IMAGINE. INNOVATE. INSPIRE.

TOUSD SHILEY-MARCOS SCHOOL OF ENGINEERING UNIVERSITY OF SAN DIEGO, FALL 2017

> "We envision a future where students select engineering as a major because they want to make a difference in society, and their education prepares them to do so."

Chell Roberts, Founding Dean Shiley-Marcos School of Engineering

### Imagine. Innovate. Inspire.

As we enter into the fifth year since the founding of the Shiley-Marcos School of Engineering, I am reminded daily of the collective inspiration of those individuals whose vision and character are fostering a new engineering mindset at USD. We envision a future where students select engineering as a major because they want to make a difference in society, and their education prepares them to do so.

This issue of I<sup>3</sup>@USD offers compelling examples of how we sustain this mission. We develop leaders of the first order. Alumnus Matthew Dominick '05 was one of the 12 men and women selected for the NASA astronaut candidate class of 2017; Matt Craig '03, 2017 Alumni Honors recipient, is paying it forward with an endowed scholarship in honor of his mentor, associate dean Rick Olson; and Rachel Lloyd '17 was honored this year as the school's historic inaugural valedictorian.

We partner with parents, like Dennis and Eileen Schaney, who want to give back in order to provide their children with opportunities that broaden their horizons.

We recruit pioneering faculty who develop the ideas and insights that have immense impact on our local community and around the world. They have pushed the boundaries of new curricula and new programs — including entrepreneurship, social justice and humanitarian practice, peace and sustainability — to shape and empower our Changemaking Engineers.

We also mourned the unexpected passing of our esteemed colleague, David Malicky, in early 2017 and are developing an endowed scholarship and an annual scholarship in his name.

Across campus and around the globe, we continue to propel our learning environment to the next level so that our engineers possess a strong technical foundation while maintaining a deeper understanding of the profound impact that engineers have on society.

Venturing forward into the next academic school year, we remain steadfast in our commitment to developing engineering and computing professionals who have the technical aptitude and holistic foundation to be engaged leaders in the global community.

Ju Alo

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

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## I Learned How to Learn

ALUMNI PROFILE: 2017 USD Alumni Honors recipient Matt Craig '03 willed himself to an engineering degree — and an amazing career.

Matt Craig's first year at the University of San Diego was a success — everywhere but in the classroom.

Craig's passion — and energy — was directed toward the football field. He devoted long hours to training and practice. His hard work was rewarded with a starting position on the defensive line. On the field, Matt Craig was a force with which to be reckoned.

The classroom, however, was a different story. First-year classes for the industrial and systems engineering major were a confounding struggle. Frustrated that he was not winning in class as he was used to doing on the field, Craig sought counsel from his academic preceptor, Professor Rick Olson.

"I was already spending plenty of time in the weight room, in the film room and on the field," Craig remembers. "I was struggling to learn the concepts in the classroom in the time I had left. He told me I needed to be as focused on the classroom as I was on football."

Craig started to apply the same discipline to academics as he had to his training regimen.

"I built a very aggressive schedule with many tutors," he says. "I learned the key foundational concepts that allowed me to study and learn more efficiently. It was a difficult behavior change to make. I didn't sleep much for a few years. But I still use the routine I built at USD in life today. It's not cliché: I learned how to learn."

That mindset not only paid off academically, it also proved to be a valuable strategy for life after football — and USD.

Craig spent summers in San Diego to train with his Torero football brothers while working a series of part-time jobs. He parked cars at a resort, schlepped containers for a shipping company and unloaded trucks at Walmart.

It was that last job that captured Craig's imagination. In retail operations, he saw a way to apply what he'd learned in the classroom and the leadership skills he'd gained from being part of a team. Soon he had an internship with the outlet's operations/logistics unit.

"My engineering education helped me identify and solve problems efficiently," he says. "My football experience had taught me how to lead people and to work hard."

Craig's "learn how to learn" strategy was put to the test in 2006, when he accepted a position heading a retail store in China.

"I always used to say I could learn Chinese if I had to, never thinking in a million years that I would actually have to," he says with a laugh.

Craig used flash cards with pinyin (using the Latin alphabet to write Chinese) and pictures to learn the language, all the while managing a \$100-million retail operation. After a year, conversational in Chinese if not fluent, Craig was promoted to assistant vice president.

After two years in China, Craig and his wife, Jessica, had welcomed their first daughter and were anxious be closer to family in the U.S. Craig essentially cold-called Meijer, a large retail chain based in Michigan. Soon thereafter, he was named the chain's director of store operations, and again fell back on his USD



education to guide him. The ex-defensive lineman still brings the hurricane-force tenacity to his work that he showed earning his engineering degree.

"The engineering design process I learned at USD has helped me in every role I have had at Meijer," he says. "I lead 11,000 team members, and it's part of my job to put them in a position to succeed and grow their careers here. I love developing people to achieve success they never knew was possible."

Craig and his wife, Jessica, recently pledged \$50,000 to endow an engineering scholarship in Dr. Rick Olson's name. To contribute to this scholarship, please visit www. sandiego.edu/engineering/connect/ give.php or write to elurkis@sandiego. edu. — *Timothy McKernan* 

Video: <u>www.sandiego.edu/engineering/</u> <u>matthew-craig</u> In his role as a retail leader, Matt Craig, pictured above, uses the "Meijer Flyer" to visit stores around the Midwest to help Meijer team members solve problems efficiently.

## Soaring to Greater Heights

Thrilling. Unprecedented. Amazing. Mere words aren't enough to express our pride that two USD alumni have been selected as NASA's newest astronaut candidates among thousands vying for this awe-inspiring mission.

In the years since the original seven American astronauts were selected in 1959 to fly on National Aeronautics and Space Administration's (NASA) manned orbital spacecraft, the agency has selected a total of 350 astronauts, an elite group which includes the latest members of the 2017 astronaut candidate class — the largest astronaut class since 2000. The 12 candidates were selected from a record-breaking 18,300+ applicants.

Now, two University of San Diego alumni are included among the ranks of such historic figures as John Glenn, Gus Grissom and Alan Shepard.

Navy Lieutenant Commander Matthew Dominick '05 (BS/BA), who earned his degree in electrical engineering from the Shiley-Marcos School of Engineering, and Dr. Jonathan (Jonny) Kim '02 (BA), an active-duty reservist with the rank of lieutenant in the U.S. Navy, were among the seven men and five women who were selected by NASA this year.

"USD is a campus of Changemakers who aspire to reach their full potential in and out of the classroom," says President James T. Harris III. "We are so proud to acknowledge the recent accomplishments of USD alumni Dr. Jonny Kim and Matthew Dominick, who've been selected by NASA to join the 2017 Astronaut Candidate Class."

The astronaut candidates — Dominick, Kim, Kayla Barron, Zena Cardman, Jasmin Moghbeli, Loral O'Hara, Jessica Watkins, Frank Rubio, Robb Kulin, Warren Hoburg, Bob Hines and Raja Chari — were introduced on June 7, 2017, by NASA's acting administrator, Robert Lightfoot, and Vice President Mike Pence.

"These are 12 men and women whose personal excellence and whose personal courage will carry our nation to even greater heights of discovery and who I know will inspire our children and our grandchildren every bit as much as your forebears have done so in this storied American program," Pence said. "And to this newest class of astronauts, it's my honor to bring the sincere congratulations of the 45th president of the United States of America, President Donald Trump. Your president is proud of you, and so am I."

The candidates returned to Johnson Space Center in August 2017 to begin two years of training, according to NASA. Upon successful completion, they could be assigned to any of a variety of missions, including performing research on the International Space Station, launching from American soil on spacecraft built by commercial companies and departing for deep space missions on NASA's new Orion spacecraft and Space Launch System rocket.

