facilities in the future." Being able to admire the development of the concrete lab and share its innovative potential with others is one of the many examples of why the D3 evening is held in such high regard.

Dr. Lorenzo Smith, Dean of the Department of Engineering and Computer Sciences, is especially proud of this faculty-centric event. "We all focus so much on students, as we should," Smith acknowledges. "This event, however, is a special tribute to research and its central role to both faculty and student success. Each year, I am blown away by the energy and enthusiasm of ECS faculty. They truly love research."

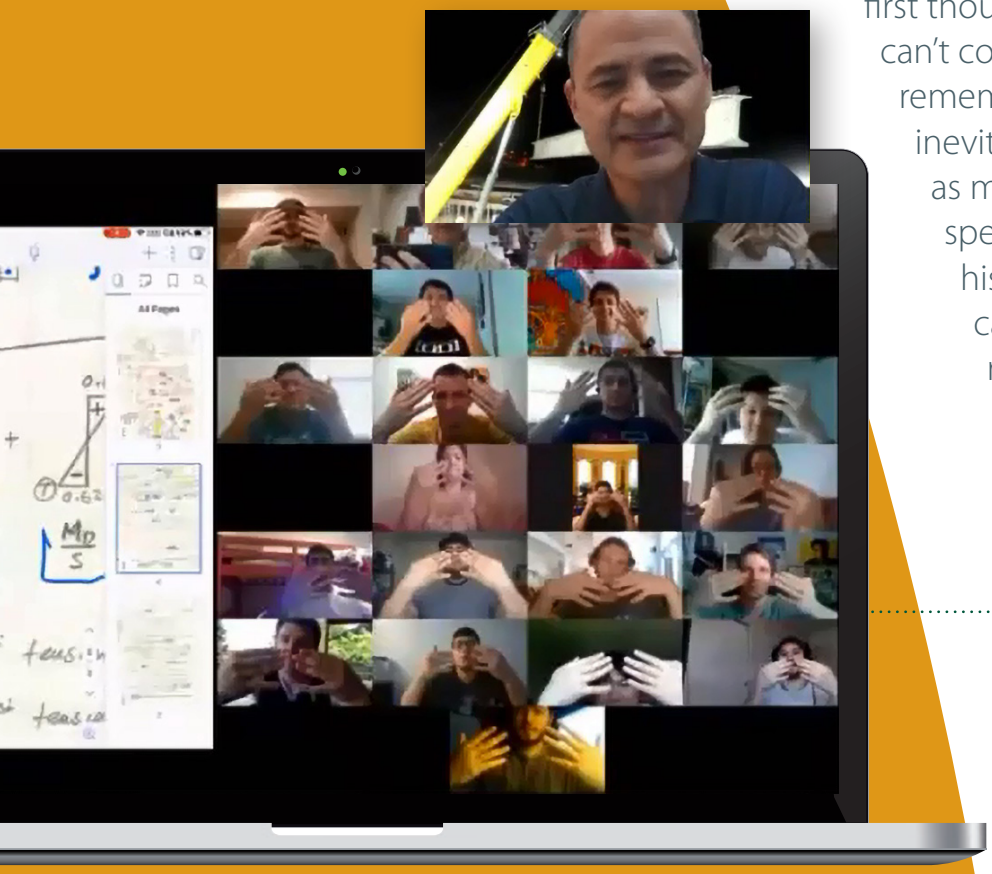
Participants enjoy taking visitors to their displays through their research, and often it is discovered that topics, methods and conclusions intermingle. "It is enjoyable observing the interaction between professors across discipline boundaries," continues Dr. Smith. "This cross pollination plays a key role in advancing meaningful research."

Dr. Richard Armstrong, also part of the Department of Civil Engineering shared similar sentiments. He debuted his own research poster at the event: "Analysis Workflow for Improved Seismic Deformation Evaluations of Embankment Dams."

"The D3 event was a wonderful opportunity to share and learn about research efforts in [the] Colleges of Engineering and Computer Sciences and the Natural Sciences and Mathematics. It was really neat to see others with complementary research agendas in which future collaboration might be a possibility. It was an enjoyable evening!"

—RICHARD ARMSTRONG

PHOTO
On the left is Dr. Julie Fogarty, and on the right is Dean Lorenzo Smith.



GOING THE DISTANCE:

the Experience of Switching to Virtual Learning

When the announcement was made to shift all in-person classes to online format in the spring, Dr. Eric Matsumoto's first thoughts were of his students. "I can't compromise their learning," he remembers thinking. "Some of it was inevitable, but I had to minimize it as much as possible." Matsumoto spent time contemplating his remaining weeks on the calendar, deciding how to best reshape his teaching style and approach to salvage the most important aspects of his classes, which are known to be intensive and hands-on.

"I was not going to compromise the student projects in my classes," he explains, "because that is where most of the learning takes place. Teams worked with me to consider if changes to their project were really needed. But some projects were actually strengthened, benefitting from greater student-industry interaction. For example, two teams coordinated with a firm in Chicago and a local firm, which was great because the students learned firsthand how companies coordinate typical projects across the country, even internationally." In addition, as students discovered, the necessity to meet by Zoom ended up being a blessing in disguise,

as industry mentors were able to give guidance from their home offices without having to travel, allowing extra time for mentoring sessions.

