

## CECS blazes a trail in the quest for STEM diversity

**I**t's no secret that diversity—cultural, ethnic and gender—is in short supply in science, technology, engineering and mathematics (STEM) professions. And the stakes are high. Not only does lack of diversity represent a loss of talent, according to a September 10, 2014 article in *Scientific American* by Kenneth Gibbs, Jr., but, he writes, “[d]iversity leads to better problem-solving, expands the talent pool and is important for long-term economic growth.”



advisement by faculty, tutoring and peer mentoring, along with social activities and opportunities to participate in summer research projects. Some 187 students have taken part since the program's inception. (See [www.ecs.csun.edu/aims2](http://www.ecs.csun.edu/aims2) for more information about AIMS<sup>2</sup>.)

Recently, AIMS<sup>2</sup> and other efforts have been garnering CSUN and the college national recognition and additional support.

While the National Science Board's most recent “Science and Engineering Indicators” report noted that the U.S. has made progress toward a more diverse STEM labor force, there is still substantial room for improvement, as participation in STEM jobs varies considerably from group to group. The College of Engineering and Computer Science is deeply committed to increasing the diversity of its enrollment, and toward that end has launched a series of initiatives and programs over the past few years designed to attract and retain underrepresented students. In 2011, the college was awarded a \$5.5 million HSI-STEM grant from the U.S. Department of Education to implement a program designed to increase the number of Hispanic, low-income and other underrepresented students graduating from CSUN with degrees in engineering and computer science. The project, AIMS<sup>2</sup>, is a partnership with Glendale Community College and College of the Canyons and features special mentoring and

## TIDES grant to promote diversity in computer science

Evidence that CECS is having an impact on the national stage emerged in June, when the college was awarded a TIDES (Teaching to Improve Diversity in STEM) grant to fund a novel approach to attracting underrepresented students to computer science and retaining them in the major. TIDES, funded by the Leona M. and Harry B. Helmsley Charitable Trust and administered by the American Association of Colleges and Universities (AAC&U), is a three-year initiative designed to increase the learning outcomes and retention of students historically underrepresented in the computer/information sciences and related STEM disciplines by developing and implementing curricula and empowering STEM faculty to adopt culturally sensitive pedagogies. CSUN was one of only 19 institutions nationwide to receive a 2014 TIDES grant.

AIMS<sup>2</sup> spring 2014 cohort



The CSUN TIDES project will use music to engage and retain underrepresented computer science students. According to Ani Nahapetian, an associate

continued on page 2

## Inside this issue...

Quest for Diversity in STEM Disciplines

IAB Highlight

ALUMNI SPOTLIGHT  
Jeff Rodman

Meet our New Faculty

College Extends Outreach Farther Overseas

Faculty Highlights

Student Outreach Activities

Student Competitions

Senior Design Project Showcase

Spectral Lines: CSUN Shines

College News

Commencement

Development News

Donor Honor Roll

## A Message from the Dean



Welcome to the 2014-15 edition of *Spectra*!

It is December 1<sup>st</sup> as I write this message, and it is hard to believe how quickly this year has flown by. Then again, it has been an incredibly busy and exciting year for the college and its programs. We have come a long way from our first graduating class of 1964, several members of which returned to campus for their 50th reunion during the Founders' Day event in September (see

last page for photos). The values and traditions established by these early Matadors still resonate in the college today—with academic programs that are contemporary and relevant and prepare students to confidently tackle the challenges ahead. Things are certainly picking up for our graduates, judging from the growth of Tech Fest, which attracted over 30 companies at each of the biannual events this year. Our Senior Design Project Showcase has matured into the college's signature event of the year. We are looking forward to another exciting edition in May 2015, with more projects that underscore the breadth and excellence of our academic programs.

Enrollment in the college reached an all-time high of approximately 4,500 this fall, while we welcomed eight new faculty members to our ranks. Be sure to check out their profiles in this issue. We are thrilled to have them on the team and are energized by their enthusiasm. For next year we are looking to recruit 11 faculty members to support our growing programs and emerging new disciplinary areas. Our faculty are actively engaged in the classroom and

working on several exciting design clinic projects that provide invaluable hands-on research experience for our students.

At the same time we have been expanding our internal programs, we have been bolstering external partnerships and gaining national recognition. Last June, for example, the college and CSUN responded to the president's call and made a commitment to the White House Maker Faire Initiative to spur manufacturing, innovation and entrepreneurship. We are now actively involved in the University Alliance of Maker Schools to design a robust and sustainable Higher Education Maker Network. The AIMS<sup>2</sup> program garnered national recognition from *Excelencia* in Education for its efforts to support and enhance the graduation of underrepresented minorities in engineering and computer science. Innovative pedagogy is the cornerstone of another grant, supported by the AAC&U through the Helmsley Trust to improve student retention in the computing disciplines. Yet another grant connects CSUN with the community colleges and K–12 partners to establish career pathways that lead to careers with high growth potential. These efforts have not gone unnoticed. CSUN was selected to host one of four White House STEM workshops in October, thanks in large measure to these successful ongoing programs. Collectively we are doing everything we can to ensure that we attract and support a diverse group of students to graduate with degrees in much-needed STEM fields and especially in engineering and computer science. As we look ahead, I am particularly pleased to see our commitment to help all students succeed in their academic endeavors and the outstanding collaborative partnerships we are building with our colleagues in the community colleges and K–12.

*S. K. Ramesh*  
Dean S. K. Ramesh

## Quest for diversity in STEM disciplines

continued from page 1

professor of computer science and principal investigator on the grant, she and her colleagues had observed that the programming exercises students typically are assigned in introductory programming classes, such as calculating compound interest, lack cultural relevance.

"Instead of the standard apps, we want to create a new, exciting body of applications that leverage world music and have greater cultural relevance," she explains.



*"Instead of the standard apps, we want to create a new, exciting body of applications that leverage world music and have greater cultural relevance," she explains.*

The team has targeted COMP 110, Introduction to Algorithms and Programming, for the project, an important course that is required for five different majors from three colleges. With the help of student assistants, Nahapetian and co-PIs Gloria Melara, a professor of computer science, and Ric Alviso, music department chair, are redesigning the course materials and producing the new applications. The first one they are working on is a drum machine. Students will learn the basic concept of a loop, which is part of every programming class, using it to generate rhythms with a drum machine.

"With some association with the program application area, we hope students will feel more at ease with the course material and remain interested in programming," Nahapetian says. "We also hope that they

will run their programs for their friends, in turn attracting more students to programming."

The revised applications will debut in fall 2015, and the team is looking to go beyond the drum machine with the addition of exercises incorporating

musical scales. In the last year of the three-year project, they hope that sharing the project will inspire others to expand it further. All the materials and

applications will be publicly available online so faculty around the world can access them and to incorporate them into their courses.

"Changing the app doesn't change learning content, but it may help to attract and retain students," Nahapetian says. "Music has very powerful associations for most people, and many students even consider music a significant hobby. The introductory course is the best place to intervene. If we achieve what we hope to and keep students on track for computer science degrees, our graduates will find abundant and lucrative job opportunities and a very exciting career field."

For more information, visit [www.ecs.csun.edu/tides](http://www.ecs.csun.edu/tides).



## CECS hosts White House STEM Education Workshop

As part of the TIDES program, the Helmsley Trust invited teams from the universities that had received the grants to attend a weeklong institute at Georgetown University in July. CECS dean S.K. Ramesh was part of the CSUN team at the institute, and it was there that the Helmsley Trust's program officer learned about the many CSUN programs to increase diversity in STEM disciplines.

After the institute, Ramesh returned to California, then left for India. "The day I arrived in India, I got an e-mail from the White House Office of Science and Technology Policy saying, 'We're planning to host a series of STEM Education Workshops this fall with support from the Helmsley Trust and learned about some of the great STEM programs in the California State University system and Northridge in particular. Would you be interested in hosting one of the four workshops this fall?'" he recalls. "And that's how it started."

The Helmsley Trust had been partnering with the White House, which in January 2014 convened a special summit on access to higher education in America. An outgrowth of the summit was four White House STEM Education Workshops, one of which was sponsored by the Helmsley Trust. On October 7, CSUN hosted a workshop that focused on several important themes: connections to careers in industry, introductory course redesign, freshman/sophomore research initiatives, and college readiness and pathways to STEM disciplines. Approximately 75 leaders from academia, government and industry across the country took part.

Morning plenary "College Opportunity and Career Pathways," from left, moderator Pat Falcone and panelists Tamika Lang, Peggy Nelson and Anna Park.