"We look forward to the energy and talent of these astronauts fueling our exciting future of discovery," NASA's Lightfoot said. "Between expanding the crew on board the space station to conduct more research than ever before, and making preparations to send humans farther into space than we've ever been, we are going to keep them busy. These candidates are an important addition to the NASA family and the nation's human spaceflight team."

Dominick, from Wheat Ridge, Colorado, has a master's degree in systems engineering from the Naval





Pictured above is NASA astronaut candidate, Matthew Dominick '05.

"Engineering for me at USD was unique. It was a bunch of people who were working hard to put together an awesome program that continues to grow. You could see they were passionate about what they were doing. ... The well-rounded background of the liberal arts degree, combined with being an engineer, was really important to me." Postgraduate School. He graduated from the U.S. Naval Test Pilot School and, according to NASA's website, the 35-year-old was at sea on the USS Ronald Reagan serving as department head for Strike Fighter Squadron 115 when he learned that he'd been selected as an astronaut candidate. In addition to his dual engineering degree from USD, Dominick has minors in math and physics. Kim, who is from Los Angeles, currently lives in Massachusetts and is a resident physician at Massachusetts General Hospital. The 33-year-old earned his Doctorate of Medicine at Harvard Medical School in May 2016. Prior to attending USD, Kim enlisted in the U.S. Navy, where he trained and operated as a Navy SEAL, completing more than 100 combat operations. He earned a Silver Star and Bronze Star. "The University of San Diego is a small private school with a focused mission to teach undergraduates to become the best in the world," says Chell Roberts, Dean of the Shiley-Marcos School of Engineering. "USD now has two astronauts who graduated from our programs, and that's just really cool."—Compiled by USD News Center staff





### Together, We Can Do Great Things DONOR PROFILE: USD parents Dennis and Eileen Schaney find satisfaction in seeing the tangible results of their generosity.



Maya Angelou famously said, "When you learn, teach. When you get, give."

That simple declaration would likely resonate with Dennis and Eileen Schaney. Like so many parents, they want to provide their children with opportunities that broaden their horizons. They know and demonstrate that hard work, coupled with the simple satisfaction of pursuing and obtaining a depth of knowledge, will result in adults who are true Changemakers with the tools needed to build solid careers while contributing to society as a whole.

For the Schaneys, working hard and giving back to the best of one's capability is second nature. Both Dennis and Eileen were born in New York City (Dennis in the Bronx, Eileen in Queens). Both went to the University of Bridgeport, where they met. Both received graduate degrees (Dennis an MS in finance from Fairfield University and Eileen an MBA from the University of Connecticut). Both came from families of modest means and, therefore, both had to work in order to pay for their schooling.

Eileen admits that the University of Bridgeport was not really the type of school she had envisioned for herself. She describes the school as having been "okay," but in truth, she didn't feel particularly connected to it. It was not the traditional college experience that she'd hoped for.

The Schaneys were determined that their children's college experiences would be different, even if it meant traveling to the other side of the country from their Connecticut home. Two of their three sons are current students at the University of San Diego. Eamon, the middle son, is a mechanical engineering major who entered his senior year in Fall 2017. Kieran, the youngest, has not yet chosen a major and began his sophomore year in Fall 2017. The oldest son, Connor, went to High Point University in North Carolina, a school with similarities to USD, as it is a small, liberal-arts, values-based university.

When the Schaneys first toured USD, it was "love at first sight." For Eamon and

Kieran, the weather, the surfing and the outdoor lifestyle clinched the deal. But Dennis and Eileen also had a gut feeling that their sons would feel a connection to this school that would make the ultimate difference in their educational experience.

The couple's motivation to donate to higher education is linked to their own background. While neither came from families that had the financial ability to make large donations, Eileen's family always gave what they could to the Catholic Church. On the other hand, Dennis, surprisingly, was inspired to start giving back when he started working on Wall Street.

"Say what you will about Wall Street, but every firm I have worked for always encouraged their employees to give back," Dennis says. "I met a lot of very charitable people in those companies."

They describe the satisfaction they feel as donors to the Shiley-Marcos School of Engineering as profound. Rather than just donating to a general fund, the Schaneys are most gratified when they experience the tangible results of their philanthropy, which benefits the school's embedded software program and engineering and social justice program. They comment that they greatly appreciate specific updates they receive about how their support is being used and the difference it's making.

Dean Chell Roberts is deeply appreciative of their efforts, and hopes that their example inspires others. "We are growing very quickly with new programs that require support. We are very lucky to have generous parents like the Schaneys who understand the importance of what we are building and are willing to provide their personal resources to help us get there."— *Elisa Lurkis* 

## Fueling Entrepreneurial Aspirations

More than two decades ago there were predictions that 10 percent of university graduates would be involved in starting their own businesses by 2020. But a survey of 500 recent graduates showed that 45 percent think they are likely to start their own business, while 20 percent actually did so, even before graduation.

Many Shiley-Marcos School of Engineering students have entrepreneurship aspirations. Record numbers of U.S. graduates are involved in startups. U.S. companies embrace entrepreneurship to drive innovation and cities create entrepreneurial support systems to drive economic growth. Recognizing the need to educate our students for the future, we are developing an entrepreneurship program within the school of engineering.

"Our goal is to create an entrepreneurial mindset in our students," explains Chell Roberts, PhD, dean of the Shiley-Marcos School of Engineering. "And one of the pillars in shaping this mindset is the Renaissance Initiative."

The Renaissance Initiative took wings on a generous donation from David Cohn, a savvy retired investment banker. The program mentors students in the life cycle of innovation so that they get "the founder experience." Students who seek employment in a well-established company graduate better prepared to infuse



innovation into their work and become tomorrow's leaders. For those who start their own business, it bridges the gap between having a good engineering idea and the ability to create value in the marketplace. The initiative supports them from inception to a point where their startup is ready for an incubator or investor support.

The Renaissance Initiative runs in parallel with USD's required senior design capstone course. In addition to the design and prototyping course requirements, selected student

teams learn and apply principles of entrepreneurship, including customer engagement, market validation and business model generation. Each team receives seed funding to develop and test prototypes. External mentors with significant experience are embedded into these teams to guide students as they shape their idea into a viable business opportunity. The students validate their technology solution at a customer site and develop a business model for pricing and selling their products. Successful teams launch their company with seed funding from an investor. All three teams selected for the 2016-17 Renaissance Initiative year participated in customer testing in August 2017. Cherry Tree Cover tested its solution in a farm near Stockton, California. CARE Technologies, buoyed by its prize-winning performance in the 2017 Social Innovation Challenge (SIC), will validate its solution in local hospitals in San Diego. And Trash Tracker, soaring high from its wins in both the 2017 SIC and V2 Pitch Competition, will continue its work by deploying its solution on its trucks in San Marcos, California.

"In 2017-18, we have six entrepreneurship teams engaged in the program," says Roberts. "We have hired an entrepreneur-in-residence to help with early mentoring of student ideas and develop a sophomore/ junior-level course to get students started with their entrepreneurial mindset. We are also partnering with the KEEN Foundation to develop entrepreneurial thinking in our curriculum. Even at its young age, the Renaissance Initiative has started to instill the entrepreneurial spirit in our engineering students, and one can hardly imagine the limitless abundance of innovation and industry that will be harnessed from their minds as it becomes pervasive in the culture within the school of engineering.



Pictured above is David Cohn, retired investment banker and co-founder of the Renaissance Initiative.

"The Renaissance Initiative was established to help students bring their projects closer to commercial reality through direct guidance from the applicable industry."

## A New Mindset

The dizzying speed of innovation is a hallmark of today's fast-paced world, and those who are lithe enough to outpace a virtual tsunami of ever-changing technologies will ultimately hold the upper hand—the key is flexibility.



