Outstanding in Their Field
Celebrating the many achievements of USD’s Engineering program

I am excited to present our third issue of USD Engineer. With each issue, engineering at USD has continued to grow. Last year, for the first time, we crossed the mark for more than 300 students. This fall, we’ve set yet another record, and welcome more than 350 new and returning aspiring engineers to our program. In May, we celebrated the commencement of 44 freshly minted USD engineers. And, as the number of students and alumni grows, so too does the diversity of their accomplishments, both inside and outside the classroom.

The first feature story in this issue highlights the achievements of our engineering student-athletes. While it’s unusual for students majoring in engineering to participate in NCAA athletics at most schools, at USD, it’s much more common. This story reveals how their athletic pursuits complement their engineering studies, helping to make them complete engineers who can succeed both technically and professionally.

Another story recognizes the academic accomplishment of our outstanding students by chronicling the installation of a new chapter of Tau Beta Pi at USD. Tau Beta Pi is the first and most distinguished national honor society. Its values of distinguished scholarship, exemplary character and the desire to foster a liberal culture resonate strongly with USD engineering’s mission. The formation of a USD chapter is a milestone event that gives national recognition to our engineering student body.

Of course, as the ranks of our students and alumni continue to grow, it becomes more difficult to maintain the close relationships that enrich our programs and are of great value to our faculty and staff. For several years, we’ve maintained the University of San Diego Engineering Alumni LinkedIn group, and we encourage you to join us there, even if you aren’t an engineering alumnus. And last spring, we began hosting engineering social events at USD’s O’Toole’s lounge on campus, and will be adding more alumni events throughout the year. The first of these will be an inaugural Homecoming and Family Weekend event on Sat., Oct. 13. We hope to see you there.

Finally, feel free to send me or my “friend” USD Engr, a Facebook friend request (https://www.facebook.com/usd.engr), because any friend of USD Engineering is a friend of mine.

But these three stories offer just a few of the ways the USD engineers stand out in their studies, work and communities. Many other stories, as well as news from the latest graduating class and more than 60 alumni, help to complete the picture. I hope you enjoy catching up on the accomplishments of your colleagues, and I look forward to being able to include news from you next year.

Kathleen Kramer, PhD
Director of Engineering Programs

Outstanding in Their Field
Celebrating the many achievements of USD’s Engineering program

I am excited to present our third issue of USD Engineer. With each issue, engineering at USD has continued to grow. Last year, for the first time, we crossed the mark for more than 300 students. This fall, we’ve set yet another record, and welcome more than 350 new and returning aspiring engineers to our program. In May, we celebrated the commencement of 44 freshly minted USD engineers. And, as the number of students and alumni grows, so too does the diversity of their accomplishments, both inside and outside the classroom.

The first feature story in this issue highlights the achievements of our engineering student-athletes. While it’s unusual for students majoring in engineering to participate in NCAA athletics at most schools, at USD, it’s much more common. This story reveals how their athletic pursuits complement their engineering studies, helping to make them complete engineers who can succeed both technically and professionally.

Another story recognizes the academic accomplishment of our outstanding students by chronicling the installation of a new chapter of Tau Beta Pi at USD. Tau Beta Pi is the first and most distinguished national honor society. Its values of distinguished scholarship, exemplary character and the desire to foster a liberal culture resonate strongly with USD engineering’s mission. The formation of a USD chapter is a milestone event that gives national recognition to our engineering student body.USD chapter is a milestone event that gives national recognition to our engineering student body.

Of course, as the ranks of our students and alumni continue to grow, it becomes more difficult to maintain the close relationships that enrich our programs and are of great value to our faculty and staff. For several years, we’ve maintained the University of San Diego Engineering Alumni LinkedIn group, and we encourage you to join us there, even if you aren’t an engineering alumnus. And last spring, we began hosting engineering social events at USD’s O’Toole’s lounge on campus, and will be adding more alumni events throughout the year. The first of these will be an inaugural Homecoming and Family Weekend event on Sat., Oct. 13. We hope to see you there.

Finally, feel free to send me or my “friend” USD Engr, a Facebook friend request (https://www.facebook.com/usd.engr), because any friend of USD Engineering is a friend of mine.

But these three stories offer just a few of the ways the USD engineers stand out in their studies, work and communities. Many other stories, as well as news from the latest graduating class and more than 60 alumni, help to complete the picture. I hope you enjoy catching up on the accomplishments of your colleagues, and I look forward to being able to include news from you next year.

Kathleen Kramer, PhD
Director of Engineering Programs

Outstanding in Their Field
Celebrating the many achievements of USD’s Engineering program

I am excited to present our third issue of USD Engineer. With each issue, engineering at USD has continued to grow. Last year, for the first time, we crossed the mark for more than 300 students. This fall, we’ve set yet another record, and welcome more than 350 new and returning aspiring engineers to our program. In May, we celebrated the commencement of 44 freshly minted USD engineers. And, as the number of students and alumni grows, so too does the diversity of their accomplishments, both inside and outside the classroom.

The first feature story in this issue highlights the achievements of our engineering student-athletes. While it’s unusual for students majoring in engineering to participate in NCAA athletics at most schools, at USD, it’s much more common. This story reveals how their athletic pursuits complement their engineering studies, helping to make them complete engineers who can succeed both technically and professionally.

