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SHILEY-MARCOS SCHOOL OF ENGINEERING

Becoming the Best

School of Engineering poised to reach new heights

In this 2015 fall issue, we highlight many of the ongoing changes taking place to accommodate our continued growth. We also feature the exciting achievements of our alumni, students and faculty that help us imagine, innovate and inspire our engineering learning community.

Each year, we recognize one graduate who has made significant contributions, both in their professional career and in the field of engineering. This year, we welcomed our second Alumni Honoree, Emiliano Gallego, whose telling story is featured in this issue. We want to stay connected and continue to recognize the work of our graduates, so if you are a USD engineering graduate or know of the great work of one of our alumni, please contact us directly, or “like” us on Facebook at USDEngineering.

Developing innovative solutions for the world requires a diverse group of engineers.

Through intentional efforts, we continue to embrace and create an inclusive learning environment for students from around the world. We also are very proud of the fact that we have more female students majoring in engineering than most universities nationwide. In this issue, we highlight the achievements of these accomplished students.

We finished Phase 1 of our renovation of Loma Hall and dedicated the new space this past spring. The space includes Donald's Garage (a rapid prototyping space), the Cymer Ideation Space (a collaborative, idea-creation space), and the Fabrication Lab (a machining, assembling and testing space). Soon, we will start on Phase 2, which will include state-of-the-art studios, administrative and faculty offices, and collaborative meeting spaces.

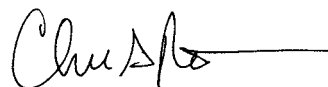
Phase 3 will not be far behind, so there is much more to come.

In June, we received word from

the National Science Foundation that our school had been selected to receive a prestigious \$2 million grant to revolutionize engineering by infusing professional skills in our degree programs to create Changemaking engineers.

Finally, I want you to meet a few of our faculty members and get a sense of the great things they are doing. We have an outstanding group of professors who conduct cutting-edge research and are focused on providing a hands-on, humanitarian approach to engineering education.

I welcome your comments and suggestions. As always, please feel free to visit the Shiley-Marcos School of Engineering — a school that is becoming one of the best in the country.



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Our mission is to provide engineering students with a holistic education so they are prepared to take on society's challenges and opportunities in socially, ethically and professionally responsible ways.

Our vision is to deliver a high-quality student-centered engineering education that provides distinctive, authentic and supportive experiences that inspire students to make a positive difference.

engineering news

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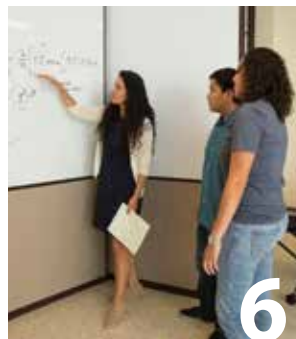
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Perfecting Pasta

Alumni Honoree re-engineers three generations of tradition

by Michelle Sztupkay

Ask an average person to name a country normally associated with producing pasta, and most people would likely think of Italy. So, it may come as a surprise to learn that a world-class pasta company, Pagasa Pasta, is located in Tijuana, just south of the San Diego-Mexico border.

At the helm of this company is CEO Emiliano Gallego, a dual alumnus of the University of San Diego, who earned his BS/BA in engineering and a Masters of Executive Leadership (MSEL) from the School of Business Administration. He credits much of his professional success to his education at USD. "I was very

lucky; the engineering department had just opened the Industrial and Systems program," recalls Gallego. "I had only one other classmate, and all my classes were so personal."

After graduating from USD in 2000, Emiliano began working for Pagasa Pasta. The family-owned and operated company was



established in 1958 by Emiliano's grandfather, Francisco Gallego, who started the business with six employees and produced 10 varieties of pasta. "I was able to get involved in all departments of the company from the manufacturing of pasta to the sales floor," he says. "I saw so many opportunities to implement change, some that were so obvious that the ease of doing so made me doubt myself."

Emiliano works with his cousins, Cesar Gallego '03 (BBA) and Gerardo Gallego '06 (BBA), the third generation involved in managing the family business. When Emiliano first arrived at the company, decisions were made by intuition and gut feelings, while local millers interpreted products and recipes, a system that produced inefficient and inconsistent results.

"After seven years, I was named CEO and I led the company with a very structured, methodical and firm hand," he says.

Emiliano returned to USD in 2011 to earn his MSEL degree. "My education was paying off. I was able to understand processes, whether they dealt with service or manufacturing. I not only understood the processes, but was able to analyze and change them for the better," he says.

His collective experience and education taught him to make decisions based on metrics and industry standards. The results have been staggering. Under Emiliano's leadership, Pagasa Pasta has tripled its sales and production capacity and is now a multinational company, with products sold throughout Mexico, the United States and Canada. The company has more than 400 employees, and produces more than 20 different types of pasta and 15 different cookie varieties. Furthermore, it's currently the only pasta company in Mexico to have FSSC certification, guaranteeing global standards in quality and hygiene. Pagasa Pasta has

been certified by the American Institute of Baking, received kosher certification in 2011 and is taking strides to implement green business practices. The company has received more than \$10 million in federal grants for its innovative machinery design and production workflow.

The engineer who re-imagined the production process has also immersed himself in its promotion. Emiliano and his cousin, Cesar, personally negotiate sales and distribution deals. And while most of Pagasa Pasta's competitors have marketing budgets in the millions of dollars, the Gallego family prefers to let a quality product and an aggressive price point speak for itself.

Today, Emiliano serves on various education-related boards, including the governing board at El Centro de Enseñanza Técnica y Superior Universidad, USD's Comité Mexico advisory board and the advisory board for USD's Shiley-Marcos School of Engineering. He was honored in April 2015 as the second recipient of the school's Author E. Hughes Career Achievement Award. He is also president of the Fondo Francisco Gallego Monge Entrepreneurship Fund, which supports the new ventures of young entrepreneurs.

Emiliano embodies the Gallego family tradition both at work and in his personal life. "I married the girl I had a crush on since the 6th grade," Gallego says with a laugh. He and his wife, Naomi, who live in San Diego, are focused on raising their three children, Siriana, Demitrio and Emilliano, part of a large and loving extended family.

While it has been a long journey from the company's humble beginnings, Francisco Gallego's spirit is still very much a part of Pagasa Pasta's success. Not only would he most certainly take pride in the product, but also the fact that his grandson, Emiliano, has re-engineered the family business so that family is the business. 🍷

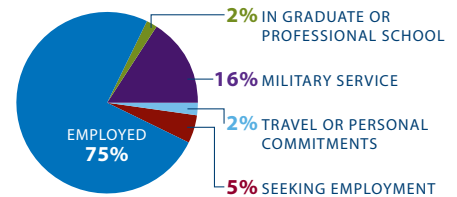
Employment Numbers

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 2013 and May 2014.

Current Status

93%

of 2013-14 respondents are employed, in graduate school or in the military.