"We're crystal clear that there is a need to create engineering programs that offer careers and pathways that are flexible," explains Dean Chell Roberts. "The National Science Foundation (NSF) and National Academy of Engineers have been talking about this for decades. Creating the new general engineering program at USD is our response to this need."

Inspired by the aim of the NSF-funded Revolutionizing Engineering Departments (RED) grant to develop Changemaking Engineers, the Shiley-Marcos School of Engineering launched a new general engineering program in Fall 2016. The impetus was to infuse flexibility and the incubation of curricula into the school's current offerings.

Under the leadership of Susan Lord, PhD, chair of general engineering, the school has hired four diverse faculty members who bring a world of experience to drive the growing program.

Diana Chen, PhD, and Gordon Hoople, PhD — who both studied general engineering at Harvey Mudd College — are shaping the program with vitality and creativity that resonates with students. Caroline Baillie, PhD, a world leader in her area of expertise, focuses on integrating social justice into the program. And the newest hire, Joel Alejandro Mejia — who holds a PhD in engineering education — rounds out this expansive range of talent.

"Building a new program is no simple task," says Lord. She and her team are implementing a usercentered design framework to develop coursework that leverages the benefits of the liberal arts courses offered across campus, along with a curriculum that is aligned with the university's new core requirements.

"USD values the liberal arts, which isn't typical for most institutions that offer engineering. The new general engineering program is bringing in ideas from the RED grant to incorporate stronger social justice and humanitarian principles into the curriculum," explains Lord.

General engineers see the world differently. Rather than focusing on one aspect of a problem, they understand the big picture.

"We're taking the message of the BS/BA degree and making it more central to what we're doing in engineering," adds Hoople. "Students at USD really care about their impact on the world; they want to be Changemakers. We are pushing it one step further in general engineering."

In its first semester, the general engineering program enrolled nearly two dozen first- and second-year students. A curriculum is in place for embedded software and for the individual plan of study — where students work with their advisor to create a custom plan that meets their specific educational or career goals. "To me, our program feels like a breath of relief from traditional engineering," says Chen. "We're offering students the freedom to choose what they want to study and shape it so that it supports their career goals. The individual plan of study essentially lets students build their own curriculum."

The students enrolled embrace this newfound sense of versatility. "I love the flexibility of general engineering," says transfer student Trey (Michael) Stead. "I enjoy its tailored path and that I can take other courses of interest. I find this to be more practical versus theoretical."

Other concentrations under development include engineering and the law, sustainability/environmental issues and bioengineering/biology and engineering.

As the program evolves, the possibilities for those pursuing a general engineering degree become boundless. Pre-med students or aspiring patent attorneys can now opt for the general engineering degree, broadening their exposure to new disciplines in ways that didn't previously exist.

Pre-med student Lauren Knibbe says that with general engineering, she's opting to take math and thermodynamics in addition to biology. "I want to be a doctor. I like the idea of taking engineering through pre-med. I'm really glad I chose USD. It's small, flexible and hands-on and the subject matter is interesting with lots of problem-solving."



The framework for general engineering attracts a wider pool of prospective faculty, in addition to a broader way to incubate new curriculum and new concentrations. Rather than hiring faculty members for a specific new discipline, general engineering faculty can be hired to incubate possible concentrations that might lead to degrees and create pathways that otherwise would have been difficult and cost prohibitive to create as a full degree. When there's enough interest generated for these new concentrations, they can be spun off into new degrees.

"This new framework also allows current faculty members from our other disciplines to pursue their own passions by proposing alternative degrees of interest within the general engineering program," explains Dean Roberts.

Ongoing development of the new general engineering program has its challenges and rewards. "The old, rigid ways of practicing engineering don't have to remain the status quo," says Lord. "We're finding ways to embed this flexible new mindset into our program, rather than treating it as an afterthought. That said, we have to work within the structure that exists. In the end, we're embracing both ambiguity and optimism." — *Michelle Sztupkay* 

Video: www.sandiego.edu/engineering/dr-susan-lord

### Engineering News Briefs

#### **National Recognition**

In 2017, *U.S. News & World Report* ranked the University of San Diego's Shiley-Marcos School of Engineering as the #12 best undergraduate engineering program in the nation for schools that do not offer a PhD program. This recognition, up one spot from 2016, puts USD in a class with the nation's top engineering schools. The goal is to create the very best educational experience and outcomes for our students, and rankings are a reflection of progress toward that goal. Dean Roberts comments, "We are pleased that we continue to be recognized nationally by our peers in engineering as having an outstanding educational environment in producing top students."

#### **Advisory Board Member Paying It Forward**

Advisory board member Minoo Gupta provided the keynote presentation at the Evening with Industry (EWI) event, sponsored by USD's chapter of the Society of Women Engineers (SWE). EWI is held each year and includes a career fair, followed by a banquet dinner with a keynote address. Gupta's talk, appropriately titled "Minoo's Journey," outlined the key factors in Gupta's life, starting from her childhood in India, that ultimately led to her career as senior director of engineering at Citrix in Silicon Valley. Gupta is passionate about mentoring younger female engineers as they strive for professional success.

#### **Demystifying Engineering**

Through the California Mathematics and Science Partnership (CaMSP) grant program, Dr. Odesma Dalrymple, assistant professor of industrial and systems engineering, is blazing a trail in the New Generation Science Standards movement of embedding engineering into science education. CaMSP is dedicated to enhancing the academic achievement of students in science and mathematics. As an advocate for creating education accessibility to marginalized communities, Dalrymple is teaching a biweekly humanitarian course at Juvenile Court and Community Schools to help underserved students find the relevance of engineering in their daily lives. Dalrymple also works with science teachers to help demystify engineering by augmenting their engineering content knowledge with a focus on engineering design, so that every student will have exposure to engineering through science.

#### **Computer Science Joins School of Engineering**

When the school of engineering introduced a general engineering program with an embedded software engineering emphasis — along with the new certificate programs and master's in cyber security engineering — it was a logical progression for computer science to join forces with engineering. In Fall 2016, computer science moved from the College of Arts and Sciences to the Shiley-Marcos School of Engineering. Computing is one of the fastest-growing sectors in the U.S., and having all software programs together in one school will help to effectively deliver the range of technology offerings to students and maximize the cross listing of courses between programs.

## Engineering a World of Change

USD's Shiley-Marcos School of Engineering has been developing an innovative strategic plan to infuse professional skills in students, create new curricula and develop Changemaking Engineers who are attuned to societal challenges. The contours of these initiatives are now taking shape.



Shiley-Marcos School of Engineering Assistant Professor Gordon Hoople and Kroc Institute for Peace and Justice Professor Austin Choi-Fitzpatrick explore how social movements can use drones as agents of social change.

Video: <u>http://bit.do/</u> Drones-4-Peace It's the last day of User-Centered Design, an entry-level engineering class, and students are presenting their semester project on tacos.

Make that TACOS as in the "Tag Aided Colored Organization System." Tasked with designing a project for a community group in USD's Linda Vista neighborhood, the team worked with the university's Electronic Recycling Center to create a system of colorcoded tags to help the center improve productivity and efficiency in the center that rehabs, sells or responsibly disposes of hundreds of discarded computers, monitors and other electronic items each month.

One of the most important lessons learned, says first-year student Danielle Romasanta, is that good engineering is about more than math,

science and other technical skills. "You don't want to go in there and say, 'This is the problem and here's the solution.' We had to take time to step back and really immerse ourselves in their community."

Indeed, the class is one piece of an exciting initiative to infuse professional skills in students and faculty and create new curricula and programs to develop Changemaking Engineers who want to make a positive impact on society as part of the school's strategic plan.

Some classes, such as User-Centered Design, have been revamped and others will be soon be added, such as one using drones to promote peace. Other parts of the plan include hiring outstanding new faculty with experience in using engineering for social justice, hosting an international conference early next year, and preliminary plans to create "exchange science shops" where community members could propose projects that students and faculty might undertake.

