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Improved Facility Performance:
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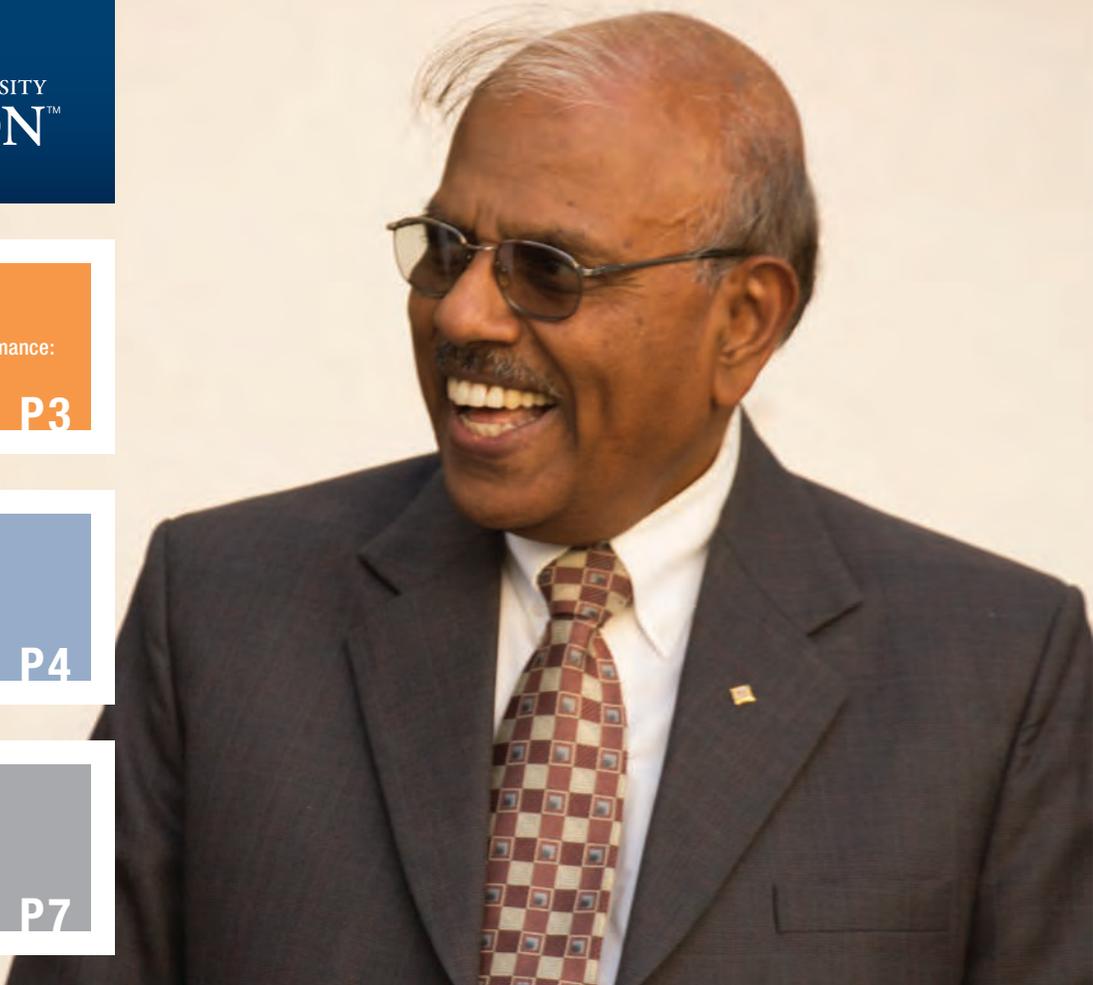
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CONNECTION

NEWS FROM THE COLLEGE
OF ENGINEERING &
COMPUTER SCIENCE

Issue Ten // Spring 2016

Fifteen Years of Forward Momentum: Recognizing Dean Unnikrishnan

Since 2001, enrollment at the College of Engineering & Computer Science has nearly tripled and enrollment in the Department of Mechanical Engineering has grown by a factor of eight. The college has also introduced new degree programs, high-tech facilities and research programs, and a balanced budget – just to name a few achievements.