"I also increased both the in-class participation score and the team project grade percentage." According to Matsumoto, this motivated the students to actively engage in their Zoom sessions, rather than passively watch the lecture. Use of the Zoom chat feature helped students remain active and also provided instant feedback to assess student learning in class. Another tool Matsumoto employed during Zoom labs was the "breakout room" feature:

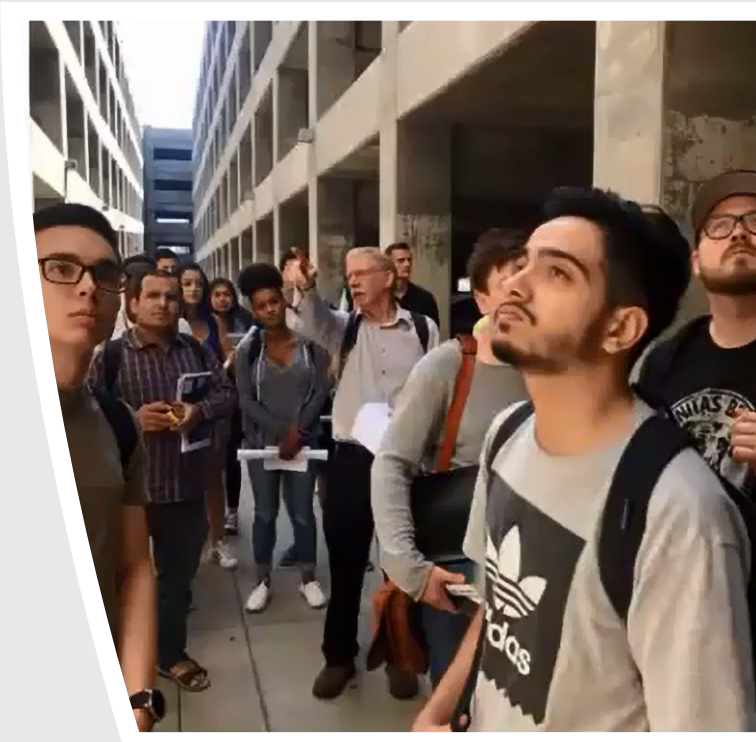
"Students were placed into their small groups. As the students worked together to solve a problem, I would 'visit' breakout rooms using another Zoom account to see how teams were performing, to answer their questions, and to ensure everyone was participating."

To enhance the distance-learning experience, Matsumoto utilized a variety of programs and tools to help make the lecture portion of his classrooms more effective. One such program was "Notability." Recommended by colleague Dr. Richard Armstrong, it allowed Matsumoto to make real-time notations that were streamed on Zoom. This forced Matsumoto to slow his teaching style, but also allowed students to better retain and record information during class. Because distance learning naturally calls for a stricter schedule, Matsumoto says, "My lessons were broken into bite-sized chunks, not as a way of spoon-feeding information, but as a way to efficiently guide the students into the learning what was needed."

For Matsumoto's CE113 Structural Lab, student teams were brought into the "experience" of structural behavior and testing of concrete through videos and actual test data from prior semesters. Similar to normal semesters, teams were required to demonstrate an understanding of the correlation between actual test data and specimen behavior and explain fabrication that they had completed in person earlier in the semester. The teams had to explain how and why a beam failed in a ductile or brittle manner, as part of a lesson in accountability. "They had to convincingly demonstrate their understanding," Matsumoto continues. "These topics can be a life and death matter…it was imperative I assessed their understanding, as other people's lives could be on the line one day."

The PCI student club, for which Matsumoto is the faculty advisor, was also affected during the shelter-in-place regulations. Although students had to grapple with the turmoil of their academic and personal lives, the club embraced the new normal. Surprisingly, the final event of the semester turned out to be the organization's largest meeting of the semester, with roughly forty students participating. The new officers for the upcoming term were inaugurated, including the club's first female president, and three industry experts explained the advantages of precast bridges for the High Speed Rail Program and hollow core slabs, as well as real-world applications of precast concrete at Caltrans.

Although Matsumoto is pleased with how his classes came together on such short notice, he is planning many improvements for the fall semester. As a firm believer in the "learn by doing" philosophy, he is developing strategies to guide his students into the essential experiences of his structural courses. No matter what happens with the ongoing pandemic, and no matter the distance between his students, Dr. Matsumoto is on a mission to ensure his students receive the best education possible, even if it is one Zoom session at a time.



Making it Work:

Further Discussions about Transitioning to Distance Learning

Dr. Ghazan Khan faced a whole new world with the closing of the university. We interviewed him to discuss his take on the transitions, his hopes for the fall, and a few unexpected "blessings" of working from home:

1 Can you give a brief insight into what it was like to go from 100% face-to-face classroom instruction to 100% online distance learning?

This whole situation is quite unprecedented and back in March, I don't think too many of us had any idea how quickly things were changing or would change and in what ways. This created a lot of confusion and uncertainty for faculty and especially for students. From an academic standpoint, the key was to communicate frequently with students with clarity and certainty about course expectations and changes. This meant some painful changes and hours of extra work, e.g. new exams better suited to online mode, modified assignments, and lab activities.

From a personal standpoint, I saw this transition as a unique opportunity to explore ideas, practices, and technology that I had not tried before. The current generation of students lives in a completely different world from when I was growing up. With the integration of social media and other technologies into our lives, I have discovered new ways of communicating with students, e.g. Zoom, MS Teams, etc. that will be effective in some shape or form even after we transition back to in-person instruction.