"We are off to a great start but there is much left to do," says Dean Chell Roberts. "We envision a future where students select engineering as a major because they want to make a difference in society and their education prepares them to do so."

The User-Centered Design class, for example, has been modified to emphasize the need for empathy and understanding of a client's needs, especially when working with members of underserved or marginalized communities. As part of the course, students visited an exhibit at the San Diego Museum of Man exploring race relations through history, science and experience, helping them to explore questions of power and privilege.

The class has been approved to qualify for the Diversity, Inclusion and Social Justice requirement in USD's new core curriculum. "It's a huge deal," says Engineering Professor Susan Lord who worked on the update with Professors Odesma Dalrymple and Diana Chen. "I don't know of any other required engineering course at any institution that has a diversity flag on it."

A new course, Engineering and Social Justice, was offered over Intersession in January 2017 and gives students an opportunity to examine the ethics of their profession before they go out in the world. Students might explore how traditional technical issues intersect with ethical and political issues in situations such as working on the proposed border wall. The point, says Lord, is not that students would decide one way or the other but that they would examine the "larger questions about what engineers do."

This fall, engineering, arts and sciences, and peace and justice students will join together in a class on using drones for peace. Along with exploring technical issues on drones, the students will critically consider how they can be used for humanitarian purposes, such as emergency food deliveries. These efforts are part of an ambitious plan to rethink how engineering is taught and for what purposes, says Lord.

Another part of the plan will be to equip students with better professional



skills before they enter the workforce. The USD Industry Scholars Internship and Leadership Skills program is a pilot program that began in Spring 2017. The program includes developing professional skills that are not usually taught in engineering, and allows industry to engage and mentor some of the top students early in their studies.

"The program can be replicated at other universities, bringing prestige and recognition to USD," says Tom Lupfer, president and founder of Clarity Design and an adjunct professor in the school.

The Shiley-Marcos School of Engineering will also host the 13th annual Engineering, Social Justice and Peace Conference in January 2018 to examine the complex relationship that engineering has with social and environmental justice.

Another initiative — the Engineering Exchange for Social Justice — will partner the Shiley-Marcos School of Engineering with USD's Karen and Tom Mulvaney Center for Community, Awareness and Social Action to create a "paradigm shift" through an engineering communityengaged hub. Here, faculty, students and volunteers collaborate with diverse community groups to use technology to find solutions for social problems.

Both Roberts and professors say all these efforts will better integrate the Shiley-Marcos School of Engineering with USD's efforts to promote sustainability and to become an anchor institution focused on meaningful partnerships with its neighbors.

"The most important part of the work to date is to get faculty and community aligned with the goals and vision of our strategic plan," says Roberts. "Now we need to create a revised canon of materials such that others outside USD can participate in this impactful work." — *Liz Harman* 

## Faculty Achievements

Every full-time faculty member of USD's Shiley-Marcos School of Engineering has a breadth of practical experience as well as 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.



#### Daniel Codd, PhD, assistant professor of mechanical engineering,

continues to work with undergraduate students, assisting with ongoing solar power and energy storage research funded by the U.S. Department of Energy: Advanced Research Projects Agency-Energy (ARPA-E). The team's work was presented at the Technology Showcase at the ARPA-E Energy Innovation Summit in Washington, D.C. Full-system outdoor testing began in Summer 2017 on USD's campus. Codd traveled to Abu Dhabi to support the installation and testing of an integrated solar + storage system as part of an MIT-Masdar Institute flagship research project. He also had new patents granted as co-inventor for concentrated solar power and continuous glucose sensing technology, giving a total of 17 U.S. patents issued.





Diana Chen, PhD, assistant professor of general engineering, and Odesma Dalrymple, PhD, assistant professor of industrial and systems engineering achieved an historic moment at USD by developing the first diversity course in engineering: ENGR 103 User-Centered Design for the FDD1 flag. The proposal

was reviewed and approved by Diversity, Inclusion and Social Justice.

### Mark Heckman, PhD, professor of practice of computer science,

published an article titled "The Difference Between Data Security and Privacy" in the United States Cybersecurity Magazine in January 2017. He also cowrote a paper with Winnie Callahan, Dave Mayhew and Jack McCready titled "Towards a Maritime Cyber Security Compliance Regime."The paper was selected for publication as a chapter in the book, Maritime Cyber Security.



**Eric Jiang, PhD, professor of computer science,** continues to serve on the editorial board of an international journal on intelligent data analysis and he also serves as co-PI on an NSF-funded stem scholarship program. He published a paper titled "Exploring Practical Data Mining Techniques at the Undergraduate Level" in the *International Journal of Computers*.

### Gordon Hoople, PhD, assistant professor of general engineering,

joined USD in Fall 2016. He has been collaborating with Austin Choi-Fitzpatrick, PhD, assistant professor from the Kroc School of Peace Studies, to develop a new class launching in Fall 2017. The class, ENGR 494, will focus on understanding how drones can be used for social good. Made up of students from both engineering and the social sciences, the course will explore the complex relationship between engineering, technology and society.



#### Rick Olson, PhD, associate dean and associate professor of industrial and systems engineering

was honored as an academic mentor in early 2017 by engineering alumnus and Alumni Honors recipient, Matthew E. Craig '03. Craig and his wife, Jessica, made a \$50,000 pledge to endow the Rick Olson Engineering Scholarship.



### Imane Khalil, PhD, assistant professor of mechanical

engineering, was nominated for the Outstanding Undergraduate Research Mentor Award. As a technical staff member at Sandia National Laboratories, her research activities are focused on modeling nuclear power plants along with modeling spent nuclear fuel. She presented her latest research at the AAAS Pacific Division Annual Meeting. She was also invited as a guest speaker to the Collaborative Conference on 3D and Materials Research to present her research in South Korea. Additionally, she received the Mortar Board Award of the Alcalá Chapter in recognition of outstanding scholarship, leadership and service.

### Susan M. Lord, PhD, professor and chair of general engineering,

formerly the chair of the electrical engineering program, now serves as the chair of the new general engineering program. Lord, along with co-authors from Purdue and Rose-Hulman, won a best paper award from the IEEE Transactions on Education for their paper on pathways of students in electrical and computer engineering. Lord published articles in the International Journal of Engineering Education and IEEE Transactions on students' understanding of semiconductor diodes. Lord also collaborated with Michelle Camacho, PhD, USD professor of sociology, on an NSF-funded project, "Proposing a Revolution — Lessons Learned in Designing RED Projects."

#### Mikaya Lumori, PhD, professor and chair of electrical engineering,

was promoted to chair of the electrical engineering program. He was also awarded the prestigious Mortar Board Award of the Alcalá Chapter in recognition of outstanding scholarship, leadership and service.

### Truc Ngo, PhD, associate professor of industrial and systems

**engineering,** received multiple awards including the IEEE Advancing Technology for Humanity Award, the



IEEE Region 6 Director's Award, the USD Mortar Board Award and the USD Engineering Spotlight Award. She served as the technical program chair for the 2016 IEEE Global Humanitarian Technology Conference. Ngo published a peer-reviewed research paper in *Synthetic Metals* with her SPAWAR Systems Center–Pacific collaborator and four student co-authors. She also published a conference paper in the *Sixth IEEE Global Humanitarian Technology Conference Proceedings* with another five student co-authors.

### Honoring Professor David Malicky

"Let us fill our hearts with our own compassion — towards ourselves and towards all living beings."— *Thich Nath Hanh* 



David Malicky, PhD, associate professor of mechanical engineering in USD's Shiley-Marcos School of Engineering, passed away on Feb. 22, 2017, after an extended illness. Professor Malicky was instrumental in developing the design skills of engineering students by giving them meaningful hands-on experiences. The design studio classes in

mechanical engineering, such as his guitar design course, reflect his belief that the most effective engineers are those who can create with their hands the ideas they envision with their minds. He developed curricula, designed the renovated machine shop and project spaces in Loma Hall and worked closely with students to help them achieve their goals.