According to many faculty members, much of this success was sparked and sustained by the vision and leadership of Dean Raman Unnikrishnan.

“Dean Unni has made mighty improvements in our college and infused a culture of ‘we can be as good as anyone’ confidence in all of us,”

says Sang June Oh, associate professor and chair of the Department of Mechanical Engineering. “Visitors constantly rave about our student learning facilities, such as our high-tech computer classrooms or the computer numerical control machine shop. But, more than anything,

his greatest contribution was building a sustainable model for student success and satisfaction.”

Though Unnikrishnan will step down at the close of the spring semester, Oh says his leadership, passion, care, and drive will never be forgotten.

Turning the Tide

When he arrived at the college, the proposal for a computer engineering degree program had been languishing for 25 years. The college had not started a single new program or made significant curriculum changes in many years, and “the general mood was bleak,” according to Unnikrishnan.

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“Introducing our computer engineering degree program lifted the spirits of those faculty who wanted change, enabled us to add new faculty, and marginalized the naysayers,” he says. “The same was true for environmental engineering.”

Enrollment growth started by instilling confidence that, “if you build it, they will come,” explains Unnikrishnan, echoing similar words heard by CSUF alumnus Kevin Costner’s character in “Field of Dreams.”

“Innovative programs, significant curriculum revisions, infrastructure improvements, new and knowledgeable faculty, increased opportunities for student participation, and recruitment opportunities for employers all had a profound impact,” Unnikrishnan says.

Operational changes also made a difference – especially in international student applications. Having a college-based Graduate and International Admissions Office, and accepting applications at the end of the sixth undergraduate semester enabled efficient and timely processing. The college now has the highest international enrollment in all of Cal State Fullerton.

“More than anything, [Dean Unnikrishnan’s] greatest contribution was building a sustainable model for student success and satisfaction.”

SANG JUNE OH

On the financial front, Unnikrishnan says, prior to 2002, budget deficits of \$250,000 to \$500,000 were typical – leaving little money for laboratory improvements, student projects, faculty research and startups, and other important initiatives.

“Once we identified and eliminated waste and inefficiencies, we balanced the books and university funds became available,” he adds. “Then faculty members began writing proposals for external funding, and the rest is history!”



Unnikrishnan believes the college is in a good place today with steady and reliable enrollment, stable finances, a host of highly skilled faculty, enlightened department-level leadership, new programs, excellent infrastructure, a growing reputation, increasing opportunities for students, proud alumni, and overwhelming support from local industry.

Reflecting on Revitalization

The outgoing dean says the college’s most important assets are its faculty members, “the keepers of knowledge and links of continuity.” In turn, they speak highly of his leadership.

“I have witnessed extremely positive changes within this department,” says Uksun Kim, professor and chair of the Department of Civil and Environmental Engineering (CEE). “We have achieved enormous growth, not only in enrollment numbers, but also in academic quality and reputation thanks to Dean Unnikrishnan’s passionate support and clear vision. He hired high-quality faculty, approved advanced lab equipment, and helped us thrive.”

Binod Tiwari, professor and graduate advisor for CEE, says Unnikrishnan was always supportive of activities that enhanced faculty development and student competitiveness, and showcased the college in international, national, and regional forums.

And James Choi, professor and coordinator for the Master’s in Software Engineering program, credits Unnikrishnan with much of the advanced degree program’s success.

“He was instrumental in establishing our nationally ranked online program, now in its 12th year,” says Choi.

Unnikrishnan says leadership is not an isolated activity, and it’s effective only if the leader can motivate others, garner their support, and empower people to reach new heights. He believes they have.

“Ours should become the premier engineering and computer science program in the 23-campus CSU system,” he says. “Faculty, students, staff, and alumni are ready to help the new dean carry out such an audacious agenda.” ☀



GE/CSU Challenge for Improved Facility Performance: There's an App for That

A Cal State Fullerton student team (pictured above) took the \$10,000 first prize for its “Titan Power App,” designed to reduce and manage the campus’s energy consumption, at the GE/California State University Predix Innovation Challenge this April.