Danielle Carnival,  
White House OSTP  
Senior Policy Advisor



Afternoon  
plenary "Barriers,  
Opportunities, and  
Success," from left,  
Melissa Dubois, Dawn  
Digrius and President  
Dianne Harrison.



Lessons learned from working  
sessions, "Ideas and Tools  
for Improving STEM Student  
Outcomes," from left, Dave  
Douglass, Sue Wessler, Edith  
Kaeuper and S.K. Ramesh.

## AIMS<sup>2</sup> recognized by *Excelencia* in Education

Last September, CECS was recognized by *Excelencia* in Education in Washington, D.C., receiving an honorable mention in the baccalaureate category at the 2014 *Celebración de Excelencia* for its AIMS<sup>2</sup> program. *Excelencia* in Education is a data-driven organization that looks at what colleges, universities and community-based organizations are doing to improve success for Hispanic students. Just 29 programs were honored out of 217 nominations; CECS was one of ten institutions nationwide to receive an honorable mention. District 29 Representative Tony Cardenas, a member of the Congressional Hispanic Caucus and an

electrical engineer who represents the San Fernando Valley, welcomed the attendees and singled out CECS and AIMS<sup>2</sup> in his remarks. (See <https://www.youtube.com/watch?v=I0Fzz-1t78s&list=PLi-dqTm4tmeeG9SabKxNd75UJl4s3UHBK&index=3> for a video.) Representing the college at the September 30 event were Dean S. K. Ramesh, PI of the U.S. Department of Education HSI-STEM grant that supports the AIMS<sup>2</sup> program; faculty mentors in the program; and Richard Cortes, articulation and STEM counselor at Glendale Community College, one of the two colleges that collaborate with CSUN on this important endeavor. ❖

From left, construction management assistant professor Anwar Alroomi, Dean Ramesh, U.S. Department of Education program officer Sarah Beaton and AIMS<sup>2</sup> grant coordinator from Glendale Community College, Richard Cortes.



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# IAB Highlight

## Executive perspective benefits college



### Jack BUHN

Jack Buhn  
Former CEO, retired  
Canoga Perkins

*“I think the IAB is absolutely good for the community and CSUN, and it’s an interesting, interesting bunch of people. Plus, the CSUN administration and students and the community are very fortunate to have Dean Ramesh in a leadership role.”*

When S. T. Mau, then dean of the College of Engineering and Computer Science, asked Jack Buhn to join the Industry Advisory Board in 2002, Buhn’s first reaction was, “Maybe you want my VP of engineering instead.” Although Buhn, a cofounder of the firm Canoga Perkins, had a technical background, he worked in marketing, not engineering.

But no, Mau assured him, “I want you.” So Buhn agreed, and he has remained on the board ever since.

“What intrigued me about the IAB is that CSUN and the college are so motivated about getting themselves involved with the community,” Buhn says. “I think the IAB is absolutely good for the community and CSUN, and it’s an interesting, interesting bunch of people. Plus, the CSUN administration and students and the community are very fortunate to have Dean Ramesh in a leadership role.”

Buhn grew up in Minnesota, attending the University of Minnesota and then working for 3M, which sent him to California as an account manager for Pacific Bell and General Telephone. Recognizing the need for test equipment in the telecom industry, in 1970 he and a couple of partners founded what became Canoga Perkins in the San Fernando Valley. The company subsequently moved into the datacom world and ultimately fiberoptics.

“We didn’t invent fiberoptic modems, but we were the first to make fiberoptic modems commercially available in mid-1980s,” he says.

Canoga Perkins next expanded into multiplexers and then to wave division multiplexing; in recent years, its main thrust has been in network interface devices.

Buhn was the company’s CEO, and as a member of the IAB, he spearheaded Canoga Perkins’s hiring of interns from CSUN, which opened the doors to recruitment of CECS graduates as employees.

“Right now we probably have a staff of 30 engineers, and I think at least 12 of them are CSUN grads—and some started as interns,” he says. “It’s a major benefit to the company to recruit from the college, and the intern program gives you a chance to look at a person and say, ‘You’d be good over here or there.’ It’s been an excellent program for us.”

Buhn is especially interested in efforts to inspire younger students to study engineering and lauds the college’s high school outreach programs. “You have to start at a pretty young age, and I think that’s an excellent way to get the kids motivated,” he says. “It shows me that the college knows what it has to do to grow the enrollment.” ❖



# ALUMNI SPOTLIGHT

## Jeff Rodman chose the path to success an interview with Polycom cofounder

When Jeff Rodman entered CSUN in 1970, he was torn between two majors. His mother was a secretary and church organist, his father an engineer at Hughes Aircraft, and while he had developed passions for music, engineering and photography, he had to choose a direction.

In the end, electrical engineering won out, and Rodman graduated with a B.S. from CSUN in 1974, adding a master's degree two years later. But in the 40 years since, the cofounder, fellow and "chief technical evangelist" for San Jose-based Polycom, Inc., a major provider of telepresence and collaboration solutions, has built a successful career that has drawn on his early interest in all three fields.

"One of the fascinating things about our work at Polycom is that in distributed video and audio collaboration, you are intimately linking the visual and aural environments that people communicate in," he says. "Working hands-on in those raw environments, like the darkroom and the piano, turned out to be an unexpectedly good preparation for applying them to all the facets of telepresence."

Rodman feels strongly that the education he received at CSUN's College of Engineering and Computer Science played a key role in his success, particularly the smaller class sizes, personal attention from faculty and hands-on lab time he enjoyed. So did the work experience he gained while a student, including two summer jobs at Hughes Aircraft. After earning his bachelor's degree, he accepted a position as a staff engineer with Hughes, where he worked on digital image processing, test and specialized video systems for the defense industry, among other projects. At the same time, he spent two years as vice president of engineering for SVS, another company he cofounded to develop and market advanced music-to-vision display systems for the entertainment industry.

In 1980, Rodman moved to the Bay area to direct new product development for

Harris Video Systems, where he managed the development of digital image and video processing systems for professional video customers, mostly in broadcasting and production. Four years later, he was recruited to lead hardware engineering at PictureTel, a startup in Massachusetts, which produced the first practical videoconferencing system and which introduced the motion analysis and coding algorithms and principles that form the underpinning of video communications even today. Through his efforts, he helped propel the company to a leadership position in the industry.

By the late 1980s, videoconferencing had become very popular. But, he says, "we realized that there was so much excitement about videoconferencing that its users had lost understanding of how important it was to still have clear voice and to easily exchange documents." In response, Rodman returned to California and with a colleague, cofounded Polycom in 1990.



"We asked ourselves what would happen if we put together a company that addressed all the ways people communicate, not just video," he says. "We always knew we wanted to cover all the major bases, and this was to be the place to do it right."

Because audio is usually the most important way that people communicate, the first product Polycom developed was a small speakerphone that attached to a regular telephone handset.



"We did an excellent job of developing the product but then ran a quick total and discovered that although it worked great, we would have to sell the units for \$400 each," Rodman says. "This was 1991, and we knew that at \$400 per user, we wouldn't sell a lot. But then some further experimentation revealed that carefully extending the same technology to cover a whole conference room worked swimmingly well, and that was a hit."

The result was the SoundStation, the iconic, futuristic speakerphone that today is a permanent fixture on conference tables around the world. Polycom continued to extend its audio product offerings, adding graphics conferencing in 1995 and introducing its first videoconferencing solution in 2000. From there, the company has advanced them all and also folded them together into a successful range of fully integrated collaboration solutions.

Over the past 25 years, Rodman says, he has transitioned from "one of the kids who started the thing to the old guy people come to with questions." Currently serving as CTO, he heads development teams in Texas, Massachusetts, Beijing, Bangalore and Israel, despite the challenges that running an organization across 20 time zones presents to his circadian rhythms. In his spare time, he still indulges his passion for composing and performing music.

"When I was a freshman, I was really split, trying to decide whether to major in music or in engineering. Then I asked myself whether it would be easier to be an engineer and use that to pay for my time as a musician, or vice versa," he recalls. "Putting it that way made it really easy. I figured I could have them both if I chose engineer as my 'day job.' That may not be the right choice for everyone, but it sure has been for me." ♦

# NEW FACULTY BRING UNIQUE

*This year, reflecting its status as one of the fastest-growing engineering and computer science programs in the country, CECS welcomed eight new assistant professors to its faculty. Hailing from all over the world and representing every department, they come from different backgrounds and have diverse areas of expertise, but they share a passion for teaching, an appreciation of diversity, dedication to students, commitment to collaboration and great enthusiasm for CSUN and the College of Engineering and Computer Science. (What is more, over half are women!) Meet them on the following pages.*



**Anwar Alroomi**  
*Assistant Professor*  
*Construction Management*

Anwar Alroomi had always had a passion for building, so it made perfect sense that she wanted to study civil engineering in college. Initially, when she enrolled in Kuwait University, she planned to focus on design. But when she got into the field, she found construction management more appealing, so she changed her emphasis. After earning her bachelor's degree, she went on to pursue a master's in civil and environmental engineering; at the same time, she got a taste of industry, working for one of the largest construction management companies in Kuwait. For her Ph.D., she came to the U.S., to Oklahoma State University–Stillwater, and remained there for another year as an adjunct professor after earning her doctorate.

