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SHILEY-MARCOS SCHOOL OF ENGINEERING

UNIVERSITY OF SAN DIEGO, FALL 2016



Imagine. Innovate. Inspire.

Reflecting fondly over the last 12 months, it is hard to believe that another year is behind us. Building one of the best engineering schools in the country is both energizing and rewarding, and I am delighted to share our progress with you.

The Shiley-Marcos School of Engineering continues to grow in quality, numbers and in reputation. Enrollment has increased 157percent in the past five years. I recently completed the employment contracts of seven extraordinary new faculty members who will have a dramatic impact on our curriculum and new engineering programs. We launched the Center for Cyber Security Engineering and Technology in January 2016. And with computing being one of the fastest growing sectors in the U.S., we are proud to announce that starting in the fall of 2016, the USD computer science program will move to the school of engineering.

Our Industry Partnership Program is also growing. Roughly half of our capstone design projects are now sponsored, giving our students a unique opportunity to work closely with industry on realistic projects. We find that by combining dedicated faculty with a compelling curriculum and the dual BS/BA degree, our industry partners not only want to work with the students on projects, but they are hiring them directly from the project teams.

USD has entered the public phase of our \$300-million-dollar capital campaign, and the Shiley-Marcos School of Engineering is part of this effort. The good news is that the university has raised \$214 million thus far. Engineering priorities for the campaign include the next two phases of construction to complete the engineering complex, raising scholarship support for our students and securing funds to hire faculty members for our evolving curriculum. Thank you to all who have provided support. All gifts, big or small, truly make a difference.

In this issue, we highlight innovative work conducted by our faculty, students and alumni. Alumni honoree Andrew Putnam is a brilliant example of the level of dedication and fortitude that is required to be an ubersuccessful engineer. We also spotlight alumna Michaela Wittmann, whose work in sustainability and care for our common home will leave you inspired. And early in 2016, the Engineering Deans of Catholic Universities met at USD to consider how, together, we could advance this humanitarian perspective, as outlined in the pope's encyclical.

Finally, we invite you to explore some of our inspirational work, both locally and internationally. These initiatives start with local outreach efforts, then blaze a trail across the globe so that the principles students learn here at the Shiley-Marcos School of Engineering extend beyond our classrooms and connect us to the world.

Chell Roberts, PhD
Founding Dean, Shiley-Marcos School of Engineering



Darlene Marcos Shiley established the Shiley-Marcos School of Engineering in 2013 with a transformational gift that honors her dedication to education and pays tribute to her late husband, renowned engineer Donald P. Shiley. As honorary chair of Leading Change: The Campaign for USD, she urges alumni and friends of the university to do their part to help the university achieve its \$300-million goal to enhance the student experience.

Leading Change
THE CAMPAIGN FOR USD

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Link: Go to video.sandiego.edu/Watch/smse-dean-roberts for Chell's latest interview.

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Inside the Wondrous Mind of Andrew Putnam

ALUMNI PROFILE: It doesn't necessarily take superhuman powers to be a triple major as an undergraduate. In fact, for this year's Shiley-Marcos School of Engineering Alumni Emerging Leader, it's all in a (very long) day's work.



Andrew, on the right, shown aboard NASA's KC-135 aircraft in the Reduced Gravity Student Flight Opportunity Program, also known as the ZeroG program.

To say that Andrew Putnam '03 was busy as a college senior is understating things in the extreme. "Classes started before 8 a.m.," he recalls. "I'd be done between 2 and 5 p.m., then I'd work for eight hours at Raytheon, finishing up between 11 p.m. and 2 a.m. I'd go home, do homework, sleep for an hour or two and start all over again." Talk about a hard day's night. Born in Colorado Springs, Colo., Putnam's first job was as a janitor at a local tourist attraction, Seven Falls, where he performed more than 6,000

toilet scrubblings and emptied more than 23,000 garbage cans. "You never know where you'll end up in life," he laughs. "It helped to prepare me for long days and hard work. And to realize that you can have fun, whatever you're doing." As a sophomore at USD, he started off as a double major — electrical engineering and computer science — but since he really enjoyed physics, why not go for the triple major? "Dan Sheehan, one of my physics professors, was extra motivational," Putnam recalls. "I remember getting the top score on an exam. He told me he was giving me an A-minus, since he knew I could have done better. I liked that."

While the particular combination of majors Putnam chose would seem to border on superhuman, he was up for even more challenges. He'd been interning with Raytheon when word went out that a bug needed fixing quickly. "It had to do with a production combat system code. I identified the bug and came up with a fix pretty quickly. I guess they were impressed, because they hired me part-time, and before long, offered me a full-time job as a software engineer."

He didn't worry when one or two hours of sleep per night became routine. "Part of what keeps you going with those kind of sprints is knowing that there's a finish line in sight. There was always spring break or summer break or something to look forward to. It's easy to push yourself when you know it won't be forever."

After graduation, he continued at Raytheon as lead software engineer, for the LHD-8 combat system. Graduate school at the University of Washington followed (MS and PhD, computer science and engineering), as did a stint as a graduate research assistant in the Computer Architecture Laboratory working on zero gravity for the somewhat ominously nicknamed "Vomit Comet." (He had also worked on the project while at USD under the supervision of Dr. Sheehan.) Now a principal research hardware design engineer for Microsoft Research, Putnam describes his role as being part of a team of people who "want to push the boundaries of what's possible."

Specializing in dataflow architecture and reconfigurable computing, he describes his focus as enhancing energy efficiency in data centers and cloud computing. "I created special hardware that goes into servers in the datacenter and massively speeds up certain applications," he explains. "For web search, you only need half the number of servers, saving huge amounts of money and energy. And this is really the tip of the iceberg of what's possible with this technology. From computer security to file compression to artificial intelligence, my design provides the computing power to enable the next generation of applications." But it's not all nose-to-the-grindstone for Putnam. "I run, mostly for fun," he admits. "I like to do the Warrior Dash, which involves mud pits and crazy obstacles." Oh, and don't forget kickball. "I'm team captain of many different kickball teams," he says, modestly. "It's one of the ways I spend my downtime. It's super fun, and it's silly." The Shiley-Marcos School of Engineering named Putnam the 2016 Alumni Emerging Leader Award winner at this year's Alumni Honors soiree. He looks back at his time as an undergraduate — as arduous as it was — with great fondness. "Having such an aggressive program was ideal for me," he says. "I couldn't have asked for a better foundation as far as preparing myself for both grad school and life." — *Julene Snyder*



Link: Go to sandiego.edu/video/putnam for highlights from the Alumni Honors soiree.

A Miracle to Witness

Collaborations with Clarity Design to develop a low-cost, portable tonometer for the Himalayan Cataract Project will help medical professionals test for glaucoma in some of the remote Himalayan villages in Nepal.

During the 2015-16 academic year, Clarity Design sponsored two senior design projects at the Shiley-Marcos School of Engineering (SMSE). Each team was tasked with creating a low-cost, portable tonometer, to be used by the Himalayan Cataract Project (HCP) to test for glaucoma in Nepal's remote villages, many of which lack medical facilities. HCP works



to eradicate preventable and curable blindness in developing countries. One prototype used air pressure (noncontact), while the other used direct contact with the eye. Both can be used to measure intraocular pressure (IOP). Elevated IOP is a sign of glaucoma and early detection improves the chance of preserving sight. Once the prototypes were finished, Clarity Design sponsored Elisa Lurkis, SMSE director of development, to travel to Kathmandu to deliver the prototypes and spend time at the Tilganga Eye Center, the clinic that performs the cataract and glaucoma procedures, often for free or at a minimal cost. "Getting a chance to witness the amazing services at Tilganga was life-changing," Lurkis states. "People line up in droves to receive surgery. Many of these people are completely blind, and therefore cannot work to provide for their families. Prior to the surgery, they are often depressed and have lost any desire to keep living. The day after the procedure, they can see everything clearly again! They blossom back to life, and it is a miracle to witness." The doctors at Tilganga were very pleased with the designs, and are particularly interested in the prototype that uses direct contact. The next step is for Clarity Design to improve the contact tonometer to the point where it can be deployed to the HCP doctors for field evaluation and testing. — *Elisa Lurkis*

Link: Go to www.sandiego.edu/engineering/blindness-nepal for related article featuring alumnus's humanitarian trip to Nepal.

Leading Change: The Campaign for USD

Engineers are inventors. They dream and design. They create and build. USD embraces the spirit of innovation that thrives in a garage, where so many inventors and entrepreneurs have done groundbreaking work.

