Your Link to the Department of Civil Engineering

CE CONNECTION

SPRING 2017 | ISSUE 22

INSIDE

SACRAMENTO STATE
Department of Civil Engineering

CHAIR'S MESSAGE

Dear friends,

I hope you enjoy reading the spring 2017 edition of CE Connection. The newsletter illustrates a productive several months since our fall newsletter – I hope you are as proud and optimistic about the future of our civil engineering profession as I am after you read about the number of awesome achievements by our students and faculty.

Our department event for the spring semester is the Ken Kerri Endowment Fund Luncheon, and with it comes the season to cultivate donors for our program. I'm pleased to announce that the endowment fund started in 2008 is continuing to grow, with the fund currently at $219,841. Our fundraising goal is to reach a $1 million endowment so we can use the annual interest (about 5 percent per year) to augment state funding that has become increasingly unreliable. The funds are used to support our students, faculty, and equipment or software purchases for our teaching and research labs. Your support is more important than ever as we are bracing for a budget cut that could be as much as 4.5 percent next year.

In this light, I'd like to take this opportunity to invite you to the Ken Kerri Luncheon (see page 7 for registration instruction), as well as provide information to contribute to our endowment fund. Give as little or as much as you're comfortable with; even $5 or $10 brings us closer to our goal.

It's easy to give through our webpage:

Visit www.csus.edu/giving and click **GIVE NOW**.

Be sure to enter the **College of Engineering & Computer Science** in the designation field and **Ken Kerri Endowment** in the account field.

Thank you for your support.

Ben Fell – Chair, Department of Civil Engineering

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** – Gifts to this fund support faculty and student enrichment activities.
- **The CE Freshman Scholarship Fund** – Scholarships are given to outstanding freshmen.
- **The Graduate Environmental/Water Resources Scholarship Fund** – Scholarships go 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 www.ecs.csus.edu/ce/support.html 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

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Upcoming Events

Gain access to all of these events through the Department of Civil Engineering Sponsorship Program! Information for 2017 sponsorship is now available at:

http://www.ecs.csus.edu/wcm/ce/pdfs/sponsorship2017.pdf

April 12, 2017:

Ninth Annual Ken Kerri Endowment Fund Luncheon

April 20–22, 2017:

Mid-Pac Competitions at California State University, Chico

September 8, 2017:

Sixth Annual Civil Engineering Golf Tournament

CTF Symposium

Connects Students with Professional Mentors

Ashley Arreola and Lorenzo Hernandez attended the California Transportation Foundation's Education Symposium Nov. 3-4, 2016 in Santa Cruz. The event matched each of 38 student attendees with a professional mentor, who accompanied them throughout the first day.

"We got to ask the mentors questions about what it's like to work in the transportation industry – wages, work hours, work-life balance," said Ashley, who was matched with former Caltrans Director Will Kempton, now the executive director of Transportation California. "It was a chance for students to get to know their mentors and other students' mentors at a more personal level."

Next, students and their mentors were broken into groups and required to create a feasibility study based on a given scenario, and the teams had to present their findings the next day in front of a panel of professionals.

"The Q&A portion was the most stressful, but the most fun part," said Ashley. "Not only did you get to know other students from other schools, but the mentors get to participate and to help you out every step of the way. Most of the professionals are industry leaders but they came to the event and were very welcoming and friendly."

KEN KERRI
Endowment Fund Luncheon

CALIFORNIA WATER MANAGEMENT

Is Topic of Ken Kerri Luncheon Keynote

There's still time to secure a seat at the 9th annual Ken Kerri Endowment Fund Luncheon, scheduled for Wednesday, April 12 from 11:30 a.m. to 2:00 p.m. in the Alumni Center.

This year's luncheon will feature a keynote address by David Gutierrez, former executive program manager of the Sustainable Groundwater Management Act with the Department of Water Resources, who is currently with GEI Consultants, Inc.

The topic of Mr. Gutierrez' address is the Sustainable Groundwater Management Act (SGMA) and water management in California, incredibly timely topics given the unexpectedly wet and snowy winter our state has experienced. The act gives local agencies the ability to adopt groundwater management plans customized to their communities.

Drought and climate change present challenges to maintaining reliable water supplies; these challenges can be alleviated in part by sustainable groundwater management, which is the goal of the SGMA. Mr. Gutierrez will discuss the SGMA and other vital elements of California's water management strategy.

For tickets to the Ken Kerri Endowment Fund Luncheon ($30 per person), please contact Ashley Mihok at (916) 278-6982 or Ashley.mihok@csus.edu.

9TH ANNUAL LUNCHEON

KEYNOTE SPEAKER

David Gutierrez

GEI Consultants, Inc.

WEDNESDAY
APRIL 12, 2017

SAC STATE
ALUMNI CENTER

11:30 a.m.–2:00 p.m.

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From left to right: Gillenwaters, Hayes, Allen, Martin, Lee, Mohammad.

SOUND BITES: Panelists Offer Professional Advice to Students

An Evening With Industry is designed to give students a sneak peek – and a head start – into the professional world of engineering. The six panelists at the event offered candid advice from each of their unique vantage points:

Greg Gillenwaters, EIT, Construction Engineer with Granite Construction, on his advice for transitioning from student to career: "I didn't have a business background, but learning to roll with the punches [was helpful]."

Drew Hayes, SE, Structural Engineer with Bagatelos Architectural Glass Systems, on transitioning from student to career: "As a student, problems are well-defined. You have a problem statement and come up with design factors. In industry, problems are not nearly as well-defined."

Kristen Martin, PE, Design Engineer with the California Division of Safety of Dams, on whether you can switch disciplines once you start your career: "You can do anything you want. If you don't like your area of focus, switch!"