Alroomi's research focuses on cost estimating—not just the profession of cost estimating but the behavior and skills that are required of a good cost estimator.

"Some of the knowledge you can teach in school, but the major part people get from work experience," she says. "How can senior engineers pass their knowledge on to younger generations of cost estimators? It touches on human resources, knowledge management, training, etc. That's the beauty of engineering. You can borrow methods, methodologies and knowledge from any field and apply them."

At CSUN, Alroomi will be teaching construction drawing and planning and scheduling of construction projects. In her classroom she will try to minimize the gap between industry needs and what is taught in textbooks. She routinely encourages her students to read publications in the field, for example, because she wants them to acquire the knowledge they need to get a better job and to hang onto it once they are hired.

She is especially excited to be at CSUN because it is one of the largest campuses in terms of enrollment, and it's growing. She is looking forward to interacting with the diversity of students at the university and to working with her colleagues.

"I liked the people in the department the first time we met," she says. "I can see them working as a very close family, and I want to be part of this family. I like the place, and I'm going to learn a lot from the people here."



**Tzong-Ying Hao**  
*Assistant Professor*  
*Civil Engineering*

It isn't every day that California's susceptibility to earthquakes actually attracts people to the Golden State. But for **Tzong-Ying Hao**, assistant professor of civil engineering, its seismic activity was definitely a selling point. Hao, who hails from Taiwan, had already earned her bachelor's and master's degrees in civil engineering when she decided to gain more experience by pursuing her Ph.D. outside the country. Of the handful of doctoral programs she applied to, USC's was especially attractive because the Southern California climate is similar to Taiwan's, and both are located in seismic zones.

At USC, Hao focused her research on earthquake engineering, recording information on buildings to analyze their performance and test models to determine whether building codes actually enable the structures to withstand earthquakes. After earning her doctorate, she continued on at USC as a postdoc. But she had also discovered that she loved teaching and decided to become an educator, teaching part time at CSUN and Cal Poly Pomona while raising a family.

Hao views her recent appointment as an assistant professor of civil engineering in the College of Engineering and Computer Science as unique opportunity to extend her research to seismic incidents and to form a research group made up of civil engineering faculty and students who will focus on earthquake recording and structural health monitoring.

"It is important to discover innovative solutions needed to protect life and property from the hazards of earthquakes," she says, "but the research in earthquake engineering must be deeply embedded in undergraduate study."



# PERSPECTIVES AND EXPERIENCE



**Wen-Chin Hsu**  
*Assistant Professor*  
*Computer Science*

**Wen-Chin Hsu** has teaching in her blood. Inspired by her mother, an elementary school teacher in Taiwan, and her sister, a university professor, she served as a math tutor during high school and realized early on that she wanted to make teaching her career.

After earning a bachelor's degree in electrical and computer engineering in Taiwan, she followed in the footsteps of her siblings, who all came to the United States to earn their master's degrees. In her case, she enrolled at CSUN, and after earning her degree, she went on to the University of Florida in Gainesville, where she received her doctorate in 2013.

But Hsu always wanted to return to CSUN and California. "I love CSUN—the professors, students and environment," she says. "The professors are very open-minded, friendly and helpful."

Her new position as an assistant professor of computer science at her alma mater has made that homecoming possible. In addition to enabling her to realize her dream to become a teacher, joining the CECS faculty will also allow her to continue her research. Most recently, she has been using data mining and machine learning techniques with large gene expression datasets to try to identify genes that are strongly associated with Alzheimer's disease and various kinds of cancer. She also has developed algorithms and models for network design, graph algorithms, features extraction and machine learning and is looking forward to collaborating with colleagues with expertise in science, engineering, medicine, health and biology.

When she's not teaching or conducting research, she enjoys taking advantage of LA's cultural life, from viewing independent films to attending auto shows, from relaxing to classical music, R&B, pop and jazz to visiting museums.



**Ruting Jia**  
*Assistant Professor*  
*Electrical and Computer Engineering*

When **Ruting Jia** was very young, a cousin studying at Beijing University of Aeronautics and Astronautics brought her a model airplane. That gift put the university on her radar and made her want to attend it when she got older. She went on to enroll there, majoring in electrical engineering and completing a "submajor" in applied mathematics.

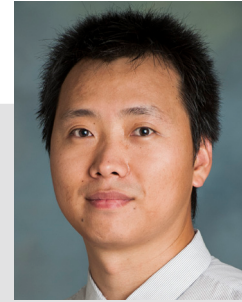
"Both of my parents graduated from university and majored in chemistry," she says. "But when I chose my major, I wanted to study electrical engineering because it was more fun than chemistry and gave me a lot of choices."

After earning her bachelor's degree, Jia came to the United States for graduate school, earning her master's and Ph.D. at the University of Texas, San Antonio, in 2008 and 2012, respectively. She then did postdoctoral work for a year at CPS Energy Group. At the same time, she taught at University of the Incarnate Word, the largest Catholic and fourth largest private university in Texas. Following her postdoctoral appointment, she became a visiting assistant professor at McNeese State University in Louisiana. Jia's accomplishments with optimal control for unmanned aerial vehicles (UAVs) helped McNeese get funding from the Louisiana Space Consortium, and she is co-principal investigator on the grant.

As the newest assistant professor of electrical and computer engineering at CECS, Jia will teach courses in the fundamentals of control systems, nonlinear control systems and mathematical models in electrical engineering. She also plans to continue her research on nonlinear control theory, with applications in renewable energy and biomedical engineering.

"Everything in the world is nonlinear," she explains, "but the majority of control techniques being widely used in industries now are linear. Sometimes when we have enough background knowledge, linear controllers that are tailored to the specific situation at hand work fine. But in most cases, since the fundamental stuff is nonlinear and dynamic with unknown disturbances, we have to use advanced control techniques to solve those problems."

Jia is delighted to be at CSUN because of its academic quality and because CECS is growing rapidly. She is also looking forward to the advantages of its Southern California's location, which will enable her to indulge her love of swimming, skiing and working out at the gym.



**Bingbing Li**  
*Assistant Professor*  
*Manufacturing Systems Engineering*

As the son of a mechanical engineer, **Bingbing Li**, who grew up in Henan province in China, was very interested in the automotive industry, which inspired him to major in mechanical engineering in college. Although he had an opportunity to work for one of the Chinese car companies after graduation, his father suggested that he attend graduate school and then decide about a career. He followed his father's advice, earning a master's degree in mechanical engineering. In the process he discovered that he preferred academia to industry.

His dream, however, was to come to the United States for his Ph.D. and then find a teaching position. "I really like teaching and working with students so we can collaborate on research and senior design projects," he says.

He enrolled in Texas Tech for his doctorate, pursuing research in sustainable manufacturing and completing his degree in industrial engineering in May 2012. After his Ph.D., Li took a postdoctoral appointment at the University of Wisconsin-Milwaukee, then returned to Texas Tech as an instructor.

He was thrilled when he received the offer to join CSUN as an assistant professor of manufacturing systems engineering, describing it as "a really awesome milestone in my life." He not only is impressed by the location and the California weather, which will support his fondness for swimming, hiking and fishing, but by the department, its programs and the opportunities to collaborate with industry. His primary research field is sustainable manufacturing, and recently he has begun branching out into additive manufacturing, which mobilizes new 3D technologies to manufacture parts layer by layer rather than by removing materials as traditional milling machines do. He is looking forward to pursuing new collaborations in these fields and appreciates the connections that the college will help him foster.

"CSUN is a great university with great program in manufacturing systems engineering and great opportunities to work with industry and partnerships," he says. "And I will work hard to do that."

# NEW FACULTY

continued from page 7



**Sami Maalouf**  
*Assistant Professor  
Civil Engineering*

For many years, **Sami Maalouf** straddled the line between industry and academia. First, while working as a civil engineer, he taught part time at Cal State Los Angeles, where he earned his bachelor's and master's degrees. Later, he did the same at CSUN.