Another story recognizes the academic accomplishment of our outstanding students by chronicling the installation of a new chapter of Tau Beta Pi at USD. Tau Beta Pi is the first and most distinguished national honor society. Its values of distinguished scholarship, exemplary character and the desire to foster a liberal culture resonate strongly with USD engineering’s mission. The formation of a USD chapter is a milestone event that gives national recognition to our engineering student body.USD chapter is a milestone event that gives national recognition to our engineering student body.

Of course, as the ranks of our students and alumni continue to grow, it becomes more difficult to maintain the close relationships that enrich our programs and are of great value to our faculty and staff. For several years, we’ve maintained the University of San Diego Engineering Alumni LinkedIn group, and we encourage you to join us there, even if you aren’t an engineering alumnus. And last spring, we began hosting engineering social events at USD’s O’Toole’s lounge on campus, and will be adding more alumni events throughout the year. The first of these will be an inaugural Homecoming and Family Weekend event on Sat., Oct. 13. We hope to see you there.

Finally, feel free to send me or my “friend” USD Engr, a Facebook friend request (https://www.facebook.com/usd.engr), because any friend of USD Engineering is a friend of mine.

But these three stories offer just a few of the ways the USD engineers stand out in their studies, work and communities. Many other stories, as well as news from the latest graduating class and more than 60 alumni, help to complete the picture. I hope you enjoy catching up on the accomplishments of your colleagues, and I look forward to being able to include news from you next year.

Kathleen Kramer, PhD
Director of Engineering Programs

Outstanding in Their Field
Celebrating the many achievements of USD’s Engineering program

I am excited to present our third issue of USD Engineer. With each issue, engineering at USD has continued to grow. Last year, for the first time, we crossed the mark for more than 300 students. This fall, we’ve set yet another record, and welcome more than 350 new and returning aspiring engineers to our program. In May, we celebrated the commencement of 44 freshly minted USD engineers. And, as the number of students and alumni grows, so too does the diversity of their accomplishments, both inside and outside the classroom.

The first feature story in this issue highlights the achievements of our engineering student-athletes. While it’s unusual for students majoring in engineering to participate in NCAA athletics at most schools, at USD, it’s much more common. This story reveals how their athletic pursuits complement their engineering studies, helping to make them complete engineers who can succeed both technically and professionally.

Another story recognizes the academic accomplishment of our outstanding students by chronicling the installation of a new chapter of Tau Beta Pi at USD. Tau Beta Pi is the first and most distinguished national honor society. Its values of distinguished scholarship, exemplary character and the desire to foster a liberal culture resonate strongly with USD engineering’s mission. The formation of a USD chapter is a milestone event that gives national recognition to our engineering student body.USD chapter is a milestone event that gives national recognition to our engineering student body.

Of course, as the ranks of our students and alumni continue to grow, it becomes more difficult to maintain the close relationships that enrich our programs and are of great value to our faculty and staff. For several years, we’ve maintained the University of San Diego Engineering Alumni LinkedIn group, and we encourage you to join us there, even if you aren’t an engineering alumnus. And last spring, we began hosting engineering social events at USD’s O’Toole’s lounge on campus, and will be adding more alumni events throughout the year. The first of these will be an inaugural Homecoming and Family Weekend event on Sat., Oct. 13. We hope to see you there.

Finally, feel free to send me or my “friend” USD Engr, a Facebook friend request (https://www.facebook.com/usd.engr), because any friend of USD Engineering is a friend of mine.

But these three stories offer just a few of the ways the USD engineers stand out in their studies, work and communities. Many other stories, as well as news from the latest graduating class and more than 60 alumni, help to complete the picture. I hope you enjoy catching up on the accomplishments of your colleagues, and I look forward to being able to include news from you next year.

Kathleen Kramer, PhD
Director of Engineering Programs

Outstanding in Their Field
Celebrating the many achievements of USD’s Engineering program

I am excited to present our third issue of USD Engineer. With each issue, engineering at USD has continued to grow. Last year, for the first time, we crossed the mark for more than 300 students. This fall, we’ve set yet another record, and welcome more than 350 new and returning aspiring engineers to our program. In May, we celebrated the commencement of 44 freshly minted USD engineers. And, as the number of students and alumni grows, so too does the diversity of their accomplishments, both inside and outside the classroom.

The first feature story in this issue highlights the achievements of our engineering student-athletes. While it’s unusual for students majoring in engineering to participate in NCAA athletics at most schools, at USD, it’s much more common. This story reveals how their athletic pursuits complement their engineering studies, helping to make them complete engineers who can succeed both technically and professionally.

Another story recognizes the academic accomplishment of our outstanding students by chronicling the installation of a new chapter of Tau Beta Pi at USD. Tau Beta Pi is the first and most distinguished national honor society. Its values of distinguished scholarship, exemplary character and the desire to foster a liberal culture resonate strongly with USD engineering’s mission. The formation of a USD chapter is a milestone event that gives national recognition to our engineering student body.USD chapter is a milestone event that gives national recognition to our engineering student body.

Of course, as the ranks of our students and alumni continue to grow, it becomes more difficult to maintain the close relationships that enrich our programs and are of great value to our faculty and staff. For several years, we’ve maintained the University of San Diego Engineering Alumni LinkedIn group, and we encourage you to join us there, even if you aren’t an engineering alumnus. And last spring, we began hosting engineering social events at USD’s O’Toole’s lounge on campus, and will be adding more alumni events throughout the year. The first of these will be an inaugural Homecoming and Family Weekend event on Sat., Oct. 13. We hope to see you there.

Finally, feel free to send me or my “friend” USD Engr, a Facebook friend request (https://www.facebook.com/usd.engr), because any friend of USD Engineering is a friend of mine.