Kristen Martin on what happens if you don't pursue your professional engineer license: "I work for the Department of Water Resources. Low-level compensation starts at $55K, and EIT tops out in the mid-$70K range. If you get your PE, the sky's the limit at the state."

Kristen Martin on how to prepare yourself for a career: "I recommend you go find a mentor willing to share their experiences and advice with you. Maybe several mentors. You have to go out and find them; people don't look for a mentee."

An Evening With Industry
Highlights Capital SouthEast Connector Project

The premier departmental event connecting civil engineering students with industry representatives, An Evening With Industry, enjoyed its best attendance ever this past November at the Alumni Center.

This event offers the chance for students to meet and mingle with representatives from local engineering firms, hear a keynote address on a timely topic, and ask questions of panelists who are professional engineers as well as Sacramento State alumni.

Derek Minnema ('02) gave the keynote address in his role as the project manager for the Capital SouthEast Connector Project, a planned 34-mile bypass intended to relieve traffic congestion through downtown Sacramento's freeway system. He presented a compelling case for the importance of the project, showing that California ranks among the lowest states in the nation for highway performance and cost-effectiveness.

"It's called the southeast connector because it's a backbone that will connect Elk Grove to Rancho Cordova to Folsom to El Dorado Hills," said Mr. Minnema. The connector will include a class 1 pedestrian trail longer than the American River Bike Trail. "It's adjacent to Mather and it will encompass commerce, industry, farmland, and a power plant all along the route," he said.

Mr. Minnema discussed the three main ingredients for any transformational project: resources, support and legitimacy. At the time of An Evening With Industry, Measure B was about to be presented to voters on the Nov. 8 ballot. The measure – a half-cent sales tax for Sacramento County – would have provided more than a third of the funding necessary to complete the Capital SouthEast Connector, but it did not pass.

Still, the project will move forward with funding from already-approved Measure A, as well as anticipated developer fees. Managed by a joint powers authority, the Capital SouthEast connector will likely be completed incrementally over the next few decades.

Keys to the project's success going forward, said Mr. Minnema, will be not only funding but also the project's popularity, navigating regulatory hurdles, and avoiding environmental pitfalls – all legitimate challenges for a 34-mile connector that promises to change the commuting and transportation experience in the Sacramento area.

Derek Minnema

Carlton D. Allen, III, PE, Project Engineer at Bennett Engineering, on switching engineering disciplines mid-career: "Maybe try moving around in your company. After a while you're too expensive to re-train."

Carlton D. Allen, III on whether students should cultivate other skills outside the civil engineering curriculum: "Technical writing. You must be able to communicate your thoughts."

Carlton D. Allen, III on weighing a technical design job against a project management job: "It's hard to move forward without the technical background. But the question is, do you want to continue with the technical route? Do you like working with clients? If you like talking to people or are outgoing, project management is good. It depends where your passion is."

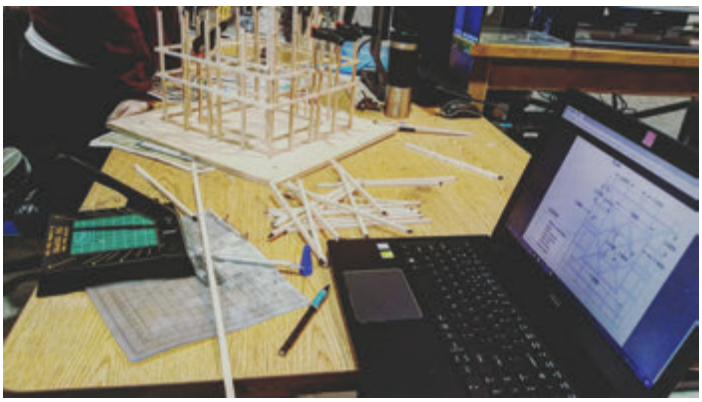
Ahbid Mohammad, EIT, Design Engineer with Kleinfelder, on whether (and when) to pursue a master's degree: "It depends: if you want the technical route, I would push for a master's in geotech. But if you want more project management, a master's is not as needed. People tend to either take the technical or project management path. If you do get a master's, I recommend working for a few years first. The master's program here at Sac State is good for working professionals."

Amanda Lee, PE, Design Engineer with Dokken Engineering, on when to get your master's degree: "I'd do it right away after your bachelor's."

Some of the panelists are featured in Alumni Notes beginning on page 20.

EERI STUDENT CHAPTER

Preps for Second Student Competition



In its first two years on campus, the Sacramento State chapter of the Earthquake Engineering Research Institute (EERI) is making an impressive showing by preparing for its second entry into EERI's annual Undergraduate Seismic Design Competition.

Led by faculty advisor Dr. Julie Fogarty, the chapter – which consists of 15-20 active student members – competed in the design competition in spring 2016 against 33 other colleges and universities from all over the world, making structures out of balsa wood.

For this particular competition, "they have to design a structure that can withstand specific earthquakes," said Dr. Fogarty. "At the start of the competition they're given three different ground motions related to the location of the conference. The competition consists of designing a structure, building a scale model of the structure using balsa wood to be shaken at the competition, and predicting the behavior of the scale model by analyzing a computational model using SAP2000. It's a great chance to get exposed to tools they'll use in industry to predict behavior of structures."

In the 2016 competition, the students had to build a high-rise building intended for the San Francisco Bay waterfront area, which presents unique soil conditions.

"Last year at the competition they applied three ground motions to the structure," said Dr. Fogarty. "They measure displacement and acceleration and compare it to the students' predictions from SAP2000. Unfortunately, Sac State didn't survive the third ground motion – only 15 teams survived that one."

