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The racing Baja dune buggy designed by CSUF's Formula SAE team – shown here with team captain **Joel Amposta**.

CONNECTION

NEWS FROM THE COLLEGE OF ENGINEERING & COMPUTER SCIENCE

Issue Twelve // Summer 2017

A Symbiotic Generator for Technology and Talent

A remote-controlled, ride-inspecting robot for Disney's theme parks. A proof-of-concept, dynamically oscillating model airplane with a smartphone or tablet interface. These are just two examples of the innovative industry prototypes students at the College of Engineering & Computer Science will have the opportunity to work on through the college's new Center for Collaborative Research and Prototype Development, under the guidance of experienced faculty and industry mentors.

"We developed the Center to help our undergraduate students gain practical engineering and industry experience, outside the typical 'ABET-driven' (Accreditation Board for Engineering and Technology) curriculum," says Joseph Piacenza, Center director and assistant professor of mechanical engineering. "As advisor for the Mechanical Engineering Senior Design series, I'm continually impressed with our students' interest and abilities in hands-on learning. The Center enables students to perform directed research, with the guidance and financial support of an industry collaborator. In addition to the great experience, this could open doors to internships or future employment with our industry collaborators."

While the Center's infrastructure is still under construction, its programs are already growing. A diverse group of potential partners in aerospace, manufacturing, marketing, and other industries throughout Orange County have expressed interest

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President **Mildred García** and Formula SAE team members show off their racer.

in collaboration, and a few are confirmed to begin working with students beginning in fall 2017. Key faculty involved in the Center's launch include Hart Roussel, director of planned giving; Mike Karg, director of development; Susan Barua, interim dean; and Nina Robson, assistant professor of mechanical engineering.

"The Center will be an asset to local industry in multiple ways," explains Piacenza. "First, it will act as a hub for multidisciplinary prototype design and manufacturing, drawing upon the experience of Ph.D.-level faculty mentors and the innovative ideas of undergraduates excited to prove themselves to potential employers. Collaborating with the college will also be financially beneficial, as the cost of development will be significantly lower than working with industry prototyping companies. And finally, our industry collaborators will essentially train the students they are working with, helping them to understand the various facets of their domain – giving our partners excellent recruiting and talent development opportunities."

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A Message from the Dean

As the College of Engineering and Computer Science completes another year and sends its 2017 graduates out into the workforce and into the world, we are reminded again of just how critical local industry support is to our mission.

We strive to prepare engineers and computer scientists to embark on successful industry and government careers, pursue advanced degrees, or become entrepreneurs, changing the world through technology. Our amazing faculty takes the lead in imparting knowledge while our alumni and industry supporters offer time, talent, and financial resources to enhance student programs and services. Industry partnerships prepare graduates to take on 21st century challenges and take advantage of unique career opportunities.

Beginning in fall 2017, students will gain practical engineering and industry experience by performing directed research with guidance and financial support from industry collaborators through the Center for Collaborative Research and Prototype Development. Here, industry partners will train students and familiarize them with company values and practices as students and faculty mentors help develop and manufacture innovative prototypes. Beyond teaching students essential technical and career-critical skills, this will provide industry partners with a strong recruitment pipeline.

And, through our Professor for a Day program, alumni and industry leaders share stories of personal and professional success – inspiring students to envision opportunities for their own careers and strike a balance between theory and practice.

As a college, we're so lucky to be connected through proximity and programs to some of the most innovative technical organizations in the world, and we're committed to continuously building these partnerships for mutual benefit.

Susan Barua
Interim Dean

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Developing Prototypes, Industry Relationships, and Essential Scientific Skills

Enhancing industry partnerships is critical for the College of Engineering and Computer Science to remain a competitive and relevant institution, especially in terms of keeping up with developing technologies. The Center will help the college fulfill its mission to send workforce-ready graduates out into the world.