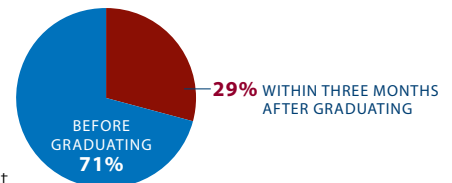
Sample Employers of Graduates

- | | |
|--------------------------------------|--------------------------|
| Aerotek | Jet Propulsion Lab |
| Alcoa | Northrop Grumman |
| Boeing | Solar Turbines |
| Ericsson | Teradata |
| General Atomics Aeronautical Systems | Thermo Fisher Scientific |
| GKN Aerospace | U.S. Navy |

First Job Offer

100%

of employed 2013-14 respondents received their first job offer within three months of graduating.



Annual Salaries

\$62,354 Average Salary **\$62,000** Median Salary **\$41,600-\$96,000** Salary Range

Full-Time Employment by Industry

- 31% Engineering and Design
- 17% Science and Research
- 17% Technology
- 14% Aerospace
- 6% Energy and Utilities
- 6% Marketing, Sales and Consumer Products
- 9% Other



Faculty members like Assistant Professor of Mechanical Engineering Imane Khalil, PhD (below, bottom right), are committed to providing transformative experiences for students.

A Holistic Approach

Creating a community of globally minded engineers

by Michelle Sztupkay

The University of San Diego embraces differences among all of its community members, and serves to expand the viewpoints, opinions and experiences of students and faculty. The Shiley-Marcos School of Engineering's administrators, faculty and students share that ongoing commitment to create an inclusive and diverse community.

Compassion, cultural awareness and diversity resonate strongly with USD engineering's mission. Today, nearly 30 percent of USD's engineering students are women, significantly higher than that of

the national average; one-quarter of the engineering faculty are female; more than one-third of USD's undergraduate students are from underrepresented groups; and more than 70 percent of USD students have a study abroad experience during their time here.

In the fall of 2014, USD hired an interdisciplinary cohort of female science, technology, engineering and mathematics (STEM) professors to become a model for undergraduate institutions striving to increase the participation of women faculty in the STEM and social science fields. STEM engineering faculty such as

Odesma Dalrymple, PhD, and Imane Khalil, PhD, serve as inspirational and relatable role models to young women in the field of engineering.

University leadership is confident that this outstanding group of professors will inspire more young women to enter these fields and collaborate on cutting-edge research across their respective disciplines.

Additionally, the school of engineering has become a more culturally competent learning community through deepening transborder and international educational partnerships, and

involving students and faculty in international learning experiences.

Ailsa Tirado is a senior majoring in industrial and systems engineering. She was born in Chula Vista, Calif., and raised in Tijuana by Mexican parents. During high school, Ailsa was awarded a full scholarship to attend a boarding school in Switzerland. "Le Chateau opened my eyes to the world and gave me a global perspective," she says.

Tirado describes her decision to come to USD as "life changing." She received one of the most generous financial packages offered by USD and has taken advantage of every



[news] BRIEFS

Catching Excellence

In 2014, *U.S. News and World Report* ranked the University of San Diego's Shiley-Marcos School of Engineering as the #14 engineering program in the nation for schools that do not offer a PhD program. This recognition — up eight spots from 2013 — puts USD in a class with the nation's top engineering schools. "With the combination of great faculty and students, state-of-the-art facilities and a progressive vision for engineering education, we are on our way to creating a world-class engineering school. And we are gratified that others recognize our efforts," says Dean Chell Roberts.

Executive Advisory Board

The board of advisors for the USD Shiley-Marcos School of Engineering is composed of executive-level industry, technology and community leaders as well as alumni, who come together for the purpose of supporting the school's vision, priorities and programs. Current board members include: Bob Barry (John Barry & Associates), Rasheed Behrooznia '02 (Cubic Transportation Systems), Matthew Craig '03 (Meijer Inc.), Henry Eisenson (Introtech), David Furuno (General Atomics), Emiliano Gallego '00 (Pegasa), David Geier (SDG&E), Minoo Gupta (Citrix), Claude Hashem (L3 Photonics), Tom Lupfer (Clarity Design), Carlos Nunez (CareFusion), Charles Pateros (ViaSat Inc.), Jarvis Tou (Enevate Corp.) and Becky Vincent (Vincent Enterprises).

USD Hosting 2016 EDCU

USD will host the 2016 meeting of the Engineering Deans of Catholic Universities (EDCU). Since its first meeting at Seattle University in 2013, it has become a highly anticipated annual event; each of the 22 Catholic-affiliated institutions with engineering schools in the United States are invited to attend. Past meetings have held sessions on student retention, budget models and fundraising, e-learning and distance education, strategic planning and research/collaborations. Currently, the group is identifying opportunities to address important issues related to engineering education from their unique perspective as deans of institutions with similar values and missions.

New Engineering Degree

A new general engineering degree has been added to the curriculum. This new major does not carry a discipline-specific label, but provides options to specialize in areas such as embedded software engineering, sustainability engineering and bioengineering. Additionally, with the launch of the Center for Cyber Security Engineering and Technology, USD begins the creation of one of the most rigorous and immersive cyber security educational environments nationwide. At the launch reception, U.S. Department of Homeland Security official Thomas A. 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 serves as a model for the nation."



opportunity, including receiving a Changemaker Fellowship, which allowed her to spend a summer teaching seventh-grade girls in Tijuana how to code, and interning four days a week with the multinational biotechnology company Thermo Fisher Scientific.

This past year, engineering faculty and students engaged in several international projects, working with communities in developing countries. Associate Professor of Industrial and Systems Engineering Truc Ngo led a team of 20 engineering students and staff members to implement water filtration systems and more efficient cook stoves in several villages in the Dominican Republic. Professor of Mechanical Engineering Frank Jacobitz traveled with students and faculty from across USD to work on an interdisciplinary humanitarian project to remove contaminants from the water supply in Mbarara, Uganda.

Students found those experiences transformative. "The purpose of my visit was to see what local resources were available to people, which means both at hardware stores and things found around the land," says Sarah Meoni, a senior mechanical engineering major (pictured above). "I went

into this trip with a semester of research and even an initial design for a water filter that would remove harmful elements. However, it became immediately clear that I would have to scrap at least half of my design because it would be too expensive for Ugandans. But that's what engineering is about — refining and redesigning."

Federica Arriagam (pictured in cap, at left), a native of Venezuela and recent industrial and systems engineering graduate, has thrived at USD. She participated in USD's Society of Women Engineers organization and served as president of the International Student Organization.

"My time at USD has been incredible," she says. "I am forever grateful to have had the opportunity to make so many meaningful relationships that will last a lifetime."