But these three stories offer just a few of the ways the USD engineers stand out in their studies, work and communities. Many other stories, as well as news from the latest graduating class and more than 60 alumni, help to complete the picture. I hope you enjoy catching up on the accomplishments of your colleagues, and I look forward to being able to include news from you next year.

Kathleen Kramer, PhD
Director of Engineering Programs
Prestigious Milestone
National honor society Tau Beta Pi installed at USD

by Ryan T. Blystone

The year was 1991. USD’s first graduating class of engineering students — consisting, in its entirety, of five electrical engineers, who all followed a unique dual degree (BA/BS) curriculum taught by a small but dedicated group of faculty members — proudly went forth into the wider world. To say the program has been on a growth spurt since would be an understatement.

Case in point: Two major disciplines — industrial and systems engineering along with mechanical engineering — have been added, graduated classes and achieved ABET accreditation. Supremely creative students have come up with ideas ranging from robots to sustainability, all the while embracing interdisciplinary projects that have impacted communities around the globe.

And in February of 2012, USD’s engineering programs took another significant step forward as current students and alumni participated in the official USD chapter installation for Tau Beta Pi, the oldest (established in 1885) and most prestigious of engineering national honor societies. “This recognition from Tau Beta Pi is a very important milestone in the development of our distinguished engineering programs,” says USD’s Director of Engineering Programs Kathleen Kramer. “It’s an excellent fit with our emphasis on development of the whole person, or what I call the complete engineer.” Tau Beta Pi is a strong indicator in promoting the liberal culture with schools of engineering, and emphasizes both distinguished scholarship and exemplary character.

News of the program’s chapter acceptance was particularly pleasing for Barbara Kanneman, wife of the late Thomas Kanneman, the USD engineering program’s founding director. Barbara made a generous gift to the engineering program to help pave the way for USD’s chapter and honor her husband, who came to USD in 1986 and was a Tau Beta Pi member.

“I’m just really pleased that this has finally happened,” she says. “It’s something I know that Tom always wanted to see happen at USD. He belonged to several honor societies and it was important to see the students at USD honored for their achievements.”

Kramer says the petition process to get chapter approval began in 2011 after the program met several mandatory eligibility requirements, including community service.

“Our service project this year was the FIRST Lego League Tournament at Escondido Charter High School in November,” Kramer says. “We served nearly 168 students, ages 9-13, who were discovering engineering through an engineering challenge on food safety.”

In October 2011, Petitioning President Joseph Effis ’12 and Electrical Engineering Professor and Faculty Advisor Susan Lord presented USD’s case for final approval to the Tau Beta Pi Executive Council. Mechanical Engineering major Jessica Buckley was elected the first student president of the new chapter of Tau Beta Pi, California Alpha Epsilon. The initiative featured students and alumni, a mix that Kramer welcomed. “We’re extremely happy that so many of our finest alumni were a part of this. We definitely look forward to more alumni initiatives in the future.”

The next iteration for the California Alpha Epsilon chapter of Tau Beta Pi is scheduled for Dec. 17, 2012, in the DeNegen Alumni Center.

Shining Stars
USD faculty members recognized for stellar work at nation’s top engineering education conference

by Davis Jones ’14

The USD Department of Engineering garnered an impressive pair of accolades last June, as faculty members Thomas Schubert and Susan Lord (pictured above) were honored at the American Society of Engineering Education (ASEE) conference and exposition in San Antonio, Texas.

Lord’s collaborative research paper titled “Race, Gender, and Measures of Success in Engineering Education” won this year’s William Elgin Wickenden Award, which recognizes the highest standards of scholarly research among the 29 articles published in the Journal of Engineering Education in 2011.

“Nothing was more important than seeing her hard work recognized in such a forum by so many colleagues,” Lord says. “It was very meaningful.”

The prestigious award is named in honor of William Elgin Wickenden, whom ASEE describes as an “engineer, educator, philosopher, administrator and humanitarian.” Schubert, who co-founded the engineering program in 1987, received the Robert C. Quinn Award for “outstanding, sustained contributions in providing and promoting excellence in experimentation and laboratory instruction.” Among his numerous career highlights, he cites developing many of the laboratory courses and exercises in the electrical engineering program, as well as helping to develop both the industrial and systems engineering program and the mechanical engineering program, as the accomplishments he’s most proud of.

“Basically, what I have done is to dedicate my efforts as an engineering professor to creating an environment conducive for young adults to grow into engineering professionals,” he says. “To me, that means putting the welfare of the students and the quality of my courses above all else.”

Both professor’s accomplishments are reflective of a surging program that continues its rise toward national prominence.

“Honors such as these help bring the university’s name to the forefront for others across the nation and the world,” Lord says.
Exercises in Ingenuity
Capstones give students room to strut their stuff
by Ryan T. Blystone

There’s nothing funny about the idea of an engineer’s mind having a creative side. Just ask senior mechanical engineering student Patrick Walton, who took “a funny idea” for a project that quickly turned serious. He and three classmates developed the Kinetic Fountain, which powers water spouts with music. That unlikely marriage between art and science was front-and-center at the engineering programs’ 2012 Spring Open House.

“We’ve been building this version for four to five months, but the testing to get to this point was nine months,” says Walton, who worked with classmates William Lehman, Gabriel Mendiola and Michael Spies. “It’s been a lot of work, but it all came together and we got what we were hoping for.”