On April 21, 2017, the school hosted a Celebration of Life for his family, friends, colleagues and students to respectfully honor a man who has forever shaped the lives of those he touched. Malicky was an avid cyclist and an accomplished pianist and dancer. He had a voracious appetite for tinkering and loved playing the guitar and working with pottery. Son of Neal Malicky and Margaret Wilson, David was the youngest of three sons.

The Shiley-Marcos School of Engineering has established the David Malicky Scholarship in his name, so that David's passion for and devotion to the craft of engineering will live on through the work of his beloved students.

To donate to the David Malicky Scholarship, please visit: www.sandiego.edu/engineering/connect/give.php or write to elurkis@sandiego.edu. — *Michelle Sztupkay* 

## Doing Good Without Doing Harm

Recipe for a 21st century engineer: Discard existing stereotypes. Open eyes and minds. Bring the real world into, and beyond, the classroom. Build empathy into the curriculum. Mix together until changemaking is fully blended. Stand back and brace for the resulting global impact.

"Engineering is a profession that is focused on improving the lives of people. If we're not in touch with the social challenges that are affecting people's experiences, then we're not doing true justice to the world."

Assistant Professor of Industrial and Systems Engineering Odesma Dalrymple, PhD, is talking about the course she's developing alongside Assistant Professor of General Engineering Diana Chen and Kroc School of Peace Studies Associate Professor Ami Carpenter. "USD already attracts students who want to make a difference. We want to elevate this feature of engineering," Dalrymple explains. "Corporations are realizing the value of community engagement and corporate engagement. For one thing, it's important to their public image."



The new class, Diplomacy and Negotiations in Humanitarian and Environmental Engineering Projects, emphasizes active compassion in meeting the needs of the poor and marginalized. The goal is to get the course approved as part of USD's new common core curriculum diversity requirement and to have it offered across disciplines as an elective for juniors and seniors.

Dalrymple particularly looks forward to implementing the negotiation simulations that students will undertake, modeled on Carpenter's work at the Kroc School.

"We provide them with scenarios and backstories, and they then examine questions — such as why there is so much lack of trust — and explore the history behind various perspectives. The idea is to have them look at problems through the eyes of all the stakeholders."

One pitfall to avoid is jumping in to attempt to "fix" the way people live. "Do-gooders can do more harm than good," she says.

#### **Becoming More Thoughtful**

As Professor of Praxis in Engineering and Social Justice Caroline Baillie moved through her academic career, she developed a social conscience.

"I started life as a materials engineer," she recalls. "I started to worry about the environmental impact of what I did, then I decided to worry about the social impact."

Nearly a decade later, she's continued to explore ways that engineers can focus as much on people as profits. It's a journey that led her to USD, where she'll be teaching at least one course each year.

"This is the only university that I am aware of in the world that is interested in seriously understanding and teaching engineering from a social justice perspective," she says. "After all, we're educating people in a globally diverse world. It would be a little sad if we all had the same perspective and taught that to our students."



Professor of Praxis in Engineering and Social Justice Caroline Baillie is a Thomson Reuters highly cited author, with over 200 publications, papers and books on materials science, engineering education and engineering and social justice.

Video: <u>http://bit.do/</u> <u>Dr-Caroline-Baillie</u>

At the last session of her 2017 Intersession class, Engineering and Social Justice, Baillie polled the students about what they had gleaned from the course. "I had been stuck thinking that the way things are is the way they have to be," said one. "I've learned to be more thoughtful."

"My awareness has increased," said another. "I'm gaining the knowledge and skills I need to make change. I've learned not to neglect my own impact on society."

"Our class was a true melting pot," commented another student. "The class concepts can be overwhelming to think about, but even a small change can make a difference."

"I'm humbled by these comments," said Baillie before dismissing her students. "I know that unless we work together, we simply won't achieve change."

#### **Disrupting Comfort Zones**

Working together is the point of a new cross-disciplinary class, Engineering Peace, which debuts in Fall 2017. The hybrid course approaches technology with a critical eye, specifically drones, which the course syllabus explains "present technical and ethical challenges that cannot be addressed in isolation."

"Teams of students from different disciplines will work on a common puzzle," says Kroc School Professor Austin Choi-Fitzpatrick, who will team-teach the course alongside Shiley-Marcos School of Engineering Assistant Professor Gordon Hoople.

"One of the questions we're asking is, 'What is the disciplinary lens through which you view the world?" adds Hoople. "The idea is to bring engineers together with their nonengineer counterparts so that they can collaborate and learn from each other."

The course is meant to spark thinking about what particular kind of drone for social good students would ultimately like to build, while forcing them out of their comfort zones.

"We want to actively disrupt the natural tendency to go into your discipline," says Hoople.



"Engineers stepping back from the equipment gives them an opportunity to engage in peer leadership," interjects Choi-Fitzpatrick. "In the end, we need these students to have an opportunity to experience empathy, which is the coin of the realm. There are a lot of things we *can* do, but the next question is, what should we do?

We want to equip these students for not only their life at USD, but for when they enter the world as Changemakers, as people who have to work across skillsets and disciplines and boundaries."

"I want my students to discover what their values are and stay true to them," says Hoople. "As an engineer that is interested in social justice, it comes down to this: You should not be working on projects that you don't believe in. That's just something you shouldn't do." — Julene Snyder

### Graduate Employment

The USD Career Development Center compiles data on students completing their undergraduate degrees. This data, gathered from multiple sources, reflects the initial career destination for 79 percent of the 105 students who graduated between August 2015 and May 2016.

#### **Current Status**

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of 2015-16 respondents are employed, in graduate school, in the military or in full-time volunteer service.

2.4% Self-Employed

86.7% Employed Full Time 2.4% In Graduate School 1.2% Volunteer Service Full Time 2.4% Employed Part Time 2.4% Seeking Employment 1.2% Other 1.2% Military Service

#### **Sample Employers of Graduates**

Clarity Design **Cubic Corporation** Ernst & Young General Atomics

Illumina Lockheed Martin Procter & Gamble Raytheon

San Diego Gas & Electric Solar Turbines Tesla Thermo Fisher Scientific

#### **First Job Offer**

of full-time employed respondents received their first job offer within three months of graduating (62.5% before and 31.3% within three months)

#### **Annual Salaries**

<sup>\$61,715</sup>

\$30,000-\$96,000

Average Salary

Salary Range

#### **Full-Time Employment by Industry**

- 62% Engineering and Design
- 14% Manufacturing and Product Development
- **10%** Energy and Utilities
- 4% Public Service, Government and Nonprofit
- **2%** Finance and Banking
- 2% Health and Medical
- 2% Marketing, Sales and Consumer Products
- 2% Technology
- 2% Other

#### **Additional Data**

95.8% of 2015-16 respondents who are employed full time indicate that their current position aligns with their professional career goals.

38.8% of 2015-16 respondents who are employed full time reported that they received more than one job offer before accepting a position.

73.9% of 2015-16 respondents reported that they participated in at least one experiential learning activity such as internship, research opportunity, community service or mentorship.

## Engineering and Computing Showcase Engineers and computing professionals create solutions to any number of societal challenges. USD's Shilay Margos School of Engineering students

Engineers and computing professionals create solutions to any number of societal challenges. USD's 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 and Computing Showcase, which featured collaborative, entrepreneurial and life-changing projects.









 Top left: The C.A.T.M.A.N. module is the CubeSat approach to mobile ad hoc networking (CS/EE/ME).
Bottom left: Pictured above is a 3D rendering and prototype of the C.A.T.M.A.N. module.
Top right: This search and rescue remotely operated underwater vehicle is designed to reduce drownings (ME).