Now working as a project engineer for Amazon's Fulfillment Center in Rancho Bernardo, Calif., Arriaga couldn't be happier with her alma mater. "Not only did I grow academically, but also personally. I now realize there would not have been a better school for me than this one. I love USD!" 🇺🇸

faculty notes

□
Every full-time member of USD's Shiley-Marcos School of Engineering faculty 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 his collaborative research with MIT, Tulane University and the Masdar Institute of Science and Technology on solar power and energy storage. He has co-authored papers presented at ASME Power & Energy 2015 in San Diego, the 2015 International Conference on Applied Energy in Abu Dhabi and the IEEE Photovoltaic Specialists Conferences in New Orleans, La. Dr. Codd also presented collaborative work at the ARPA-E Energy Innovation Summit technology showcase in Washington, D.C., and was granted two U.S. patents as co-inventor for continuous glucose monitoring technology.

Odesma Dalrymple, PhD, assistant professor of industrial and systems engineering, completed her first year of teaching at the school of engineering. Over the course of the academic school year, she collaborated on two publications: Bansal, S., Bansal, A. Dalrymple, O., "Outcome-based Education Model for Computer Science Education," *Journal of Engineering Education Transformations (JEET)* Volume 28, Issue 2&3, 2015, pp. 113-121; and Henry, L., Bridge, J., Dalrymple, O., Henderson, M., Chavez, M., "Key Factors Around Ocean-based Power in the Caribbean Region, via Trinidad and Tobago," *Renewable and Sustainable Energy Reviews*, 50, 2015.

Frank Jacobitz, PhD, professor of mechanical engineering, completed a study of the acceleration properties of fluid particles in turbulent stratified shear flows. Results of this work were presented at meetings in San Francisco, Calif.; Cambridge, England; Marseille, France and Melbourne, Australia. Working with undergraduate students, the geometric features of such flows are currently being investigated. Additional projects included a

study of active control mechanisms in the microcirculation in the human conjunctiva in healthy and diabetic patients, knowledge and attitudes of engineering first-year students towards problem solving methods, and effective teaching approaches of information literacy skills. He also traveled with USD faculty and students to Mbarara, Uganda as part of a multidisciplinary



FRANK JACOBITZ

humanitarian project to remove contaminants from the region's water supply. Dr. Jacobitz was recognized for his research collaborations with undergraduate students as USD's 2014/2015 Outstanding Undergraduate Research Mentor.

Imane Khalil, PhD, assistant professor of mechanical engineering, achieved an impressive list of accomplishments in her first year of teaching at USD. She founded the ASHRAE San Diego chapter at USD and served as the faculty advisor. This is the first ASHRAE student group in the San Diego region. In addition, she attended the XIII International Conference on Renewable Energy Sources in Paris, France in June 2015,

submitted a proposal to the DOE to work with undergraduates on modeling different buildings and to look for ways to improve the energy consumption at USD, and she hosted a PhD candidate from the Military Technical College, Egyptian Armed Forces to work on building a model to study the strength of sandwich aluminum foam composite material. Dr. Khalil also submitted an NSF

CAREER award proposal in July 2015, proposing the use of Polynomial Chaos Expansion within Uncertainty Quantification to solve the coupled physics problem of the fluid-structure interaction at the blade of a wind turbine.

Jae D. Kim, PhD, assistant professor of industrial and systems engineering, completed his first year at the University of San Diego teaching courses in simulation, operations research and supply chain management. He published a research paper on the effects of electric vehicles on future energy loads and emissions in *Energy Policy* and presented at the Energy Policy Research Conference. Dr. Kim has collaborated with USD's

Energy Policy Initiatives Center (EPIC) on work related to regional greenhouse gas emissions modeling of the San Diego region. He continues his research in the area of renewable energy integration, lifecycle analysis and energy policy.

James Kohl, PhD, professor of mechanical engineering, along with Truc Ngo, PhD, associate professor of industrial and systems engineering, and colleagues in Germany and Switzerland published an article entitled, "Determining the Viscoelastic Properties Obtained by Depth Sensing Microindentation of Epoxy and Polyester Thermosets Using a New Phenomenological



JAMES KOHL

Method," in the *Materials Research Express* journal.

Susan M. Lord, PhD, chair and professor of electrical engineering, was the first USD faculty member to be named a Fellow of the IEEE (Institute of Electrical and Electronics Engineers) for "professional leadership and contributions to engineering education." This prestigious award is given annually to less than one out of every thousand IEEE members. Dr. Lord also presented an invited plenary session with Michelle Madsen Camacho, PhD, USD professor and chair of sociology, on the culture of engineering education using interactive theatre at the Women in Engineering ProActive Network (WEPAN) Change Leader Forum in

June 2014 and at Cornell University for graduate student orientation in August 2014. Dr. Lord was invited to Bucknell University in April 2015 to present two sessions on effective teaching for faculty across campus. In June 2015, she was a part of the leadership team for the National Effective Teaching Institute (NETI), a multi-day workshop for engineering educators. Furthermore, Dr. Lord and colleagues from Clemson University, Purdue University and North Carolina State University received a grant from the National Science Foundation (NSF) to study military veterans in engineering. Dr. Lord also co-authored a chapter in the Cambridge Handbook of Engineering Education Research (CHEER), the first such compilation, which won the American Education and Research Association (AERA) Division I Outstanding Publication Award for Books in 2014.

David Malicky, PhD, associate professor of mechanical engineering, played an instrumental role in the renovation of the Loma Hall first floor shop areas. Working with administration, staff, architects, engineers, contractors and the city of San Diego on this \$4.5 million project, Dr. Malicky was tasked with identifying needs, developing layouts and logistics, reviewing drawings, engineering the dust collection system and monitoring installation. To meet high enrollment needs, Dr. Malicky led the procurement and commissioning of new shop machines, including CNC and manual mills, lathes, bandsaws and other equipment. Additionally, Dr. Malicky developed a new course for introductory engineering design, based on current best practices. Taught as an ENGR 102 in Spring 2015, this pilot course will be the basis of a new ENGR 101 for all first-year students in the fall of 2015. This class has generated high student enthusi-



DAVID MALICKY

asm and successfully incorporates Solidworks, Arduino microcontrollers, motors and lasercut parts.

Truc Ngo, PhD, associate professor of industrial and systems engineering, received the 2014 Outstanding Engineering Educator of the Year Award, selected by the San Diego professional engineering community. Dr. Ngo was also the 2014-2015 Engineering Change-maker Faculty Champion, a Woman of Impact Award nominee, and an Outstanding Undergraduate Research Mentor nominee. She published a



TRUC NGO

peer-reviewed research journal article entitled "Improving Mechanical Properties of Thermoset Biocomposites by Fiber Coating or Organic Oil Addition" in the *International Journal of Polymer*

Science in May 2015, co-authored with James Kohl, PhD, and two USD engineering students, Tawni Paradise and Autumn Khalily. She also submitted another research journal article entitled "Effects of Deposition Parameters on Physical and Electrical Properties of Pentacene Thin-Films" to the peer-reviewed journal, *Materials Science in Semiconductor Processing*, with two USD engineering student co-authors, Brendan Gee and Steven Go. In January 2015, Dr. Ngo led a humanitarian engineering mission with 18 students and two staff members in the Dominican Republic. The group built 16 stoves and installed two water chlorinators, serving more than 300 families. Dr. Ngo was later invited to the Eco-Engineering Advisory Board Meeting at Southwest High School as the keynote speaker to share the group's experience.