Though Sacramento State's EERI chapter did not win the 2016 competition, the students enjoyed being part of the experience for a brand-new campus organization, having just started up in fall of 2015. "They're excited for this year; they're more confident they're going to survive," says Dr. Fogarty.

The student team is already on track, having built a test model and now working on a full-scale version. This year's challenge is to build a balsa wood skyscraper for Portland's Pearl District, complete with a green rooftop and a three-story atrium.

"Their first time out, they didn't know what to expect, so it was a really good experience and we're really excited about this year," said Dr. Fogarty. "I think the students are well prepared and are going to do well at the competition."

Office of
WATER PROGRAMS
to create Stormwater Resource Plan

The Sacramento State Office of Water Programs was recently awarded a grant to lead development of a Stormwater Resource Plan (SWRP) for the greater Sacramento region.

The plan outlines how regional stakeholders can collaborate and manage stormwater on a watershed scale, with methodologies for developing, cataloging, and ranking projects that manage stormwater and dry weather runoff to improve water quality, reduce localized flooding, increase water supplies, and protect and enhance beneficial uses.

The project is partially funded through the State Water Resources Control Board's Proposition 1 Stormwater Grant Program. OWP is facilitating planning and development activities with over 20 water and environmental organizations in the region, including the Regional Water Authority (RWA); Valley Foothill Watershed Collaborative (VFWC); the cities of Auburn, Citrus Heights, Elk Grove, Folsom, Lincon, Rancho Cordova, Rocklin, Roseville, and Sacramento; the town of Loomis; Sacramento and Placer counties; the Cosumnes Coalition; Florin Resource Conservation District; the Sacramento Area Flood Control Agency (SAFCA); Sacramento Central Groundwater Authority; and the Sacramento Regional Sewer District.

OWP will lead the project team in developing methodologies and identifying resources needed (e.g., maps, design criteria, best management practice [BMP] templates) for finding and locating projects. Project types might include street and parking lot retrofits with low-impact development (LID) features, large swales and rain gardens in parks and other public spaces, and use of deep infiltration technologies in detention basins and in public rights-of-way. Long-term maintenance of BMPs and funding strategies will also be addressed.

As more projects are implemented, the plan will be adaptively managed as a living document, using data from performance measures as well as changes in policies and priorities.

Alumnus Jeremy Zorne

Played Key Role in Foundation of Golden 1 Center

The gleaming Golden 1 Center in downtown Sacramento is a feat that involved hundreds of people working nearly nonstop to meet a hard opening date. The result is a state-of-the-art, certified LEED Platinum arena that serves as home to the Sacramento Kings and has singlehandedly served as a catalyst for major revitalization of the downtown area. Jeremy Zorne ('97, MS '03) was an integral part of the building's foundation – literally.

Jeremy is vice president and senior engineer at Geocon, where he's worked since graduating from Sac State more than 20 years ago. Geocon competed with several other geo-professional firms to secure the contract for the arena project, which included integrated geotechnical and environmental (hazardous materials) services.

The first step was a geotechnical investigation, which at the time was hampered by the fact that the former Downtown Plaza was still occupied and operational, and the two levels of underground garage had very low headroom.

"There were generations of old construction," said Jeremy of what Geocon found during their exploration. "There were old piles sticking out of the ground and soft soil because it's close to the river and below the water table."

There was some mild soil contamination due to a plume that runs through much of downtown Sacramento, thanks to generations-old volatile organic compounds from the nearby Sacramento Railyards site.

"The [Downtown Plaza] structure was two stories below ground; we went another 12 feet below that, so about 30 feet below street level," said Jeremy. "Groundwater is down about 15 feet, so the arena is like a bathtub – fully waterproof and set down below the groundwater."

With a project of this scale, there are bound to be challenges – and there were. Besides the shallow groundwater, "from a structural viewpoint, it's an arena, so that means it's open in the middle," said Jeremy. "That puts all the structure loads in a pretty small area, which puts a lot of demand on the foundation system. When you have poor soil, you have to develop the foundation system to transfer those loads down to firmer soil. The good soil was about 40-50 feet down."

Construction began immediately after demolition, so the ground had to be stabilized enough to hold the heavy drill rigs and construction equipment. But first, there was rain. An ill-timed storm flooded the job site, shaving two weeks off an already set-in-stone schedule. "After that weather delay, it was a 24-hour operation to install the piles," said Jeremy. "The foundation system included over 1,000 piles, so it took six weeks, working around the clock."

> "I've worked on a lot of projects in my career…There's a sense of pride to have been a part of this project."
>
> — Jeremy Zorne

Traditional pile driving was not an option for this project due to the city's noise and vibration restrictions. "We used a drilled displacement pile, so instead of being pounded down into the ground, a hole is drilled," Jeremy said. "The special displacement drill bit pushes soil to the side instead of drilling it out of the ground. That was important because with 1,000 piles, if we were generating all that soil and drilling all that material, it would have to be hauled off. Because the soil was soft, it was displaceable, which made this type of pile ideal. In addition to not generating excess soil, this method resulted in a higher capacity pile – higher load-carrying – because it is densifying the soil around it. It's really a combination of soil improvement and transferring the loads to the deeper, more competent soil. And, it's a method that produces zero vibration."

All in all, it was a cost-effective foundation solution for the project with virtually no downsides. In fact, the Downtown Commons project next to the arena, which is currently under construction, used the same foundation technology.

The Golden 1 Center is the first indoor sports venue to earn LEED Platinum certification, and Jeremy says that sustainable practices like reuse of materials were woven into the project at all stages. There was also an effort to use local firms and contractors, and "our firm directly benefited from that," he said.

In addition to the increased exposure for Geocon, Jeremy says working on the Golden 1 Center was a unique experience that elicited a collaborative spirit from all parties. "I've worked on a lot of projects in my career, and this one seemed to have more dedication from the people working on it," he said. "I feel very proud that my daughter can say 'my dad worked on that.' There's a sense of pride to have been a part of this project."