Dr. Ghazan Khan

2 What are some things that you learned from the spring 2020 semester that you will try to incorporate in the fall 2020 semester?

Since the fall semester is also online, the experience of teaching…was extremely valuable in getting prepared for the fall. For example, and I am sure many of us are realizing this now, there can be an information/communication overload at times with everything transitioning online. How do you manage this information overload and ensure you communicate frequently but effectively with students? Constant email reminders are not the best way, especially these days when our inboxes are overflowing with emails. Therefore, an innovative communication strategy is required using tools which the younger generation is more comfortable with.

3 What is one of the most difficult challenges you are hoping to overcome in the fall?

There are several engineering courses with lab components, which is the most difficult challenge, in my opinion, as the whole point of lab activities is in-person, hands-on experience. [This would] not be possible through the online environment. Faculty in charge of such courses are hard at work to find innovative methods to supplement or replace in-person activities.

Additionally, I personally feel that a big challenge in the classroom will be building a sense of community amongst students due to online instruction. There are some innovative ways in which through the use of technology and other means, this issue can be mitigated…but it will not be the same as the in-person experience.

4 How do you believe that these past few months are changing the future of academic learning?

One thing is for sure that the future of academic learning will change in some shape or form. How it changes will depend a lot upon the specific discipline, the instructor and their teaching philosophy, and the academic requirements of specific courses, e.g. lectures vs. labs. Civil Engineering is traditionally a very hands-on discipline, so it is hard for me to see a fully online Civil Engineering program. But there are certain aspects which may be better suited to online environment…The key is to have an open mind to look towards the experience of the spring semester and upcoming fall semester, and identify things that worked, things that did not work, and things that worked better than in-person instruction.

This whole situation due to COVID-19 has given us a unique opportunity and has forced us to try new things which either we could not or did not want to try before. It is important that we evaluate our experiences with an open mind and adopt the positive outcomes while learning from any negative outcomes for the future.

Since we transitioned to online instruction back in March, I have seen a tremendous sense of coming together amongst faculty, staff, and students, in trying to help everyone given their unique circumstances and challenges. I am particularly proud of all civil engineering students most of whom have dealt with the challenges of online transition in an extremely professional and understanding manner. In times of such challenges, the role of leadership is extremely important and we have been fortunate enough to have excellent leadership in the department, college, and at the university levels; providing timely resources and support. I want to particularly point out the contributions of the staff in the department and the IT folks who have had to make tremendous changes to allow for the smooth transitioning to online environment.

On a personal note, while I pray for the health and safety of all people from this pandemic, the situation has allowed me to spend invaluable time with my family and I am proud to say that so far, I have been successful at teaching my 7 year old daughter how to swim, and my 10 year old son how to make me morning coffee and eggs.

Prepping for the *Fall*

The global pandemic has necessitated faculty to develop online programs that allow students to engage in their education as if they were still in a physical classroom. Dr. Zoi Dokou is one such professor. Having only completed a single semester with Sac State before Covid-19 reached the United States, she, along with her peers, found herself in quite a predicament last spring when the order came to relocate classroom learning to distance learning.

1 Can you give a brief insight into what that was like for you from both an academic and personal standpoint?

The transition to online teaching seemed overwhelming in the beginning, but eventually it worked out well for me. Part of this was that the students were very understanding. We were all learning how to use new technology together and we were a team, trying to make the best out of a difficult situation. I really appreciated our student's response to this new "normal" and their patience while we were figuring things out.

The pandemic also affected my research plans to an extent. The sampling campaign for my NSF research project in Grand Bahama had to be put on hold and with that the "citizen science" component of the project was not implemented either.

But on the bright side, being a groundwater modeler, I do a lot of work with computers, so I was able to focus on mostly modeling works this summer. I am working closely with my graduate student on modeling the recovery rate of the Grand Bahama aquifer following the storm-induced salinization due to Hurricane Dorian, as well as doing work on food and water security in Ethiopia, in collaboration with colleagues from the University of Connecticut.

2 What are some things that you learned from the spring 2020 semester that you will try to incorporate in the fall 2020?

I believe that student learning is greatly enhanced when they study in groups. These groups are often formed organically in an in-person setting but not so much in an online setting. I will make sure to encourage this during the synchronous lectures, and also have a space on Canvas, probably a discussion board, where they can state if they are interested in forming study groups that would meet outside class through FaceTime, Skype, or any other online means.

3 What is one of the more difficult challenges you are hoping to overcome this fall?

Where I struggled the most during the transition in the spring was getting students to respond to my questions. I found that they were more willing to respond through the chat rather than use their microphone. This semester I plan to use the poll feature, either through Zoom or "Kahoot!", to overcome this difficulty. I will prepare the questions beforehand and ask them to use the poll to reply.

4 Are there any elements of the classroom that are going to be made accessible on campus for the fall? If so, how will that look?

This fall I am teaching…a hybrid version of the Hydraulic Lab. The Hydraulics Lab is designed to promote student success in water resources engineering by providing hands-on experience with hydraulics concepts, such as operating pipes, pumps, weirs, open channels (flumes) and other equipment. The current plan for this lab is to have two components: an online lecture component and an in-person component. Students will be physically in the lab once every other week in groups of 5 or fewer, remaining 6 feet apart and wearing masks, gloves and protective eyewear.