Thomas Schubert, PhD, professor of electrical engineering, researched various possible methods of synthesizing three-phase power (variable frequency and amplitude) and designing and building units suitable for stand-alone classroom or laboratory usage.

[innovate]

Transformative Engineering

National Science Foundation grant will help change the demographics of USD engineers

by **Liz Harman**

This spring, USD's Shiley-Marcos School of Engineering unveiled new facilities to promote innovation and growth. Now, a \$2 million grant from the National Science Foundation (NSF) will support an effort to expand the very definition of engineering.

Under the five-year grant from an NSF project dubbed Revolutionizing Engineering Departments (RED), the school will develop engineers who strive to be Changemakers for social justice, peace, humanitarian development and sustainability

on a global level. These efforts will build upon the university's designation as one of only 30 Ashoka U Changemaker campuses in the world and one of only two in California.

The school is well-positioned to equip students with the ethical, technical and leadership skills needed to make real change. "This is an exciting opportunity to transform engineering education to meet the challenges of the 21st century," explains Shiley-Marcos School of Engineering Dean Chell Roberts, PhD.

The school's program will include efforts to enhance the

professional skills of students and change the culture of the faculty to emphasize social justice and humanitarian engineering.

Existing courses will be modified and new ones developed that tie technical concepts to global issues, thereby changing the culture of engineering education.

"Student professional skills will be aligned with the mission of USD to foster changemaking and holistic development," Roberts says. He believes the changes may broaden the appeal of engineering and result in a higher number of women and students from underrepresented groups.

The school currently has nearly 500 students; among those, 28 percent are women, with 23 percent from underrepresented groups. While those percentages are higher than the national average, Roberts thinks the school can do better. "I'd like to have 50 percent of our students be women, and significantly increase our population from underrepresented groups."

In addition to courses focusing on developing new cars, engines or planes, the school will also offer classes in areas such as sustainability, emphasizing, for example, ways to develop low-cost green energy or mass transit systems.

Engineering has attracted "a narrow slice" of students in the past, adds electrical engineering professor Susan Lord, one of the other leaders on the grant. With an emphasis on global change, she says that "there's no reason" that both female and male students who might have previously studied subjects like English or sociology shouldn't choose engineering. And she hopes more of them might choose nontraditional career paths, such as working for nonprofits or teaching in the K-12 system to help more students understand engineering concepts at an early age.

Lord hopes that creating new courses with an emphasis on global concerns will cement student interest. For instance, an introductory course in mechanical engineering could be modified to



teach the basic principles of thermodynamics and heat transfer by using the example of a brick oven designed for the developing world.

Another possibility is that Lord and sociology professor Michelle Camacho, who is also a leader on the grant, might team up to teach a new class pairing engineering with the topic of social justice.

"We hope these new courses become very popular and are the ones everyone wants to take," Lord says.

Both Lord and Roberts note that there have been numerous calls from both academia and industry to reshape engineering education to meet the demands of the 21st century, especially during the second and third year of study, when most of the technical skills are taught.

While the hope is that more students will choose engineering as a pathway to global change, it's probable that others will continue to go to work for defense and technology firms.

The school of engineering already offers a unique combined bachelor of science/bachelor of arts degree. Under the grant, the school will be able to do even more to prepare all students with the skills needed to communicate effectively and work on teams in a diverse world, as well as consider the critical social and ethical factors needed to find technological answers to the challenges facing our global community.

"There are many engineering pathways," says Roberts. "Some students will rise to create new products and companies, some will become lawyers and lead in developing regulations and emerging intellectual property, and others will become the leaders and CEOs of industry. I believe our leaders of industry will be better enabled by understanding the contexts that represent the diversity of all the people in this world. 🌐"

[About the Grant]

Out of more than 100 applications, USD was one of only six schools and the only private institution to be awarded a RED grant in 2015. RED projects are expected to build upon successful innovations in the introductory and capstone years to improve the entire undergraduate experience. Under the \$2 million grant, the school will:

- Develop eight new courses beginning fall 2016, integrating topics such as peace and sustainability and professional practices such as teamwork and communication skills.
- Create more opportunities for students to work on projects that mirror professional practice and prepare students to use the holistic education they receive at USD.
- Seek to change the culture of engineering at USD to reflect these goals and measure its effectiveness.
- Host a national symposium to engage other universities and develop partnerships with industry and the community to transform engineering education in the 21st century.

Dean Roberts envisions the grant will be implemented through a Skunk Works approach — such as the one used to quickly create a new fighter plane during World War II — to innovate outside of the traditional engineering structure. The new concepts can then be implemented into the existing disciplines.

"Many faculty members will want to be part of the innovation," he says. "It should become contagious and exciting."

CHANGEMAKING ENGINEER SPOTLIGHT



MEI-LI HEY

MAJOR: Mechanical Engineering
CLASS YEAR: 2017

WHAT'S THE STORY? One of the winning teams of the 2015 Social Innovation Challenge Award, Mei-Li Hey, Caleb Avery, Shannon Bailey, Alix Naugler and Harrison Schmachtenberger are leading the Simple Seat, Better Lives project, a portable latrine for landmine victims and other disabled individuals in Uganda. **THE WAY I SEE IT:** "I believe a Changemaking engineer is someone who is making a positive impact on society. Changemakers recognize that the end-goal is to make the world a better place. USD has not only given us the engineering skills that we need, but also the confidence and opportunities to become Changemaking engineers who are motivated to help others." **WHAT'S NEXT?** "After I graduate from USD, I hope to either receive a Fulbright grant to conduct engineering-related research, or join the Peace Corps where I can work towards my master's degree in mechanical engineering prior to doing humanitarian engineering work abroad."



Excitement filled the air during April's dedication ceremony of the first phase of the school's expansion and renovation. Philanthropist Darlene Marcos Shiley (pictured, below right) shared the podium with Dean Chell Roberts (standing).

[inspire]

New Space is the Place

Dedication ceremony marks significant milestone

by Michelle Sztupkay

April 10, 2015 marked the dawn of a new era for the Shiley-Marcos School of Engineering, as a highly anticipated dedication ceremony celebrated the completion of the first phase of the school's expansion and renovation of its space and facilities.

Totaling nearly 10,000 square feet, the new facilities replaced part of the Torero Store — which has since relocated to the Hahn University Center — and the campus mail center to make way for engineering's new state-of-the-art learning environment.

"If you're going to invent and create and solve problems where

the answer can't be dictated immediately on a blackboard, you don't do that in a traditional classroom," explains Dean Chell Roberts, PhD. "You have to be able to tinker with things, to make mistakes and errors, and then build and test and create."

The much-needed facilities, located on the first floor of Loma

Hall, integrate cutting-edge tools, equipment and technology within three distinct spaces that follow the engineering life cycle from concept to finished product.