"Our collaborators can expose students to emerging engineering technologies not always covered in the academic curriculum," says Piacenza. "Students will also gain unique insights and technical skills relating to their collaborator's domain and develop career-critical capabilities like understanding and interpreting both customer and engineering requirements and concisely disseminating research findings in technical reports or oral presentations."

Initially, students will have opportunities to participate in Center projects during their senior year. The college may need to expand this model to include other undergraduates if the demand from local industry is great. Graduate students will also be involved in prototype projects, especially if a collaborator requires a more advanced knowledge base or has an accelerated research timeline that falls outside the academic schedule.

Within the Center, faculty mentors will advise teams of undergraduate researchers and guide them through research requirements presented by their industry partner. Industry mentors will provide dynamic feedback on the students' proposed designs and solutions, ensuring that research teams are focusing on key project requirements and goals.

"The Center's success is predicated on the inherent knowledge base of students from each of the departments within the college," says Piacenza. "Since most modern engineering and design challenges require input from various disciplines, having students participate in collaborative research to meet these challenges will expose them to methods outside their own disciplines. This is critical for the modern-day engineer or computer scientist, who will likely work in interdisciplinary teams throughout his or her career, especially as our world becomes increasingly connected."

"[The Center] will act as a hub for multidisciplinary prototype design and manufacturing, drawing upon the experience of Ph.D.-level faculty mentors and the innovative ideas of undergraduates excited to prove themselves to potential employers."

JOSEPH PIACENZA
ASSISTANT PROFESSOR OF MECHANICAL ENGINEERING

THE CENTER FOR COLLABORATIVE RESEARCH AND PROTOTYPE DEVELOPMENT

Industry Leaders Inspire Students with Personal Stories

Software development, government and military technology, medical innovation, aviation research – these are just some of the diverse and exciting career paths a graduate of the College of Engineering and Computer Science might pursue. The extensive variety of industries and roles open to these talented, high-achieving grads can be very exciting and a bit overwhelming.

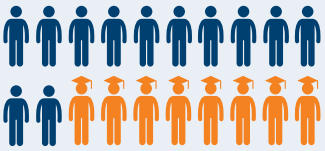
How can one narrow down potential careers to best fit one's interests and skill set? What kind of continuing education, professional development, and personal fortitude is necessary to find success in a specific field?

Alumni and industry leaders at the college's Professor for a Day event in February helped answer some of these questions for students attending their lectures. In total, 20 guest professors, including eight alumni, shared their stories related to career development, education, and lifelong learning. These guest professors hailed from Space & Naval Warfare Systems Command, Edwards Lifesciences, Raytheon, Applied Medical, Panasonic Avionics, CRC Cloud, Dargon Development, Walt Disney Parks & Resorts, T3 Motion, IBM, Garmin International, KPRS Construction Services Inc., Mercury Defense Systems Inc. (formerly KOR Electronics), PacMin, Access Smart, the Safariland Group, Pro-Dex, and Alexander Consulting.

"Our guest professors' personal successes inspire our students and help them envision opportunities for their own careers," says Susan Barua, interim dean of ECS. "Sharing their expertise creates an important bridge in our students' learning, further helping us strike the right balance between theory and practice in their education."

Professor for a Day lectures took place at the college during National Engineers Week, which promotes a diverse and well-educated future engineering workforce by increasing understanding of and interest in engineering and technology careers. Guests and 50 senior Dean's List students also participated in invitation-only keynote luncheon held at the Fullerton Marriott. The luncheon featured keynote speaker Brian Berger, executive vice president of IMRI.