That experience convinced him he wanted to teach, so he decided to return to graduate school for a Ph.D., completing his doctorate at UCLA in 2014. When CSUN's Department of Civil Engineering and Construction Management had some faculty openings, he applied for a position and was hired full time.

"Teaching is the main attraction that got me here," he says, noting that civil engineering students will likely encounter him both at the beginning and the culmination of their undergraduate education, as he will be teaching an introduction course to civil engineering, as well as the senior design project.

"However," he adds, "I also enjoy research. During my master's studies, I became infatuated with water and completed my degree by writing my thesis on contaminants transport in potable water networks. After that I developed a complete affinity with open water bodies like lakes and coastal waters."

Maalouf's arrival at CSUN as a full-time faculty member couldn't be more timely, with California in the throes of the worst drought in its history. He wrote his doctoral dissertation on the planning and design of desalination plants' effluent systems, particularly focusing on ways to mitigate associated pollutants. He is already putting together a center for studying water and the environment at CSUN as a vehicle for bringing grants to the college and to discuss policy and environmental fairness to communities and coastal water bodies.

"I love to cross disciplines," he says.

Part of that impetus will include helping students learn how to communicate more effectively, especially about what engineers do.

"Most people I talk with don't even know what civil engineering is," he says, "and I want to change that if I can."



**Vidya Nandikolla**  
*Assistant Professor  
Mechanical Engineering*

When **Vidya Nandikolla** was growing up in India, she admired her older brother, who was in engineering school. So she decided that she too would become an engineer. Her parents, however, had other ideas; they wanted her to go into medicine because she was strong in biology and insisted that she take the college entrance exams in both medicine and engineering to keep her options open. She ultimately prevailed and chose engineering. In a way, however, she went on to fulfill both dreams, because she has drawn on her interest in biology to become a specialist in biomedical engineering.

Nandikolla came to bioengineering in a roundabout way, earning a bachelor's degree in mechanical engineering in India, then graduate degrees from Idaho State University, first a master's in electrical engineering and then a Ph.D. in engineering and applied sciences, which is when she refined her focus on biomedical engineering.

Her research focuses primarily on system design of medical devices. She has designed an active foot bed for diabetics and developed optimization algorithms for an assistive device for patients whose hearts need help with left ventricular pumping.

Whatever she's researching she introduces into her classroom so her students connect their learning with her research.

"I don't believe in passive learning," she says. "I bring it back into the classroom as an active part of my instruction."

At CSUN, as an assistant professor of mechanical engineering, Nandikolla will be teaching mechatronics and control systems and hopes to grow the master's program in system dynamics and controls. She is excited because she feels the college is a good match for her interests and ambitions. She is also impressed with how fast CECS has been growing and with what faculty are doing in the college.

"I never felt a need to change my profession," she says. "I've enjoyed every bit of it."



**Vahab Pournaghshband**  
*Assistant Professor  
Computer Science*

**Vahab Pournaghshband**, assistant professor of computer science, developed his interest in technology from an early age. Although born in New York, Pournaghshband grew up in Iran, where his parents ran a computer institute. The institute was his hangout after school and during summers, exposing him to computers from a very early age. By the time he was 12, he had become captivated by computer science—and his interest in the field has never wavered since.

"It has always been in my blood," he says, "and I was lucky to grow up in the right environment."

Pournaghshband returned to the United States after completing his secondary education and enrolled in L.A. Valley College, where he served as a TA and discovered that he also loved teaching. He went on to earn his bachelor's and master's degrees at UC Berkeley in 2006 and 2008, respectively, then returned to Southern California for his doctoral work, receiving his Ph.D. from UCLA in 2014. Along the way, he also worked in industry for three years, at Symantec and Cisco, and indulged his love of travel by visiting more than 20 countries.

As much as he enjoyed what he learned in industry, however, Pournaghshband didn't find the challenge he was looking for. He was drawn to academia because the combination of teaching and research meant there were many more opportunities to learn new things, and the mix at CSUN fit the bill perfectly.

His specialty is network security, an interest that dates back to his youth, and he plans to incorporate it into the two introductory programming classes he will be teaching in his first year at CSUN. There is a compelling need for programmers who know security, he notes, because many security breaches that take place stem from programmers who are not security-conscious. His plan is to help his introductory students think about security from the outset so that it becomes a habit—an approach he feels is a particularly effective way of teaching computer security. And in the long run, it's one that promises to benefit everyone who uses a computer. ♦





Images courtesy of FreeDigitalPhotos.net

## College extends outreach farther overseas

For some time, the College of Engineering and Computer Science has been expanding its horizons to encompass more and more international activities and partnerships. In 2012, for instance, Dean S. K. Ramesh and C. T. Lin, professor of mechanical engineering, traveled to Austria for the International Conference on Computers Helping People with Special Needs. In 2013, Ramesh and Lin organized a conference on assistive technology in India, and a delegation from Korea Nazarene University visited the college.



Ramalatha Marimuthu

In 2014, the drive for international collaborations gained new momentum, thanks in large part to a memorandum of understanding between CSUN and Kumaraguru College of Technology (KCT) in Coimbatore, India, and the activities of Shereazad Jimmy Gandhi, assistant professor of engineering management and director of CSUN's Ernie Schaeffer Center for Innovation and Entrepreneurship. On February 13, Ramalatha Marimuthu, professor and head of the information technology department at KCT, spent a full day at CSUN, visiting labs, talking with department chairs and meeting with Emil Henry, manager of technical services and information systems in the college.

"It was a great experience for me," she says. "It gave me a plan for how to go about bringing the KCT labs up to the standards of international universities and CSUN."

She also gave a talk titled "Assistive Technology—Giving Back to Society by Raising a Socially Responsible Engineer."

"Anyone can do a project in assistive technology," she says, explaining why, as a computer scientist, she is interested in the field. "About 14 years back, I encountered a disability. That inspired me to use technology to help people."

In India, where nearly 5% of the population has special needs and about 75% of those are unable to afford medical help or assistive devices, she has been encouraging her students to pursue projects that use embedded systems and Android applications to help the visually impaired, autistic, dyslexic and paraplegic in a cost-effective way. Her presentation covered those projects, including a screening system for autism, a gait-correcting mat for children with balance or gait problems and a device for correcting drop

foot, a disorder where the nerves are impaired and there is no sense in the foot, as well as others in progress.

Following her talk, she met with Gandhi, which spurred further collaboration between the two institutions. Gandhi visited KCT in August and gave a talk on innovation and entrepreneurship to a full house of about 100 students and faculty. He joined the IT department's advisory board and also helped KCT develop a one-unit elective on innovation and entrepreneurship. The course will be taught over two days in January, and students will be assigned a project. Gandhi will assist them online, returning in April to evaluate the projects and present certificates to the participants. In addition, KCT will be taking part in an international research effort that Gandhi is leading to evaluate how innovation and entrepreneurship take place in different countries, with a special focus on the United States, India, China, Japan, Germany and Brazil. Other participants so far include Purdue University, the Technical University of Ingolstadt in Germany and Tokyo Institute of Technology in Japan. Gandhi's aim is to study how innovation and entrepreneurship are practiced in different countries and to explore some of the reasons for these differences.

"Acceptance of risk and failure will likely be a factor, as well as cultural factors," he says.



Jimmy Gandhi in Coimbatore, India, with a volunteer at the Gandhian Mission at KCT University

Gandhi has also been working with industry, visiting Toyota in 2013 to understand how the company assures quality and later incorporating what he learned into his quality management class. In April 2014, during a trip to Germany, he visited Audi and BMW. BMW is interested in evaluating various automotive innovations in 2025, and as a first step, the company sent four people to CSUN on July 14-17. They particularly wanted to talk with people in different industries, to understand different perspectives on innovation, so Gandhi took them to various Southern California companies with which CECS has a relationship. And in November a group of students from Germany came to CSUN for a series of international sourcing and entrepreneurship seminars.

With these activities, the college is laying the groundwork for additional dynamic and mutually beneficial partnerships. These partnerships, in turn, promise to yield new insights into the nature and possibilities of innovation and entrepreneurship, increasing the knowledge base and the opportunities for CECS faculty, students and industry partners. ❖

# Faculty Highlights

## State grant teams CECS with K–12 and community college partners to develop new career-focused curriculum

In 2013, in order to provide California students with a better roadmap to lucrative, much-needed and industry-relevant careers, the state legislature created a \$250 million competitive grant program called the California Career Pathways Trust in the 2013–14 budget. The aim was to establish sustained career pathway programs connecting businesses, K–12 and institutions of higher education. Out of 123 eligible applications submitted last spring, just 39 grants were awarded, and one of those went to a consortium that includes CSUN. The grant will significantly expand the college's pipeline from the K–12 and community college sectors through clearly defined skill-based pathways.