"We start with the Cymer Ideation Space, where students can get together with industry people to discuss ideas," says Roberts. This open, reconfigurable idea center provides a seating area, teleconferencing facilities, flexible furniture and a mobile panel grid system with writable white boards, all designed to encourage collaboration and exploration.

The space was made possible by a generous gift from San Diego-based Cymer, makers of complex lasers used in semiconductor production.

"Then we have Donald's Garage, where students can prototype their ideas, using everything from 3D printing to circuit board printing," continues Roberts. The space — which features an array of design and rapid prototyping machines — is named after the late Donald P. Shiley, co-inventor of the Bjork-Shiley heart valve.

"Donald used to scribble out what he was working on and then go to the garage to use his mill and lathe," recalls philanthropist Darlene Marcos Shiley, referring to her late husband. "He would have been out-of-his mind happy about this new space."

The new facilities also include the "Fab Lab," a space that offers machine and wood shops and a



fabrication lab that bring student projects to life using machines to weld, laser-cut and shape metals and plastics.

"The machine shop provides students safe access to equipment, allowing engineering senior design teams to create and engineer solutions for their projects," explains Mechanical Engineering Chair Ming Huang. "The space is empowering and exciting, and generates pride for students, faculty and staff. It's exciting to be part of the USD engineering enterprise."

Additional noteworthy details of the space include an acoustical ceiling treatment for soundproofing, 1-inch thick glass partitions that can withstand two hours of burn and the addition of steel reinforcement to support the new equipment.

Along with the cutting-edge and practical elements of the area as a whole, aesthetics haven't been neglected. The interior finishes of the lobby embody the university's Spanish Renaissance design with inlaid terrazzo tile, molded ceiling treatments made of recycled almond shells from Madrid, and an original, refinished bench from Founders Chapel.

The timely opening of the facilities allowed seniors to use the new space to spotlight their projects at the Spring 2015 Engineering Showcase. Many of the senior projects were conducted with industry partners, including: CareFusion, Clarity Design Inc., Cubic, General Atomics, SDG&E and ViaSat. Other supporters of capstone projects included Amor Ministries, James and Cathy Cefalia, Thermo Fisher Scientific, IntroTech, Superior Court of California in San Diego County and Associated Students of USD.

"With this larger space and better equipment, I see projects becoming more interdisciplinary, combining mechanical, electronics and control," Huang says. "Student projects like a solar panel cleaning



project, CareFusion insulin pump project, and underwater robot project are just a few cases in point. I can also see popular ASME (American Society of Mechanical Engineers) Mini-Baja or Formula One car projects coming in the not too distant future."

Although the details are still being finalized and configured, it is estimated that Phase 2 renovations of facilities will begin in 2016. When completed, the newly remodeled Loma Hall spaces will be a hub for student and faculty activity and innovation.

Student teams will use the renovated space to learn and create. Faculty members will demonstrate hands-on engineering design principles. Industry partners will meet with student teams to discuss project design and evaluate progress.

In all, the added space will house new engineering studios, industry collaboration rooms, the dean's administrative suite and

conference room and multiple offices for faculty.

With Phase 1 completed and Phase 2 in development, the school of engineering is positioned to provide students with the space and tools they need to invent and design discoveries that could transform our lives. "One thing seems certain," Roberts says. "The Shiley-Marcos School of Engineering is on an upward trajectory and doesn't show signs of stopping." 





Posing with the bishop of Mbarara, Professor of Mechanical Engineering Frank Jacobitz (third from the right, below) traveled to Uganda earlier this year with USD faculty and students to help provide solutions for the country's growing water problems.

[imagine]

Leading by Example

Faculty fuel school of engineering's meteoric rise

by **Mike Sauer**

There's no doubt the Shiley-Marcos School of Engineering has come a long, long way from its humble beginnings back in 1987, when a handful of students and two faculty members gathered for classes and study sessions in Serra

Hall. While the growth in the 28 years since those formative first days has been almost exponential, one essential constant endures.

"From day one, our faculty's dedication to the full development of our student engineers has been the foundation of our

success," Dean Chell Roberts says. "They continue to lead the way forward."

Whether they're traversing the globe to help monitor and manage water contamination issues in East Africa, promoting race and gender balance to change the culture of engineer-

ing, or mentoring a challenging and innovative radar target simulation project, the school of engineering faculty continue to provide students with the technical skills and global awareness that differentiates, and ultimately defines, the USD engineer.



Simple Solutions

Like many of its African nation counterparts, Uganda walks a precariously thin line between reform and revolution. With the specter of sudden, sweeping violence looming over the country's urban and rural populations, access to clean drinking water is alarmingly limited. In many cases, families in need will send one of their own (often children) on daylong journeys for just a few gallons. More often than not, the water they return with has been collected unfiltered from contaminated sources.

"One of the causes of preventable illnesses at all ages of the Ugandan population is access to clean water," says Professor of Mechanical Engineering Frank Jacobitz, who, along with a group of USD faculty and students, traveled to Uganda earlier this year to help provide solutions for the country's growing water-quality problems. "This issue is not easily addressed when a large part of the population uses springs, bore holes, running water or local lakes and rivers as their main water source. Whether or not they boil the water, it is not guaranteed to be free of harmful contaminants."

Assigned to build a filtration system comprised of locally produced materials, Jacobitz and the team developed a water purification system built of reusable plastic or soda bottles. For filtration, Jacobitz employed iron nails and banana peels, which he found were able to bond with, and ultimately filter out, the unfiltered water's contaminants.

"It's a complex issue to be sure, and one that requires our continued monitoring and support," Jacobitz says. "What's important now, however, is that we were able to develop a simple, sustainable solution that greatly reduces the risk of illness to the local populations."

Shattering Stereotypes

When asked how she first became aware of the long-standing issue of gender inequity in engineering, Susan Lord vividly recounts a story where, as a straight-A high school senior, she spoke with an admissions counselor from Princeton about the university's prestigious engineering program.

She also vividly remembers how quickly that conversation went south.

"I asked the counselor about the engineering program and the types of courses I'd take as a first-year student, and that's when he raised his hand to stop me," she recalls, the edge in her voice still evident all these years later. "He said, 'Are you sure? It's all boys over there. You wouldn't like it.'"

She recalls thinking, "Wait a minute, why does he get to decide what I like?" It made a huge impact in my decision not to go to school there."

Over the course of her career as an award-winning educator, author and advocate, Lord has never lost sight of the fact that the discipline she loves should not be gender or ethnically exclusive. In her book, *The Borderlands of Education: Latinas in Engineering*, Lord and co-author (and USD Sociology professor) Michelle Camacho challenge the stereotypes and cultural exclusion issues that have long been associated with the male-dominated (82 percent; per Lord and Camacho's research) field of engineering.

The work has been hailed as an essential resource for policy makers and educational leaders looking to attract a broader and more dynamic student population to the STEM (science, technology, engineering and mathematics) disciplines. For Lord, it was a labor of love.

"It was a daunting project, but it's really important that we support the idea of gender equity



SUSAN LORD, PHD

in this discipline," she says. "It's also helped me realize that we need many different types of people at the table to develop engineering ideas and projects. If it's homogenous, it dilutes the project somewhat."