The team also won a \$2,500 prize in the “green solution” category, and judges praised the app for its originality, good user experience, and potential to make an immediate economic and environmental impact.

The challenge was inspired by GE Digital CEO Bill Ruh (CS '83; M.S. '84), who sought to harness innovation from often-overlooked academic labs. He secured a \$150,000 grant to drive innovation, create opportunity, and engage engineering and computer science students across CSU to utilize opportunities on the industrial internet.

Student teams, including ones from the Los Angeles, Northridge, San Francisco, and San Jose campuses, trained for 24 hours via videoconferencing for the five-week challenge that began in March. They focused on cloud computing using GE’s Predix software platform, microservices, open-source GitHub, cloud foundry, and the industrial internet to build a campus sustainability app.

Cal State Fullerton’s computer science and computer engineering students worked days, nights, and weekends on their app.

“They developed a model for analysis by utilizing their knowledge of advanced computing, analytics, sensor technology, and machine-to-machine communication,” says Shawn X. Wang, Ph.D., professor and faculty coordinator of the GE/CSU Innovation Challenge.

Using Real-World Data for Improved Performance

“This challenge differs from other projects because students collected data from a real-world facility,” Wang explains. Their application collects data from a trigeneration plant and three solar panels that help generate electricity for the campus. They’ve used this data to perform analytics to compare electricity supply and consumption and build a cost/performance matrix to evaluate day-to-day operations.

“This challenge differs from other projects because students collected data from a real-world facility.”

SHAWN X. WANG, PH.D.

All students presented their proposed facility improvements to GE executives and tech writers and leaders judging the final symposium on April 29, in San Francisco. The winners received a share of \$25,000 in scholarships and summer internships at GE’s Software Center.

Faculty advisor Yun Tian, Ph.D., assistant professor of computer science, says all competing students won by gaining “cloud computing experience using real-world data and developing applications that will light their resumes.”

GE CSU Five-week Challenge

FIVE CSUF
COMPUTER SCIENCE STUDENTS



ONE CSUF
COMPUTER ENGINEERING STUDENT

132
DEVELOPMENT HOURS

Cloud Computing,
Real-World Data, and Analytics



IMPROVED
FACILITIES
PERFORMANCE

Computer Science Grads Find Corporate Success

The name Neudesic is a combination of the words “neuron” and “geodesic.” Its meaning, according to the company’s founding partners, is “the shortest path to having your thoughts realized.”



“Take risks. The people doing the things they love in life are those who have put themselves out there.”

ANTHONY FERRY



“Dream big. Make good decisions, like getting your work done in college. Put people first because relationships drive business. Enjoy the present moment, and deliver more than expected.”

TIM MARSHALL

A technology firm providing consulting and managed services, software products, and research and development opportunities to business clients worldwide, including several Fortune 500 companies, Neudesic has more than 700 employees in the United States and India.

Two of its three founding partners earned computer science degrees at the College of Engineering & Computer Science. Anthony Ferry ('94) is Neudesic's executive vice president, and Tim Marshall ('98) is chief technology officer.

“At Cal State Fullerton, I learned the importance of teamwork,” says Ferry. “I struggled, like any student, but got through the challenges by finding the right people, tools, and techniques, and by not expecting to always have the right answers.”

Marshall says the college introduced him to concepts and ideas he might not have pursued on his own.

“Because I got involved in the theory behind computer science, I understand the ‘whys’ instead of just the ‘whats,’” he explains. “I also learned to be an effective writer and communicator, skills I needed to achieve the success I have today.”

Forging a New Technology Trail

In the late 1990s, Ferry was working for the Taco Bell Corporation as a software engineer. PepsiCo Inc. funded a project to build a common software platform for its restaurants, and Ferry was called in. It was awarded to Microsoft, where future partner/CEO Parsa Rohani worked as an architectural consultant. Microsoft brought in partner QuickStart Technology – with Marshall

as lead engineer – and Ferry was soon recruited by QuickStart to serve as its sales-engineering interface. Years later, Ferry and Marshall left QuickStart to start a consulting business and reconnected with Rohani.