The team displayed the fountain for open house visitors in the shady, verdant Loma Hall/Warren Hall patio, and it was definitely an eye-catching display. The blue rectangular box was designed “to recreate the visual output of an equalizer with multiple fountain outputs,” explains Walton. “All jets of the fountain receive flow from one large pump that’s controlled by a ball valve connected to a CNC stepper motor. An Arduino board filters the musical input to then send the given outputs to the stepper motor controllers.”

The Kinetic Fountain was one of 13 senior capstone projects presented among the electrical (EE), mechanical (ME) and industrial and systems (ISE) engineering disciplines. There were also posters on the second and third floors of Loma Hall to showcase Six Sigma-focused projects by ME and ESE students; a durable “bulletproof” school binder; tents that provide ample ground-up storage space, and a headphone storage device. The four ME capstones, in addition to the Kinetic Fountain, were: an Energy Relay Competition where students created four self-propelled devices utilizing the contest’s theme of alternative energy sources in a relay-race styled competition; a T-shirt folding machine; creation of new tennis ball designs that, through testing of their spin rates and velocity, attempt to slow down the sport of tennis for the sake of crowd entertainment; and continuation of a wind tunnel project that uses lab experiments involving fluid dynamics and heat transfer.

The five electrical engineering capstone projects were: Biomedical Vision Sensor System (BioVSS) for Providing Live Biotelemetry and Environmental Data; for the 2012 International Conference of the IEEE Engineering in Medicine and Biology Society. Each E/E capstone assessed ways to improve existing businesses:

- examining drive-thru throughput at fast food restaurants, improving overall efficiency for L&T Precision, a machining and sheet-metal fabrication company, and improved layout of operations at USD;
- E-Waste Collection Center: The Kinetic Fountain, BioVSS and the fast food drive-thru capstones received special awards. Six judges determined the winners on technical merit, presentation, demonstration and a written report. Students remarked upon how much they enjoyed creating their capstone projects, especially because the projects integrate knowledge and skills they’ve learned throughout their engineering studies.

And that’s no joke.
Bradley Chase, associate professor of industrial and systems engineering, presented “From Explicit to Implicit Speech Recognition” at the 34th Annual International Conference of IEEE Engineering in Medicine and Biology Society in August 2012. The presentation was part of his ongoing research on the use of electroencephalographic and its integration in brain-computer interfaces. He continues research efforts on human physical and cognitive performance in conjunction with UC San Diego’s College of Medicine and Department of Cognitive Science, along with multiple research labs at the Naval Health Research Center in San Diego.

Ming Huang, mechanical engineering program coordinator, has published an article: “A Study on Dimension Synthesis for the Peaucellier Mechanism” in the Journal of Mechanics Engineering and Automation, which he co-authored with senior ME student Jessica Buckley. He also recently completed an article titled “Performance Analysis and Design Optimization of SR Nanor Parallel Robots,” to be presented at the 2013 International Mechanical Engineering Congress and Exposition in Houston, Texas. This presentation is part of the ongoing research on integrating CAD, robotics and soft computing.

Frank Jacobitz, professor of mechanical engineering, published two papers on helical properties of turbulence in the Journal of Turbulence. “Mean helicity was considered in the article “Influence of Initial Mean Helicity on Homogeneous Turbulent Shear Flow,” published in Physical Review E: Local helicity was studied in an article titled “On Helical Multiscale Characterization of Homogeneous Turbulence” that will appear in the Journal of Turbulence. The articles are part of an ongoing collaboration with Kai Schneider (Marseilles), Wolfret Bos (Eindhoven) and Marie Farge (Paris); aspects of this work have been presented at a variety of conferences over the past year. Jacobitz also investigates properties of the microscorrelation in muscle fascia with mechanical engineering senior Niki Yamamura and in the human conjunctiva with engineering sophomore Will Dow. During the past academic year, Jacobitz also taught the first honors freshman engineering preceptual and follow-up course.

James Kohl, associate professor of mechanical engineering, and Truc Ng, assistant professor of industrial and systems engineering, along with external research colleagues, have written an article entitled “An Investigation of Scratch Testing of Silicone Elastomer Coatings with a Thickness Gradient,” published in the May 2012 issue of the Journal of Applied Polymer Science

Susan M. Lord, coordinator and professor of electrical engineering, along with co-authors from USD Sociology, Purdue, and Rice-Hulman, won the American Society of Engineering Education Wickenden Award for the best paper published in the Journal of Engineering Education in 2011. In October 2011, Lord received the IEEE Education Society Distinguished Member Award for outstanding service to the education society as an officer and society president, for service to IEEE and the profession, and for significant contributions in educational and computer engineering education as well as the Schmitt Award for outstanding service to the Frontiers in Education Conference. Lord was on sabbatical for 2011-2012; she spent the spring 2012 semester teaching and doing engineering education research at Southeast University in Nanjing, China. It was an amazing experience for her whole family.


David Malicky, associate professor of mechanical engineering, was a co-author on “Removal of Pseudobarnacles (Bryozoa) from Silicone Coatings” recently published in Progress in Organic Coatings.

Rick Olson, associate professor of industrial and systems engineering, has received additional funding from the San Diego Foundation to support the development of a greenhouse gas mitigation and cost effectiveness tool. This extension of a project that Olson was awarded, along with Scott Andries in USD’s Energy Policy Initiative Center, will help communities in San Diego compare alternative strategies for meeting greenhouse gas emissions targets set for 2000 and 2015. During the coming year, he will be the program chair for the Industrial Engineering Division of the ASEE, and will be organizing the IED sessions at the 2013 ASEE Annual Conference.