Bottom right: Berea Bearyman (ME) demonstrates the waterjet cutting machine.





**Top left:** The engineering entrepreneurship team explains the mechanics of their Cherry Tree Cover project (ME).

**Top right:** Year two for the USD SAE Baja project competing in the Mini Baja Collegiate Design Series (ME).







Far left: The Ebisu project is a machinelearning algorithm that recognizes and categorizes wearable device data into gestures (CS).

**Above:** The Galil remotely operated underwater vehicle allows for inspection of underwater environments (ME).

**Left:** Close-up of a 3D printed model of Vildosola Racing's trophy truck (ME).

Video: <a href="https://youtu.be/tUuECpWIHy0">https://youtu.be/tUuECpWIHy0</a>

## Alumni Notes

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

### COMPUTER SCIENCE ALUMNI 1985

John R. Kelly, has worked as a Silicon Valley executive, with companies such as Oracle and SAP, along with six to seven startup companies. He has worked as a COO, CRO and CEO, raising over \$150 million in venture capital, managing IPOs and selling companies. His son, Karston, started his freshman year at USD in Fall 2016.

#### 1993

Kim Braun (formerly Holt) continues to love teaching computer science at the U.S. Air Force Academy in Colorado. She and her husband, Steve, have a 16-year-old son, Parker. She has advanced degrees in computer science and management and is a master nutrition therapist.

#### 2002

Josh Bacca was recently selected for

promotion to commander level in the Navy. He and his wife, Courtney, welcomed their second son, Oliver, into their family in April 2017. Their son, Asher, age 2, is very excited to be a big brother.

#### 2005

Maritza Johnson was recently promoted to senior UX researcher at Google where she's been a member of the identity team since 2014. She and her husband, David, welcomed Graham Harmon to the family in October 2016.





Whitney Rogers (formerly Fisher), was recently promoted to senior engineering manager at Twitter in Boulder, Colorado. She and her husband, Neal, welcomed their first child, Grace, into their family in July 2016.

#### 2008

David Vesey is a senior programmer analyst at USD, cofounder and CTO of MyHerbPharm and is starting a new company called The Safe Water Project, while currently finishing his master's in healthcare informatics.

#### 2010

Ednalen Acenas recently joined General Atomics as a software project engineer. Her recent travels were to Yosemite to hike Half Dome and Portland to hike Angel's Rest, where she was proposed to at the top of the mountain.

John-Paul Martin lives in Oakland, California, and recently closed a funding round for his agricultural technology startup, GrowX (www.growx.io), which builds Ai-powered aeroponics systems for commercial indoor farms.

#### 2012

Michael Nichols spent four years at Source Intelligence. He made a recent job change to become lead developer on a new project at Snaptactix, where he is developing web applications using Java, PHP and JavaScript frameworks.

#### 2015

Tanner Franklin will finish his master's degree in cyber security operations and leadership from USD in December 2017. He and his wife, Ashley, welcomed their second son late in 2016. Tanner was recently promoted to cyber engineer II at Forcepoint.

#### ENGINEERING ALUMNI 1994

#### Andrew Isaksen (EE) and dual IMBA 2005

(USD/EGADE) recently completed a twoyear rotation on the Supplier Management Finance Compliance, Tools and Processes team of Boeing Commercial Airplanes. He serves on the USD Employer Advisory Board Committee and sponsors students on Torero Treks to visit Boeing. He and his wife, Arlene, have two kids, now 8 and 3.

Derek Kranig (EE) was recently promoted to electrical engineering manager at Innovative Laser Technologies in Minneapolis, Minnesota. He and his wife, Brie, welcomed their first child, Kendall, in January 2016 and are expecting their second in September 2017.

#### 2000

Edward Kaen (EE) and his wife Deborah welcomed their first baby, Grace April, in 2016.

Tiare Martin EE was invited to speak at the Hawaii Executive Conference, an invitationonly forum for senior executives, who are recognized for their leadership and ability to initiate positive change. Tiare was recognized by the Pacific Business News as one of Hawaii's 40 Under 40.

Nathan Schneider (EE) was recently promoted to the grade of commander in the U.S. Navy. He and his wife, Miriah, welcomed their second child, Grant, into the world in August 2016. They live in Hawaii with their daughter, Tess, age 2.



ANCHO

2004

Lisa Johansen began a

development manager at

Zillow Group in Seattle,

Washington, recently.

new role as senior



**Dr. Ricardo Valerdi (EE)** was recently inducted into the Mexican Academy of Engineering and will be taking a year-long sabbatical at the Technical University of Madrid and United States Military Academy at West Point.

#### 2001

Lisa Duvall (EE) recently accepted a position with Honeywell Sensing & IoT as a strategic account manager for medical accounts in So Cal. She lives in Escondido with her daughters, now 7 and 5.

Mark Heffernan (EE), after 14 years with Northrop Grumman on the Global Hawk and LITENING programs, accepted a senior program manager role at Tactical Lighting Systems, a small defense startup in the Chicago area.



Sally Herr (formerly Mahdavi) (EE) married Matthew Herr in 2016. In 2017, she began a new job at Trellisware as senior program manager. She also taught a systems engineering course as an adjunct professor at her favorite university, USD.

Andrew Putnam (EE, CS) (Physics) co-founded the Microsoft Catapult FPGA project, which recently won the GeekWire Innovation of the Year award. Tyler Quan (EE) started a new position at KAB Labs in San Diego, helping lead a team performing systems engineering for the Navy's Ship Self Defense System (SSDS). Tyler and his wife Lindsay welcomed their first child, Koa Elliot, in March 2016.

Michael Spencer (EE) and his wife, Jennifer, have been busy raising their daughter, Caroline Maria, who turned 1 in May 2017. Michael continues to work at the Space and Naval Warfare (SPAWAR) Systems Center Pacific as a network designer for the U.S. Navy Network Design Facility.

#### 2004

Melody Ablola (ISyE) relocated to Arup's San Francisco office and was recently promoted to associate. She and her wife, Anna, miss London, but are enjoying the California sunshine.

Veronica Mora (ME) is a product development engineer at Breg, focusing on textile and 3D-knitting design applications for orthopedic devices. She recently returned from Cuba and will be traveling to Japan and England late 2017.

2005

#### Michelle Kremen (formerly Esteban) (EE)

recently joined Splunk Inc. as patent counsel. In February 2017, she married her husband, Alex.



#### 2006

Benjamin Fieman (ISyE) recently switched to a career in real estate in Honolulu, Hawaii. He specializes in residential real estate and sold over \$7 million in his first year with 16 transactions. He helps out with his family's swimwear business, Loco Boutique.

Mark Kondrat (ISyE) completed his activeduty naval service after finishing a tour on the aircraft carrier USS Nimitz. He recently joined General Atomics Aeronautical where he is managing programs and projects for their company-owned fleet of unmanned aerial vehicles. He and his wife, Brittney, are busy with a new home in Rancho Bernardo, California and their 15-month-old son, Finn.

#### 2007

Dana Hernandez (ISyE) was recently hired as Salt Lake City Corporation's public art program manager where she manages a multimillion-dollar public art collection and acts as the liaison between the mayor, city departments, independent artists, fabricators and the general public. In 2016, Dana also married Will Tuddenham in Park City, Utah.



Matt Petrucci (ME) earned an MS in mechanical engineering and a PhD in neuroscience from the University of Illinois at Urbana-Champaign. Last fall, he was awarded an MnDRIVE postdoctoral fellowship in neuromodulation from the University of Minnesota to study deep brain stimulation treatments for Parkinson's disease. He and his wife, Samantha '07, are happily settled in the Twin Cities.