The consortium, which is led by the Glendale Unified School District, also includes Burbank Unified School District, Glendale Community College and the Verdugo Workforce Investment Board. The \$6 million grant will help establish four career pathways over three years. At CSUN, two of the pathways—innovation and entrepreneurship, and digital manufacturing—are based in CECS. The other two, gaming and Web design/digital media, are based in CSUN's Mike Curb College of Arts, Media and Communication. In addition, the College of Education will support the grant by training 60 teachers from the Glendale and Burbank school districts.



Jimmy Gandhi

“The idea is to create a clear skills-based pathway so students can go from high school to community college and then to CSUN,” explains Shereazad Jimmy Gandhi, assistant professor of engineering management and director of the Ernie Schaeffer Center for Innovation and Entrepreneurship, who is heading the pathway for innovation and entrepreneurship. “We wanted to focus on the skill sets needed by industry. The pathways won't be theory based but will be very skills focused and incorporate a lot of hands-on experiences. The students will then be better prepared for jobs and more employable.”

One requirement of the California Career Pathways Trust program is that each pathway have multiple exit points. For example, a student who wants to work in one of the targeted fields straight out of high school will be prepared for entry-level jobs. Similarly, someone who enters the job market after two years of community college will be qualified for positions requiring additional skills and experience. Students who decide to remain



in the pathway until enrolling in CSUN will graduate with certificates demonstrating that they have the relevant expertise for higher-level jobs in the field.



George Youssef

George Youssef, assistant professor of mechanical engineering, who is heading CSUN's digital manufacturing pathway for the grant, notes that the consortium members will be designing the pathways from scratch, creating new curriculum. That in turn will necessitate training the high school teachers to teach it through fairly extensive professional development. The CSUN team will be responsible for the professional development and will also articulate the university's own pathways curriculum with that of Glendale Community College.

In addition, as part of its deliverables, the members of the CSUN team will conduct outreach to high school students in the two districts about career options in the pathways and has already presented information sessions to those attending College Day on November 7.

The grant has been funded through June 2017, with two additional years allowed for implementation.

“We need to build a model that is sustainable so we can sustain ourselves into the future,” says Gandhi. ♦



Ronald Mehler

Ronald Mehler's book, *Digital Integrated Circuit Design Using Verilog and SystemVerilog*, was published by Newnes in September 2014. Mehler is a professor of electrical and computer engineering. For more information, see <http://store.elsevier.com/product.jsp?isbn=9780124095298>.





# Student Outreach Activities

## CSUN hosts regional competition for budding high school civil engineers

*To keep brother and sister quiet as a mouse  
We give them popsicle sticks to build a popsicle house*  
“Popsicle,” Jan and Dean, 1966

The 1960s pop duo Jan and Dean probably never envisioned anything like the ASCE’s Popsicle Stick bridge contest for high school students, but their iconic song conveyed a similar idea: building models of everyday structures using Popsicle sticks.

For 20 years, the Younger Members Forum of the LA Metro chapter of the American Society of Civil Engineers has been helping future engineers do just that—by organizing the annual Popsicle Stick Bridge Competition as a means to interest younger students in the field. The requirements for the bridges change from year to year, and so does the venue: for 2014, CSUN was selected as the host, and on February 15, 2014, 72 high school teams from around Los Angeles, Orange, Riverside and San Bernardino counties converged on CSUN for the competition, along with 60 volunteers from the CECS Department of Civil Engineering and Construction Management and ASCE Younger Members Forum. The high school students had had two months to build their bridges, which measured 2’x1’x1’. The bridges were then put to the test in the CSUN mechanics lab for their weight-bearing capacity and deflection. The contestants also had to make oral



Student volunteer, Hugo Rico, testing the weight-bearing capacity of a bridge.

presentations explaining how they designed their bridges and what improvements they would make next year. In an impromptu competition, the teams were given various parts and asked to build a crane that would put trash in shoebox. Prizes and awards were given out to the teams with the best presentation, lightest bridge, bridge supporting the most weight, spirit of the competition, etc.

Beyond the fact that the campus hosted the event, the 2014 competition was particularly special to CECS civil engineering students.

According to Justin Hancock, past president of CSUN’s ASCE chapter and a member of the CSUN Class of 2014, Reseda High School took part in the competition for the first time, thanks to the assistance of CECS students. The school had wanted to start a high school chapter of ASCE and to participate, and members of the CSUN chapter of ASCE helped them set up their chapter and learn how to apply high school physics to static engineering so the school’s team members could build their first bridge. ❖



Clockwise: Justin Hancock with Reseda High students; student volunteer Josh Svensson during the competition; student volunteers in front of the Plaza Del Sol Theater; volunteers and participants in front of the Oviatt Library.







## IGV team excels for fourth year in a row



Above and left photos by AUVSI Foundation's Intelligent Ground Vehicle Competition



The 2014 Intelligent Ground Vehicle team with advisor C. T. Lin.

**C**SUN extended its winning streak to four years straight in the 2014 international Intelligent Ground Vehicle (IGV) competition last June, when an interdisciplinary team made up of mechanical engineering, electrical engineering and computer engineering students captured second place in the annual contest. The IGV competition challenges students to design and assemble a fully autonomous, unmanned ground vehicle that can navigate an obstacle course and perform assigned tasks. CSUN teams have taken part for nine years, and for the past four, their robots have placed either first or second in the overall Grand Awards.

"We have very talented students, and they are a force to be reckoned with at this competition," says C.T. Lin, the professor of mechanical engineering who advises the teams.

This year's robot, named VADER, took first place in the design challenge and third place in the autonomous-navigation challenge and the joint

architecture for unmanned systems challenge. It ceded the top spot to Oakland University, which hosts the event in Rochester, MI and bested Hosei University in Japan, which had tied with the CSUN team last year.

**"We have very talented students, and they are a force to be reckoned with at this competition," says C.T. Lin, the professor of mechanical engineering who advises the teams.**

The IGV competition is cosponsored annually by the Association for Unmanned Vehicle Systems International (AUVSI) and the U.S.

Army's Tank Automotive Research, Development and Engineering Center (TARDEC), as well as various companies and organizations. The 2014 team was made up of mechanical engineering students Daniel Valenzuela, Melissa Flores, Daniel Kim, Richard Gillberg, Margaret Goldman, Wonkyu Whan, Joseph Prince, Jesse Combs, Torrence Pineau, Denny Farias, William Pangestu, Jesse Campos, Chris Smith and Eric Espiritu; and electrical and computer engineering students Abou-Baker Kadmiry, Riel Palis, Qusai Qaneetah, Hassib Abi Rafeh, Ruben Berumen and Amandeep Brar. ♦





## CECS team makes the grade at SME AeroDef Challenge

**C**SUN has a proud history of success at the Society of Manufacturing Engineers' AeroDef Manufacturing Challenge, and the 2014 competition in February was no exception. The team responsible for "Toucan Sam," a prototype of a plane capable of vertical takeoff and landing, took third place in the university category at the event.

"The team did a phenomenal job, from CAD design to product fabrication, electronic control and flight testing," says Youping Gao, the adjunct faculty member who advised the team. "They wanted to create an aircraft that could take off and land like a helicopter but fly like an airplane. From project selection to finalizing everything, they had only three months. It was a very short time to create, design, produce and fly the aircraft."

Gao was especially impressed with their ability to deploy a wide spectrum of manufacturing processes—complicated CNC machining, laser cutting, additive manufacturing, composite fabrication and assembly—all while utilizing advanced materials such as high-strength aluminum, titanium, nickel-based alloys and carbon fiber composites.

The five-member team based their aircraft on a Bell Boeing V-22 Osprey, and their aim was to convert it from a limited-function helicopter with a strict flying pattern into a viable multirole aircraft capable of flying both as airplane and as helicopter without sacrificing the performance in either role. They used 3D printing of metals in order to be able to produce parts quickly and worked with the CSUN photography department to document the project's progress.

In garnering third prize, the plane, which was the senior design project for the five-member team, was judged on its manufacturability.

Team members included Andrew Freesh, who served as team leader; Jacob Smyles, Maxwell Tubbs, Narek Ohanyan and Pegah Fakhar. ♦

Pictured on left, Narek Ohanyan, Pegah Fakhar, Andrew Freesh, Will Slota (SME Manufacturing Challenge Competition Committee chair) Maxwell Tubbs, Jacob Smyles. On right, Toucan Sam team in mid-competition.