5 How do you believe that these past few months have changed the future of academic learning?

A positive aspect of this experience is that…we fast-forwarded the wide-scale implementation of technology in online teaching that would have otherwise taken years to do. While the in-person learning experience is invaluable and oftentimes cannot be replaced, especially in engineering classes, I believe that the pandemic could fast-track opportunities for inclusion of virtual solutions that can complement the in-class experience.

6 Are there any other special ways that you are working to overcome the limitations of distance learning in your classes for your students?

This summer CSUS organized a Summer Camp (Teach ON!-line) for faculty interested in learning how to convert existing classes into effective online or blended courses. The goal of this camp was to improve the virtual experience for both students and faculty, and maximize learning, engagement, and success. The summer camp contained a wealth of information to prepare us for our online courses. One important take home message was… how important it is to provide structure to the students in an online class. It is important to make it clear to them what they need to do each week will help them stay on track.

[It] made me think more intentionally about my teaching, because teaching innovation is not about technology; technology is a great tool for faculty looking to add new twists to their teaching but it needs to have a specific goal. What I enjoyed the most in this summer camp was being in the shoes of our students, having to keep up with deadlines, completing assignments, making connections with my camp counselors, and most importantly interacting with my peers and learning from them. I think that was a priceless experience as I build and deliver my online class this semester!

SAC STATE FACULTY

Level Up

The Department of Civil Engineering is proud to announce two of its professors have achieved tenure with the University. Dr. Julie Fogarty and Dr. Richard Armstrong both joined the faculty as assistant professors in August 2015. Their continued contributions to their students, as well as their own ongoing research, have helped cement Sac State's reputation as a leader in both industry research and education.

"In many ways receiving tenure is the culmination of a 20 year goal since being an undergraduate student at University of Manitoba in Canada," said Dr. Armstrong of the announcement. "During my last years as an undergraduate at the University of Manitoba, I decided that I wanted to be an educator in the field of geotechnical earthquake engineering. It has been a long, difficult but rewarding road." Counted among the "blessing" of working at Sac State, Dr. Armstrong counts his other faculty members, the administrative and support staff of the department, and of course, the students. "[While] an undergraduate student in Canada, I also dreamed of going far away, living in a foreign country and learning a foreign language. That never did happen, and yet amazingly and incredibly the students who were originally from those foreign countries have [traveled] here, to Sacramento State. It has been so fun and rewarding to get to teach students from Palestine, Iraq, Afghanistan, Jordan, Cameroon, and the list goes on and on."

Dr. Fogarty was equally excited about continuing her work with the Department. "I'm excited to continue working at an institution that prioritizes high-quality teaching and student success. Shortly after earning tenure, a team I'll be leading was awarded a National Science Foundation grant ($1.8M over 5 years) that will expand the Peer-Assisted Learning (PAL) program into the College of Engineering and Computer Science, and implement a multi-faceted STEM Leadership program for students in both the Colleges of Engineering and Computer Science and Natural Sciences and Mathematics. That will be my main focus for the foreseeable future."

Congratulations to both Drs. Fogarty and Armstrong on your success and all of your future endeavors here at Sac State!

9th Annual Civil Engineering Golf Tournament

(Postponed to October 2021)

UPDATE

Out of concern for the safety of our students, staff and guests, Sac State has made the decision to cancel this year's event.

This decision was not made lightly, as we know how much this tournament has become part of the treasured experiences of the Civil Engineering Dept. However, the health and well-being of our community is our top priority. While we are saddened that the tournament will not be taking place, we are grateful to everyone for their cooperation in helping slow the spread of Covid-19.

There is no current plan to reschedule for 2020. We are moving forward with plans to prepare for our next Golf Tournament in 2021, at the Top Golf located at 1700 Freedom Way, Roseville, CA 95678

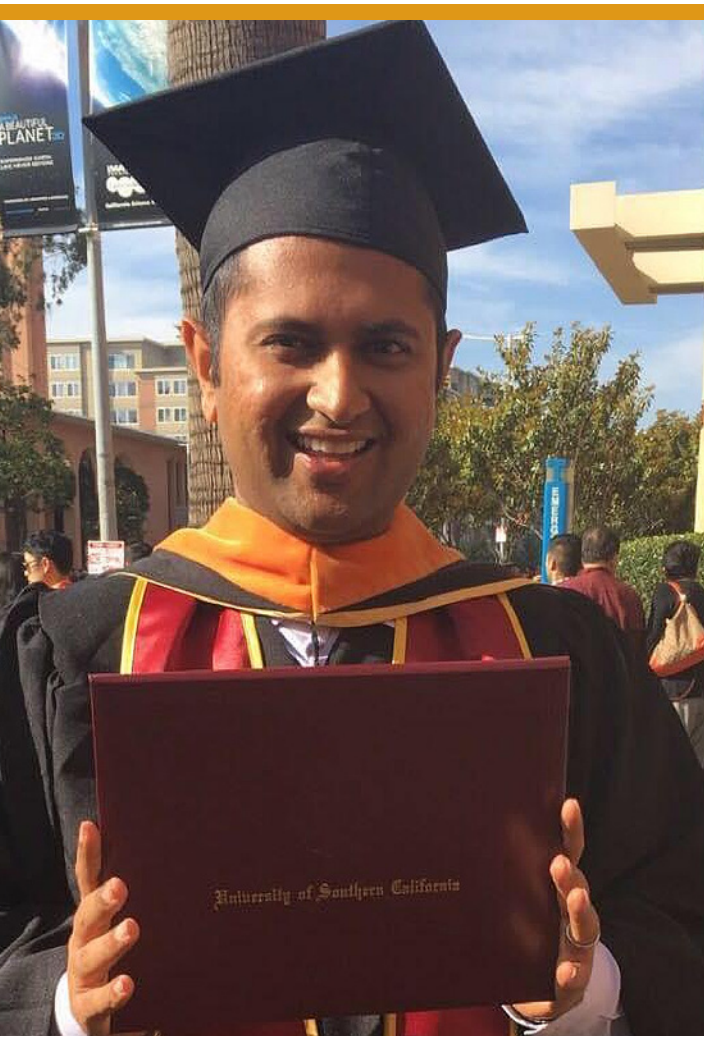
For more information or to register please contact Ashley Mihok at ashley.mihok@csus.edu.