Ali AlMatrouk (EE) was recently appointed as managing director at Jadeite Group. He is still running Makers Inc. Makers Inc. also holds a minority stake in Studio Toggle, a Kuwait-based design studio, which recently won the Middle East Architect Award 2016 for Residential Project of the Year. Ali is moving into a new house with his wife, Maiss, and his daughter, Sheikha, age 5.

Ryland Gill (ISyE) was

recently promoted to

value stream manager at

Parker Hannifin. He and

blessed with their little

boys, Connor and Landon.

his wife, Angie, feel

**Colin Porterfield (ME)** welcomed his son, Carson, into the world in December 2016. He continues to work as a product engineer for Decoking Systems at Flowserve.



#### 2009

Ben Hunter (ME) finished an MS in ocean engineering at Oregon State University in December and has spent nearly eight years as active duty in the Navy in the Civil Engineer Corps.

Sergio Valdez (ME) was recently promoted to engineering manager at Troy-CSL Lighting, Inc.

#### 2010

Elvis Babila (ME) was promoted as area contracts manager - Northern Region for Solar Turbines. He recently received his MS in material science and engineering from Columbia University. He is currently pursuing an MBA at Columbia Business School. He is currently living with his fiancée, Jackie, in the upper east side of Manhattan, New York City.

Lauren Cronin (ISyE) was recently promoted from systems engineering to project manager integrator for a software development team of 80 people at BAE Systems in San Diego. She is currently working on obtaining her project management professional certificate.

Justin Hall (ISyE) has been working for the Northwest Outward Bound School as a field instructor, guiding backpacking trips in Chilean Patagonia, since 2012. This fall, he will attend Eastern Washington University for an MS in sports and recreation administration. Matt Leigh (ME) was recently nominated for two Grammys for audio engineering work performed on Natalie Grant's 2015 release, "Be One." Matt is currently producing projects for Nashville-based country artist Sheridan Gates and Los Angeles-based pop artist Dani King, among others. David Leyva (ME) concluded his volunteer service with the Peace Corps in Cameroon, working as a physics and mathematics teacher, in July 2016. After spending some time traveling and visiting family, he moved to Nicaragua and is now teaching at the American Nicaraguan School in Managua.



#### ....

**Deep Bedi (ISyE)** recently moved to Hong Kong to join HSBC as product lead for HSBC's digital wallet.

2011

Tiara Chapel (ISyE) relocated to Wiesbaden, Germany. She continues to work as a systems engineer for The MITRE Corporation.



Matt Gigli (EE) is in his second year at TrellisWare Technologies, working as an embedded Linus software engineer. He got married in July 2016. His wife, Danielle Gigli, recently finished her third year of law school at USD. In Fall 2016, Matt returned to USD to teach the ELEC 340 - Digital Design lab.

#### Jenna Rohrbacker (ME) recently

celebrated two years with Northrop Grumman and celebrated with a move to their Azusa facility in March 2017. She will be working as a mechanical engineer in charge of designing space-based hardware, such as payloads and spacecraft.

#### 2013

Jessica Buckley (ME) recently joined Jay Dee Contractors as a mechanical engineer, after collaborating with them for her master's research at Colorado School of Mines (ME 2015). She is now working at the Livonia, Michigan, headquarters to prepare and modify equipment for use in tunnel construction at Jay Dee's job sites.

Josh Schroeder (ISyE) was recently promoted to associate project engineer at SB&O Inc. He is currently managing the design of a subdivision for 200+ residential units at Quarry Creek in Carlsbad, as well as two separate 150 and 200+ residential unit developments at Otay Ranch in Chula Vista. He and his wife, Holly, welcomed their first child, Derek, in September of 2016.



LEIGH

#### 2014

Philip Hoskinson (ME) grew a six-inch beard and surfs regularly in addition to having published his work on concentrated solar power for the National Science Foundation (NSF).

#### Harmonie Jacobson (formerly Edelson)

(ISyE) joined Illumina, Inc. as an industrial engineer in August 2016. She married her high school sweetheart, Andrew Jacobson, in April 2017.



#### 2015

Alyssa Black (ME) was recently promoted to owner advisor at Tesla. She has been with Tesla for almost one year. She is also pursuing her MS in mechanical engineering at UCSD, with a planned graduation date of December 2017.

Filipe Calixto (EE) was recently hired by General Atomics-ASI where he works with the Safety/RAM team.

Brandon Huang (ME) is the director of manufacturing at Durabag Co. Inc. in Tustin, California. On the side, has started investing in real estate as well as launching a startup selling almond butter.

Henry Huang (ME) was a summer associate at Kilpatrick Townsend & Stockton LLP this year. He worked in the patent litigation department and seeks to continue in the direction of intellectual property law.

Tawni Paradise (ISyE) left her job as a high school teacher at the O'Farrel Charter School, where she taught mathematics and engineering, to start her PhD program in engineering education at Virginia Tech in Fall 2017.



Julian Ringhof (ME) After two years as a professional soccer player with the United Soccer League, recently moved to Berlin and is currently working on opening a maker space combined with a coworking office in the heart of Berlin.

Anya Soloviov (ISyE) continues working at Amazon as a startup project manager. She launched a 303,000-square-foot sort center building in Portland, where she now lives, while traveling to Las Vegas for the launch of an 816,000-square-foot fulfillment center. Allyson Ward (EE) has been working for General Atomics Aeronautical Systems Inc. in Poway as a project engineer. She is also pursuing an online master's degree at Johns Hopkins University Engineering for Professionals in technical management with a focus in project management.



Kim Woodbury (ISyE) works for Thermo Fisher Scientific based in Carlsbad, California, in the Operations Rotation Program. During her time there, she has worked in Distribution Requirements Planning, Project Management, the Distribution Center, and now in Plastics Sourcing. In August 2017, she completed the rotation program and is looking for a permanent role within operations. She is still active in SWE, acting as member services coordinator for the San Diego Professional Section.

Troy Zawlacki (ME) was recently hired as a test engineer for Apple, Inc.

#### 2016

Khalifa Al Dhaen (ME) is working as a proud engineer at Strata Manufacturing in Abu Dhabi, building composite aerostructures for customers such as Boeing and Airbus.

Hector Barboza (ISyE) was recently hired as a manufacturing engineer at Palomar Technologies in Carlsbad.

Jordan Colson (ISyE) started a job as a materials planner and production scheduler at SpaceX right after graduation where he is directly contributing to Mars colonization missions in the future. He currently manages all Avionics assemblies.

Amanda Gates (ME) is working for Idaho National Laboratory and enjoying the great outdoors.

**Dan Nelson (ME)** moved to Seattle in April 2017 and has a new job at the Inglewood Golf Club doing golf course maintenance.

13@USD, the University of San Diego's engineering magazine, is published annually each fall. Alumni notes are solicited each spring/summer from alumni of the USD Shiley-Marcos School of Engineering. Notes submitted should total 50 words or less and include professional and personal updates. Photos submitted should be high resolution (300dpi). 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.

# Leading Change: Campaign

USD engineering and computing alumni and students have carried their passions into classrooms and boardrooms, into art galleries and recording studios, everywhere there's room to improve the condition of our planet.

USD's Shiley-Marcos School of Engineering is a community of Changemakers. It takes resources and commitment to turn good intentions into good deeds, to change what needs changing.

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 our program offerings so that we can develop new courses in Engineering Peace or Engineering and Social Justice where our students not only learn technical skills, but more importantly, how to be globally responsible professionals. That's what we call Changemaking Engineers.

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



#### 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
<b>Current Use</b> 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
Video: http://bit.do/Darlene-M	arcos-Shiley



## Changemaking Engineers

We asked a handful of USD's Shiley-Marcos School of Engineering students and alumni to tell us what inspires them and describe how they are "leading change." Here are their answers.