Darlene Shiley established the Shiley-Marcos School of Engineering in honor of her husband, Donald. He founded Shiley Laboratory in his garage and went on to invent the tilting disc artificial heart valve, which is responsible for saving some 400,000 lives.

As part of Leading Change: The Campaign for USD, the Shiley-Marcos School of Engineering will build a Bioengineering Garage, a Sustainability Garage and a Cyber Security Studio. The campaign offers an opportunity to raise scholarship support for our students and secure funds to hire faculty to reimagine the curriculum so that a thermodynamics course won't just teach students how to use heat, but will inspire them to create cooking stoves or energy systems that change lives in developing countries. That's what we're proud to call Changemaker Engineering.

To support the University of San Diego Shiley-Marcos School of Engineering, contact Elisa Lurkis at (619) 260-7913.



School of Engineering Funding Priorities	
Endowment	
School of Engineering Naming Gift	\$20 million
Endowed Chair in Design Thinking, Biorobotics or Software Engineering	\$5 million
Student Scholarships	\$2 million
Current Use	
Program Development	\$2 million
Capital Projects	
Phases 2 and 3 of Renovating Loma Hall	\$10 million
Bioengineering Garage / Software Studio	\$5 million
Cyber Security Engineering Studio	\$500,000
STEAM K-12 Studio	\$500,000
Sustainability and Humanitarian Engineering Garage	\$500,000

Link: [Gotovideo.sandiego.edu/Watch/jasmine-garcia](https://gotovideo.sandiego.edu/Watch/jasmine-garcia) for our scholarship recipient spotlight.

Tom Lupfer Is All In

DONOR SPOTLIGHT: If asked to describe Tom Lupfer's relationship to USD, one might say he is "all in." As an advisory board member, parent, donor, industry partner, employer and now, adjunct professor, Tom is the kind of partner most institutions dream of.

Growing up in New Jersey, Lupfer knew he wanted to be an engineer by the second grade, but he is far from your average engineer. After receiving his degree in electrical engineering from Purdue University, he received a Marshall Scholarship to pursue a Master of Arts in engineering and economics at Oxford University. His time at Oxford opened his eyes to the world beyond the United States and he took the opportunity to travel extensively.

Upon completing his degree, he and seven other like-minded adventurers traveled more than 16,000 miles overland across the continent of Africa, from Algiers to Cape Town. This was followed by a five-month solo trip throughout India and Asia, with plans to spend three weeks in Tasmania, Australia before returning to the U.S.

Those three weeks turned into three and a half years, working for a small engineering firm that specialized in lightning protection systems. It was in Tasmania that Tom met his wife, Margaret. The couple were married in Sydney and a few months later they moved to San Diego, where they would eventually raise their three children, John, Erin and Julie (Erin will finish her law degree from USD in May 2017).

Five years later, as vice president of engineering for Accel Technologies, Lupfer felt the familiar need to do something different. "All of the best things I've embarked upon have been just scary enough to be interesting," Lupfer explains with a smile.

In 1991 he founded Clarity Design, a product development firm located in Rancho Bernardo. Clarity Design has over 100 employees, including six USD engineering alumni. The company has been sponsoring senior design projects at the Shiley-Marcos School of Engineering for the past two years. Four USD seniors will begin working this summer on a new project to help teach stroke victims to walk again.

Lupfer says there are many aspects of engineering at USD that appeal to him. Everyone is friendly and helpful

most. When he traveled the world, he witnessed extreme poverty and hoped one day he could do his part to make a positive difference. A fellow Marshall scholar, Geoff Tabin, cofounded the Himalayan Cataract Project (HCP), which focuses on eradicating preventable blindness in developing countries throughout the world. In support of the HCP, Clarity Design recently sponsored two engineering senior projects to design robust, affordable and portable equipment for glaucoma testing.



and the size of the school provides accessibility to staff, faculty and the dean, whose vision he finds very compelling. He values the small class sizes and is impressed with the way USD attracts an above-national-average percentage of female engineering students.

"There were over 700 students in my freshman chemistry lectures at Purdue," Lupfer states. "This spring, I taught a software engineering class that maxed out at 24 students!"

It's the humanistic, changemaking spirit of USD that speaks to him the

Clearly, Lupfer is committed to putting his talent, enthusiasm and strong work ethic to good use. "He is a gracious and thoughtful human being who makes a world of difference to the Shiley-Marcos School of Engineering," says Dean Chell Roberts. "Tom not only partners with us at every level, but he sets an example in doing so for our faculty and other partners. I wish we had 100 partners like him." — Elisa Lurkis



Top: Tom and Margaret Lupfer
Left: Tom Lupfer at the summit of Mt. Kilimanjaro (19,341ft.) in 1981.

Changemaking Engineer Spotlight

Michaela Wittmann '92 (EE), sustainability director of HDR Architecture, is a leader with more than two decades of experience in the sustainability and green building industry. Follow her quest to transform our built environment through passionate dedication and an intense focus on water conservation, energy efficiency, air quality and renewable energy.

WHAT'S THE STORY: Michaela Wittmann may have started her 20-plus-year career at HDR Architecture as an electrical project designer, but her true calling was the environment. As fate would have it, she attended a conference in 1995 where she met the team that was forming the U.S. Green Building conference. "That transformed my entire career focus, as I was able to see how sustainability could fit into my current job," explains Wittmann. "I started HDR's sustainability program in 1995 and, over the course of a couple of years, transitioned from electrical work to working solely on sustainability in building projects."



Through the years, Wittmann has earned numerous accolades within her field of expertise. In 2002, she was honored with a Presidential Award for Leadership in Federal Energy Management for her work on two Leadership in Energy and Environmental Design (LEED) projects with the Pentagon Renovation Office. In 2004, she oversaw the Oregon Department of Transportation's sustainability program for the repair and replacement of over 300 bridges statewide. In 2007, Wittmann was included twice in the distinguished list of 40 Under 40 Awards by both *Building Design and Construction* and the *Midlands Business Journal*. And in 2011, Wittmann was selected into the first class of LEED Fellows. Wittmann currently leads HDR's Office of Sustainability, which oversees the integration of sustainability into the company's projects and daily operations.

In sum, Michaela Wittmann is a devoted Changemaking Engineer. She has completed work on more than 20 LEED projects, trained over 3,000 people on sustainability, written sustainability guidelines for private, institutional and governmental clients and was one of the first individuals in the nation to become an Envision sustainability professional. **THE WAY I SEE IT:** "One of my favorite Einstein quotes is, 'The significant problems we face cannot be solved at the same level of thinking we were at when we created them.' A big part of my job is challenging the way things have always been done, and to find different solutions that are better for people and the planet. Engineering has always been about finding solutions; but today, considering the social impacts of projects is essential to being successful." **WHAT'S NEXT?** "One of my areas of focus recently has been on the topic of resiliency. Because the climate is changing so dramatically, engineers must think very differently about the possible impacts of the climate to projects and people. Resilient infrastructure is, and will continue to be, necessary and is transforming the way we think about the built environment. In a way, old design standards are becoming irrelevant because the climate is becoming so dynamic." — *Michelle Sztupkay*

Link: Go to www.p21decision.com to see Michaela's current Changemaking project.

An Incredible Experience

Driving an off-road vehicle across the desert is bumpy, challenging and a great adventure. Designing and building an off-road vehicle is much the same.

For the first time ever, Shiley-Marcos School of Engineering students competed in the Baja SAE design contest, an international collegiate competition sponsored by the Society of Automotive Engineers where students are tasked to design and build an off-road vehicle that will survive the punishment of rough terrain and costs less than \$10,000. Since last fall, a team of 13 mechanical and three electrical engineering students spent as many as 30 hours a week working on their senior design project to bring their dune buggy-like vehicle, nicknamed "Jackie," to life.

Students had the difficult task of integrating four different subsystems needed to have a working vehicle: chassis, suspension, drivetrain and electrical. Team member Danielle Mavridis notes, "You rarely think about all the detailed work that goes into building a car, and figuring it out has been very challenging." Their efforts were rewarded this spring when Jackie hit the road. About 100 teams, including those from San Diego State University and UCLA, took part in the regional competition held May 19-22, 2016, in Gorman, Calif., outside of Los Angeles, that offers a \$1,000 grand prize and other awards. The USD team finished 30th overall, "an amazing job for a first-year team," says David Malicky, associate professor of mechanical engineering and the faculty advisor



for the project. A transmission problem held back the performance in several events, including the acceleration and hill climb, but that was fixed and USD finished 25th in the endurance race the following day. "It was such a cool feeling to see all of our effort over the last year pay off," says an exuberant Brock Wilson. He and several other students expressed interest in building a Baja SAE car last summer. The completion of Donald's Garage and other new engineering facilities last year made it possible for students to participate in the competition for the first time. Sponsors including Walker Digital Table Systems, Aruze Gaming, SilverFern Investments, Solidworks, Briggs & Stratton Corp. and Camouflage Establishment also provided generous support for the project. "It's been a terrific learning opportunity," Malicky exclaims. One of the biggest challenges was all the computer-based design work, says Wilson. Team members spent countless hours behind their laptops designing the vehicle without seeing any physical manifestation of it. "It was tough to maintain high team morale when all of the work had to be done on a computer."