KATHLEEN KRAMER, PHD


Targeting Success

When Electrical Engineering (EE) Professor Kathleen Kramer first heard about the real-time radar target simulation project being developed by an ambitious quartet of her EE students, she was equal parts surprised, curious and incredulous.

"The first I heard about this project was out of the dean's office, and my thought was that it wouldn't attract students because, quite simply, it was difficult to understand, and equally difficult to develop," Kramer recalls.

As if the concept of the project wasn't challenging enough, the development and testing applications were something else altogether. All told, the student team spent 1,738 hours (more than 72 days) developing, refining and re-refining their work, and in the process, wrote 13,616 lines of code, traveled 7,776 miles in the name of research, testing and development ... and spent nine nights at Loma Hall working past 2 a.m.

Much to Kramer's delight, the radar target simulation project was a success. As a reward for their impressive efforts, the team was invited to present a peer-reviewed paper at the prestigious Institute for Electrical and Electronic Engineers National Conference in early 2015; a first for a Kramer-taught undergraduate capstone project.

"For most undergraduate students, spending a month on a project seems like an infinity," Kramer says. "This team took it to a whole different level, and I'm so proud of what they accomplished. It's a real feather in their and [the school of engineering's] cap to be able to present their work at the IEEE conference." 

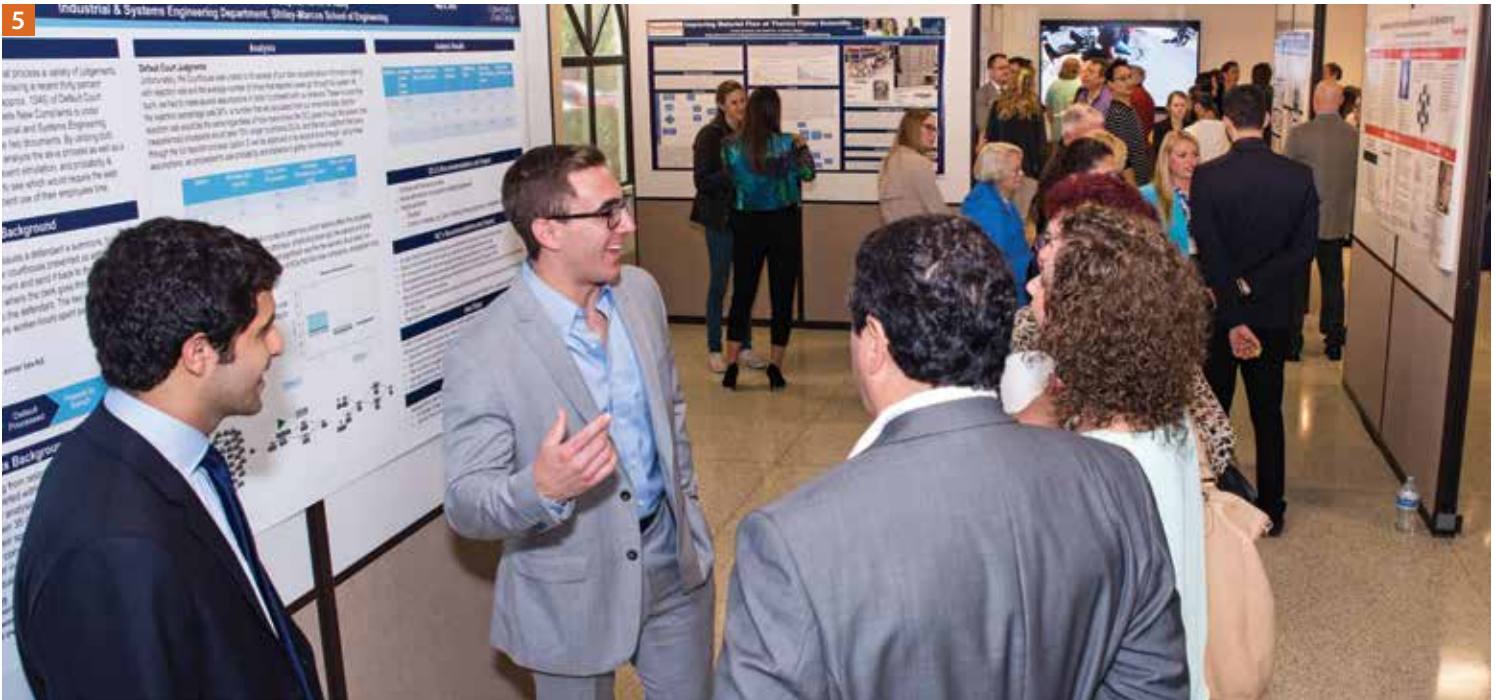


Pictured are students showing off their work to professors and observers at this year's Engineering Showcase.

ENGINEERING SHOWCASE

2015 projects highlight innovation and collaboration





Engineers are all about building creative solutions to any number of societal challenges. Our students' efforts to make the world a better place were on display at last spring's Engineering Showcase, which featured both senior design and other projects.

1) Amanda Cuevas (EE) with the Real-Time Radar Target Simulation (General Atomics); **2)** Sam Honch (ME) and Wayne Smith (ME) demonstrate their solar panel cleaner project in the Fab Lab; **3)** The interdisciplinary project Team Speak Easy (Clarity Design, Inc.) was made up of (from left to right) Orlando Crespo (ME), Chaney Countryman (ME), Alyssa Black (ME) and Ron Perranoski (ME). Fernando Quinones (EE) was not pictured; **4)** Rachel Miller (ISyE) explains the Thermo Fisher Best Pick/Pack Scenario; **5)** The Cymer Ideation Space hosted ISyE senior projects. Kevin O'Reilly (ISyE) is in the foreground explaining the San Diego Courthouse Process Improvement project; **6)** Josh Williams (ME) is on the left, with his Engine Dynamometer Test Cell; **7)** Close-up of the Remotely Operated Underwater Vehicle (ME); **8)** On the left, Amal Alammur (ISyE) with Hesah Alshallal (ISyE) and their Amor Humanitarian House Building Redesign and Thermo Fisher Manual Package Assembly Process projects.



class notes



Vision Statement
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.

[1994]
Don Jenkins (EE) was promoted to vice president of operations at Boston-based EnerNOC, an energy intelligence software company, in September 2014. Don now oversees all global operational teams supporting implementation and delivery of SaaS products, leads six network operations centers on four continents and guides the data intelligence team in their ever-expanding big data analytical efforts.

Derek Kranig (EE) just celebrated his 10-year anniversary at Innovative Laser Technologies in Minneapolis Minn., where he is employed as a senior electrical engineer. He reports that he got married in April 2015.



DEREK KRANIG



ERIC MALEK

[1995]
Eric Malek (EE) began working for Boeing in 1995; October marks his 20th anniversary working as a senior engineer/scientist. Eric received his MBA from the Keller Graduate School of Management in 2003. He reports that he married Brandy Malek in 2008. The couple and their three children — Christopher, 4; Ashlyn, 2; and Avery, 1 — live in Villa Park, Calif.