Thank you for your understanding and cooperation, and we look forward to seeing you around campus soon

Topgolf is in no way affiliated, nor does it endorse, Sacramento State, nor the Department of Civil Engineering. Photo credit: TopGolf

Alumni Spotlight:

Mrudang Shah



Sac State has always been a university dedicated to its students. Any person seeking a higher level of education will be met by faculty and peers who want to help them succeed. Some students, through life experience and inner growth, decide to pursue other interests. Other students push through, achieve what they set out to do, and move on from university without a second thought.

And then there are people like Mrudang Shah, who graduated with not one, but two degrees: one in civil engineering, and the other in economics. Shah immigrated to the United States in 2007 to pursue higher education. In a world where students already set the bar high for themselves, Shah came to Sac State with a specific objective in mind, and not only found guidance and direction, but also supportive faculty ready to point him on the path to success towards those goals.

"Dr. Ramzi Mahmood was the Department Chair when I was first deciding between schools," Shah remembers. "Sac State had a construction management program I was interested in. I reached out to the department and Dr. Mahmood came back to me with many options and times to meet, and he gave me guidance between construction management and civil engineering. He encouraged me to major in civil engineering and to pursue a minor in economics because of the many prerequisites I already had. I thought it was very generous that he would meet with me; at that time I hadn't even officially enrolled as a student yet."

Time spent in the classroom was extensive, and Shah's days were filled with coursework from both programs of study. During his undergraduate studies, Shah also made time to participate in two out-of-state internships, and worked part-time with the State Water Resources Control Board. "It was challenging," he admits, "but it can be done." He credits Dr. Kevan Shafizadeh as being one of his most important mentors, and Professors Merayyan and Kaplan (in the economics dept) as influencing forces on his education. Professor Kaplan in particular was helpful in his research paper, "Cost-benefit analysis of High-Speed Rail," in spring 2010, and senior project, "Effect of Congestion Pricing on Traffic Volume on the Bay Bridge," for his graduation in Spring 2012.

To say that Shah's experience in both the private and public sectors of engineering is extensive would be an understatement. Shah worked as a Transportation Engineer in Roseville, producing traffic impact study reports, conceptual plans, and environmental evaluation reports from graduation until 2014, when he moved to southern California to pursue his graduate degree at the University of Southern California. Not one to ease up on his schedule despite the reintroduction of an immense course load, Shah was hired as a Projects Control Engineer for Skanska USA. For the next year, he helped manage and forecast funding for the extension of their Expo 2 Project, and helped train other engineers many of the skill sets he learned as an undergraduate at Sac State.

One of Shah's biggest projects came the following year. "The Westside I project extended the purple line of the Los Angeles County Metro," he says of the project. "I was part of the Construction team. We added three underground stations at approximately 80 feet below the surface." The project, costing roughly around $1.6B, required the use of all Shah's skills to maintain a decent budget, develop contractor agreements, and maintain up-to-date plans of the work needed to complete the project. Shah eventually found his way back to Sacramento, where he currently is working as the Resident Engineer, CA Dept. of Transportation. His projects so far have included the Highway 84 cold in-place recycling and RHMA, the Highway 99 Cosumnes River Bridge Replacement, the addition of an auxiliary lane on US 50/How Ave WB, and the I-5 Mokelumne River Bridge reconstruction.

One could take a look at Shah's extensive resume and easily identify him as a true success story of the "American dream." But to Shah, he is a reflection of the commitment and dedication of the mentors he met while completing his undergraduate education at Sac State. "The United States has provided endless opportunities." he says. "The real experience…came from Sac State. When I was growing in my personal career, the faculty played such a pivotal role. All the mentors, all the speakers, all the friends, colleagues...they played such an important role for me."

It is Shah's dream to one day give back to other undergraduate students in ways he was guided and mentored nearly a decade ago. "I would one day like to help students network while in school, and gain valuable experience," he mentions of his future goals and ambitions. "I want to tell them: take opportunities. Make sure you stay ahead. Sac State was that opportunity for me. I pushed myself, and it can be done."

"The real experience…came from Sac State. When I was growing in my personal career, the faculty played such a pivotal role. All the mentors, all the speakers, all the friends, colleagues...they played such an important role for me."

Student Spotlight: Katherine Oregel

Graduation in the Time of Covid

Katherine Oregel, like many graduating seniors this year, expected a very different year than the one that unfolded. What was meant to be a final year of memorable experiences and final hurrahs was spent social distancing from her classmates and the professors that had walked her through her educational journey. Now, having graduated with the class of 2020, Oregel shares what it was like to complete school during the Covid-19 pandemic, her favorite memories of her time at Sac State, and her hopes for the future.

