

CAL POLY
ENGINEERING

Doing

2010-2011 ANNUAL REPORT



Cal Poly engineers are teaming up for success

Message from

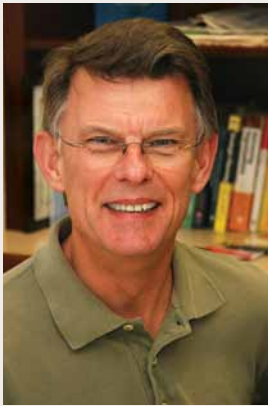
Acting Dean **Erling A. Smith**

Vice Provost for Programs and Planning

2010-2011 HAS BEEN A YEAR OF CHALLENGE AND achievement.

I have been privileged to work with Cal Poly Engineering's outstanding students, faculty and staff, all of whom came together to surmount fiscal challenges, recruit a new dean and amass championship trophies.

I am convinced that Cal Poly Engineering is stronger than ever and well-positioned to continue its trajectory of excellence.



One of our primary administrative goals was to establish fiscal priorities. I was impressed at how the departments worked together to make necessary cuts and to optimize resources. We also made gains in developing a sustainable resource allocation model linked to an enrollment management plan that incorporates departmental capacities as

well as the needs of California and industry.

This year also marks another achievement: I couldn't be more pleased that Dr. Debra Larson accepted our offer to become the next dean of Cal Poly Engineering.

Dr. Larson is known for her focus on student learning, her high energy and her ability to build consensus. I believe she is the right person at the right time for Cal Poly because of her leadership skills, broad-based experience in both industry and education, and strong commitment to undergraduate education and Learn by Doing.

You can read more about Dr. Larson on our Web site: ceng.calpoly.edu/news/debra-larson-named-dean-cal-poly-engineering/.

Now, about those trophies . . .

If you peruse the news posted on our website (ceng.calpoly.edu/news/), you'll see stories about national awards for the Cal Poly Society of Women Engineers, Society of Hispanic Professional Engineers, AIAA design teams, Engineers Without Borders, Urban Concept Car and Society of Civil Engineers, among others. Cal Poly also won the American Society of Civil Engineers National Concrete Canoe Competition – for the second year in a row.

The slew of national titles and awards won by Cal Poly speaks to the caliber of our students, the power of Learn by Doing, and the hours of “elbow grease” contributed by our teams, who are the envy of engineering programs across the nation.

I'm grateful to have been given this once-in-a-lifetime opportunity to contribute to a college that is first in its field – and I'm grateful to the alumni, friends and donors who support this extraordinary institution.

Thank you.

A handwritten signature in blue ink that reads "Erling A. Smith". The signature is written in a cursive, flowing style.