Mid-Pac PREPARATIONS RAMPING UP

The annual competition season is underway for Sacramento State civil engineering students, who are busy creating and testing in advance of the American Society of Professional Engineers (ASCE) Mid-Pacific Regional Conference, known as "Mid-Pac." This year's event will take place April 20-22 at California State University, Chico.

As in past years, many of the students leading project teams are seasoned competitors, having participated in one, two or even three Mid-Pac competitions. These experienced students are a vital part of passing the torch to younger students, who will get their first taste of Mid-Pac this year and hopefully come back to lead teams in the future.

Sacramento State will be competing in the Concrete Canoe, Water Treatment, Steel Bridge, Geo Wall Challenge and Transportation Challenge. The campus ASCE chapter president, Khalid Kanaan, is a graduating senior who's not only helping oversee all the project teams, but serving as co-project manager for the Geo Wall Challenge.

"I've been part of a larger team club with Steel Bridge the last two years," says Khalid. "It helped me be disciplined to get a closer understanding of structural engineering. But all my electives, all my endeavors are focused on structures so I wanted to try something new. I took soil mechanics last semester, and it influenced me to join this team this semester."

Co-managing the Geo Wall Challenge team is Taylor Myers, a senior who, like Khalid, is on her third Mid-Pac competition. "We're building a mechanically stabilized earth wall," she says. "It will be a wrapped face wall, and the wall is made out of kraft paper. The wall is supposed to hold with minimal reinforcement while withstanding a 50-pound load on top of it."

The eight members of the Geo Wall team have been working since September, and they've already submitted their design paper, which gained them acceptance to the Geotechnical Frontiers National Competition in Florida March 13-15 (taking place prior to Mid-Pac). They'll repeat their performance and poster presentation at Mid-Pac in April.

Taylor credits Professor Rich Armstrong with some of the team's success. "He held a boot camp for us over winter break and led us through design software and testing in the lab," she said. "I think that really made it possible for us to go to nationals."

Senior Ashley Arreola is playing a key role in Mid-Pac for the first time this year as part of the Transportation Challenge team. "The

Above: This year's design for the Geo Wall Challenge.

Below: The Geo Wall Challenge Team dressed for this year's theme: "1920s Mobsters."

main premise this year is that we want to turn a private street into a public road," he said. "Basically we want to improve an intersection to give cars accessible left-turn movements."

Unlike some of the competitions, the Transportation Challenge is not a hands-on, physical presentation but rather a written paper and a poster presentation. "We had to do a traffic analysis of existing conditions and try to improve them using the Synchro program," said Ashley. "Once we have that and our lane configurations, then we can start designing the intersection and CAD drawings and doing all that fun stuff, as well as the writing portion."

The Water Treatment team is again being led by Michael Nishimura, with guidance from Dr. John Johnston. The Concrete Canoe team is managed by Michelle Campbell, Joseph Madden and Michelle Dungan, with help from faculty advisor Dr. Fell, who's also advising the Steel Bridge team, led by Ashneel Chand and Hamed Amouzgar.

"Steel bridge this year is astonishing," said Khalid. "They have a huge army this year – about 20 students. That may not sound like a lot, but that's as much as they can allow at one time in the shop, and they're exceeding that."

As the competition nears, the seniors involved are getting nostalgic. "I'm kind of sad because [Mid-Pac] has been part of my entire school career," said Taylor. "Now I'm teaching the freshmen and sophomores how to take over when we're gone. It's a different experience from leading to teaching the next wave."

Khalid couldn't agree more. "There's one other person on our campus more proud to be a Hornet than I am, and that's our President Nelsen," he said. "I'm so proud and I'm walking into Mid-Pac like we've already won first place. I've seen the hard work and efforts the teams have put in so far. These students can move mountains."

GRAD Spotlight

WILL DYAS

In this feature, we spotlight a recent civil engineering graduate. Will Dyas earned his bachelor's degree in December 2016 – he graduated summa cum laude – and is now living and working in Big Sky Country.

What drew you to civil engineering?

I got into it because I liked construction. I was exposed to construction at a young age because my dad is an electrical contractor. I decided I wanted to be on the design side; it's my way of staying in the construction field without the manual labor. Engineering gave me the opportunity to think, and I love to build things, so it all fell into place. I started on the path to civil engineering when I was in high school and stuck with it.

What's your specialty?

I specialize in working with the structural properties of soil. My job now is working for Barnard Construction, which is a heavy civil construction company out of Bozeman, Montana. We build and restore dams, and we also do some underground work and overhead transmission lines.

You've probably been watching the Oroville Dam situation here in California, then.

Yes, we have a handful of employees in Oroville. Our company got the phone call a few hours into the emergency. We had staff there in less than 24 hours.

How did you decide on Sacramento State to get your bachelor's degree?

I grew up 45 minutes from Sacramento. When I looked into the program at Sac State, they're known for having a hands-on and very application-oriented program. When I talked to civil engineers I knew – even in high school – they said graduate from Sac State and any company will recognize that and offer you a job. Plus, it was affordable.

What were your favorite classes at Sacramento State? What about professors?

Professor Cyrus Aryani and his geotech classes. Professor Aryani is very enthusiastic and he's extremely knowledgeable about the topic. He presents the content in a manner that's engaging to the students. The subject matter, and his enthusiasm, got me into geotech.

Students

Margarita Kovalchuk is having a very good year so far. She is the recipient of a $500 research award from the Council on Ocean Affairs, Science and Technology (COAST), the umbrella organization for marine, coastal and coastal watershed-related activities within the California State University (CSU) system.