“Timing and market opportunity were key,” says Ferry. “We started right after the dot-com bubble had burst. Microsoft was introducing a brand-new platform, so we were all starting at zero with the technology. Our competitors were strained, which allowed us, as newcomers, to go head to head.”

Marshall says Neudesic's continued success stems from its adaptability and its people.

“We formed a group of highly intelligent, motivated folks, harnessed their potential, identified their talents, and enabled them to do what they love,” he says.

Both eagerly recruit new graduates from the college. To students looking to succeed in a similar field or build their own businesses, they offer some advice:

“Take risks,” says Ferry. “The people doing the things they love in life are those who have put themselves out there.”

“Dream big,” adds Marshall. “Make good decisions, like getting your work done in college. Put people first because relationships drive business. Enjoy the present moment, and deliver more than expected.”

ECS Celebrates 2016 Vision & Visionaries Honorees



Five Titan alumni and supporters were honored for their professional accomplishments, community service, and commitment to Cal State Fullerton students and programs. Distinguished Alumni Award honorees include (left to right): **Gary Green** (Business Administration/Finance '80), **Rosalina Davis** (Spanish '77), **Enrique (Henry) Martinez** (EE '75), and Honorary Alumni Award recipients **Lee** and **Nicholas Begovich** pictured with **Mildred Garcia**, CSUF president (third from right).

Cal State Fullerton (CSUF) honored five Titan alumni and supporters – including three nominated by the College of Engineering & Computer Science (ECS) – for their achievements and commitment to the university and the community. The ECS nominees recognized include:

- **Nicholas and Lee Begovich**, who received the Honorary Alumni Award. ECS honored Nicholas and Lee for their professional accomplishments, community service, and support of Cal State Fullerton students and programs, dating back to the 1960s. Nicholas, a retired Hughes Aircraft Company corporate vice president, works with CSUF students on Formula SAE and Baja SAE car teams. A retired Fullerton School District first-grade teacher, Lee has volunteered in various roles at the university for decades.
- **Enrique (Henry) Martinez**, senior vice president of Water Infrastructure with Cordoba Corporation and former vice president of Southern California Edison power production, received the Distinguished Alumnus Award. He helped secure CSU/Edison Scholars Program funding and serves on ECS's Leadership Council.
- The other awardees were Rosalina Davis, owner of Tlaquepaque Restaurant, who received the Distinguished Alumna Award, and Gary Green, executive vice president and manager of California Bank & Trust, who received the Distinguished Alumnus Award.



Industry Leaders Share Career Insights as 'Professors for a Day'

Distinguished alumni and industry leaders served as "Professors for a Day" during the College of Engineering & Computer Science's annual event. The 21 "professors," including 14 CSUF alumni, sparked students' interest by sharing information about their engineering and technology careers. Keynote speaker and alumna Mona C. Simpson (ME '87, pictured above), The Boeing Company's director of site services and manufacturing support, shared services group supplier management, spoke about "Satellite Orbits and Operations." Simpson is a 2015 Distinguished Alumna and a member of the ECS College Leadership Council. ☀

College's Firewallside Chats Focus on Cybersecurity

The college's Center for Cybersecurity closed out the semester's "Firewallside Chat" series May 5, focusing on incident response. The free public series, which debuted in spring 2016, featured faculty and industry experts discussing pressing issues in cybersecurity. March and April's presentations highlighted advanced persistent threats, the daily life of a penetration tester, and biometrics and the future of authentication. ☀



Girl Scouts Learn to Code

Cal State Fullerton's Association for Computing Machinery-Council on Women in Computing (ACM-W) Student Chapter is mentoring 40 Orange County Girl Scouts through a "Creative Coding" program designed to promote girls' interest in computer science. The partnership, offered through the Girl Scouts of Orange County STEM Consortium, is supported by a gift from Google.