Leonard Perry, coordinator of industrial and systems engineering, continued his research efforts in the area of system improvement via quality improvement methods, especially in the area of applied statistics, Six Sigma, and design of experiments. He recently collaborated with clinicians from Scripps Health in the area of Six Sigma to publish an article in the Journal of Nursing Administration. In the area of teaching, he co-taught the interdisciplinary technical elective in the Spring 2012 term with Mechanical Engineering Coordinator Ming Huang entitled “Product Design and Development Using Six Sigma.”

ON THE BALL

Engineering student-athletes are shifting the paradigm

by Mike Sauer

These days, it seems there are as many clichés attributed to team sports as there are, well, team sports. We all know that there’s no “I” in “TEAM” that you win as a team and you lose as a team, that individual success means nothing if the team fails, and, of course, that it’s a team effort. But while they can be an integral part of pre-game huddles and post-game locker room speeches, clichés have never helped orchestrate a tide-turning touchdown drive. Nor have they boosted a game-winning goal, or served out a tightly contested tennis match. Come to think of it, they don’t matter one iota to a men’s crew team member straining to cross the finish line first.

Thankfully for fans of Toronto athletics, those pressure-packed responsibilities are the purview of USD’s stellar student-athletes, many of whom hail from the university’s burgeoning Department of Engineering. And whether you’re watching USD Offensive Lineman of the Year Christian Fetters serve out a tightly contested tennis match. Come to think of it, they don’t matter one iota to a men’s crew team member straining to cross the finish line first.

Thankfully for fans of Toronto athletics, those pressure-packed responsibilities are the purview of USD’s stellar student-athletes, many of whom hail from the university’s burgeoning Department of Engineering. And whether you’re watching USD Offensive Lineman of the Year Christian Fetters, M.S.E. hitting winners with laser-like accuracy or four-year men’s crew team member Nick Delgado, B.S.E. outsprinting the competition, you get the sense that these are student-athletes whose drive, desire and dedication are the foundation for their success — both on the field of play and in the classroom.

“The most successful engineers are the ones that work effectively on teams with people who have different backgrounds and skills, and I’ve learned to expect that engineering student-athletes have a willingness to achieve that success,” says USD Director of Engineering Programs, Kathleen Kramer. Unfortunately, it’s also cliché in some circles to assume that student-athletes who pursue degrees in fields related to STEM (science, technology, engineering and math) can’t excel in college sports, given the amount of time needed to commit to their studies.

Not true, says Fetters, who managed to hold down a 3.2 grade-point average (GPA) while locking down some of the Pioneer Football League’s best defensive linemen. “You can do well both, but you better be really good with time management. Engineering is one of the more-demanding majors; given the amount of time you have to commit to labs and studies. You’ve got to be focused, because you really don’t have much free time to spare. There were definitely times where I wished I picked a major that allowed me to sleep more, but it was all definitely worth it.”

Fetters’ ability to balance sports and scholastics earned him selection to the National Football Foundation and College Hall of Fame Honor Society, as well as an internship with aerospace and defense conglomerate ATK, where he hopes to develop technologies that provide U.S. troops with the training they need for success on the battlefield. “Being in San Diego with the military presence here, it’s something I’m very respectful towards and thankful for. The idea of being able to help our troops by providing them with the most advanced technologies is something I’ve been interested in since I first got involved in USD’s engineering program.” As a freshman back in 2008, Magracia knew there would be two central components to her college experience: soccer and engineering. Little did she know that in November 2011, both would play a pivotal role in helping USD athletics ascend to new heights.

Imagine this white-knuckle scenario as the team’s co-captain, she was chosen to line up a potential game-winning penalty kick against the then No. 2 ranked UCLA Bruins, a team the Toreros had not beaten during Magracia’s tenure. As if that wasn’t enough pressure, a win would advance the Toreros into the Sweet 16 of the NCAA Women’s Soccer Tournament. And perhaps the crucial moment came when she stepped up to the spot with a 23-9 overall record in singles play, earning her first-team All-West Coast Conference (WCC) honors. As impressive an accomplishment as that is, it’s made even more so by the fact that she maintained a 3.82 GPA during her USD playing career. It’s liberating to know how much I can accomplish despite my brain and body wanting to shut down,” he says, laughing. “I’m a really positive person, which I think you have to be when the alarm goes off at 4:30 a.m., but I feel like rowing has helped me develop the discipline necessary to stay focused in my classes and my labs, and I only want to get better at both my junior year.”

Through their successes, all four of these exceptional Toreros are helping redefine what is possible for student-athletes, and in the process, rendering old clichés obsolete.

“It seems that many people are surprised that students can successfully combine athletics with engineering,” says Kramer. “These student-athletes epitomize the ‘complete engineer’ that we see as the key distinction of USD engineering.”
Breaking Barriers
Helping women to close the engineering gender gap

by Karen Gross

Even though Julie Brown’s own father worked as an electrical engineer while she was growing up in the fast-paced tech world of Silicon Valley, Calif., the 21-year-old senior readily admits that when she enrolled at USD, she barely knew what he — or any other engineer — actually did.

“I didn’t even really figure it out until my second semester of freshmen year,” says Brown, now on the verge of becoming an electrical engineer herself. “I was thinking either math or physics, but when I started taking engineering classes, I fell more and more in love with that.”