What degrees did you receive from Sac State?

I graduated at the end of the Spring Semester in 2020 with a B.S. in Civil Engineering and a B.S. in Geology.

What inspired you to pursue an engineering career?

I met a group of civil engineering students in Physics 11A, and throughout my friendship with them I began to develop an interest in civil engineering. I began researching about civil engineering and discovered many of the subjects I was interested in, such as mathematics, science, and economics, were also incorporated into the major. I decided to try it out and I don't regret it. I love the major!

Tell me about how your senior year has been shaped by the current health crisis.

I have really had to adapt to a "slower paced" way of life. I was used to a fast-paced lifestyle and adapting …has allowed me to take part in more hobbies that I enjoy. I have always thought the cumulative event at the end of my Senior Year was supposed to be the graduation ceremony. The current health crisis has shown me that there are many ways that a huge milestone such as a college graduation can be celebrated. I am appreciative of the love, kindness, and efforts that my family, friends, and community have made to celebrate the Class of 2020.

What have you learned about yourself, both as a student and as a professional, during this time?

Throughout the current health crisis, I have learned how to be more productive at home, both as a student and as a professional. I have also learned that I might not be as much of an introvert as I thought!

What are your current academic and career goals?

A few of my career goals include becoming a licensed Professional Engineer (PE) in the State of California [and being] able to explore water resources and geotechnical. As for my current academic goals, I am currently looking into possibly completing a Master's in Civil Engineering with a specialization in Geotechnical Engineering a few years down the road.

Were there any memorable experiences you had, or projects you worked on? Did you make a connection with any of your professors?

The most memorable experiences I've had have been with my group of friends in the Geowall Club. We have shared many laughs, hopes, and frustrations together throughout our Geowall Club project. To have been able to build and display our Geowalll as a team at the MidPAC Competition are memories that I will always look back on and cherish.

I have made many connections with the professors at Sacramento State, specifically with Dr. Aryani. Dr. Aryani's Soil Mechanics and Foundation Engineering Class is the class that I most enjoyed while [at] Sacramento State. His expertise and his passion for what he does are apparent. His knowledge, passion and enthusiasm are a trait that I also strive for in my career.

Did you happen to complete an internship during your time at Sac State, or were you part of any groups/organizations?

During my time at Sacramento State I participated in the American Society of Civil Engineers (ASCE). I took part in two of ASCE's competition club, the Water Treatment club and the GeoWall Club. I also held a student engineering position with the Department of Water Resources (DWR) and got hired on after graduation as a Water Resources Engineer.

What does it mean for you to be part of the student body at Sac State, even though you are currently physically apart from your professor and peers?

To be a part of Sacramento State as an alumnus means that I will always be part of the community at Sacramento State. I know I can always reach out to any professor and any of my peers for advice. The kindness of the Sac State community has always made me proud of being a Hornet. Stingers Up!

ASCE GOLZE SCHOLARSHIP

Scholarship Winner Looks to the Future of Transportation

Elliot Kasadate's motivation to seek out a career in engineering was born out of a desire to use mathematics to help people live better lives. After transferring to Sac State in 2019, Kasadate determined that the transportation industry was the most effective way to realize his goals. "I chose to pursue transportation engineering because I wanted to know the reasoning behind our transportation infrastructure. Specifically, I would think, 'There must be a better way to do this,' when I [sat] in traffic."

Kasadate joined the American Society of Civil Engineers (ASCE) Student Chapter and their Mid-Pacific Conference (MidPac) Transportation Challenge team to further enrich his time as an undergraduate. Learning from mentors such as former project managers Michael Almazan, Luis Martin, and Myron Phouaypha, Kasadate made the decision to take lead as one of the project managers for the 2020 competition.

The role Kasadate played on his team was multifaceted. "I worked with two other project managers in leading a team of ten members," he explains. "I led workshops that taught software required for the competition. Our team visited the competition site to perform a site review and collaborated to create an alternative. We separated into drafting, analysis, and report teams, and delegated tasks to each member. I was the project manager for the drafting team. I taught my team members how to draft the different kinds of plans such as cross sections, layouts, and striping. This has given me valuable leadership and communication experiences while applying practical knowledge."