Each part of the design needed further refinements. "Every time we thought we had a finished design, we found a rule in the 60-page rulebook that caused us to make a small change that affected other designs," says David Pennington. "By the end of last semester each subsystem had been through seven to 10 iterations of design." But the reward of seeing and driving the vehicle has been "an incredible experience," he says. As students prepare to enter the workforce, they learn valuable lessons in communication and project management. The hardest part of the process was "communication and subsystem integration," says Courtney Rogers, who comes from a family of four-wheelers and "would love to get a job in the EV (electronic vehicle) industry." Team members hope this is just the beginning. "We hope the project can continue and Torero racing can become recognized as a serious contender in Baja SAE competitions in the future and help promote the reputation of the school," Pennington says. — *Liz Harman*

Link: Go to sandiego.edu/engineering/ Baja-video for USD's exciting Baja SAE footage.

Front row from left: Omar AlZamel, Courtney Rogers, Aziz AlRashed, Jordan Toland
Back row from left: Brock Wilson, Greg Hopkins, David Pennington, Charles Penn, Khalifa AlDhaen, Joey Dei Rossi

Engineering Deans From Catholic Universities Convene at USD

Follow the vision, compassion and determination of a collective voice of Catholic engineering educational leaders as they shape a national organization devoted to the amelioration of the field of engineering.



Top row standing left to right: Dr. Chell Roberts, Dr. David Olwell, Dr. Michelle Sabick

Seated left to right: Dr. Eddy Rojas, Dr. Michael Quinn, Dr. Gary Gabriele, Dr. Charles Nguyen, Dr. Don Weinkauf, Dr. S.W. Tina Choe, Dr. Godfrey Mungal

On a cloudy San Diego morning, the Cymer Ideation Space at the Shiley-Marcos School of Engineering was a buzzing beehive of energy. Groups of students chatted excitedly about fine-tuning final projects while professors watched their progress intently. A few strides down the hall, a different, but by no means less important, discussion took place; one that will help pave the school of engineering's path forward into the future.

On April 24, 2016, participants from across the country gathered to join host and Shiley-Marcos School of Engineering Dean Chell Roberts for the fourth annual meeting of the Engineering Deans of Catholic Colleges and Universities (EDCU) conference. The three-day national event is designed to help establish best practices in academics and administration for this group of engineering leaders, while being mindful of each respective school's commitment to upholding the Catholic values their parent institutions are founded upon.

"The goal of the conference is to bring together deans, because we feel like we have commonality in values in the things that we do," Roberts says.

The first EDCU conference convened on the west coast in 2013, with Seattle University's College of Science and Engineering Dean Michael Quinn serving both as inaugural host and catalyst for the newly founded event. After attending several national meetings of the Engineering Deans Institute (EDI) organized by the American Society for Engineering Education, Quinn sought an alternative means of collaborating with like-minded leaders, since EDI sessions focused primarily on the needs of research-intensive universities offering PhD programs.

"I found the most enriching parts of the EDI meetings to be the meals I had with other engineering deans from Catholic colleges and universities," explains Quinn. "Our problems and concerns were surprisingly similar."

Quinn invited three engineering deans from Washington and Oregon to meet with him in Seattle. These three, in turn, encouraged Quinn to extend invitations to deans and directors at all 22 U.S. Catholic colleges and universities with engineering programs. Enrollment at these engineering schools ranges in size from 100 students to just over 2,500 — some with masters and doctoral programs, some without. In all, 16 deans and directors attended the first meeting at Seattle University in April 2013 — an impressive showing for an inaugural event.

"I thought the true value of the meeting would be determined by the enthusiasm of the group to meet again," says Quinn. "And I was delighted when three deans of Midwest universities offered to host the second meeting." The next EDCU conference was held at St. Louis University, and in 2015 they gathered at Villanova University.

Over the course of four years, the conference has served as an open forum for discussion and networking opportunities on a national level. The meetings and sessions have evolved, continuously refining the goals and expectations of the conference participants.

"As a group of deans from distinctive engineering colleges who share a common mission and vision for engineering education, we have become more interested in how we, as a group, could effect positive change within the broader engineering community," noted Villanova's Gary A. Gabriele, PhD, Drosdick endowed dean, College of Engineering.

This year, the group tackled a host of issues including best practices in generating revenue, recruitment and retention, international study abroad opportunities and developing graduate programs.



"We compare notes and attempt to homogenize what we're doing in some areas so the Catholic schools as a collective can benefit," says Roberts.

A new topic of discussion that resonates with all of the deans is the impact that the *Laudato Si'*, the second encyclical of Pope Francis, has on Catholic institutions' engineering programs. In it, Pope Francis calls for a "broad cultural revolution" to confront the

environmental issues that plague our planet. For decades, engineering programs had been part of the problem, offering a narrow focus on end results that in the past did not necessarily embrace the broader picture.

The *Laudato Si'* was released just after the 2015 EDCU conference. As a result, the EDCU members produced a common response to the pope's encyclical, which was led by Dean Gabrielle and later published in *U.S. News & World Report* in August 2015.

"At our 2016 meeting, we resolved to build a stronger collaboration that allows us to do a better job educating engineers 'who possess the skills, desire and sense of duty' to respond to the call of *Laudato Si'* to care for our planet," explains Quinn.

Through collaborative efforts like the EDCU conference, engineering deans are now making fundamental changes and leading the charge to be part of the solution to create more culturally, socially and environmentally competent technical learning communities.

"What the pope discusses in *Laudato Si'* is inextricably tied to the principles of humanitarian engineering, which is research and design developed to improve the well-being of underserved communities," Roberts says. "We want to explore how that will impact the type of education we are providing our students, now and in the future."

— Mike Sauer and Michelle Sztupkay

Link: Go to www.bit.do/usnews-edcu-response for EDCU's response to the pope's encyclical.

Engineering News Briefs

Showcasing Cutting-Edge Technology

With exhibits ranging from state-of-the-art drone prototypes to game-changing renewable energy systems, the inaugural Cal-Israel Innovation Expo and Conference hosted at USD March 8-9, 2016 was a dynamic showcase for next-generation technologies, both nationally and internationally. Cosponsored by the school of engineering, the expo featured the latest and greatest products and services from more than three dozen technology companies based in Israel and California. On view were innovative developments in medical, computer and cyber technologies, energy, water conservation and agribusiness.

Racing to New Heights

In an endless quest for vehicle performance improvements, Vildosola Racing joined engineering's Industry Partnership Program in Fall 2015. Vildosola Racing is a professional SCORE Trophy Truck off-road racing team based out of San Diego. The company is owned and operated by father and son Gustavo Vildosola and Gustavo Vildosola, Jr. '06 (BBA). A competitive edge is critical in the off-road industry; toward that end, mechanical engineering students worked closely with the Vildosola team to complete an accurate 3D CAD model of the current trophy truck's chassis and suspension; and computerized simulations and analyses of the truck chassis. Based on the collective results, the USD team proposed modifications to improve the performance of Vildosola's racing truck.

Going the Extra Mile

Seeking inspiration from her alma mater, director of Advancing Students Forward (ASF) Monica Santos '08 reached out to the school of engineering in search of a cross-cultural exchange of ideas. ASF is a nonprofit organization that extends education to more than 60 students in Tijuana, ranging from 7th grade through college-age. Since Fall 2015, Odesma Dalrymple, assistant professor and cofounder of the STEAM Labs program, has been traveling monthly with student volunteers to teach the ASF students how to apply engineering design process to build chain-reaction machines in a collaborative environment. The outreach initiative provides academic opportunities the ASF students may have not been afforded otherwise, and inspiration for the USD team who marvels in the creative approaches of the ASF teams.

New Faculty Hires

Inspired by the objective of the NSF grant to develop Changemaking Engineers, a cluster hire of seven new faculty members devoted to social justice and humanitarian practices will help revolutionize the school of engineering's new BS/BA engineering program. Subramanian (Venkat) Shastri, PhD, joined USD in 2015 and serves as a professor of practice and director of industry partner programs. Diana Chen, PhD, and Kelsey Lantz, PhD candidate, both civil engineers from Clemson University, and Gordon Hoople, PhD, in mechanical engineering from UCSD, will start in Fall 2016. Three additional candidates, slated to start in January 2016, will be announced in the coming months.