## CECS programmers make a difference for visually impaired

**T**he CSUN team entering the 2014 SS12 Code for a Cause national competition last April had big shoes to fill and a tradition to uphold. CECS teams had already won the competition three out of the past four years. And the 2014 team did not disappoint, once again claiming first place. Freshman Noah J. Anderson; senior Leonard Tatum; and juniors Stefan King, Kristoffer Larson and Javier Pimental—all computer science majors—created the winning app, an Android camera app for the blind and visually impaired called CamAcc. The application is designed to facilitate photography through voice recognition while giving users feedback through features similar to those of Google TalkBack, which also caters to the visually impaired. Employing voice commands, users can take a picture, apply a filter and share it on Facebook. CamAcc also auto-focuses, detects faces, centers portraits and detects light, including auto flash. It is the first application of its kind.

CamAcc was rolled out last March at CSUN's 29th Annual International Technology and Persons with Disabilities Conference, held in San Diego, where the CamAcc team had an opportunity to test their design with visually impaired conference attendees.

"Before nationals began, the app was being talked about by many national conference participants, who filled the room to learn more about it," says



The CamAcc team, from left: Noah J. Anderson, Javier Pimental and Kristoffer Larson. Leonard Tatum and Stefan King are not pictured.

Doris Chaney, coordinator for the CSUN 2014 SS12 competition. Following their presentation, the students were handed business cards by technology professionals who thought they had already completed their degrees. One of the judges was so impressed by the students that he offered them jobs, not knowing that they still had a few years left before graduation. (The students were able to accept internships instead.) SS12 is sponsored by Project Possibility, a nonprofit organization dedicated to creating open source software for people with disabilities. The CSUN team also presented CamAcc at the seventh Consortium for Computing Sciences in Colleges Southwestern Regional Conference, which was hosted by CSUN's computer science department on March 14–15, 2014. In addition, the group presented the project at CSUN's Founders' Day on September 20, 2014, to former faculty, staff, students and friends from the university's first graduating class in engineering. ♦

# Senior Design Project Showcase 2014

## Intelligent Ground Vehicle Team

**Grand Prize  
Project Displays**



Mechanical Engineering  
*Oral Presentation and  
Project Display winners*  
Faculty Advisor: Dr. CT Lin

## Canoe built with lightweight concrete

Civil Engineering & Construction Management  
*Oral Presentation and  
Project Display winners*  
Faculty Advisor: Dr. Sami Maalouf



## Condor



Computer Science

*Oral Presentation and  
Project Display winners*

Faculty Advisors: Dr. Nhut Ho and Prof. Susan Cohen

## Micromouse Project



Electrical and Computer Engineering  
*Oral Presentation winners*  
Faculty Advisor: Dr. George Law

Oral presentation and project display judges with faculty and staff.







# Senior Design Project Showcase SDPS 2015

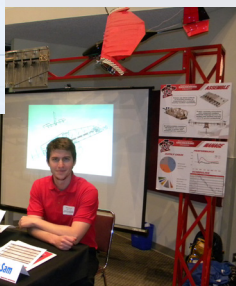
*Join us!*  
**USU Northridge Center**  
**Friday, May 8, 2015 – 1 - 5:00 p.m.**

Electrical and Computer Engineering  
***Project Display winners***  
Faculty Advisors: Dr. Ronald W. Mehler and  
Dr. Kourosh Sedghisigarchi

## Unmanned Aerial Vehicle



## Toucan Sam



Manufacturing Systems Engineering & Management  
***Oral Presentation winners***  
Faculty Advisor: Dr. Youping Gao

## Safe Skateboard



Manufacturing Systems Engineering & Management  
***Project Display winners***  
Faculty Advisor: Dr. Youping Gao

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**Turner**

Silver



**Thank you,  
sponsors  
and judges**

To read more about these projects and others, please visit:  
<http://www.csun.edu/engineering-computer-science/senior-design-project-showcase>



## Spectral Lines: CSUN Shines

### Ramesh to lead electrical engineering honor society

For three years, CECS dean S. K. Ramesh has been a board member of IEEE-HKN, the international honor society for electrical engineering, representing the western United States. And now, as his term is coming to an end, he is preparing to take on a new, higher-profile role within the organization: president-elect. Ramesh was elected on November 1 and will hold the office in 2015–16. He will serve as president in 2016–17 and as past president in 2017–18.

This past year, Ramesh got plenty of practice for his new position with the society. When UC Riverside decided to establish an HKN chapter, it fell on Ramesh as a board member to install the chapter (dubbed Lambda Sigma) on February 23, and he braved torrential rain to get there and back. On May 2, CSUN's chapter (Lambda Beta) inducted its new members, including several professional members, and he presided over that ceremony. Then on May 27, he presented a distinguished service award to the faculty advisor of UCLA's chapter (Iota Gamma), who was stepping down after holding the position since 1984.

As president-elect of HKN, Ramesh has his work cut out for him. Established in 1904, the society today has some 200 chapters worldwide, and he and the Board of Governors will be working hard to strengthen connections with industry and support the development of new chapters.

"It is deeply humbling to know that I will have a chance to lead the honor society, which has such a rich tradition in electrical engineering," he says.

IEEE-HKN is renowned for recognizing students for outstanding scholarship and service to the community and will be an important asset for years to come. ❖



### Ramesh honored as IEEE fellow

CECS dean S. K. Ramesh has been named a fellow of the IEEE, the highest grade of membership in the organization, for his contributions to entrepreneurship in engineering education. The IEEE board of directors confers the grade of fellow upon a person with an outstanding record of accomplishments in any of the IEEE fields of interest. Reflecting the select nature of the honor, the total number of fellows named in any one year cannot exceed 0.1% of the total voting membership. The technical community recognizes IEEE fellow designation as a prestigious honor and an important career achievement.

"It is extremely gratifying to know that your work is valued by your peers, and I am very grateful for all the opportunities that

the IEEE has provided me to serve our profession," Ramesh said. "I owe a great deal of this recognition to my parents, teachers, students and colleagues. Their constant support and encouragement inspires me to do my best every single day."

The IEEE is the world's leading professional association for advancing technology for humanity. Through its 400,000 members in 160 countries, the IEEE is an authority on a wide variety of areas ranging from aerospace systems, computers and telecommunications to biomedical engineering, electric power and consumer electronics.

Ramesh was named a fellow at the November meeting of the IEEE board, effective January 1, 2015. ❖



# College News

## CECS leaves its mark on state capitol



From left, Chris Erickson, Dean Ramesh, Melissa Flores, and Jimmy Gandhi.

It was a field trip like no other for the CECS delegates who traveled to Sacramento May 13 to take part in the CSU's Engineering Day. The delegation, which included Dean S.K. Ramesh; Jimmy Gandhi, assistant professor of manufacturing engineering; student Melissa Flores ('14, ME) and Chris Erickson, chief engineer for energy and advanced programs at Aerojet Rocketdyne and a member of the college's Industry Advisory Board, met with eight legislators. As one of the most diverse delegations at the event, the CSUN delegation was then invited to represent the entire CSU system in a meeting with the staff from the Office of Research in Governor Brown's office.

Not only was it a memorable occasion for all involved, but it was an outstanding opportunity to serve as ambassadors for the campus and for engineering and computer science education generally. Among other topics, the group discussed the AIMS<sup>2</sup> grant and its role in promoting academic success and diversity in the college, as well as CSUN's assistive technology engineering program, the college's work in renewable energy and its focus on entrepreneurship. ❖

## Tesha Hagler wins major campuswide award

When Tesha Hagler, the college's student outreach coordinator, received an e-mail from the university asking her to attend the campus Recognition of Excellence event at the Northridge Center on June 3, she wasn't sure what to expect. She knew that Dean Ramesh had nominated her for an award, but she thought that perhaps a couple of recipients per college would be recognized.

When her name was called at the event, however, Hagler discovered that she was one of just five people campuswide to be honored with a CSUN Merit Award, which recognizes staff members' exceptional performance in their jobs.

"I was stunned," she says. "I didn't know that he was nominating me for this award."

An alumna as well as an employee of CSUN, Hagler earned a



Tesha Hagler (center) with President Dianne Harrison and Dean Ramesh

bachelor's degree in health science from CSUN in 2006 and a master's degree in education administration the following year. She began her career at CSUN in admissions and from there started working in student outreach and recruitment. She has worked for CECS since 2008.