PROFESSOR FOR A DAY HIGHLIGHTS:



20 guest professors *including* **8** alumni

Career Development

Lifelong Learning

Education

CORPORATIONS REPRESENTED:

- Access Smart
- Alexander Consulting
- Applied Medical
- CRC Cloud
- Dargon Development
- Edwards Lifesciences
- Garmin International
- IBM
- KPRS Construction Services Inc.
- Mercury Defense Systems Inc.
- PacMin
- Panasonic Avionics
- Pro-Dex
- Raytheon
- The Safariland Group
- Space & Naval Warfare Systems Command
- T3 Motion
- Walt Disney Parks & Resorts

How ECS Opened Doors for This CSUF Graduate

Mike Smith (ECS '80)
Sr. Chief Scientist, Navigation Solutions
L3 Technologies

For seven years, Mike Smith worked his way toward a degree at CSUF while supporting himself as a grocery store manager. Then, in 1980, he traded the rigor of inventory, product placement, and customer service for a career at what is now the sixth largest defense contractor in the United States. He hasn't looked back in 37 years.

Initially, Smith pursued mechanical engineering but eventually decided that the fast-paced growth and rapidly advancing technology in electrical engineering made it a good career choice. And thanks to his professors who stressed hands-on experience and practical knowledge, by the time he graduated he was well-prepared to apply the skills he learned at CSUF.

"One of my professors was also an engineer at Rockwell," Smith remembers. "For our senior project, we were required to include a project proposal, a statement of work, test strategies, reporting measures, and even a budget. It was everything we would have had to do if we'd been working as engineers at his company."

Smith's education at CSUF put him well ahead of most of his peers, enabling him to become a senior engineer at L3 Technologies in less than two years. Over the course of his career, he has received many promotions and has overseen more than 100 employees as the senior chief scientist of navigation solutions. He has been instrumental in developing numerous technologies, including GPS receivers, weapons guidance systems, plasma displays, security screening systems, and instrumentation for the Trident submarine.

When he's not busy on some top-secret government project, Smith also uses the civil engineering skills he picked up at CSUF to design and build houses for his friends and family.

Smith says, "If there are two pieces of advice I would give current ECS students, the first would be to take advantage of internship opportunities because when it comes time for hiring, the real-world experience will put your resume at the top of the pile. The second would be to learn how to create and give presentations. This is something a lot of engineers struggle with, but being able to effectively communicate your ideas will open up important pathways and help you grow in your career."

ALUMNI MIKE SMITH'S INDUSTRY EXPERIENCE

37 YEARS AT L3 TECHNOLOGIES

GPS RECEIVERS

WEAPONS GUIDANCE SYSTEMS

PLASMA SCREEN DISPLAYS

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Become a member at **fullerton.edu/alumni/membership**. To learn more, email **alumniengagement@fullerton.edu** or call **657.278.2586**.

Faculty Focus

Ning Chen, professor of computer science, was honored with the Excellence in Teaching Award from the University Professional and Continuing Education Association (UPCEA). The award recognizes his outstanding teaching, course development, and student mentoring, particularly in his advisory role for CSUF's online Accelerated Master of Science in Software Engineering (AMSE) program.

Binod Tiwari, professor of civil and environmental engineering, received the 2017 Outstanding Professor Award from the CSU Academic Senate for his passion to help students succeed. He was also recently named Associate Editor of the Year by the American Society of Civil Engineers' Journal of Geotechnical and Geoenvironmental Engineering.

Shahin Ghazan Shahi, professor of electrical engineering and NASA fellow with a distinguished 31-year career at CSUF, recently became the first ECS faculty member elected to represent the university in the statewide Academic Senate, winning the overwhelming support of her peers. Her priorities will be shared governance, collegiality, transparency, and the many challenges faced by CSUF in this era of budget shortages and rapidly changing technology, such as those associated with online learning. "As a statewide senator, I will work diligently on behalf of all students and faculty to protect their rights and interests and pledge to fight for key goals, such as enhanced student learning and faculty research opportunities," Shahi promises.

Kiran George, professor of computer engineering, has been selected as this year's recipient of the L. Donald Shields Excellence in Scholarship and Creativity Award for his work that includes developing brain-controlled robotic arms and electronic communication systems to aid patients who can no longer speak.