“I didn’t even really figure it out until my second semester of freshmen year,” says Brown, now on the verge of becoming an electrical engineer herself. “I was thinking either math or physics, but when I started taking engineering classes, I fell more and more in love with that.”

The revelation came as a surprise.

“I know there are a lot of people who don’t really enjoy taking those math and physics classes,” she says. “But I’m not just talking about math and physics anymore. I’m applying it to real life situations.”

Encouraging young women like Brown to pursue the so-called STEM professions — science, technology, engineering and math — has become a passion not only for USD faculty members, but also for ranks of female scientists and researchers across the country. A sweeping research survey released by the American Association of University Women in 2010 titled “Why So Few?” found that, while the picture is improving — especially in medicine, biology and the life sciences — career opportunities for women still lag far behind in physics and engineering. And in computer science, their numbers have actually declined after rising for several years.

“It has been found that if girls are not doing extremely well, they’ll transfer to something else where they will do extremely well,” says Kathleen Kramme, professor and director of engineering programs at USD. “It’s more likely that a male student will just shrug and say, ‘It’s hard degrees.”

That’s not the only difference.

“Subtle stereotypes that still imply girls are not smart enough steer them away from the so-called ‘hard’ sciences. And studies show that women are more inclined than men to want to see the results of their work in action, and to know that they’re making a difference in people’s lives,” explains what engineers actually do is crucial,” says Ottilia Kerberling, a mechanical engineer at Solar Turbines and lifetime member of the Society of Women Engineers.

“Young women need to know they can make a contribution to society and that engineering is a viable field,” she says. “We need to make the link to real people!”

That link was established early on for Kimberly La Salle, a 21-year-old senior whose choice of mechanical engineering was guided by her desire to improve the world.

“I’ve always wanted to help people, and I say what they need, then develop something they can use,” she says. “For her senior project, La Salle knows she wants to give back, and is thinking about designing a water delivery system for impoverished villages in Third World countries.

Convincing other young women and girls that they can take engineer-

ing and a variety of science careers in similarly impactful directions is something USD faculty take very seriously. Last spring, the university hosted the 10th annual Expanding Your Horizons conference, where more than 400 middle- and high-school aged girls took part in hands-on workshops where they tried everything from crime scene investigation to chromatography to building towers with spaghetti and marshmallows. Other outreach efforts include partnerships with the San Diego Science Alliance’s BEWiSE program, and Girls Day Out, a science and engineering fair that targets middle-school girls in San Diego.

But the hurdles remain very high. Even at USD — where numbers surpass the national average — only about a fourth of engineering students and a fifth of the faculty are female. According to the National Science Foundation, just 12 percent of undergraduate engineering degrees and 17 percent of degrees in physics are awarded to women. Getting girls past these daunting statistics and stubborn barriers, implicit bias and a mostly male work environment, can be tricky.

That jarring workplace reality hit Brown head-on, the first day of her summer internship at the offices of Ericsson, the telecommunications industry giant based in Silicon Valley.

“It was a little bit intimidating,” she says. “I walked through and it was all men.” Brown’s manager quickly gave her a pep talk. He told her that female engineers tend to hold back for fear of saying something wrong, and encouraged her to assert herself during meetings and conference calls.

That key piece of advice will likely be very useful to Brown and her fellow female engineers, as they bravely blaze a trail in a world that’s still quite foreign to women. They might also want to consider the wise words of Karen, reflecting on her own very successful career as a scientist and internationally acclaimed academic.

“It’s a female in this profession, I’m not used to being in the majority,” she laughs. “If this was upsetting or threatening to me, then I’d need to change fields.”

10 | USD Engineer | Fall 2012 | 11
Ali Almatrouk applies USD lessons to his Kuwait-based businesses

Impressive Impresario

By Steve Murray

A lmatrouk is a busy man, and that's just the way he likes it. The CEO of Makers, Inc. — a Kuwaiti company that Almatrouk created in 2009 — recently launched a second business venture in real estate.

“I come from an entrepreneurial family,” he says. “My grandfather was an entrepreneur and that’s just the way I was brought up. I had some experience doing that. It was a real opportunity and we jumped on it,” he recalls. “I also used Texas Instruments products while I was at USD and they helped me tremendously in my engineering classes. We contacted Texas Instruments and things moved on from there.”

While at USD, Almatrouk says he “was one of the top students in the USBE program and one of the best in Eta Kappa Nu.” He is quick to credit his education at USD as a key component in his success and says that shaping employees into ethical and competent managers is a big part of his business strategy.

An engineering and business graduate of the University of California, Almatrouk’s high standards and consistency served him well at USD and throughout his career. “It all keeps me quite busy, but it’s all really fun,” he says.

Almatrouk’s talent and drive as well. The Kuwaiti government recently selected him to be part of its Thukhur Promising Leaders program, established to nurture the future leaders of Kuwait. Given his boundless energy and esteem for his alma mater, there’s little doubt that this venture too will thrive.
President’s Message

Robert J. Woodson, Jr.

It is with great pleasure that I announce some of the notable achievements of our graduates from the fall of 2012. Our students are working throughout the world in a variety of roles and are making significant contributions to their fields.

Academic Recognition

Several of our graduates have been honored for their significant contributions to their fields and industries. Leo Prather was recognized for his contributions to the Aerospace Industry by the National Aerospace and Electronics Engineers. ITEX, Inc., a major contributor to this publication, is a company that recognizes outstanding efforts by its employees. Leo's work in the aerospace industry has been instrumental in advancing the field and improving safety and efficiency.