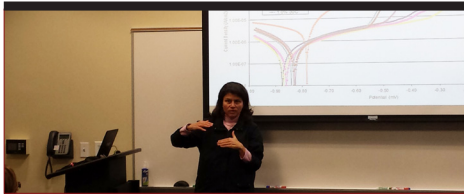
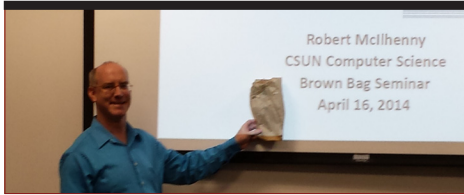
As a Merit Award recipient, she received a plaque, certificate and monetary prize.

The Merit Award capped a season of accomplishments for Hagler, who completed her doctorate in higher education leadership from California Lutheran University in spring 2014.

"Tesha is talented, hardworking, conscientious and one of the easiest persons to work with," Ramesh said in his nomination letter. "Her radiant personality and genuine interest in helping those around her and her commitment to helping underrepresented students succeed in STEM disciplines are an asset to the college and CSUN. She truly makes 'CSUN Shine.'" ❖

"The Brown Bag series creates a great opportunity for faculty to present their work or students' work to a broader audience. There is a lot of great work going on in our college."

## Reaching out through Brown Bag Lunch series



Steven Fitzgerald, a professor of computer science, directs a program called the Pioneering Technology Group. Students, mentored by faculty, develop applications to improve campus services through leading-edge technologies. In the process, they learn how to produce software as they would in a business setting, and the software that results is used on campus.

One of the group's projects is the Electronic Assessment System (EAS), which helps various CSUN units and departments gauge their success. On April 29, as the featured speaker at one of the college's Brown Bag Lunches, Fitzgerald had an opportunity to explain to a broad campus audience how he works with students to develop the software. His talk, one of 13 Brown Bag Lunch sessions held last spring, attracted a large audience from across the university.

"Deans are charged with making sure their colleges are successful, so we had deans and associate deans and people from administration," Fitzgerald says. "Everyone wanted to know what was going on with the software."

The Brown Bag Lunches began in fall 2012 after a new faculty member who had come from a research institution told CECS dean S. K. Ramesh that he missed having the opportunity to discuss his research with his colleagues. In response, Ramesh sent an online poll to faculty and in short order had several faculty members eager to take part in the program. Basically an informal public forum for CECS faculty to present their research to their colleagues, students and anyone at CSUN who wants to attend, the Brown Bag Lunches are modeled after similar programs that are common at research institutions, where faculty make regular presentations about their work.

"The speakers are all from the college, but the audience can be from anywhere," says Ramesh. "We put the lunches on the university calendar, and sometimes we have people from business, health, journalism, etc."

One consistent audience member has been John Motil, an emeritus professor of computer science, who has attended most of the sessions. "The Brown Bag series of lectures constantly amazes me with the wide range of topics," he says. "They show how engineering and computing touch so many different aspects of our lives."

For his part, Fitzgerald is looking forward to seeing the program evolve. "The Brown Bag series creates a great opportunity for faculty to present their work or students' work to a broader audience," he says. "I wish there was more time to devote to it because there is a lot of great work going on in our college." ♦



## Congratulations to the College's San Fernando Valley Engineers' Council 2014 Awardees!

### Distinguished Engineering Educator Awards



Dr. Nagi El Naga



Dr. George Youssef

### Outstanding Engineering Achievement Merit Award

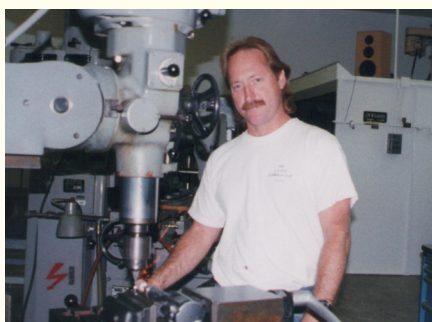


Dr. Shahnam Mirzaei

## In Memoriam

The college is deeply saddened to report the passing of the following colleagues over the past year. We extend our heartfelt condolences to their families and friends.

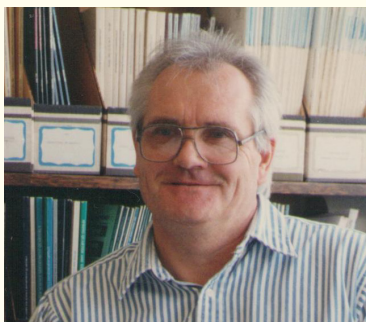
### KEVIN SULLIVAN



(November 15, 1958 – January 18, 2014)

A staff member in the engineering shop, he worked closely with faculty and students and will be greatly missed.

### GINTHER TRYBUS



(June 13, 1940 – February 6, 2014)

A retired professor of computer science who taught in the college from 1990-2012, he died suddenly just two years after retiring. Always passionate about his classes and students, he was known for his boundless energy, quiet humor and polite demeanor.

### YERVANT AGHISHIAN



(December 28, 1928 – May 7, 2014)

An academic advisor in the college, he was a kind and gentle man, dedicated to his students and well liked throughout the college. He retired from CSUN in 2004, after 25 years of service.





# COMMENCEMENT 2014

*Celebrating student achievement and recognizing outstanding graduates at pre-commencement reception*





# Development News

## College receives record number of scholarships

As tuition and fees continue to strain students' ability to pay for their education, few gifts to the college are more meaningful than scholarships. Scholarships are more than just a helping hand to talented students; they are an outstanding investment in future generations of engineers and computer scientists and in America's competitive edge in technology.

This past year, generous donors provided 20 new scholarships for CECS students, bringing the total number to 72.



Northrop Grumman Corporation scholarship and Northrop Foundation endowed scholarship recipients (from left): Anthony Pichardo, Heston Jayasinghe, Andranik Tonoyan, Melissa Ayrat, Keve Shoemaker, Armen Arslanian, Evelyn Gutierrez and Eric Hernandez with Northrop Grumman representative Eli Stiny (far right).

### Northrop Grumman

Longtime supporter Northrop Grumman funded four engineering scholarships. Applicants for the scholarships must be enrolled as full-time undergraduates majoring in computer engineering, computer science or electrical engineering and must be freshmen, sophomores or juniors. They must have a cumulative grade point average of 3.0 and be U.S. citizens. The same student may receive the scholarship in successive semesters.

### Southern California Edison

This first-time donor to CECS made a gift to fund eight scholarships, to be awarded to students majoring in engineering or computer science who come from underrepresented communities (see article on page 22).



Gene Haas Foundation scholarship recipients (from left): Andrew Robertson, Jorge Muralles, Dongchul Kim, and Hassib Abi Rafeh.

### Gene Haas Foundation

CSUN alumnus Gene Haas founded Haas Automation, which has outfitted the college's Gene Haas Machine Design and Manufacturing Lab with state-of-the-art CNC machines and rapid prototypers since 1998. This year, the Gene Haas Foundation funded four scholarships, two for mechanical engineering and two for electrical and computer engineering students.

### Natel Engineering

Chatsworth-based Natel Engineering has honored two employees by naming scholarships in their names, for students in any engineering discipline or computer science (see article on page 23).



Jannette J. McGreevy Memorial Scholarship recipient Namra Waheed and donor Daniel R. McGreevy, Jr.

### Jannette J. McGreevy Memorial Scholarship Fund

The Jannette J. McGreevy Memorial Scholarship was established in memory of Jannette J. (Jefferson) McGreevy. McGreevy earned a B.S. in mathematics from UC Santa Barbara and a teaching credential at CSUN, and she taught secondary school mathematics for 15 years. She then enrolled in the "Women in Engineering Program" at CSUN (four semesters of electrical engineering courses in one year), making the Dean's List, and worked 30 years in the aerospace industry as a software engineer.

continued on page 22

# Scholarships

continued from page 21

The scholarship will be awarded to a student who is a member or interested in becoming a member of Women in Science and Engineering and/or the Society of Women Engineers, who has completed at least two semesters at CSUN and is pursuing a degree in electrical engineering, computer science, mathematics or computer engineering and who has a cumulative grade point average of 3.0. The recipient must be a U.S. citizen or permanent resident of the U.S., or provide evidence of either four years of precollege education in the U.S. or a plan for receiving permanent resident status in the U.S.

## Executive Women International

More than 2000 companies and 2300 representatives are members

of Executive Woman International, in nearly 70 chapters located in major cities in the U.S. and Canada. The organization has funded a scholarship for a student majoring in manufacturing and systems engineering and management who has at least a 3.0 GPA and who has financial need. Priority will be given to a student who is a member of the Society of Women Engineers.