Care for Our Common Home

Global conversations about social and environmental inequities are shifting. We can no longer stand idly by as the effects of glaucoma ravage a country’s population or when drinking water is poisoned to the point it is not fit for consumption.

In his *Laudato Si’* encyclical, *On Care for Our Common Home*, Pope Francis appeals to “every living person” to embark on a new path in shaping the future of our planet. He implores educators and engineers to radically change the ways in which they are approaching the fields of science and technology and to “strive to promote a new way of thinking about human beings, life, society and our relationship with nature.”

Echoing the spirit of the *Laudato Si’*, USD’s Shiley-Marcos School of Engineering has been making thoughtful and deliberate strides to combine traditional technical skills with enhanced social awareness to produce interconnected learning that empowers our engineers to improve the world around us. By practicing engineering within the context of social justice, humanitarian advancement and sustainable practices, USD is developing Changemaking Engineers.

“As we think about how to incorporate social justice in the programs we offer, one of the considerations will be discussions about how decisions made in some parts of the world affect other parts,” explains Associate Dean Rick Olson.

Traversing the globe, engineering faculty, staff and students partner with underserved communities to codevelop practical solutions to local issues. These collaborations include missions to the Dominican Republic and Honduras to

explore cost-effective means of ensuring the availability of safe drinking water, trips to Uganda to make latrines accessible for landmine survivors and humanitarian partnerships in Mexico.

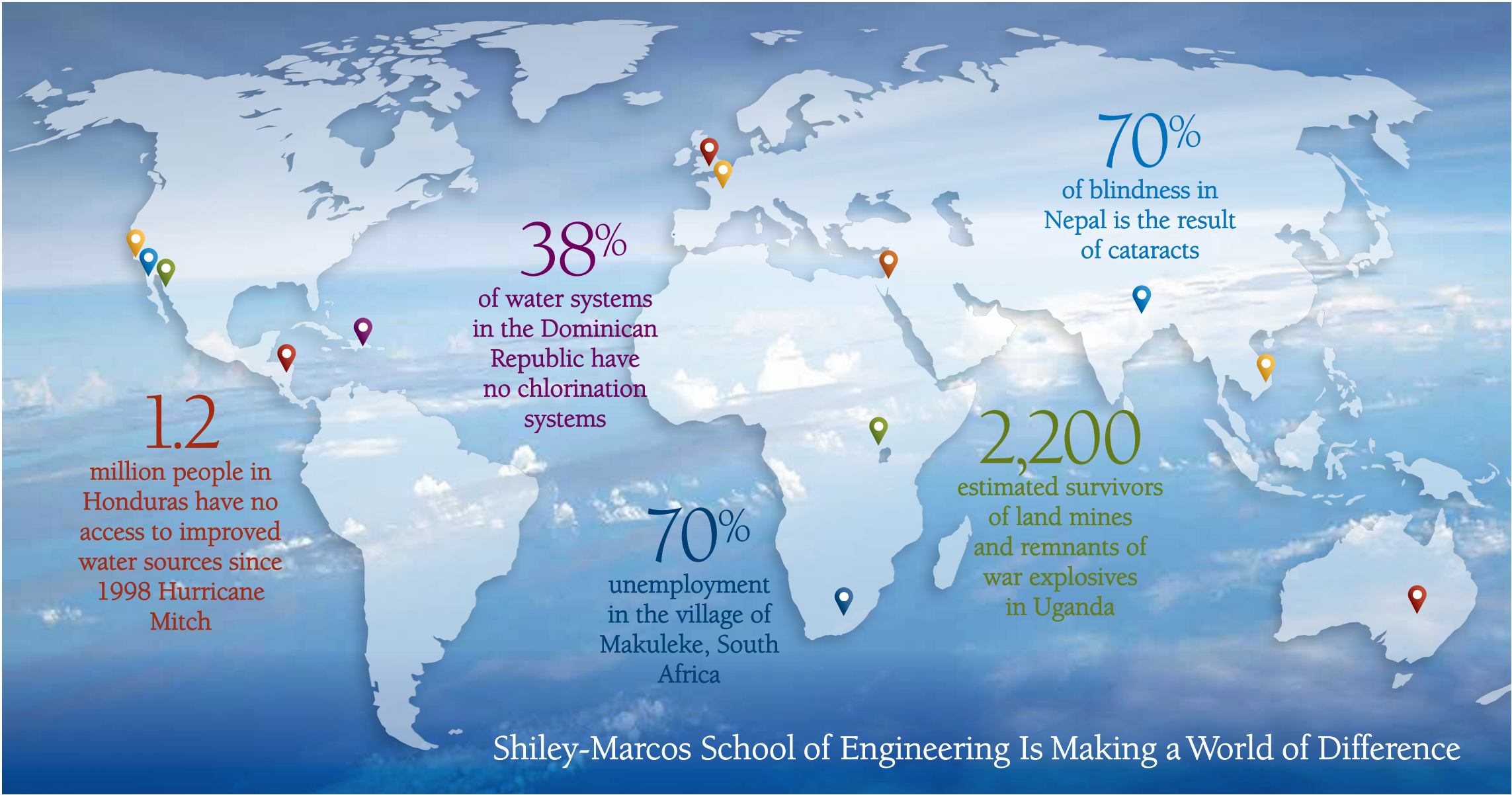
Through the support of industry partnerships, graduating seniors have an opportunity to work on projects that address broader problems. Such projects include solar desalination, research and design of a sustainable humanitarian campsite and the development of tonometers to help detect glaucoma.

Engineering students are also challenged to explore global perspectives and cultural diversity by participating in international student exchange programs or by studying abroad in a host of countries and subjects.

Although the Shiley-Marcos School of Engineering has learned to apply a social justice lens when looking for technical solutions to problems, there is still an opportunity in the years to come to be even greater role models as an engineering community, and to embody the principles in the pope’s commitment to a greater good for the whole. — Michelle Sztupkay



Link: Go to sandiego.edu/engineering/dr-humanitarian-video for footage of the 2016 Dominican Republic mission.



SAN DIEGO

USD engineering teams are partnering with middle and high school students from inner city communities to teach 21st century skills.

TIJUANA/TECATE

Through Engineering Brigades projects, weekend trips and

senior design projects, USD continues to partner with Amor Ministries to build homes for the underserved. Additionally, volunteer engineers teamed up with Advancing Students Forward to introduce engineering design principles to Tijuana youth.

PUERTO PEÑASCO

A team of senior engineering students researched, designed and proposed power and water solutions for a sustainable Amor Ministries volunteer campsite in Mexico.

HONDURAS

USD’s Humanitarian Engineering Club

traveled to Central America on an eight-day expedition to improve water quality for the local community.

DOMINICAN REPUBLIC

Professor Truc Ngo led students and staff on her second humanitarian mission in El Cercado to install chlorinators to improve the water supply, build stoves to

reduce deforestation and build a crop waste grinder to reduce cost and use of firewood.

LONDON

Professors Bradley Chase and Truc Ngo team-taught a summer course on sustainability.

thermal sciences and engineering programming.

PARIS

Professors Bradley Chase and Truc Ngo team-taught a summer course on sustainability.

UGANDA

Professor Frank Jacobitz codeveloped an interdisciplinary

humanitarian engineering project to design portable latrine aid devices for landmine survivors.

SOUTH AFRICA

Dean Chell Roberts and colleagues traveled to Makuleke to discover ways for USD students to partner with local villagers for prospective projects.

ISRAEL

2016 marked the establishment of programs to support international student exchanges between USD and Technion University in Haifa.

NEPAL

Continuing its ongoing partnership with the Himalayan Cataract

Project, USD returned to Kathmandu in 2016 to test tonometers for detecting glaucoma. The prototypes were developed in senior design projects.

VIETNAM

Dean Chell Roberts traveled to Can Tho to assist Can Tho University administrators and

faculty in preparing for the challenges of accreditation.

AUSTRALIA

Professor Thomas Schubert traveled to Sydney and Canberra, offering study abroad programs in Advanced Electronic Circuit Design.

Faculty Achievements

Every full-time faculty member of USD's Shiley-Marcos School of Engineering has a breadth of practical experience and a strong commitment to student learning and scholarship. The quality of our faculty is one of the reasons the program is so highly rated among its peer institutions. These are a few of their recent accomplishments.