Professional Development

Our graduates are constantly seeking new opportunities to develop their skills and advance their careers. Many of them are taking advantage of the opportunities available to them, such as attending conferences and workshops to stay up-to-date on the latest advancements in their fields. Others are taking on leadership roles within their organizations, mentoring younger colleagues, and helping to shape the future of their industries.

Community Service

Our graduates are also making a significant impact in their communities. Many are volunteering their time and expertise to help those in need. Some are working with orphanages, while others are mentoring young people. These efforts demonstrate the positive influence that our graduates are having on the world.

Conclusion

The Class of 2012 not only joins the ranks of our distinguished alumni, but also sets the stage for future excellence. We are proud of their achievements and look forward to seeing what they will accomplish in the years to come.

Class Notes


david hunter (ee)

David Ehrlich received his B.S. in Computer Science from the California Institute of Technology in 2002 and his Ph.D. in Computer Science from Stanford University in 2007. He is currently a professor at the University of Michigan, where he is working on projects related to artificial intelligence and machine learning. His research interests include natural language processing and computer vision.

Class of 2003 Babies

Michelle Esteban (EE)

Michelle Esteban is a patent attorney with Schwegman, Lundberg, and Woessner, in San Jose, California. She has significant experience in the areas of patent law and intellectual property. She received her J.D. from the University of Michigan in 2006 and her B.S. in electrical and computer engineering from the University of California, Berkeley in 2001. She is a member of the American Bar Association and the Intellectual Property Law Association.

Lori Rasumussen (EGB) and her husband, James, welcomed their first child, daughter, Alia Rasumussen (EGB), in the fall of 2012. They are both happy to announce the birth of their little girl.

Lori is currently a Sales Engineer at Northrop Grumman, and James is a Senior Electrical Engineer at Boeing. They are both excited to share this special moment with their families and friends.

LoRi RAsMuSSEn  EGBERSPAULI  LUCCHINI

Lori Rasumussen (EGB) and her husband, James, welcomed their first child, daughter, Alia Rasumussen (EGB), in the fall of 2012. They are both happy to announce the birth of their little girl.

Lori is currently a Sales Engineer at Northrop Grumman, and James is a Senior Electrical Engineer at Boeing. They are both excited to share this special moment with their families and friends.

Lori Rasumussen (EGB) and her husband, James, welcomed their first child, daughter, Alia Rasumussen (EGB), in the fall of 2012. They are both happy to announce the birth of their little girl.

Lori is currently a Sales Engineer at Northrop Grumman, and James is a Senior Electrical Engineer at Boeing. They are both excited to share this special moment with their families and friends.

Lori Rasumussen (EGB) and her husband, James, welcomed their first child, daughter, Alia Rasumussen (EGB), in the fall of 2012. They are both happy to announce the birth of their little girl.

Lori is currently a Sales Engineer at Northrop Grumman, and James is a Senior Electrical Engineer at Boeing. They are both excited to share this special moment with their families and friends.
In 2012, USD’s School of Engineering conferred diplomas to 44 students, making it one of our largest graduating classes ever. The class was comprised of 14 electrical engineers (EEs), 11 industrial and systems engineers (ISYEs) and 19 mechanical engineers (MEs). Here’s what some of them have been up to since graduating:

Michael Rios (EE) is an electrical engineer at L3C. But this fall he will be attending graduate school to continue studying electrical engineering at the University of Wisconsin, Madison.

Janna Rohrbacher (ME) is a mechanical designer for Dubuque Consulting Engineers Inc. in San Diego.

Mackenzie Sparks (ME) is a systems engineer for Raytheon Integrated Defense Systems’ Expeditionary Warfare Center in San Diego, working on ship self-defense systems for the U.S. Navy.

Renee Thomashov (ISYE) is a subcontract administrator for the F/A-18 Horizone Grumman E3 Sargentos.

Jeff Trial (ME) accepted a position as an engineer assisting the capactor and radiation monitoring systems groups at General Atomics’ Electro-Optics Systems Inc. in San Diego, Calif.

Colby Trudeu (EE) is a hardware design engineer at Qualcomm and Engineering Hardware Team at Qualcomm in San Diego.

Anthony Van Der Zee (EE) is a software engineer at General Atomics’ Electro-Optics Systems Inc. in San Diego, Calif.

Andrew Distel (EE) is an Astronautics. He has been promoted to quality engineer at Johnson Martin in Boulder, Colo.

Joseph Ellis (EE) is an electrical engineer specializing in communications engineering at INTEK in San Diego. This fall he plans to begin full-time graduate studies at Columbia University, New York.

Chayne Johnson (ISEY) is a subcontractor administrator for the Broad Area Maritime Surveillance (BAMS) and Globalhawk program at Northrup Grumman in Rancho Bernards, Calif.

Jason Booth (EE) is a mechanical engineer at SAIC, but this fall he will be attending graduate school at Columbia University.

Anthony Raisch (ME) is a consulting engineer with Val Workforce at Solar Turbines in San Diego.

Julie Birch (EE) is a hardware engineer on the Corporate Engineering Hardware Team at Qualcomm in San Diego.

Brandon Blom (EE) is working on thermal analysis, product design and acoustic analysis as an engineer at Qualcomm in San Diego.

Jenni Bolea (EE) is an electrical integration engineer at General Atomics’ Electro-Optics in Poway, Calif.

Ryan Bouldiff (ME) is an engineering intern at Northrop Grumman in San Diego

Alain Credaau (EE) is an engineer at Inland Energy, LLC in San Diego.