"I am inspired by seeing my research have an impact in society. There is no greater gift than seeing engineering companies adopt my work in cost modeling to improve the realism of their proposals and track the progress of their projects. On the outreach front I am leading change by working to bring more young students into STEM fields through my Science of Sport program. This enables boys and girls to make connections to abstract topics by providing active learning opportunities." — Dr. Ricardo Valerdi '00 (EE), associate professor, University of Arizona and founder of the Science of Sport

"I am inspired by the potential our world has for improvement, by seeing people at the local community level creating positive change, and by viewing, thinking about and discussing works of art. Art allows me to see the world in new ways and to think outside of the box, which helps me do my best each day to find



DR. RICARDO VALERDI



MATT LEIGH



DANA HERNANDEZ



DEVYN BRYANT

areas of opportunity, fearlessly address those fears and inspire others to see the potential they have to do the same thing." — Dana Hernandez '07 (ISyE), manager of Salt Lake City Corporation's public art program

"I am inspired by people who demonstrate expert-level mastery of their craft, particularly by those who have spent years developing their talent within their respective field. I lead change by serving others through my musical abilities and by encouraging my colleagues to be genuine in their creative pursuits." — Matt Leigh '10 (ME), studio manager and head engineer, The Tracking Room

"The challenges that engineering presents in different scenarios drives my desire to pursue the degree. Engineering offers various intellectual challenges that require you to look at problems creatively to solve them. In addition, nothing beats the satisfaction of accomplishing an arduous task. I am leading change by being active on my campus by taking up a leadership role in the National Society of Black Engineers (NSBE) chapter. I am taking initiative by traveling to different countries to participate in humanitarian engineering opportunities. I am pursuing these challenges to keep myself engaged and motivated." — Devyn Bryant, current mechanical engineering student and cornerback for USD's football team

Video: <a href="http://www.sandiego.edu/engineering/dana-hernandez">www.sandiego.edu/engineering/dana-hernandez</a>



Our students work on open-ended problems in the school's garages, studios and labs through projects that are linked to theory and tied to challenging issues. This authentic approach, plus networking through internships, industry partnerships and community involvement creates Changemaking Engineers who are well prepared for their careers, but are also motivated to give back to their community.

## Class of 2016 and 2017

In 2017, USD's Shiley-Marcos School of Engineering graduated 105 students. The class was composed of 15 computer science majors (CS), 25 electrical engineers (EE), 13 industrial and systems engineers (ISyE) and 52 mechanical engineers (ME). Here is what some of them have been doing since graduation.

**Kiefer Grindle (ME)** recently started at UTC Aerospace Systems as an associate manufacturing engineer at the facility in Chula Vista, California.

#### Madeline Vorenkamp (ME) is

working at SpaceX as an associate engineer in the Propulsion Group. She started graduate school at Princeton University in Fall 2017, where she was admitted to the mechanical aerospace engineering PhD program with a fellowship.

**Setareh Lotfi (CS)** interned at Google while at USD and after graduation is working for them as a software engineer in their Mountain View, California, campus.

Elijah Grady (CS) had multiple job offers before graduation, including Amazon, Microsoft and the U.S. Navy. After graduation, he chose to pursue his dream and entered the Navy SEAL BUD/S training program. He will spend four years deployed as a special operations operator.

**Christopher Mah (CS)** is working as a technical specialist for CPC Strategy in San Diego developing products for external client use and internal account management use.

Quentin Fulsher (CS) is working on software deployment and testing automation as an automation engineer at Black Mountain Systems in San Diego.

**Pierce Salamack (EE)** started as an electrical estimator in Redwood City, California, for Rudolph and Sletten, a large-scale commercial builder.

Sarah Adams (EE) is working as a board solutions engineer for the SHIELD product team in the consumer electronics division of NVIDIA Corporation in Santa Clara, California.

**Kanan Choquette (EE)** is working as an avionics engineer for Moog in Torrance, California.

**Kelsey Goels (EE)** is working as a software engineer at Raytheon Missile Systems in Tuscon, Arizona.

Jake Halligram (EE) is working as a technology analyst for Accenture in Seattle, Washington.

Adam Moreau (EE) is attending graduate school at Colorado State University working as a graduate assistant.

**Emmanuel Gomez (EE)** is working as a sales engineer for Varigon in San Diego.

**Sarah Kapple (EE)** is working for Northrop Grumman in San Diego as a systems engineer.

**Carly Naslund (EE)** started working as a project engineer for General Atomics in Poway, California.

**Melissa Beall (EE)** is working as a distribution technical sales manager representing electronic component distributors for L2 Engineering in San Jose, California.

**Kylie Even (EE)** started as a systems engineer in a first-round rotation of a professional development program for Northrop Grumman in San Diego.

Austin Perri (EE) started working as a project engineer for Rudolph and Sletton in San Diego.

Joshua Allen (EE) is working for Northrop Grumman in San Diego.

**Jomanah Jamal (EE)** is working for Kuwait Oil and Gas Distribution Company in Kuwait City, Kuwait.

**Charles Berger (ISyE)** is going to flight school as a student naval aviator for the U.S. Navy.

**Christine Keane (ISyE)** is working as an inventory analyst for General Atomics in San Diego.

**Nicole Agraham (ISyE)** is working as an engineer I, manufacturing, for Edwards Lifesciences in Irvine, California.

Jordan Schultz (ME) is CEO of Trash Tracker — a startup company he founded as a result of his senior project at USD through the school of engineering's entrepreneurship program called the Renaissance Initiative.

**Ryan St. Onge (ME)** is working as an airframe and composite design engineer for General Atomics Aeronautical Systems, Inc. in Poway, California.

Nicholas Watson (ME) is working as a test engineer intern for Illumina, Inc. in San Diego.

**Mei-Li Hey (ME)** is working as a mechanical test engineer for Northrop Grumman in Redondo Beach, California.

**Jose Gayton de Ayala (ME)** is working as an analyst for Credit Suisse in London.

**Justin Young (ME)** is working as a mechanical engineer for L-3 Photonics in Carlsbad, California.

**Luis Almajano (ME)** is working for Endesa as a consultant in Madrid, Spain.

Luke Uetrecht (ME) is working as a project manager for ground-up builds and service for McCon in Flower Mound, Texas.

Jessica Lowrey (ME) is working as a mechanical engineer for Rockwell Collins in Cedar Rapids, Iowa. Link: http://bit.do/USD-Engr-Grads



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Link: www.cymer.com

#### Inaugural Valedictorian

It's among the most prestigious distinctions a student can earn. This year, USD's Shiley-Marcos School of Engineering had the school's first ever valedictorian, Rachel Lloyd. An industrial and systems engineering (ISYE) major with a minor in mathematics, Lloyd graduated magna cum laude, boasting a 3.88 overall GPA.

When asked about being the inaugural valedictorian, she responds with surprise, "It feels really amazing to get to see that all of the work you put in throughout college does pay off."

At USD, Lloyd was steeped in Greek life, including membership in the Tau Beta Pi Engineering Honor Society and Alpha Pi Mu Industrial Engineering Honor Society. When she wasn't studying or interning at Intel or Hewlett-Packard, Lloyd was actively involved in student honor societies.



As a female engineering student, Lloyd never felt that studying in a predominantly male major was anything out of the ordinary, as an astounding 60 percent of her fellow ISYE graduating students are female.

"Now that I am out in the world interviewing, it makes me stand out knowing that only 6.8 percent of STEM grads are women. I just realized I am unique and it's amazing because women are capable of this. Engineering can be interesting or fun if you are willing to put in the work."

— Michelle Sztupkay

Video: http://bit.do/SMSE-Valedictorian









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#### SAVE THE DATE

**October 14, 2017** Alumni Homecoming Brunch

**December 8, 2017** Engineering and Computing Expo

January 25-27, 2018 ESJP 13 Conference

April 28, 2018 Alumni Honors

May 11, 2018 Engineering and Computing Showcase