Daniel Codd, PhD, assistant professor of mechanical engineering, is conducting ongoing solar power and energy storage research with undergraduate students on collaborative projects with Tulane University, SDSU, MIT and the Masdar Institute. He mentored transfer students presenting work at ASME Power and Energy 2016 as part of the NSF-funded Research Experience for Undergraduates program on the topic of "Climate Change Across the Various Scales of System Organization." Dr. Codd also exhibited work at the ARPA-E Energy Innovation Summit Technology Showcase in Washington, D.C. Additionally, the U.S. Patent Office granted him as co-inventor for concentrated solar power technology, bringing him to a total of 15 issued U.S. patents.

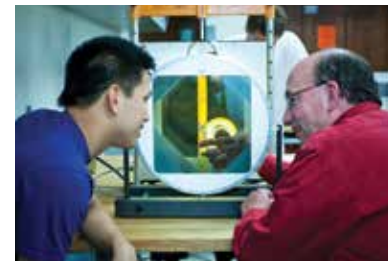
Odesma Dalrymple, PhD, assistant professor of industrial and systems engineering, is the principal investigator for a California Math Science Partnership grant, Engineering Science Partnership. She collaborated with colleagues from Arizona State University and Purdue University on a manuscript titled "The Impact of Design Swapping on Student Design Sketch Quality," which was accepted for publication in the *International Journal of Engineering Education*.

Frank Jacobitz, PhD, professor of mechanical engineering, published the results of a study titled "Structure of Sheared and Rotating Turbulence: Multiscale Statistics of Lagrangian and Eulerian Accelerations and Passive Scalar Dynamics." In January 2016, he traveled to Uganda with faculty members and students to participate in a multidisciplinary humanitarian engineering project to design dignified portable latrine aid devices for landmine survivors. Dr. Jacobitz was elected president of the Pacific Division of the American Association for the Advancement of Science. In 2015, he received the prestigious USD 10th Annual Outstanding Preceptor Award.

Imane Khalil, PhD, assistant professor of mechanical engineering, served as a panelist for proposal reviews submitted to the NSF Fluid Dynamics Program. As a technical staff member at Sandia National Laboratories, her research activities were focused on modeling nuclear power plants, along with modeling spent nuclear fuel (SNF) and spent fuel pools. She most recently modeled an SNF assembly using ANSYS Fluent, and used polynomial chaos expansion techniques to model the uncertainty

in the system by treating different input parameters as random fields. Additionally, Dr. Khalil is the faculty advisor for ASHRAE and the USD 3D Printing Club.

Jae D. Kim, PhD, assistant professor of industrial and systems engineering, developed a new interdisciplinary course called "Sustainability: Technology, Environment, and Society." Dr. Kim collaborated with USD's Energy Policy Initiative Center on the modeling of regional greenhouse gas emissions and co-authored a research paper in the *Electricity Journal*.



JAMES KOHL

James Kohl, PhD, professor of mechanical engineering, published a technical research paper with his colleague, Dr. Truc Ngo, and coauthors N. Bierwisch, G. Favaro, E. Rengnet, and N. Schwarzer titled "Determining the Viscoelastic Behavior of Polyester Fiberglass Composite by Continuous Micro-Indentation and Friction Properties (Short Communication)" in *Wear*, a peer-reviewed journal.

Susan Lord, PhD, chair and professor of electrical engineering, received the Diversity Award from the Electrical and Computer Engineering Department Heads Association in March 2016. She was awarded \$211,081 from Purdue University as part of a National Science Foundation grant for expansion of the Multiple Institution Database for Investigating Engineering Longitudinal Development (MIDFIELD). Lord also received the 2016 IEEE William E. Sayle Award for Achievement in Education.

David Malicky, PhD, associate professor of mechanical engineering, developed a new course for introductory engineering design, based on best practices and a successful pilot class. All first-year students in Fall 2015 participated in the new ENGR 101 class, which generated high student enthusiasm, incorporating Solidworks, Arduino microcontrollers, motors and lasercut parts.

David Mayhew, PhD, professor of practice in software engineering, has continued his work on a generalized computational acceleration mechanism. He has also been working on a new computational memory hierarchy that incorporates a more varied set of memory/storage into a consistent capability that merges the legacy notions of transient memory with persistent storage.

Truc Ngo, PhD, associate professor of industrial and systems engineering, led a group of students and staff to the Dominican Republic (DR) with a humanitarian engineering mission to improve lives of the people in the region. Her team built fuel-efficient wood stoves, water chlorinators, solar water heaters and a mechanical grinder and press to convert local crop wastes into cooking fuel. Dr. Ngo attended the 2015 IEEE Global Humanitarian Technology Conference with three students, who copresented the DR water chlorination project results. She also published a technical research paper with Dr. James Kohl in *Wear*.

Rick Olson, PhD, associate dean and professor of industrial and systems engineering, was honored with the prestigious 2016-2017 University Professorship Award for his contributions to the university's academic and learning environment.

Leonard Perry, PhD, chair and associate professor of industrial and systems engineering, served as co-PI on the funded NSF RED grant to revolutionize engineering education, and is proud to report that the ISyE program seamlessly passed the ABET audit review.



LEONARD PERRY

Thomas Schubert, PhD, professor of electrical engineering, and **Ernest Kim, PhD, professor of electrical engineering,** co-authored a series of four books in 2015 and 2016. Morgan & Claypool Publishers published all four books, titled *Fundamentals of Electronics*.

Community Project Inspires Compassion, Diversity and Hope

The school of engineering aims to empower disadvantaged kids to compete in a global economy through a collaborative introduction to science, technology, engineering and mathematics (STEM) by working together to create computer-controlled cars.



In an intentional effort to inspire diverse youth to enter the STEM fields, first-year students from the Shiley-Marcos School of Engineering (SMSE) teamed up with middle school students from Our Lady of the Sacred Heart School (OLSH) to codevelop robotic car kits.

The vision was for the SMSE Engineering 101 students to develop engineering skills by creating a community-driven project that could empower kids from any socio-economic walk of life to compete in a global economy. To achieve these ends, OLSH was the perfect partner. "Even though we're located in San Diego, many of our families' living conditions are similar to the developing world context," explains OLSH Principal Christina Alton. "The opportunity to participate with USD engineering students and faculty and create relationships with people that we would have never had access to in our daily lives is priceless."

Over six weeks, the SMSE students developed prototypes of computer-controlled cars in their ENGR 101 class. Each week, SMSE students visited OLSH to test design concepts, receive user feedback, and then work on design improvements before returning to OLSH.

"The project got them interested in engineering by using hands-on interactivity to create tangible objects that would encourage these students to consider engineering as a future," explains first-year SMSE engineering student Gunay Cital.

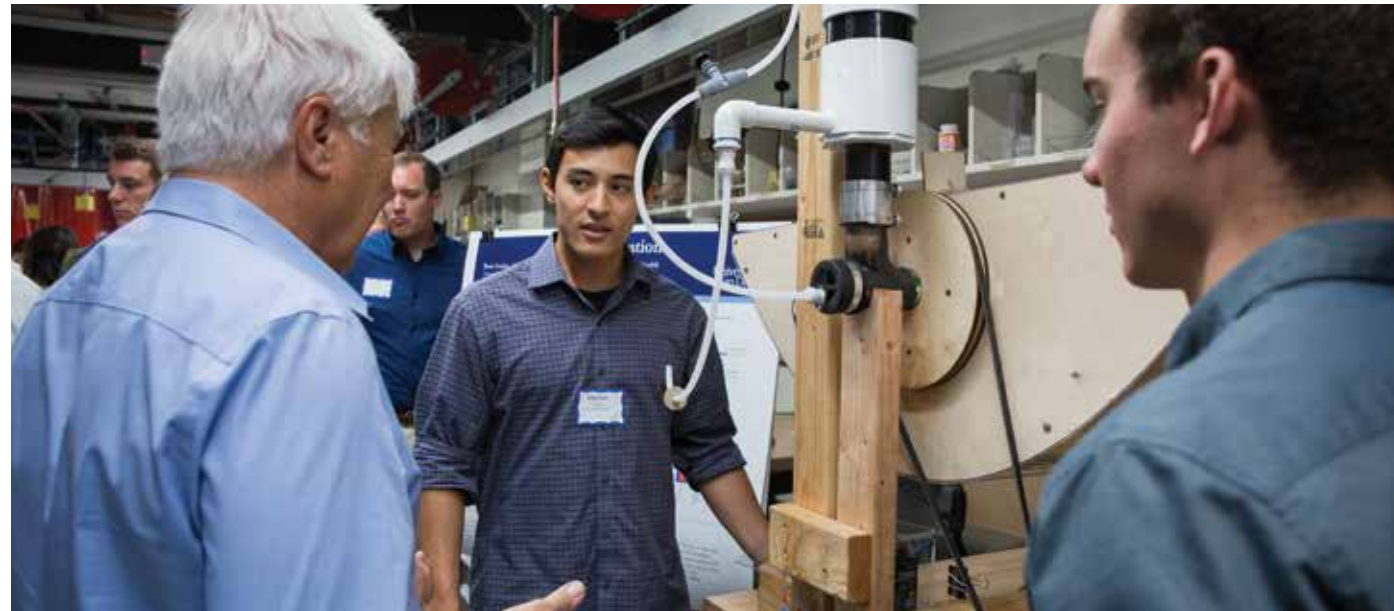
Upon completion of the robot kits, the OLSH students visited USD's campus for the 2015 Engineering Expo, where project teams demonstrated their vehicles.