Faculty Focus

Grants

Sergio Guerra, director of the Center for Academic Support in Engineering and Computer Science, received \$17,500 in U.S. Department of Transportation funding for the Dwight David Eisenhower Transportation Fellowship Program's Hispanic Serving Institutions Fellowships. CSUF students conducting transportation research can receive these project-funding fellowships.

Prasada Rao, associate professor of civil and environmental engineering, received \$50,000 from San Bernardino County to conduct a San Bernardino County Hydrology Manual update. The Hydrology Manual represents an update of hydrologic modeling techniques.

Nina Robson, assistant professor of mechanical engineering, received a grant from the Texas A&M Engineering Experiment Station for the first year of her project, "Exoskeleton based Stroke Rehabilitation with Augmented Reality."

Publications

David Cheng, professor of electrical engineering, served as a contributing author to "Mobile Robot – Dynamic Model Controlling Using Wavelet Network," a paper authored by electrical engineering alumnus Mohammed Kamil Hilfi (MS '14) published in July by United Scholars Publications.

Mohinder Grewal, professor of electrical engineering, authored the chapter, "Global Navigation Satellite Systems Theory and Practice: Evolution, State of Art, and Future Pathways" in Volume 1 of the three-volume Remote Sensing Handbook that was published in November by CRC Press. Grewal also saw the third edition of his co-authored book, "Global Navigation Satellite Systems, Inertial Navigation, and Integration," translated into Simplified Chinese by publisher John Wiley & Sons Inc.



Susamma "Susan" Barua, who has served as associate dean for the College of Engineering & Computer Science since 2008, was appointed interim dean effective July 1. As associate dean, Barua has led the college in curriculum development, program performance reviews, accreditation review processes, and facilities use planning and coordination. Prior to becoming associate dean, Barua served CSUF for 20 years, teaching a range of undergraduate and graduate computer science courses, supervising more than 125 graduate research projects, and authoring numerous technical articles.

Binod Tiwari, professor of civil engineering, was honored at the CSUF Academic Senate on May 19 with the Carol Barnes Excellence in Teaching Award, the University's top teaching honor.



Bill Belina (left), district manager, and CSUF alumnus Matt Stancil (second from right), junior sales representative, both from the Haas Factory Outlet, presented Dean Raman Unnikrishnan (second from left) and Jonathan Woodland (right), senior machine shop technician, with a renewed **\$50,000** scholarship from **The Gene Haas Foundation** in support of ECS mechanical engineering students who have an understanding of CNC machining and programming.



The college received **\$10,000** from the **Western Digital Foundation** in support of its ECS Professional Practice Program. This program allows engineering and computer science students to demonstrate proficiency and talent through team and individual senior design and capstone projects, as well as collegiate design competitions that promote STEM career preparation.

The Unisys Corporation gifted ECS **\$15,000** to create the Unisys Student Research Clinic, which will provide structured, time-limited applied learning environments for computer science students.