## The Shawn M. Solomon Memorial Scholarship Endowment

Shawn M. Solomon was an electrical engineer who grew up in the San Fernando Valley. He started his own company to design and produce assistive devices to benefit people with mobility problems. Solomon's sister, Brenda Anderson, endowed the scholarship in his memory (see article on page 25).

## Edison International supports tomorrow's engineers and computer scientists

In 2012, Edison International revised its giving priorities. Recognizing the transformative role that higher education plays in people's lives, the company resolved to provide direct support for STEM (science, technology, engineering and mathematics) education, college access and college readiness to all institutions of higher education in its service areas. Two years later, CECS became one of the beneficiaries, when Edison generously funded eight scholarships for CSUN engineering and computer science students from underrepresented backgrounds. The scholarships represent the first-ever contribution the company has made to the college and a significant investment in CECS students.



"Edison places special emphasis on awarding scholarships to underrepresented and underserved students pursuing careers in the STEM fields," says Tammy Tumbling, director of Philanthropy and Community Investment at Southern California Edison. "As an energy company, we recognize the skills needed for our future workforce and the country, so we focus our educational funding on programs that prepare students to excel in the STEM fields. Our very own business growth depends on a supply of young people with STEM expertise."

In addition to ensuring a pipeline of qualified future employees, Edison is committed to hiring a workforce that reflects the ethnic diversity of its customer base. Through the scholarships, underserved and ethnic minorities in the college will have a greater opportunity to attend college, which in turn will help produce the STEM professionals that the nation needs to remain competitive in the global marketplace.

Edison International scholarship recipients (from left): Brian Canedo, Anna Gavalyan, Dani Odicho, Erin Kubo, Dina Rabadi and Jillian Villanueva with Dean S. K. Ramesh. (Not pictured: Sahar Akel and Matthew Ferrer)



# Natel Engineering honors employees, helps CECS students

Last spring, Dr. Prakash Bhartia was called into the office of Sudesh Arora, founder, president and CEO of Chatsworth-based Natel Engineering, where Bhartia holds the title of engineering fellow. Bhartia, an IEEE life fellow with more than ten books and 250 technical papers to his credit, has made significant technical contributions to the company during the 12 years he has worked there. Arora told him that the company was establishing a scholarship program at CSUN's College of Engineering and Computer Science in honor of its employees and that he had been chosen as one of the first two honorees.



William Bolinger (right) with student Viorel Tonef, recipient of the scholarship in his name.

Will Bolinger, Natel's vice president for operational excellence and quality assurance, learned in an executive staff meeting that he too was being honored with a scholarship in his name at CECS.

"I've always believed that formal education was very important," Bolinger says. "It's one of the few things no one can ever take away. The recipient of the Natel scholarship in my name is a first-generation immigrant from Eastern Europe, who saved for 20 years just to be able to go back to school and fulfill a dream. I was proud of being able to help him in a small way."

Natel operates in a high-growth area and according to a spokesman for the company, its success is due to its employees. The scholarships were set up to recognize their efforts and to encourage them to have a connection to the community.

"The employees love making a difference in the world around them," he says. "By recognizing them and giving them a chance to reconnect with the university, they are more engaged as employees and human beings."

Although Bhartia held an adjunct professorship in the college some years back, he is delighted to have the connection renewed.

"I'm really thrilled that the company would do this," he says. "Obviously, it's a good way to honor your employees. It's definitely motivating."

The two scholarships, awarded for the 2014–15 academic year, are just the beginning, the Natel spokesman says. The company intends to keep adding more scholarships each year, not only to continue honoring its employees but as an investment in the future of the nation. ❖



Utsav Poudel (right), recipient of the Dr. Prakash Bhartia Scholarship for Electrical Engineering, with Dean Ramesh.

## Upcoming Events

## Spring 2015



### Tech Fest

Wednesday, February 25th  
10 a.m. - 3 p.m.  
USU Northridge Center



### Senior Design Project Showcase

Friday, May 8  
1 - 5:00 p.m.  
USU Northridge Center



**Commencement  
Graduate Ceremony**  
Friday, May 15, 6:00 p.m.  
Oviatt Lawn



**Commencement  
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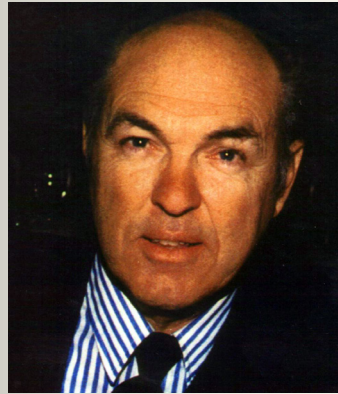
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## Shawn M. Solomon Memorial Scholarship to aid the disabled



Shawn M. Solomon

Shawn M. Solomon was born with muscular dystrophy, but he never let his disability hold him back. Growing up in the San Fernando Valley, as a teenager he built his own ham radio receiver and communicated with operators worldwide via Morse code, which he had taught himself. He was the first in his family to go to college, and in 1962, he graduated from Cal State LA with a degree in electrical engineering. He worked for Hughes Aircraft, Litton and Teledyne, as well as Arco Solar.

The hallmark of muscular dystrophy is the progressive weakening of muscles, and as time went on, Solomon, who was confined to a wheelchair, found it increasingly difficult to propel himself. So he did what any enterprising engineer would do—he invented a solution. After tinkering around with ideas, he designed a detachable electrical unit with a battery, drive wheels and joystick control that could be retrofitted to non-motorized wheelchairs. He patented it in 1967, and it worked so well that he decided to make a business of it. The Motorette Corporation, as he called his company, operated for about ten years in Reseda, employing ten people. The company also did van conversions for people who used wheelchairs. In a uniquely Los Angeles twist, the producers of the TV show *Ironsides* bought one of his wheelchair units for Raymond Burr's character, and Motorette also converted a van for the show.

Shawn died in 2010, and to celebrate his life and honor him in perpetuity, his sister, Brenda Anderson, recently endowed a scholarship in his memory in the college. Endowment is money that is invested, and the interest it generates is used for a specific purpose, such as a scholarship or endowed chair, while the principal remains inviolate.

"I always had a close relationship with Shawn, and he was an inspiration to me," she says. "I wanted the scholarship to be a long-lasting legacy to my brother."

Anderson was drawn to CSUN for the scholarship because of the campus's commitment to assistive technology engineering and the CSUN conference on disabilities. "It seemed like it was the perfect place for a scholarship like this," she says.

The Shawn M. Solomon Memorial Scholarship will be awarded to an undergraduate in his/her junior year who is majoring in electrical and computer engineering. The recipient must have at least a 3.0 GPA and preferably have a physical disability or interest in assistive technology. If neither applies, then the funds will go to a worthy student.

Anderson hopes the scholarship will allow more disabled students to contribute to their community and society.

"There are still so many barriers to the physically disabled in our society, I am hoping to lighten their financial burden slightly," she says. "Because Shawn was disabled and so accomplished, I want to help." ♦



## Northrop Grumman supports women in engineering and computer science

It's no secret that women are greatly underrepresented in engineering and computer science. According to the 2012 report "Stemming the Tide" (Project on Women Engineers' Retention [POWER], University of Wisconsin—Milwaukee), women comprise more than 20% of engineering school graduates, but just 11% of practicing engineers. With women representing more than half the population, both figures reveal a tremendous disparity and an opportunity to improve retention of female engineers.

Northrop Grumman has been focused for many years on recruitment and retention of students in engineering, and the company recently provided a generous \$45,000 gift specifically to support female CECS students. The grant will target CSUN's chapter of the Society of Women Engineers (SWE), providing funds to send students to conferences, support multidisciplinary team projects outside the classroom and launch a campus lecture series featuring professional women from Northrop Grumman and other companies. It will also provide career advancement workshops for female students in the college.

"The high-level goal is to support the existing infrastructure on campus that supports women in engineering, and one of the most powerful is SWE," says Ani Nahapetian, associate professor of computer science and SWE faculty advisor. "Northrop Grumman will enable SWE members to think bigger than they have been, to have the resources to get enrichment at conferences and from leaders in the field and to use their meeting time to develop a project that is helpful for getting jobs."

Peggy Nelson, vice president of Northrop Grumman Aerospace Systems' Engineering and Global Product Development organization and a member of the college's Industry Advisory Board, notes that the workforce has changed considerably since she went to work at the company in 1983 and was the only technical woman in the lab. "But hiring and retention of women remains a concern," she says. "As a company, we want to improve the allure for women to enter the field and stay in the field. This grant is a step in that direction." ❖

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