"With this funding we will be able to construct laboratory-scale model wetlands at the STORC (Sustainable Technology Optimization Research Center) here on campus," said Margarita, who is president of the Sacramento State chapter of the Society of Women Engineers. Her project is titled "Influence of Wind on Hydrodynamics of Constructed Delta Wetlands."

In partnership with her faculty advisor, Dr. Cristina Poindexter, Margarita is researching how water flow affects subsidence reversal. "We're looking at finding a way to build back up the land that has sunk in the Sacramento-San Joaquin Valley Delta," said Margarita. "By looking at these miniature wetlands, we'll be able to further define some of the factors that affect these processes."

Margarita recently presented an abstract based on field work from a research site on Twitchell Island in the Delta at a poster competition at the Society of Women Engineers regional conference in San Jose Feb. 24.

Her poster won first place in the Undergraduate Research Poster Competition.

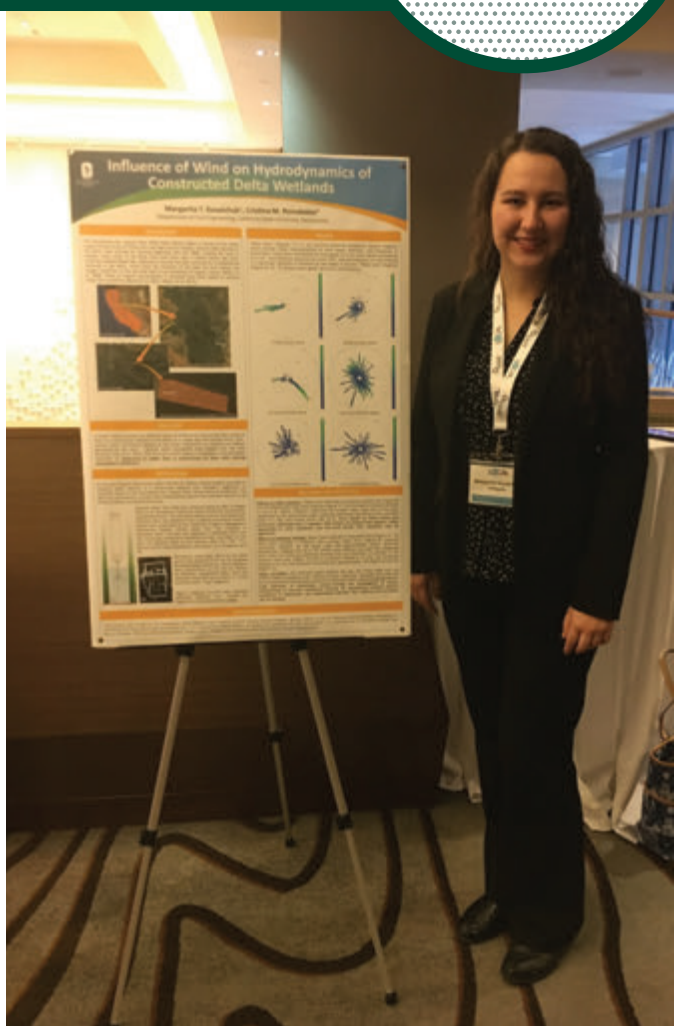
"I think [the COAST research award] encourages me to see a research career as a viable option, and something that I can do

well in," says Margarita, who spent 10 weeks at the University of Nebraska, Lincoln as an Undergraduate Research Fellow working on modeling contaminant transport in groundwater in summer 2016.

"Dr. Poindexter has so much knowledge in that area. I'm extremely grateful to have her as such a wonderful faculty research advisor and mentor."

To top it all off, Margarita is one of 10 engineering students chosen from around the globe by the American Society of Civil Engineers for its 2017 New Faces of Civil Engineering. Recognizing her dedication to nurturing future engineers through involvement with the Sacramento State section of the Society of Women Engineers – of which she is president – the ASCE designation focuses not only on academics but a student's dedication to making a positive impact on society through their chosen profession.

"I didn't deserve to get something like this alone," said Margarita. "It was really through all the support I have had from many different faculty, my internship at Kennedy Jenks Consultants and great people in the industry."



Also, Professor Merayyan and his water resources engineering class. Professor Merayyan is a very vibrant and engaging professor. There will always be days when the material's not as fun, but he tries to make the most out of it and get students involved. When a professor brings excitement to the classroom, it makes the class much more enjoyable. Both professors are easy to connect with.