"A couple of the OLSH students mentioned how they had no idea what college was and were amazed that we live on campus," said SMSE participant Mark Mollica. "Opening up the concept of college was huge for them. It gives them hope." – Michelle Sztupkay

Link: Go to sandiego.edu/engineering/USD-OLSH-video for Channel 8 news coverage of the OLSH student project demonstrations at the 2015 Engineering Expo.

Engineering Showcase

Engineers are all about building creative solutions to any number of societal challenges. Shiley-Marcos School of Engineering students imagine, innovate and inspire to make the world a better place. Their work was on display at last spring's Engineering Showcase, which featured both senior design and other projects.



Morgan McDowell (ME) with the remote control component of the humanitarian unmanned aerial vehicle project.



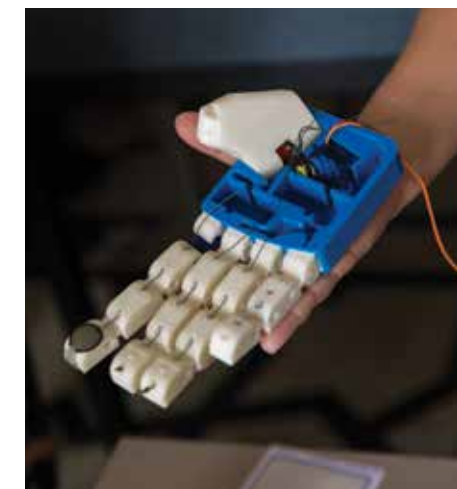
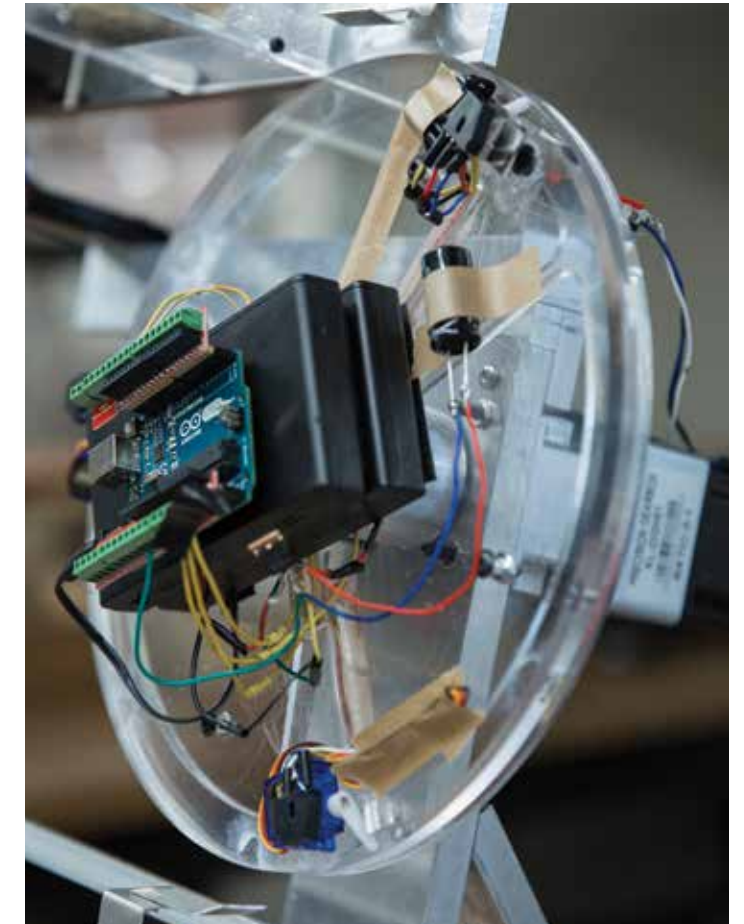
Top: Stephen Kriedtja (ME) and Aleksandr Stashik (ME) explain their solar desalination project in the Fabrication Lab.
Bottom: Close-up of the fixed-wing design humanitarian unmanned aerial vehicle (ME).



Evan Westerberg (ME) demonstrates the hybrid aerial/water drone that is capable of taking off and landing on sea and land.

Left: The Fabrication Lab was a hub of activity, hosting six ME senior projects and two EE/ME interdisciplinary projects.

Below: Honing in on the automated combing system for use in macromolecule research (ME).



A 3D printed prosthetic hand with tendon-spring mechanisms driven by DC motors (EE/ME).

A Model for the Nation

Imagine these scenarios: A massive data breach puts the personal information of four million federal employees at risk. Syrian rebels hack into the U.S. Army’s website. And a major retailer pays \$10 million to settle a lawsuit related to the breach of credit card account information.



“Just a year ago, we were talking about building a cyber security center at USD, and now we’re celebrating the success of two master’s degrees, planning the launch of another, enjoying the many opportunities to participate in local, regional and national events sharing our successes and have just been awarded a coveted GenCyber grant from NSA/NSF; exciting to think what’s possible in year two!”
— Winnie Callahan

As cyber attacks threaten the security, prosperity and privacy of the United States and its citizens, the University of San Diego launched its Center for Cyber Security Engineering and Technology (CCSET) to address these challenges through education, training and research. A collaboration between USD’s Professional and Continuing Education and the Shiley-Marcos School of Engineering, the CCSET comprises one of the most rigorous and immersive cyber security educational experiences in the nation.

“USD’s cyber security education offerings will help fill a critical national need for people properly trained in how to engineer and manage secure systems,” says Mark Heckman, lead professor of the program. “Cyber security is a science and an engineering discipline. We are approaching it that way so that graduates will understand not just the *how*, but the *why* behind actions that need to be taken.”

“Our economy is based on a computational framework,” explains software engineering professor of practice David Mayhew. “With the examples of security breaches that are out there now, we need to follow up with a secure infrastructure. Part of the solution is technical, but it’s also an educational issue. USD has one of the nation’s leading security teams that will address both issues associated with cyber security. In fact, from a national perspective, I believe

no single challenge has greater importance to our nation than that of cyber security.”

Starting in January 2016, the center began offering a Master of Science in cyber security engineering and a Master of Science in cyber security operations and leadership, along with certificate programs on a variety of subjects.

Veteran information technology leader Winnie Callahan serves as the CCSET director. She led the design, build-out and program development of the University of Nebraska’s Peter Kiewit Institute, the most successful collaboration of engineering, information technology and business immersion in the nation to date.

John Callahan, who led the development of the Science

Applications International Corporation collaboration, integration and design environment and designed one of the world’s largest super computing centers, serves as director of USD’s cyber security programs.

“What makes our new center unique is its comprehensive focus on all aspects of cyber security,” says Dean of Professional and Continuing Education Jason Lemon. “The center’s activities encompass education and training through both degree and certificate programs, evaluation and development of systems and strategies to mitigate cyber threats, as well as leadership on cyber security law, forensics and incident response. There simply is no other university addressing all of these areas in an immersive format.”

Both degree programs are designed for the working professional, are competitively priced and have world-class online capabilities. Cyber professionals with decades of experience in the field — including Distinguished Fellow Roger Schell, who was elected in 2012 to the National Cyber Security Hall of Fame — will teach the classes.

“Roger is amazing,” says Winnie Callahan. “This is the person that people in cyber security want to hear from. His pioneering work in both the Department of Defense and industry have clearly established him as a legend in the field.”

Through the center, USD recently was awarded a coveted GenCyber Award, sponsored by the National Security Agency and the National Science Foundation. As a result, CCSET conducted a free summer day camp for high school students, the GenCyber Academy of Excellence.