Keith Resch (EE) has been at Sony in Rancho Bernardo since 1995, and was recently promoted to senior hardware manager. He has a team of engineers that work for him, designing consumer electronics products for a variety

of groups inside Sony, including Bravia TVs, Xperia mobile phones and PlayStation accessories. His team also recently started working on a micro OLED head mount display for motorcycle helmets. He reports that he met his wife, Olivia at Sony; the couple married in June 2014 and has one child. "We went on two honeymoons to Thailand and Cambodia," Keith says. "On the first, we were biking to Angkor Wat and with less than a mile to go we stopped to take photos. Within seconds, Olivia lost her footing while turning the bike around, slipped and broke her ankle. Her recovery took about five months. We returned to Cambodia and toured the beach areas of Thailand on our second honeymoon.

[2000]
Ed Kaen (EE) reports that he married Deborah Soroudi in Dec. 2014. The couple lives in downtown San Diego.



RICARDO VALERDI

Ricardo Valerdi (EE) continues as associate professor of systems and industrial engineering at the University of Arizona. In his spare time, he runs a nonprofit called Science of Sport, which uses sports to teach math and science to K-12 students. He works with numerous MLB and MLS teams and recently gave a TEDx talk, which can be found online at www.youtube.com/watch?v=sAMahXShlgU. He was also a visiting fellow of the Royal Academy of Engineering in the U.K.

[2001]
James Cena (EE) is currently stationed on a Norfolk, Va.-based carrier. He was recently selected to the rank of commander in the Navy. He graduated with a master's in electrical engineering from the Naval Postgraduate School in Monterey, Calif.



JAMES CENA

[1997]
Tom Mack (EE) has retired from the U.S. Navy and taken a position as technical director of San Diego operations for ManTech International Corporation.



TOM MACK

Ty Quan (EE) and his wife, Lindsay, purchased a home in San Diego in 2013 and are enjoying beginning their next chapter together. They hope to “grow the family” soon. Tyler is an engineering portfolio manager for Forward Slope, Inc., a technology and services company headquartered in San Diego. Tyler’s direct client work involves supporting the integration and testing of the Navy’s C4I systems.

Nathan Schneider (EE) is currently a student at the Naval War College working on a master’s degree in national security and strategic studies. His daughter, Tess Ellorie Schneider, was born on Dec. 14, 2014.



NATHAN SCHNEIDER

Michella (EE) and Alika Vasper (EE) continue to work at the Pearl Harbor Naval Shipyard as nuclear engineers. Alika is the supervisor for the instrumentation and control branch. Michella is part of a corporate team that is leading an initiative to transition all four public shipyards from paper to electronic working documents. Their sons — AJ, 5; and Eli, 3 — enjoy Kempo Karate. The Vaspers stay active through CrossFit and running events.



MICHELLA AND ALIKA VASPER

[2002]
Sam Hillebrand (EE) is working as a technical marketing engineer at Intel.



THOMAS DAVIS

[2003]
Joshua Sample (EE) celebrated five years of marriage on May 23, 2015 to “the most wonderful woman, Jodi.” The couple celebrated the arrival of their first child, Jacob Ray, on July 23, 2015. In January 2014, Joshua started Pathway Technical Sales, a sales firm. Find more information about the company at www.pathwayrep.com.

[2004]
Christian Caracoza (EE) is in his 11th year at Boeing and is currently working as a systems engineer. He has an MBA from the University of Redlands. He and his wife, Lili, have a 2 year-old daughter named Emma.



JARED SMITH

Jared Smith (ISyE) reports that with the love and support of his wife, Jill, he recently earned his JD from UC Hastings College of the Law in San Francisco. He says that while his name is on the degree, his wife made huge sacrifices to give him the opportunity to succeed. After three years of living in the Bay Area, they have returned home to San Diego. Jared will be joining the San Diego office of the law firm of Fish & Richardson this fall; his practice will focus on patent law.

[2005]
Thomas Davis (EE) reports that his wife, Erin Fuller (also a USD grad), has accepted a position as a dermatologist in Stockton, Calif. Tom will continue to work remotely as a part-time senior engineer at WSP Hawaii and will also serve as part-time stay-at-home dad to son Oliver Nainoa Davis.

[2006]
Joe Quiroz (ISyE) reports that after spending the first eight years of his career at Northrop Grumman Aerospace Systems in Rancho Bernardo, Calif., he accepted a position at General Atomics Aeronautical Systems in Poway, Calif. In this role, he is serving as a project engineer working on reliability and maintainability sustainment projects for USAF and FMS programs. This will entail finding affordable solutions to keeping the Predator and Reaper fleets operational for years to come.

[2007]
Hunter Barns (ISyE/History) recently finished more than seven years of active duty service as a naval submarine officer. In February 2015, he started in his new role as senior business ana-



HUNTER BARNES

lyst at the Washington, D.C. office of A. T. Kearney, a top management consultant firm. In May 2015, he graduated from Duke University’s Pratt School of Engineering with a master’s degree in engineering management.

Robert Jones (EE) has been working for eight years at Raytheon in Tucson, Ariz. He and his wife, Charlene, have two daughters: Anastasia, 3; and Sophia-Dei, 1. Robert is currently working towards a master’s degree in Christian apologetics from Luther Rice College and Seminary in Lithonia, Ga.



ROBERT JONES



IAN AND CHERYN METZGER

Ian and Cheryn (Engebrecht Metzger (MEs)) recently celebrated their third wedding anniversary in Yellowstone National Park. After five “wonderful years” in Colorado, the couple has moved to Portland, Ore. There, Ian started a new job as a senior engineer in Lockheed Martin’s energy services division, and Cheryn transferred to the Pacific Northwest National Laboratory. The couple is loving life with their dog, Gus, in their new home in Portland’s forested west hills.



MATT LEIGH. Photo by Daniel Brown

[2010]

Matt Leigh (ME) received an MFA in recording arts and technology from Middle Tennessee State University in 2013. He was recently hired as the studio manager and head engineer at The Tracking Room, a world-class recording studio in Nashville, Tenn., which serves a diverse list of clients ranging from Vince Gill to Barbara Streisand to U2 to James Taylor (www.thetrackingroom-studio.com). Matt recently spent six weeks working with Taylor Swift and Firefly Entertainment as they rehearsed and prepared for Swift's upcoming concert tour.

[2011]

Brandon Blom (ME) celebrated his five-year anniversary with Qualcomm in May 2015 and recently received a promotion to senior engineer. He expects to complete his Master's of Science in mechanical structures from UCLA in Dec. 2015.

Ryland Gill (ISyE) was promoted to lead process engineer at the Parker Hannifin Corporation.

Will Hoppe (ME) worked at Solar Turbines for the year following graduation from USD. He then moved to San Francisco and started Ocean Beach Sportswear Inc., a wholesale clothing design, manufacturing and distribution company that also does in-house textile printing. In the past two years, the company has grown to employ more than 10 employees, and their products can be found in stores throughout California.