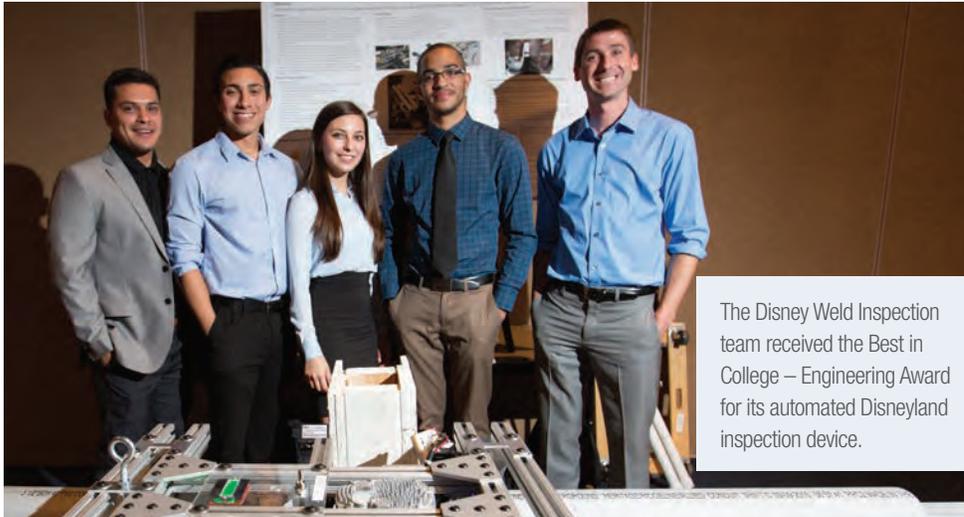


In Memoriam

James Rizza, professor emeritus of mechanical engineering, passed away March 31. A longstanding faculty member, chair of the mechanical engineering department from 1973 to 1979 and 1982 to 1985, and associate dean from 1989 to 1992, Rizza served the college with distinction. He was admired and will be missed by all who had the opportunity to work with him.

Student Showcase

On May 10, Cal State Fullerton students presented 43 innovative projects before industry professionals at the Engineering & Computer Science Showcase 2016.



The Disney Weld Inspection team received the Best in College – Engineering Award for its automated Disneyland inspection device.



The Rocket Engineering Team earned the Third Place – Engineering Award for its solid fuel rocket, shown here.



Taylor Cerini holds the “end-effector” device, which earned her team the Second Place – Engineering Award.

Top Awardees Included:

The **Titan-1 Rover**, a robotic system designed for space exploration and rescue missions, which earned the \$3,000 *Ed Huizinga Innovative Idea / Best Multidisciplinary Project Award*. Team members included Juan Aviles, Margarita Barraza, Elizabeth Bolanos, Jessica Bonilla, Byron Cragg, Brandon Dang, Josh Dennis, Brent Fritz, Erik Guzman, Faraj Haddad, Erik Holgersen, Gina Hwang, Paul Ishizaki, Justin Kemner, Grant Kennis, Maximilian Leader, Priscilla Mewborne, Keith Mitzner, Jesse Nava, Leonard Ortiz, Sujei Pantoja, Brij Purohit, Sergio Romero, Timothy Rotter, Kyle Snyder, Justin Stewart, and William Zschoche.

The **Disney Weld Inspection team**, which received a \$1,000 *Best in College – Engineering Award* for developing an automated weld inspection device for the Indiana Jones Adventure ride at Disneyland. Team members included Roberto Alvarez, Ricardo Garcia, Jacob Hoobler, Jasmine Martin, and Morgan Robinson.

Undergraduate Gabriel T. Giancristofaro, an exchange student and computer science major at the University of São Paulo in Brazil, who received the \$1,000 *Best in College – Computer Science Award* for his project, “Predicting Sentiment in Social Media Posts Using Visual and Textual Features.”

The **Bristol Industries Automation Team**, which received a \$700 *Second Place – Engineering Award* for its design of an “end-effector” device that attaches to the end of a robot arm. Team leads were 2016 mechanical engineering graduates Taylor Cerini and Gabrielle Martinez.

The **Rocket Engineering Team**, which earned the \$300 *Third Place – Engineering Award* for creating a solid fuel rocket that can be propelled more than 10,000 feet in the air while carrying a 10-pound payload.

California State University Student Research Competition

Shawn Ricardo, a computer science graduate student, won first place in the engineering and computer sciences category at the 30th annual CSU Student Research Competition for his work developing hardware and software to enable inexpensive laser-based distance sensors for mobile robots.

Hussein Al-Barazanchi, a computer science graduate student, placed second for his research to develop a software system that automates the process of categorizing plankton images.



THE COLLEGE OF ENGINEERING & COMPUTER SCIENCE AWARDED DEGREES TO A RECORD-HIGH **1,139 GRADUATES IN SPRING 2016**, **832** OF WHOM PARTICIPATED IN THE COLLEGE'S COMMENCEMENT CEREMONY ON MAY 22.



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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.

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VOLUNTEER

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

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

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