Julio DeJesus (ISEY) is a quality engineer at Li-Comunicaciones in San Diego.

Bethany Dimas (ME) is an application engineer at Biosphere in Los Angeles.

In 2012, USD’s School of Engineering conferred diplomas to 44 students, making it one of our largest graduating classes ever. The class was comprised of 14 electrical engineers (EEs), 11 industrial and systems engineers (ISYEs) and 19 mechanical engineers (MEs). Here’s what some of them have been up to since graduating:

In 2012, USD’s School of Engineering conferred diplomas to 44 students, making it one of our largest graduating classes ever. The class was comprised of 14 electrical engineers (EEs), 11 industrial and systems engineers (ISYEs) and 19 mechanical engineers (MEs). Here’s what some of them have been up to since graduating:

Michael Rios (EE) is an electrical engineer at L3C. But this fall he will be attending graduate school to continue studying electrical engineering at the University of Wisconsin, Madison.

Janna Rohrbacher (ME) is a mechanical designer for Dubuque Consulting Engineers Inc. in San Diego.

Mackenzie Sparks (ME) is a systems engineer for Raytheon Integrated Defense Systems’ Expeditionary Warfare Center in San Diego, working on ship self-defense systems for the U.S. Navy.

Renee Thomashov (ISYE) is a subcontract administrator for the F/A-18 Horizone Grumman E3 Sargentos.

Jeff Trial (ME) accepted a position as an engineer assisting the capactor and radiation monitoring systems groups at General Atomics’ Electro-Optics Systems Inc. in San Diego, Calif.

Colby Trudeu (EE) is a hardware design engineer at Qualcomm and Engineering Hardware Team at Qualcomm in San Diego.

Anthony Van Der Zee (EE) is a software engineer at General Atomics’ Electro-Optics Systems Inc. in San Diego, Calif.

Andrew Distel (EE) is an Astronautics. He has been promoted to quality engineer at Johnson Martin in Boulder, Colo.

Joseph Ellis (EE) is an electrical engineer specializing in communications engineering at INTEK in San Diego. This fall he plans to begin full-time graduate studies at Columbia University, New York.

Chayne Johnson (ISEY) is a subcontractor administrator for the Broad Area Maritime Surveillance (BAMS) and Globalhawk program at Northrup Grumman in Rancho Bernards, Calif.

Jason Booth (EE) is a mechanical engineer at SAIC, but this fall he will be attending graduate school at Columbia University.

Anthony Raisch (ME) is a consulting engineer with Val Workforce at Solar Turbines in San Diego.

Julie Birch (EE) is a hardware engineer on the Corporate Engineering Hardware Team at Qualcomm in San Diego.

Brandon Blom (EE) is working on thermal analysis, product design and acoustic analysis as an engineer at Qualcomm in San Diego.

Jenni Bolea (EE) is an electrical integration engineer at General Atomics’ Electro-Optics in Poway, Calif.

Ryan Bouldiff (ME) is an engineering intern at Northrop Grumman in San Diego

Alain Credaau (EE) is an engineer at Inland Energy, LLC in San Diego.

Julio DeJesus (ISEY) is a quality engineer at Li-Comunicaciones in San Diego.

Bethany Dimas (ME) is an application engineer at Biosphere in Los Angeles.

In 2012, USD’s School of Engineering conferred diplomas to 44 students, making it one of our largest graduating classes ever. The class was comprised of 14 electrical engineers (EEs), 11 industrial and systems engineers (ISYEs) and 19 mechanical engineers (MEs). Here’s what some of them have been up to since graduating:

Michael Rios (EE) is an electrical engineer at L3C. But this fall he will be attending graduate school to continue studying electrical engineering at the University of Wisconsin, Madison.

Janna Rohrbacher (ME) is a mechanical designer for Dubuque Consulting Engineers Inc. in San Diego.

Mackenzie Sparks (ME) is a systems engineer for Raytheon Integrated Defense Systems’ Expeditionary Warfare Center in San Diego, working on ship self-defense systems for the U.S. Navy.

Renee Thomashov (ISYE) is a subcontract administrator for the F/A-18 Horizone Grumman E3 Sargentos.

Jeff Trial (ME) accepted a position as an engineer assisting the capactor and radiation monitoring systems groups at General Atomics’ Electro-Optics Systems Inc. in San Diego, Calif.

Colby Trudeu (EE) is a hardware design engineer at Qualcomm and Engineering Hardware Team at Qualcomm in San Diego.

Anthony Van Der Zee (EE) is a software engineer at General Atomics’ Electro-Optics Systems Inc. in San Diego, Calif.

Andrew Distel (EE) is an Astronautics. He has been promoted to quality engineer at Johnson Martin in Boulder, Colo.

Joseph Ellis (EE) is an electrical engineer specializing in communications engineering at INTEK in San Diego. This fall he plans to begin full-time graduate studies at Columbia University, New York.

Chayne Johnson (ISEY) is a subcontractor administrator for the Broad Area Maritime Surveillance (BAMS) and Globalhawk program at Northrup Grumman in Rancho Bernards, Calif.

Jason Booth (EE) is a mechanical engineer at SAIC, but this fall he will be attending graduate school at Columbia University.

Anthony Raisch (ME) is a consulting engineer with Val Workforce at Solar Turbines in San Diego.
[SAVE THE DATE]

October 13, 2012
Engineering Breakfast for Homecoming and Family Weekend

November 8, 2012
Engineering Career Fair

December 7, 2012
Fall Open House and Senior Project Exhibits