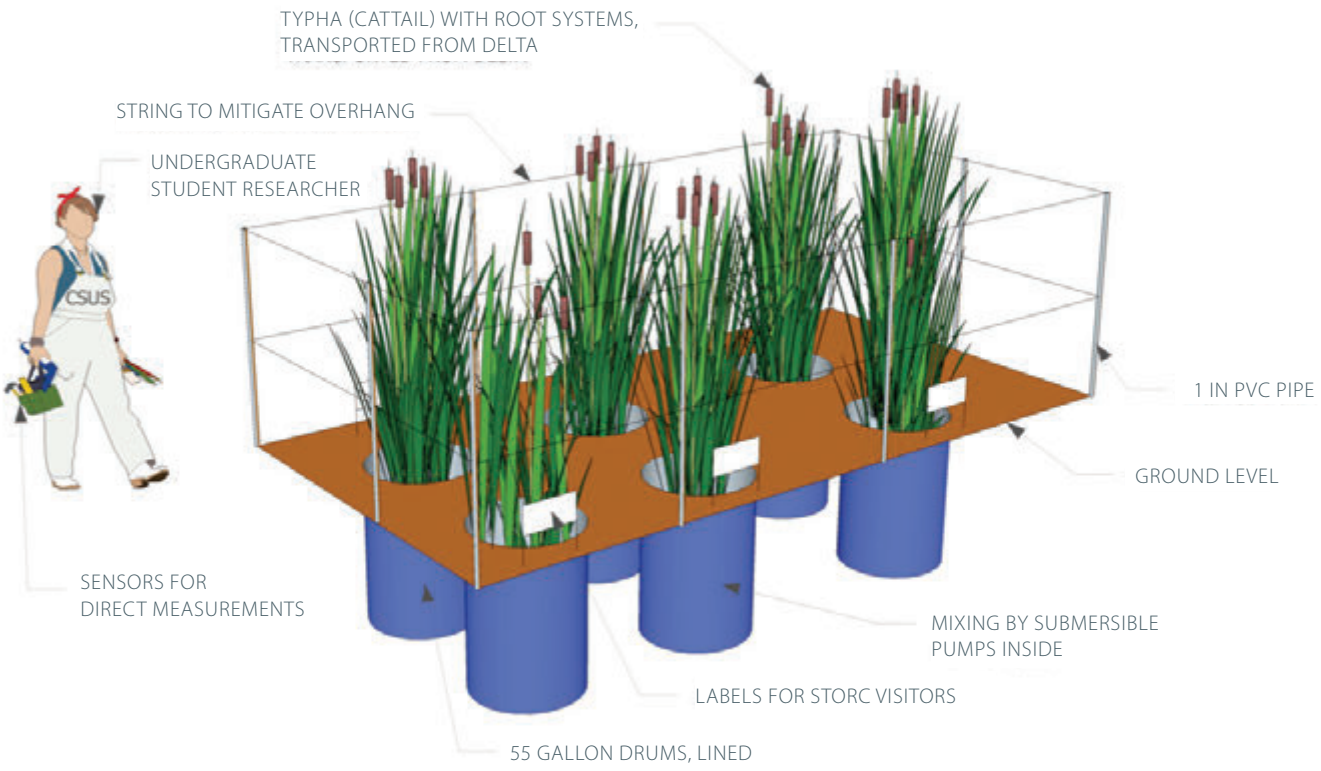
What brought you to Montana?

I always wanted to move to one of the northern states where there's more rural country, fewer people, and no Monday morning traffic. While I was in college, my parents moved to Montana. Then during my last semester of college, I got in contact with Barnard, the ball started rolling and they made an offer. Everything lined up.

What are some highlights of your job so far?

Thus far I've been working on estimating, and I've been involved a lot with the civil side of work so grading, excavation and retaining walls. Two projects for which I've been really involved in the bidding are both in California – Santa Barbara and Oakdale, and they're both transmission lines. The Santa Barbara project is 90 miles of road maintenance with roughly 30 retaining walls, so I've been involved in quantifying the work. For my company, dams are the biggest thing; also a lot of work in Northern California for PG&E running pipelines. They flew me to Chicago to turn in a bid on a

N&N News & Notes



"Influence of Wind on Hydrodynamics of Constructed Delta Wetlands" by Margarita Kovalchuk.

Schematic for laboratory-scale model wetlands, at the STORC (Sustainable Technology Optimization Research Center) at Sac State.

Margarita Kovalchuk holding the Collegiate Section Growth Award presented to the Society of Woman Engineers Sac State Section at the SWE conference in San Jose.

Students

The Society of Women Engineers (SWE) Sacramento State section received the "Collegiate Section Growth Award" at the SWE regional conference in San Jose Feb. 24. Fifty percent of the chapter's officers are Civil Engineering majors: President Margarita Kovalchuk, Vice President Mary Sanchez, Secretary Karen Contreras and Events Coordinator Tashly Covington.

A group of four students accompanied by Dr. Ben Fell traveled to Los Angeles in January to attend the American Society of Civil Engineers (ASCE) regional workshop for student chapter leaders.

"It definitely blew my expectations," said Taylor Myers, who attended along with Khalid Kanaan, Michael Lucas and Jonathan Mougharbel. "I met everyone I could in ASCE, from students to younger members to section leaders. It was a very good experience."

The students attended sessions on how to write annual reports or hold a Mid Pac conference, and between sessions there were opportunities to network with Younger Member Forum (YMF) or section leaders.

"Networking really helped bridge the gap between us," said Taylor. "The event was geared toward leadership and what we need to do to be leaders in ASCE. A theme I noticed with all the speakers was that everyone has a series of choices. The more you put into ASCE, the more you get out of it."

GRAD Spotlight
WILL DYAS

…continued from page 17.

project that requires digging three caverns a mile underground for testing equipment for the U.S. Department of Energy.

What are your plans for the future?