David Leyva (ME) reports that after graduating from the University of San Diego, he worked as a mechanical engineer for a dot matrix printer company in San Diego for three years. In May 2014, he joined the Peace Corps and has been in Cameroon as a science education volunteer.



DAVID LEYVA (BOTTOM LEFT)

Kristen (Schalliol) Nystuen (ISyE) is currently working as a process improvement consultant at St. Patrick Hospital, which is part of Providence Health and Services. Kristen and her husband of three years, Steve, live in Missoula, Mt.

Tim Roe (ISyE) reports that in January 2015, he was promoted to associate equity risk controller for Morgan Stanley in Baltimore, Md. He has been working for Morgan Stanley for the past three years.

Jenna Rohrbacker (ME) says that in April 2015, she moved to Los Angeles for a new job as a structural design engineer at Northrop Grumman. She is working at the El Segundo site and is a member of the wing design team for the new Air force T-X Trainer.



CHRISTOPHER STEWARD (SECOND FROM LEFT)

Christopher Steward (EE) received his MSEE from the University of California, Santa Barbara with an emphasis in control theory and signal processing while working in the robotics lab in graduate school. He resumed work at Leidos as a radar signal-processing engineer, which focuses on the development and analysis of detection and tracking algorithms to influence designs of future systems.

[2012]

Matt Gigli (EE) started a new job as an LTE modem firmware engineer in June 2014. That same month, he graduated from the University of California, San Diego with a master's in advanced studies in wireless embedded systems. He recently got engaged to USD alumna Danielle Sullivan; they are currently buying their first home together. In May 2015, they adopted a new French bulldog puppy.



MATT GIGLI

[2013]

Alvin Javier (EE) moved to Hawaii in January and started a new job as an electrical engineer with InSynergy Engineering in Honolulu.

Marie Piette (EE) reports that since graduating from the University of San Diego, she has been working as an enterprise applications software engineer on the Europa Clipper project at the Jet Propulsion Laboratory (JPL) in Pasadena, Calif. This fall, she will begin courses as a fellowship recipient at Claremont Graduate University. Marie will be pursuing a master's degree in information systems and technology while working full time at JPL.

Warren Putman (EE) received his Master of Science in electrical engineering from Santa Clara University in June 2015. He recently started a position at Luxtera as a design engineer working in silicon photonics.

[2014]

Nicholas Delgado (EE) is working as a manufacturing engineer for Clarity Design in Rancho Bernardo, Calif. He is also dancing for Culture Shock San Diego and performing with their troupe.

Philip Hoskinson (ME) continues his energy related research through a Department of Energy fellowship, and is pursuing an MS in mechanical engineering at San Diego State University.

Whitney Robinson (EE) reports that in March 2015, she was hired as a project engineer at AMA Consulting Engineers in Los Angeles, a design firm for nonresidential media and production facilities consisting of electrical, mechanical and plumbing engineers.

B@USD, the University of San Diego's engineering magazine, is published annually each fall. Class notes are solicited each summer from alumni of the Shiley-Marcos School of Engineering.

To learn more about the school, go online to www.sandiego.edu/engineering or call (619) 260-4627.

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



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In 2015, USD's Shiley-Marcos School of Engineering conferred diplomas to 74 students, our largest graduating class ever. The class was composed of 21 electrical engineers (EEs), 17 industrial and systems engineers (ISyEs) and 36 mechanical engineers (MEs).

Here is what some of our 2014 and 2015 grads are doing:

Mariam Alali (EE) is working for Global Foundries in Abu Dhabi, UAE.

Hamad Alnaser (EE) is a field engineer for Schlumberger in Sugarland, Texas.

Connor Anderson (ME) was commissioned as a second lieutenant of infantry in the U.S. Army. He was identified as one of the top 10 Army ROTC cadets in the nation.

Federica Arriaga (ISyE) is a project engineer at Amazon's fulfillment center in San Bernardino, Calif. Initially, she will rotate every eight months into a new position, including stints in design, project and process engineering.

Alyssa Black (ME) is an account manager for Clarity Design in San Diego.

Chaney Countryman (ME) is a product development associate engineer in the engineering rotational development program for Caterpillar, Inc. in Mossville, Ill.

Orlando Crespo (ME) is designing optical equipment intended for use in developing countries for Clarity Design, Inc. in San Diego.

Ruairidh Donaldson (ME) is a student naval aviator for the United States Navy.

Darrell Dotterer (EE) is an ensign for the United States Navy.

Henry Esser (ME) is a rotational engineer in Denver, Colo. at the Gates Corporation.

Shaun Florance (ME) was commissioned as an ensign in the U.S. Navy and is now a student aviator assigned to the Naval Air Station in Pensacola, Fla.

Miluska Garcia (EE) received four job offers after graduation, and ultimately accepted a position as an electronics engineer with the Department of the Navy in Virginia.

Brendan Gee (EE) is an engineer under the new professionals program for SPAWAR Systems Center Pacific in San Diego.

Steven Go (ME) is working on the analysis of thermodynamic properties of airplanes for United Technologies Aerospace Structures in Chula Vista, Calif.

Hannah Halopoff (EE) is working in the professional development program, performing multiple job assignments for Northrop Grumman in Azusa, Calif.

Stephanie Harrison (EE) is working on an 18-month rotational program for Northrop Grumman in the electronic systems sector in Linthicum Heights, Md.

Autumn Khalily (ME) is working for BP America in Houston, Texas.

Ryan Long (ME) is working in engineering sales for Johnson Controls in Lincoln, R.I.

Phil Manto (ME) was commissioned as an ensign in the Navy and is now a student aviator assigned to the Naval Air Station in Pensacola, Fla.

Sam McClay (ME) was commissioned in the Navy and is attending Nuclear School in Goose Creek, S.C.

Kathleen McGuire (EE) is a product/test engineer for Freescale Semiconductor in Austin, Texas.

Luke Nicol (EE) is a submarine officer for the United States Navy.

Tawni Paradise (ISyE) has joined Teach for America and will be teaching math at a high school in San Diego.

Ron Perranoski (ME) is a mechanical engineer for General Atomics ASI in Poway, Calif.

Christopher Pettinati (ME) is an NC programmer for GKN Aerospace in El Cajon, Calif.

Julian Ringhof (ME) is a field service representative for Solar Turbines in Western Europe.

Luis Toscana (ISyE) is in Guatemala working in supply chain management for McDonald's.

Jessica Urbano (EE) is a digital hardware engineer for Cubic Global Defense in San Diego.

Allyson Ward (EE) is a software engineer with systems for Cubic Global Defense in San Diego.

Kimberly Woodbury (ISyE) is working on a two-year rotational program within the operations department of the life sciences solution group of Thermo Fisher Scientific in Carlsbad, Calif.

Paulina Yoo (ME) is a manufacturing engineer at Zodiac Pools.



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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. Her gift gives USD engineering students the chance to be true Changemakers.