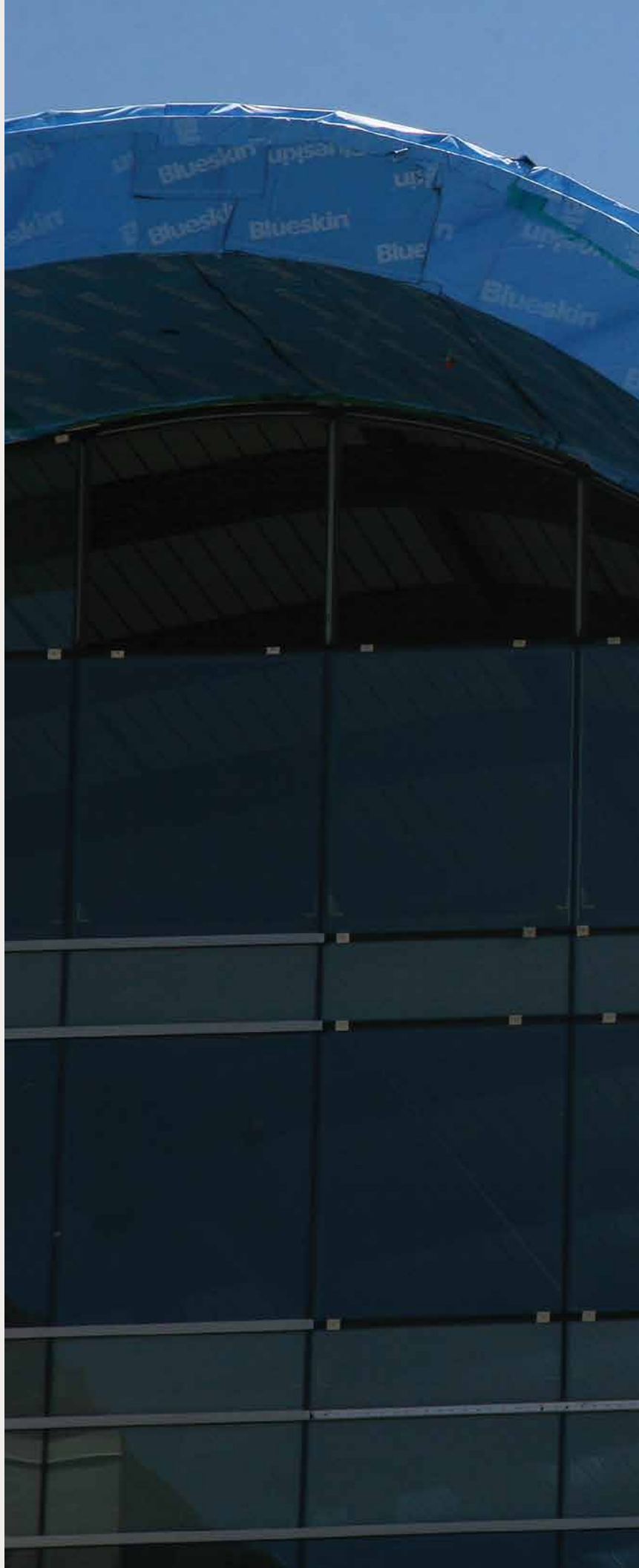
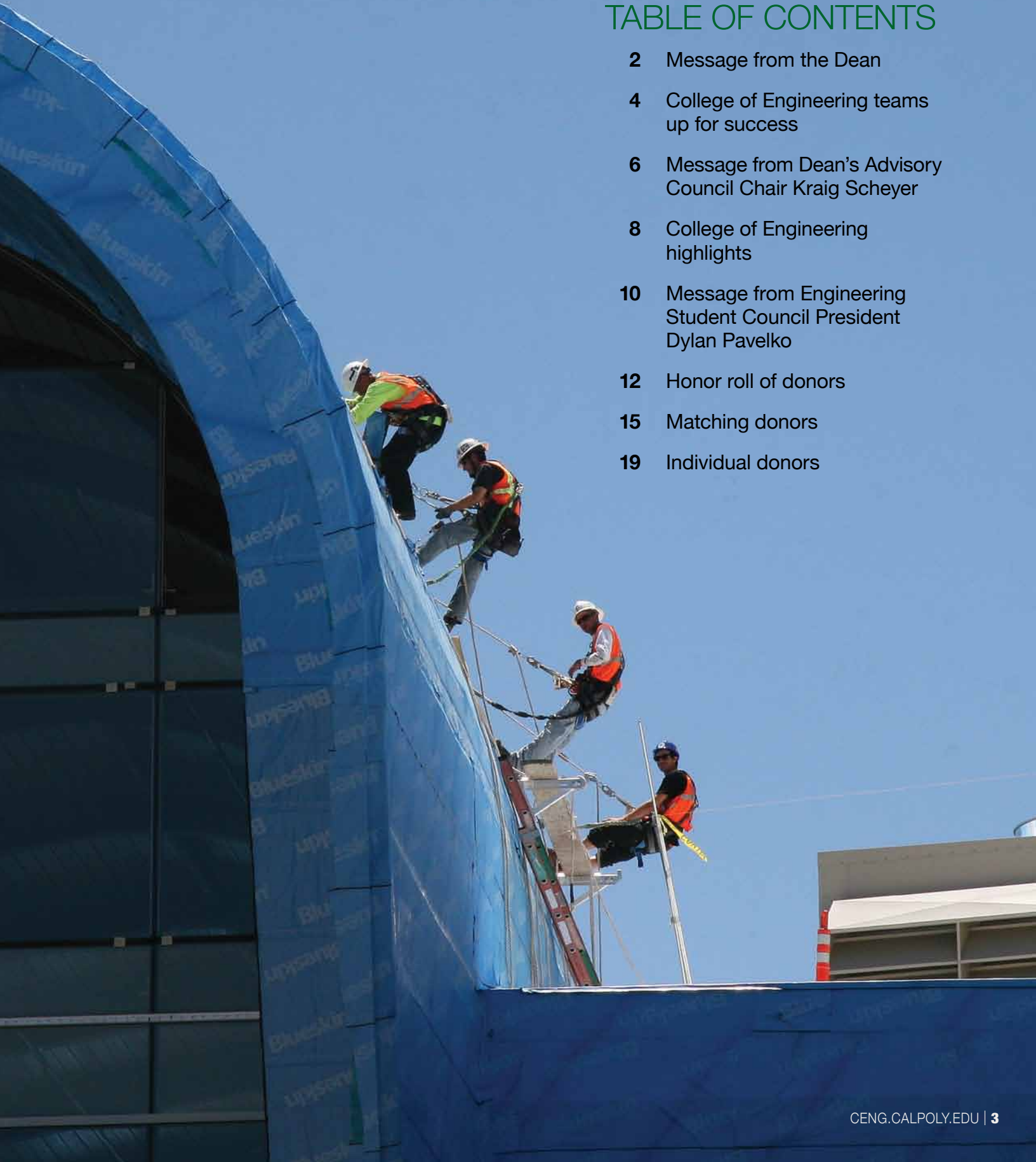