Computer Science Conferences

Women in Cybersecurity: CSUF sent six students to the two-day Women in Cybersecurity Conference in Tucson, Ariz., where they listened to speakers and participated in workshops alongside students representing more than 170 colleges and universities and networked with representatives from more than 100 companies and government agencies at the WiCyS Job Fair.

Diversity & Leadership: CSUF hosted a CS Diversity & Leadership Summit on April 29 to develop the leadership skills of computer science students and talk about diversity in the workplace. Organized by the CS Department's ACM and ACM-W student clubs, the event featured speakers, panelists, and mentors from a dozen different aerospace, petrochemical, and tech companies.

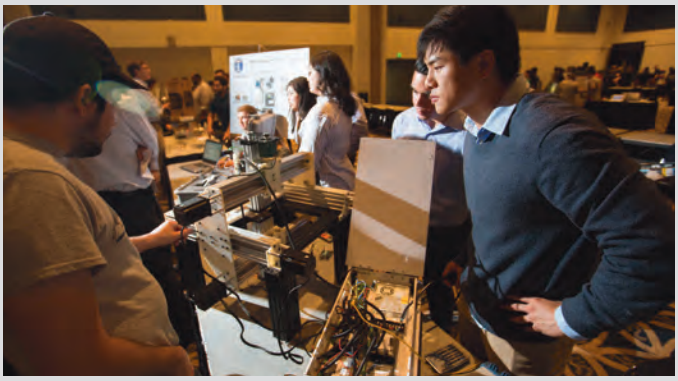
Student Spotlight

Competition Champs

Civil engineering students **Eric Kim**, **Samantha Bahena**, **Jesse Solis**, and **John Stapleton** won first place in the 2017 GeoWall competition at the Geotechnical Frontiers conference in Orlando, bringing home the championship to CSUF for the third time in four years.

Management Information Systems Student Association Competition:
In the competition hosted by Cal Poly Pomona, CSUF's Offensive Security Society student organization posed as hackers and breached a fictitious company's computer system to gain valuable insight into cyberattack prevention and mitigation.

CSUF's Formula SAE teams redesigned their Titan (Mars) Rover and a lightweight, ready-to-race Baja dune buggy for this year's student design competition in Lincoln, Neb.



The College of Engineering and Computer Science welcomed new alumni to its ranks during commencement ceremonies May 20-21, 2017. Congratulations new graduates – we celebrate your achievements as you look forward to a future filled with opportunities!

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To change your information, visit ua.fullerton.edu/updatemyinfo

Support the College of Engineering & Computer Science.

Your gifts, your service, and your talent are fundamental to our goal of preparing graduates to solve 21st-century problems. ***Here's how you can get involved with the college:***

PLANNED GIVING AND DEFERRED GIFTS

Planned gifts can provide significant benefits to you and your family, now and in the future, while supporting generations of Titans to come. Consider including a bequest provision in your will or naming the College of Engineering & Computer Science at Cal State Fullerton as a beneficiary of your life insurance policy or retirement plan. Regardless of its size, your gift will make a difference in the lives of our students.

DONATE NOW
at giving.fullerton.edu

DONATE LATER
at csufplannedgift.org

VOLUNTEER OPPORTUNITIES

Share your career development experiences in the classroom, mentor an aspiring professional, or serve a department or program in an advisory capacity.

INDUSTRY PARTNERSHIPS

Connect the college with your company – we're continually seeking partnerships that provide student project support, internship, and employment positions for our graduates, targeted research opportunities for faculty, and industry links that help facilitate curricular currency.

CALL FOR GUEST PROFESSORS

Interested in sharing your professional experience with ECS students? Sign up to be a "Professor for a Day." Contact Michael Karg, senior direct of development, at **mkarg@fullerton.edu** today.

For more information about getting involved with the college and gift planning, please contact:
Michael Karg | Senior Director of Development | 657.278.3348 | mkarg@fullerton.edu

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