USD is one of 68 universities to receive funding for a GenCyber camp nationally and the only school in San Diego. The program included formal instruction from USD Shiley-Marcos School of Engineering faculty, hands-on experience with cyber defense tools, and field trips to cyber security organizations in the San Diego area.

“It is critical that we expose the next generation of students to cyber security knowledge, skills and ethics at a critical point in their lives,” says Winnie Callahan. “This is a wonderful way for high school students to explore career opportunities in the field.”

Additionally, the center is advancing research, discovery and development of the tools to assist the military, businesses and the public in meeting the many challenges presented by cyber attacks. CCSET also will be a key player in the San Diego region’s efforts to be recognized as the National Center of Cyber Security Excellence, a goal the City of San Diego has established. The center will actively contribute to this dynamic segment of the local economy, which now accounts for more than \$1.5 billion of economic activity each year.

“By combining the strengths and vision of Professional and Continuing Education and the Shiley-Marcos School of Engineering, the center is extremely nimble and creative in meeting the needs of students and responding quickly in this dynamic and ever-changing field,” says Shiley-Marcos School of Engineering Dean Chell Roberts.

At the center’s launch in 2015, U.S. Department of Homeland Security Deputy Director Thomas Baer said, “I know of no other school providing so comprehensive a program and using a total immersion strategy to educate cyber professionals. This strategy, employed by the University of San Diego, in my opinion, is the most efficient and effective way to teach cyber security and serves as a model for the nation.”
— Michelle Sztupkay

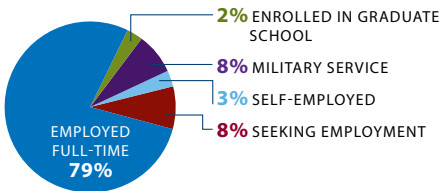
Graduate Employment

The USD Career Development Center compiles data on students completing their undergraduate degrees. The following data reflects the initial career destination for 75 percent of engineering majors who graduated between August 2014 and May 2015.

Current Status

92%

of 2014-15 respondents are employed, in graduate school or in the military.



100% of 2014-15 respondents that are employed full-time indicate that their current position aligns with their professional career goals.

70% of 2014-15 respondents indicate that they used the Career Development Center at least once during their time at USD.

54% of 2014-15 respondents indicate having at least one internship or experiential activity while a student at USD.

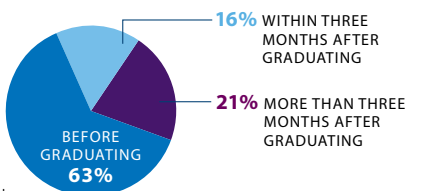
Sample Employers of Graduates

BSE Engineering	Johnson Controls	Solar Turbines
Caterpillar	Northrop Grumman	SPAWAR
Cubic Corporation	Pacific Aviation	UTC Aerospace Systems

First Job Offer

79%

of full-time employed 2014-15 respondents received their first job offer within three months of graduating.



Annual Salaries

\$60,000	\$30,000-\$88,000
Median Salary	Salary Range

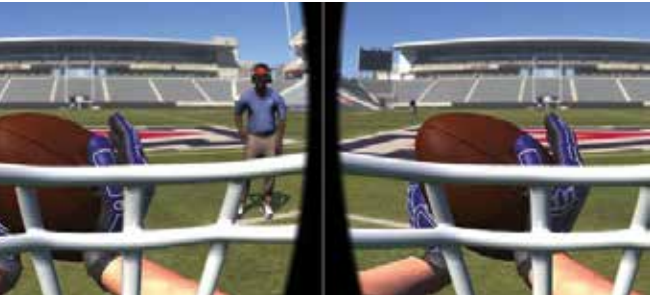
Full-Time Employment by Industry

43%	Engineering and Design
23%	Manufacturing and Product Development
13%	Energy and Utilities
3%	Education, Child Development and Family Services
3%	Health and Medical
3%	Public Service, Government and Nonprofit
3%	Technology
3%	Transportation
6%	Other

Alumni Notes

USD's Shiley-Marcos School of Engineering is nationally recognized for developing world-class engineers empowered to become leaders with global perspective and social awareness.

Michaela Wittmann '92 (EE) was selected to lead a technical review board for the Institute for Sustainable Infrastructure's (ISI) Envision Rating System and also serves on ISI's board. Envision provides a holistic framework for evaluating and rating the community, environmental and economic benefits of all types and sizes of infrastructure projects. (See story on page 6.)



Dr. Ricardo Valerdi '00 (EE) recently developed a virtual reality app for the NCAA to simulate the side effects of concussions in football. The app received the top prize from a competition run by the NCAA and Department of Defense.

Derek Kranig '94 (EE) reports that he married Brianne on April 11, 2015. The couple welcomed their first baby girl, Kendall Lexi Kranig, on Jan. 27, 2016.

Edward Kaen '00 (EE) and his wife welcomed their first child in April 2016.

Tyler Quan '01 (EE) is the engineering services portfolio manager at Forward Slope, Inc., a San Diego-based small business providing technology and service solutions, primarily for the U.S. Navy. Tyler and Lindsay celebrated the arrival of their first-born child in April.

Michael Spencer '01 (EE) and his wife, Jennifer, were overjoyed to welcome their first child, Caroline Maria, into the world on May 15, 2016.



Erin Alex '05 (EE) and her husband, Chris, welcomed twins, Caleb and Naomi, on Nov. 18, 2015. Big brother Emmet is 2 ½. Erin is still working at AMA Consulting Engineers in El Segundo, Calif. Some of the firm's recent fun projects include new studios for Access Hollywood and E! News, new office space for Yahoo, Facebook and NBCUniversal, and numerous attractions at Universal Studios, including the new Wizarding World of Harry Potter.

Erik Loftis '05 (EE) recently completed his MBA from USC and is working full time as a program auditor with Northrop Grumman in El Segundo, Calif.

Marcos Vargas '05 (EE) says that after he earned his MS in electromagnetics from the University of Arizona in Tucson, he returned to San Diego and is now an RF engineer in the sustaining engineering group at Cobham plc in Kearny Mesa. He is excited to be working on active RF assemblies after doing electronic packaging design for Kyocera America, Inc. for several years after graduating from USD.

Sarah (Barrera) Buchanan '06 (ISyE) is living in San Mateo in the San Francisco Bay Area. She has been working for Cisco Systems in tech sales for the past seven and a half years. In her current role, she is a data center solutions specialist for enterprise customers like Intuit and McKesson. The biggest news is that she and her husband, Kyle, celebrated the birth of their first child in March 2016, a baby boy.

Nathan Roberts '06 (EE) has a new job working as a staff engineer-RF architect at PsiKick, Inc. He earned his MS in 2011 and his PhD in 2014, both from the University of Michigan. He and his wife, Michelle, live in Charlottesville, Va. The couple recently welcomed a new addition, Emilia Roberts, to their family.

Jennifer Taburiaux '06 (ISyE) reports that after returning from an eight-month trip around the world, she has taken a position as a supplier quality engineer with Northrop Grumman, managing international suppliers.

Benjamin Fieman '07 (ISyE) started a new career in real estate as an agent for Locations Hawaii (www.locationshawaii.com), which is the largest and most successful real estate company in the state.

Mark Kondrat '07 (ISyE) says that he and his wife, Brittney '08, celebrated the arrival of their first child, Finn Alexander, on Jan. 26, 2016. Mark is serving as an arresting gear and catapult officer ("shooter") on the



USS Nimitz. He completed his MBA from UC San Diego's Rady School of Management in June 2016, and is looking forward to his next assignment, flying the MH-60R helicopter again, hopefully in Hawaii or back in San Diego.

Birsin Sivar '07 (ISyE) is a senior project manager for Monitise, working in both London and Istanbul (www.monitise.com/who-we-are). In 2011, she received her MBA from UC Berkeley's executive program in technology management.

Alfredo Bermudez '08 (EE) was recently hired in the visual engineering section at the Naval Air Warfare Center Training Systems Division in Orlando, Fla. In summer 2014, he received his MS in leadership. He and his wife, Julie, welcomed their first child, Maverick Kai, on Dec. 29, 2015.



Chris Gianelli '08 (EE) is pursuing his PhD in electrical engineering at the University of Florida and expects to be finished in August 2017. He reports that he will marry Anna Weissman on Oct. 29, 2016.

Michael Buelsing '09 (ME) will be completing the two-year Leaders of Global Operations (LGO) graduate program at MIT. He has really enjoyed the program and would like to thank USD classmate Spencer Anderson '09 for leading him to it, with his own class note that ran several years ago while Spencer was in LGO.

Ben Hunter '09 (ME) is attending graduate school at Oregon State University to earn his MS in coastal and ocean engineering. He is attending school on orders from the Navy, where he is still active duty.