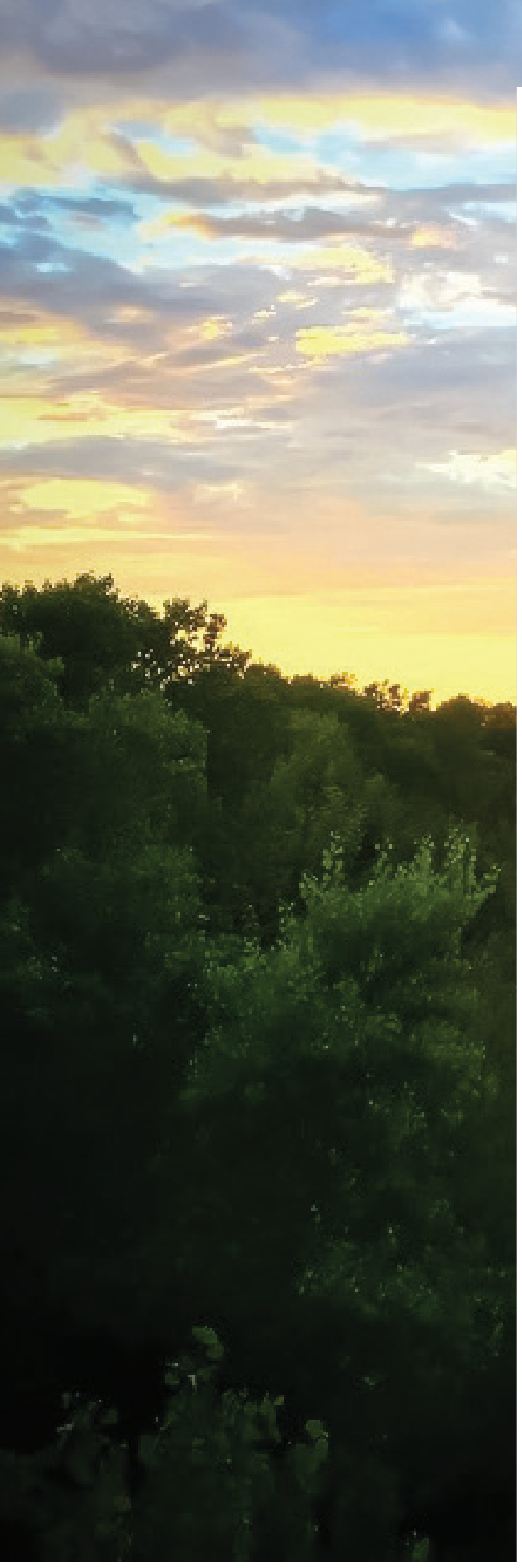
Even though I'm working with a construction company, I intend to get my PE license. I'd like to go to grad school so we'll wait and see if it will advance my career. I'm looking forward to the opportunity to move around a bit with this company, to do work in different parts of the country.

Do you have any hobbies?

I like spending time outside hunting, fishing and camping. I like to go four-wheeling on the Rubicon Trail. It's really nice here in Montana, there are lots of outside activities. My dad and I try to plan a hunting trip every year. There are a lot of things different than California, but a lot of things are the same. I grew up in Placerville and there are definitely similarities between Placerville and Bozeman.

In what way would you say Sacramento State best prepared you for your career?

I think the schooling gives a very analytical approach to problem-solving. I remember professors saying that it's not the information you learn in college, it's the way you think. They teach you to approach every problem as different, because it's not a repetitive industry. Also, the labs Sac State offers allow you to get in and get hands-on with the material. For instance, you get in there and run soil tests for geotech, or hydraulic tests for water resources, and it closely matches up with the lecture. Instead of focusing on the theoretical, Sac State focuses on what will be useful in your career.



Alumni

2016

John Rooks ('16) is experiencing the phenomenon of "out of the fire and into the frying pan" – after graduating just a few months ago, John converted to a permanent engineer position with the Army Corps of Engineers, South Pacific Division. The first year of his two-year rotation will include civil design, environmental planning, levee safety/design, GIS, project management and soil design. "My section within the Sacramento district is the Dam Safety Production Center, which is the same section I worked for as a student," says John. "After graduation I was initially working on the Isabella Dam modification project, along with a large part of the district. As the Oroville Dam emergency unfolded, I was tasked to support the Department of Water Resources in their mission. I am now supporting several Corps of Engineers dam projects throughout the state. The Corps is a fantastic place to work. The scope and impact of the work performed is awesome." In the photo, Colonel David Ray swears John into federal service.

"Being a vet and having had the goal of working for the Corps, this was both a culmination of hard work, and a starting point for my career," says John.

2014

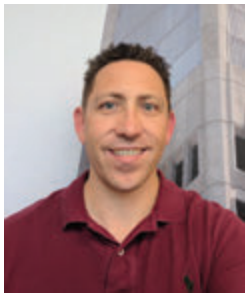
Amanda Lee, PE (MS '14), works in roadway design for Dokken Engineering. She recently worked on the design of the 5th Street Bridge replacement project in Yuba City, as well as a few design-build projects including the deck rehabilitation of the Sacramento Viaducts (US-50 and I-5). Amanda, who served as a panelist at An Evening With Industry in November 2016, offers this advice to current civil engineering students: "The College of Engineering has all the tools and resources; use them to succeed. Thank you Dr. Khan and Dr. Shafizadeh for the support!"

News & Notes N&N

2013

Greg Gillenwaters, EIT ('13), started his career with Granite Construction in April 2014 in the take-off department, helping estimators bid projects. Later that year, he transferred into the field working on projects including clearing slides of Highway 140 in Yosemite, building an access road used by Atlas 5 rockets for Aerojet, and making way for the High Speed Rail in the Fresno area.

"One of my fondest memories of being in the engineering program was designing and fabricating precast concrete beams and seeing which team could reach the highest load before the beams would fail," says Greg. "We were able to play around with mix designs and one of the teams went as far as breaking up glass bottles and using it as an aggregate substitute. While in the end it did not prove to be as successful as they thought it would be, it was interesting to watch the process and participate in the competition from designing our own beam, to fabricating the forms to casting and then testing the beams. And I would have to say my favorite professor hands down would have to be Professor Fell. I was a bit intimidated when it came time to take Seismic but he made the class fun and easy to understand."



2012

Drew Hayes, SE ('12), performs design, engineering and project management in the glazing and architectural skin wall industry for Bagatelos Architectural Glass systems. Previously, Drew worked for Clark Pacific in the architectural precast division and also spent time in structural design for water and wastewater structures at HydroScience Engineers. Highlights of his completed projects include the Golden 1 Center, several Sutter Hospitals including the Sacramento Women and Children's Center, and several mid- to high-rise commercial and residential buildings in Sacramento and the Bay Area.

Says Drew, "I want to say thank you to Dr. Fell, who is not only an engaging professor and was a great CE 500 advisor for me but also told me about the job opening at Bagatelos Glass, where I have worked for the last six and half years."