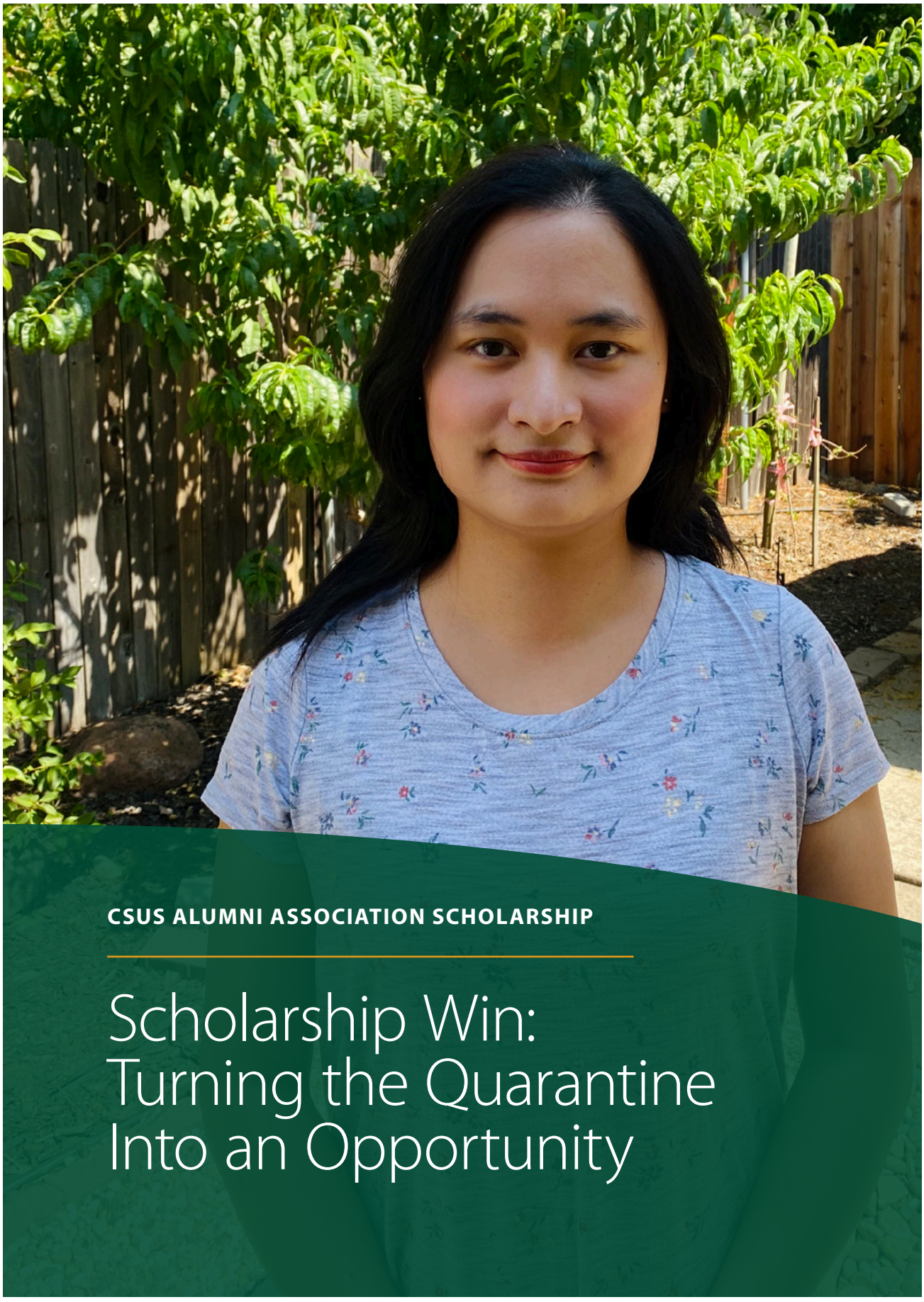
Although the team felt confident in their chances of winning the competition, the hard decision was made to cancel MidPac for the year in light of the Covid-19 pandemic. The risk of exposure such a competition would fabricate for students was too great. Realistically, Kasadate knows that competing in another challenge prior to completing his undergraduate degree is unlikely. Despite this, he is appreciative of the opportunities presented to learn and grow through what he achieved for MidPac. "…I value this experience and the time I put into this project. I am proud to have been a part of this team and represent Sacramento State."

Since the transition to distance learning, Kasadate has been plowing full speed into his coursework, as he plans on graduating in fall 2020 with his B.S. in Civil Engineering. "I want to spend my remaining time… learning and networking so I can be an asset when I begin my career." Kasadate applied for and received this year's ASCE Alfred R. Golze Scholarship with recommendations and support from Sacramento State's Civil Engineering Department faculty. "This award means a lot to me since it acknowledges the hard work my team and I put into this competition," he says, commenting on MidPac.

"I am…disappointed that I will not be able to attend the annual ASCE Awards Banquet due to this pandemic."

Kasadate's career goals after Sac State include becoming a member of the ASCE Sacramento Younger Member Forum, and hopes to mentor other students one day to, "…bridge the gap between school and professional life." He also plans to find employment in the transportation industry around the Sacramento region in order to gain experience as an engineer. "Two areas that I am interested in researching are sustainable transportation and autonomous vehicles," Kasadate states. "The transportation industry is rapidly evolving, and I am interested in being a part of the research that drives the industry forward."

> *"This award means a lot to me since it acknowledges the hard work my team and I put into this competition.*



CSUS ALUMNI ASSOCIATION SCHOLARSHIP

Scholarship Win: Turning the Quarantine Into an Opportunity

This year's CSUS Alumni Association scholarship went to Junior in civil engineering Mengqian Si Huang. A transfer from the local community college, Huang has struggled along with her classmates to make the adjustment to a new way of learning as she balances her education and everyday life. "I miss the face-to-face interactions I had with my classmates and professors," Huang laments. "Being home all day with the children has been a challenge, and it's been tough to manage watching the children, attending class lectures, studying, completing household chores, and working at my part-time job."

But these challenges didn't deter Huang from pursuing a scholarship. "The CSUS Alumni Association scholarships were part of the program, and the CMACN was advertised by the Civil Engineering department. I decided to apply for these scholarships because I wanted to help finance part of my tuition with my husband. I figured a few hours dedicated to applying were worth the possibility of winning something, plus it gave me an opportunity to practice my writing skills."