Lauren Doruth '10 (ME) reports that since graduation, she has gotten married and has a two-year-old son, Tate. She now works as an associate engineer at Flores Mechanical Engineering. She is also currently studying for her FE and plans on taking the PE in October 2016.

Jessica (Skaar) Foster '10 (ISyE) married Ian Foster on Oct. 17, 2015. She started a new job at UTAS Aerostructures in Chula Vista, Calif. in June 2015.



Justin Hall '10 (ISyE) is currently employed in two different positions as a seasonal outdoor professional. He works as a wilderness Instructor for the Northwest Outward Bound School in Oregon and as a multiday trekking guide in Torres del Paine National Park, Chilean Patagonia. He has changed careers to focus on a career in outdoor education and adventure, with plans to return to grad school for a degree in outdoor recreation administration.

Kyle Ochoa '10 (ISyE) is in graduate school at the University of Scranton working on his MBA in operations management. He is also working as the site lean manufacturing leader for Lisi Aerospace in Torrance, Calif.

Will Hoppe '11 (ME) started a wholesale clothing design and manufacturing company, Ocean Beach Sportswear, Inc. (www.oceanbeachco.com) three years ago. The firm has grown to 10+ employees with products in retail stores across the country. He just launched a new online business selling fun, novelty socks (www.findyourfeetonline.com).

Chayne Johnson '11 (ISyE) says that she has gained experience in three new industries: aerospace (internship), defense aerospace (Northrop Grumman) and consumer electronics with a small hardware start up (Orion). She now works as a production manager at Casper, working on existing products and supporting the product team to source new products from design concept to production.

Colby Trudeau '12 (EE) is a senior engineer at Qualcomm, working on wearable devices.



Nicholas Perez '13 (ME) was recently promoted to Lieutenant Junior Grade (LTJG) and will be reporting to his next ship in Yokosuka, Japan as the main propulsion assistant. The ship he is currently on, the USS Cape St. George (CG 71), is in the BAE drydock.

Mychael Medina '14 (ME) has been working as a design engineer for SeaSpine Orthopedics since August 2015. He designs and tests hardware and surgical instruments used in all types of spine surgery.

Henry Huang '15 (ME) completed his second semester as a law student at the University of San Francisco School of Law, focusing on intellectual property. He hopes to practice patent prosecution and litigation when he graduates.

Adam Krebs '15 (ME) is working as an associate manufacturing engineer at Ventec Life Systems, located in Bothell, Wash. Ventec is an early-stage medical device company developing improved solutions for patients who require ventilation therapy.

Samuel McClay '15 (ME) is a graduate of Navy Nuclear Power School and is currently at the Nuclear Prototype Training Unit at Naval Weapons Station Charleston.

Kimberly Woodbury '15 (ISyE) is working for Thermo Fisher Scientific in the operations rotation program. Kim is in her second rotation as a distribution requirements planner. She relocated from the Carlsbad, Calif. site in Aug. 2016 to work in Rockford, Ill. and Milwaukee, Wisc. as a manufacturing project manager.

Allyson Ward '15 (EE) is a system and software engineer at Cubic. She is pursuing a Master of Science in systems engineering degree from Johns Hopkins.



B@USD, the University of San Diego's engineering magazine, is published annually each fall. Alumni notes are solicited each summer from alumni of the Shiley-Marcos School of Engineering. To submit your professional update, please email elurkis@sandiego.edu.

To submit a class note to **USD Magazine**, which is published three times a year, please email classnotes@sandiego.edu.

Class of 2015 and 2016

In 2016, USD's Shiley-Marcos School of Engineering conferred diplomas to 109 students, our largest graduating class ever. The class was composed of 30 electrical engineers (EE), 21 industrial and systems engineers (ISyE) and 58 mechanical engineers (ME). Here's what some of our 2015 and 2016 grads are doing:



Hector Barboza (ISyE) accepted a three-month contract position at Cymer in San Diego as a manufacturing quality engineer working with the senior director of product quality.

Metaeb Alohali (EE) is working for Schlumberger in Sugarland, Texas as a field engineer.

Shikha Alweqyan (ISyE) is working as a trainee and will move between various departments for United Facilities Management in Kuwait.

Cobi Baker (ISyE) is serving as an NADP-industrial engineer at NAVAIR for the U.S. Navy in San Diego.

Christopher Brown (EE) is working as an IoT (Internet-of-Things) engineer for Clarity Design in San Diego.

Thomas Bruno (EE) is working for NSWCCD in Matomac, Md. as an electrical engineer in the underwater shock department.

Laura Burke (ME) is working for UTC Aerospace in Riverside, Calif. as an associate manufacturing engineer.

Shawn Christie (EE) is working for Greenlee Communications as an electrical engineer in Vista, Calif.

Amanda Cuevas (EE) is working as an electrical engineer I for the Space and Airborne Systems division of Raytheon in Goleta, Calif.

Mackenzie Dandoy (ISyE) is working for the Walt Disney Company in Lake Buena, Fla. as a revenue management professional intern.

Link: Go to www.bit.do/Mackenzie-Dandoy for an interview with Mackenzie Dandoy.

Rishika Daryanani (ISyE) is working as a consulting analyst for Accenture in San Francisco. She secured the position through the Society of Women Engineers conference in Nashville, Tenn.

Katie Emerson (ME) is working as a technical engineer with a focus on HVAC design for Russell Sigler, Inc. located in Brea, Calif.

Boris Fratkin (ME) is working as a mechanical engineer intern for Cubic Global Defense in San Diego.

Cristina Garcia-Cartagena (ME) is working as a project engineer for BN Builders, a general contractor located in San Diego. She is currently onsite in La Jolla, Calif., working on a lab space for Illumina, a San Diego-based biotech firm.

Amanda Gates (ME) is working as an entry-level mechanical engineer in the Radioisotope Power Systems department at the Idaho National Library in Idaho Falls, Idaho. This department tests and assembles generators that go on deep space explorations.

Zachary Gillan (EE) is working for General Atomics in San Diego as a systems engineer.

Stephanie Hoertig (EE) is working for Burns & McDonnell in La Jolla, Calif. as an assistant electrical engineer.

Karly Jerman (ISyE) will be attending Stanford University in Fall 2016 in the Master of Science program in management science and engineering.

Tyler Lagomarsino (ME) is working as a sales engineer at Climate BTG in Phoenix, Ariz.

Danielle Mavridis (ME) is working for NSWC in Norco, Calif. as an engineer in the acquisition and readiness division.

Morgan McDowell (ME), after working as an intern at General Atomics Aeronautical Systems Inc., was hired full time in their Mission System division as a mechanical engineer designing payloads and opto-mechanical systems. Morgan also intends to work towards obtaining her masters in aerospace engineering.

Jeremiah Medina (ME) moved to Boise, Idaho after graduation to start his career with Hewlett-Packard, Inc. as a mechanical engineer in HP's Research and Development facility.

Sarah Mikosz (EE) will be furthering her education at the University of California, Irvine School of Law to pursue a career in intellectual property/patent litigation.

Jordan Missimer (ME) is working as a risk control trainee for CAN Insurance in Chicago, Ill.

Courtney Rogers (ME) is working as a mechanical engineer at DEC Engineers, Inc. located in San Diego.

Brian Schnaars (ME) is working for Epsilon Systems Solutions, Inc. on a contract as a firefighting systems subject matter expert for the Navy Southwest Regional Maintenance Center at the 32nd St. Naval Base. He is also attending graduate school in fire protection engineering at California Polytechnic, San Luis Obispo through distance learning.

Aimee Slavensky (ME) is working for Clarity Design as a business development engineer in San Diego.

Ana (Any) Soloviov (ISyE) is working at Amazon as a NAFC startup project manager in San Diego.

Alexander Stashik (ME) was commissioned as a lieutenant for the United States Air Force and will serve as a combat rescue officer trainee.

Chris Szczur (ME) started his own business, Dyno Equipment, a camera accessory company.

Ailsa Tirado (ISyE), after a two-year internship, is now working on a two-year operations rotational program within the operations and supply chain department at Thermo Fisher Scientific in Carlsbad, Calif.

Neil Vranicar (EE) is an associate electrical engineer working for Cubic Defense Applications on VHDL coding and hardware design in San Diego.

Evan Woodruff (EE) is working in Sunnyvale, Calif. for Lockheed Martin as an electronics engineer in the Terminal High Altitude Area Defense Program in their space systems sector.





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April 22, 2017

Alumni Honors

May 12, 2017

Engineering Showcase