2011

Kristen Martin, PE ('11), is a Design Engineer with the California Division of Safety of Dams where she conducts geotechnical and hydrologic evaluations.

Her work includes evaluating liquefaction susceptibility, conducting static and dynamic modeling, and evaluating post-seismic deformations of embankment dams. She evaluated the design of the San Clemente Dam Removal Project and inspected its construction. She also conducted hydrologic and hydraulic modeling for the Oroville Dam spillway incident.

"My most valuable experiences at Sac State were participating in the ASCE design competitions; working in groups to design, document and present projects is critical. Prof. Johnston was our adviser for the Water Treatment Team, and I continue to reference Prof. Aryani's soil mechanics and foundation books. The professors are committed to helping students succeed."

> "The College of Engineering has all the tools and resources; use them to succeed."
>
> — Amanda Lee, PE

PARTNER Spotlight

Rick Liptak

For more than a decade, Southern California transplant Rick Liptak, PE, has been a vital part of the Civil Engineering Department at Sacramento State. He offers his expertise to help inform faculty decisions about curriculum, and gives freely of his time to help shape future engineers. And he's not even a Sac State graduate.

As president of Dokken Engineering, which employs more than 20 Sacramento State graduates, Rick does enjoy the benefit of direct contact with a steady stream of fresh civil engineers graduating from the program. But that's only part of the story of why he's one of its most enthusiastic supporters.

"I don't remember how or why he called me, but Ramzi Mahmood called me when he used to teach his CE 1A class, Introduction to Civil Engineering," says Rick. "He wanted speakers to come from industry, so I did it the first time and I've done it ever since. I think that was 2006."

Rick felt at home talking to the Sacramento State students. "I remember being a student, sitting in the class when a professional would come in," says Rick. "Some engineers are really smart, top-of-the-class kids. I wasn't that kid, I did social stuff in high school and no college prep at all. I had to take math, chemistry and physics classes I never had. When I go speak to those kids, I'm sure some of them are in that situation."

Rick moved north from his hometown of Anaheim when he and his college sweetheart (now wife) Karen decided they wanted to live somewhere with more outdoor activities and less traffic. They agreed on Chico State. After Rick earned his degree, he and Karen lived briefly in Marysville where he worked for Caltrans, but they soon made their home in Sacramento.

After four years with Caltrans working on roadway design and later, bridges, Rick became aware of a new firm called Dokken Engineering. "It was just starting, but they used a lot of Caltrans people who moonlighted on weekends," says Rick, who has been with Dokken for 30 years. "Now, I think it was a risk, but at the time I looked at it as an opportunity."

In the 1990s, he commuted back and forth to open an office in San Diego and manage a major interchange project there while his wife stayed in Sacramento with the couple's two young sons. It was a difficult arrangement, but "it helped me understand the business, marketing and client satisfaction," says Rick.

Since then, he's learned much more, and that's the knowledge he wants to pass on to engineering students. "What's different about a consulting firm [versus working for the government] is that you have to get more work," says Rick. "That's the risk most people don't think about. The chasing business part is tough, especially when you don't win."

But in his time at Dokken, Rick has learned how not to lose. "I'd say 75 percent of the time, we win the project," he says. "You'd better learn every time you lose, right? It's just like dating; when you break up, they don't tell you what's wrong with you, so you've got to drag it out of them and understand it."

> "You don't get every job, but you've got to dust yourself off and make it better next time."
>
> — Rick Liptak

Not long after he began interacting with Sacramento State students in 2006, Dr. Mahmood asked Rick to serve on the Civil Engineering Professional Industry Advisory Committee (CEPIAC), which was organized to provide input to civil engineering faculty on what the industry wants new, graduating engineers to know. Rick is now the chair of CEPIAC, which has about 13 professional industry representatives who advise faculty on curriculum and events.

Due largely to CEPIAC, the final project for students in the CE 190 class underwent a change that Rick sees as highly beneficial to students – and the firms that will eventually hire them. The students now form teams to respond to a fictional project's Request for Proposals (RFP). These teams prepare a work plan proposal that is evaluated by a panel of industry professionals posing as mock mentors and clients. Each team meets with its clients to receive feedback on its work plan, with several stages of back-and-forth culminating in a Project Design Report finalized to the client's satisfaction. Each team presents its project to the panel of clients, followed by a round of Q&A.

"The final project for these students is exactly what we do as working professionals, especially the presentation to people who are experts in the field and forcing the students to defend their design decisions," says Rick.

Recalling a CE 190 presentation during which the students came to an inaccurate conclusion and were corrected by one of the professional panel members, Rick says the students were devastated. "I went to their class," he says. "I told them 'you just got a valuable experience you won't get for 10 years.' As an employer, I want the kids who have failed and learned from their mistakes. I want the guy who got a zero on his test and picked himself up and moved forward. You don't get every job, but you've got to dust yourself off and make it better next time."

Rick works hard at his job and in his other professional activities (which also include chairing the American Public Works Association Awards Committee), but he definitely finds time to play. He's an avid bird hunter and also plays drums in a band called The Alements. Says Rick, "I like to play rock. Loud."

He's pleased to be at a point in his career where he has enough time to foster emerging talent through his work at Sacramento State. He has an affinity for the faculty, who he says are very accessible and really do care about the students. "They're so personable; they will take whatever time is needed to teach the students."

Though he also remains involved with his alma mater, Chico State, Rick's proximity to the capital university gives him "great access to all these students," he says. "We hire them as interns and when they graduate. It's such a great mix of kids from all walks of life. Sac State students are truly interested in what they're doing. I'm all in with that. If they're in, I'm in."

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CE CONNECTION