With the shelter-in-place orders being in full force and effect, Huang had plenty of time on her hands, and her strategy paid off. Huang was announced as the winner of this year's CMACN scholarship. She was also awarded the Sacramento State Alumni Life Member Scholarship, as well as the Sacramento State Alumni Life Member Scholarship, Engineering and Computer Science."

I am truly surprised and honored to have been selected for these scholarships," Huang says of her win. "I know they are very competitive, and I am very grateful to the scholarship programs for their generous awards. The award money has been really helpful in allowing me to reduce my part-time job hours and focus more on my two young children and school studies for the coming semester."

Huang knew from a very early age that she wanted to pursue an engineering education. "I grew up in Shanghai, China during a period where the city was undergoing rapid modernization of its infrastructure with new skyscrapers, roadways, shipping ports, etc. Watching the constant transformation of my surroundings from my apartment window and as I walked to school was what influenced my interest in a career related to infrastructure. Math and science are also my favorite subject matters in school; therefore I decided to pursue a Civil Engineering degree because it contains the largest blend of my interest in a career."

Though graduation with her B.S. in Civil Engineering is still a year and a half away, Huang has plans to seek employment locally, in a field dedicated to structural engineering, transportation engineering, or hydraulic design. For now, though, she is content with being a student at Sac State, despite the difficulties presented by long-distance learning. "I am a first-year transfer student… so I am very happy that Sac State had accepted my application to finish my degree at the university. My professors and classmates have been great in supporting an environment to learn from each other in person and remotely. I am proud to be part of the CSUS student body and hope things get back to normal soon [so] we can see each other in class, and at graduation."

"I grew up in Shanghai, China during a period where the city was undergoing rapid modernization of its infrastructure with new skyscrapers, roadways, shipping ports, etc. Watching the constant transformation of my surroundings from my apartment window and as I walked to school was what influenced my interest in a career...

"Winning the scholarship really made me glad that I decided to put my education first…even if that meant I had to sacrifice finances."

2020 SEAOCC SCHOLARSHIP

SEAOCC Scholarship Recipient's Hard Work Pays Off

When Mark Kobrya was interviewed last fall, his goal was simple: complete as many classes as possible so that, in his final year of undergraduate studies, he would only need four more units to complete the program (See Fall 2019, Issue 30, "Summer Classes Offer Chance to Get Ahead & Achieve Timely Graduation Goals"). This would allow him to pursue an internship in his final semester, and continue to work as a licensed realtor. Not only is Kobrya happy to report that his goal was achieved, he has done so as the recipient of this year's SEAOCC Scholarship Award.

"Personally it was great to see a reward for all my hard work," Kobrya shares with gratitude. "I try to get the best grades and education that I can, and that usually results in me needing to sacrifice time at work. But this scholarship made it all worth it because it was, in a way, compensating me for that hard work."

Initially, Kobrya heard about the scholarship from the Civil Engineering Department Chair, Dr. Benjamin Fell, who was aware of Kobrya's desire to go into the structural engineering field. "I decided to give it a shot because I visited Shasta Dam last summer and really loved the structure. The essay portion was to submit an essay on a favorite structure, and I found it was easy for me, because I had recently visited my favorite site." Being selected as a recipient was a highlight of Kobrya's past school year. "Winning the scholarship really made me glad that I decided to put my education first…even if that meant I had to sacrifice finances."

The road to completion of his undergraduate degree has, like with many students, included long hours and sleepless nights. The COVID-19 closures added an extra amount of stress into Kobrya's already hectic schedule. "The online sessions are only able to engage students to a certain degree, and there are also lots of distractions in the house," Kobrya says of studying from home. "I was in the middle of moving right when we had to stay at home, and I didn't have a WiFi connection. So, I had to go to my parents' house every day in order to have a connection (there were lots of distractions there), until I was finally able to get someone to install the internet." Kobrya also ran into difficulties jump starting his professional career as an engineer. "I was supposed to start an internship in April, but that got pushed all the way up to after 4th of July." Though there is no guarantee, Kobrya hopes that his internship will take him on as a full-time employee after graduation, though even he admits he doesn't know how likely this is. "Senior year should be about excitement about your next step into your career, not fearing that you won't be able to step into that career for a while."

Kobrya believes it is unlikely he will be able to see his professors and other civil engineering peers one final time in person. "[During] my last semester at Sac State I was hoping to be able to thank the faculty that helped shape me into the engineer I will be. People like Dr. Fogarty, Dr. Johnston, Dr. Fell, Dr. Merayyan, Professor Scott-Hallet, and all the other faculty in the Civil Engineering Department. I have so much pride in the program that they have created, and it saddens me that I won't be able to look them in the eye and tell them how much I appreciated them. All those difficult assignments and tests drove me crazy with the hours I spent studying, but I am such a better student and future engineer because of it."

Even though he is facing an uncertain future, Kobrya still has an idea of what he would like to do post-graduation, including obtaining his PE next fall, and prep for his CA exams to take place in 2023. Despite the difficulties faced in his final year, he is grateful and appreciative of his experiences at Sac State. "I…tell all my friends that if they decide to become civil engineers then they must complete the program at Sac State. Dr. Fell and the faculty have done a stellar job with the program and have put the students first. Sure, it isn't easy, and I had many late nights, but I wouldn't want to do it anywhere else."

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