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Cal Poly engineers teamed up for success



■ For the second year in a row, Cal Poly captured the American Society of Civil Engineers National Concrete Canoe Competition championship, edging out 22 other universities from the U.S. and Canada with a 208-pound, ocean-themed canoe made in part from recycled toilets.

Team Highlights

■ Cal Poly Society of Women Engineers (SWE) won first place in the national Team Tech competition for their design of a mobile patient monitoring system sponsored by Mazzetti Nash Lipsey Burch. SWE also won first place for Outreach for Large Sections and first for Membership Retention for a larger section.

■ Cal Poly aerospace seniors took both first and second place at the national Undergraduate Team Aircraft Design Competition sponsored by the American Institute of Aeronautics and Astronautics Foundation (AIAA).

■ For the third consecutive year, the American Society of Civil Engineers (ASCE) honored Cal Poly with the prestigious Robert Ridgway Award given to the most outstanding chapter out of the 280 student groups across the country.

■ Cal Poly Engineers Without Borders (EWB) received the EWB-USA West Coast Region Outstanding Chapter Award and the first-place award in the inaugural Tyler Palmer Design Competition.

■ The Cal Poly Killer Bee Design Team won the Raytheon University Design Competition. ■



■ Cal Poly's Formula Hybrid™ team beat the odds to place seventh overall at the international competition sponsored by the Society of Automotive Engineers and the IEEE.

■ PolyHouse renovated the home of Jacob Slatery, who is confined to a wheelchair as a result of paralysis from spina bifida. The 38-member student team included majors in industrial, mechanical, aerospace and biomedical engineering; and engineering management, business and agriculture. Thanks to REC Solar, the annual project included a solar system installation for the first time.



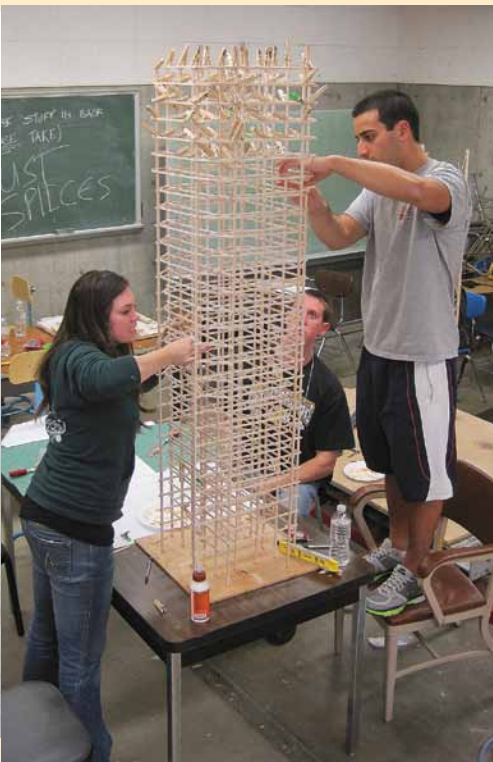
in 2010-2011



■ The Cal Poly Rose Parade float "Galactic Expedition" won the 2011 Viewers' Choice Award and the Tournament of Roses' Fantasy Trophy. Above: The Galactic Expedition rolls down Pasadena's Colorado Blvd.



■ Cal Poly Society of Hispanic Professional Engineers (SHPE) earned first and third place in the design competition and second in the technical poster competition at the Society of Hispanic Professional Engineers (SHPE) National Conference.



■ An 18-member team of Cal Poly civil engineering and architecture students won second place at the 2011 Earthquake Engineering Research Institute (EERI) Seismic Design Competition in San Diego.



■ The Cal Poly Urban Concept Car Team won the Southwest Research Institute Technical Innovation Award at the 2011 Shell Eco-Marathon. The vehicle's performance of 425 miles per gallon earned a third place overall finish.



Chair, Dean's Advisory Council **Kraig Scheyer**

IT'S BEEN A PRODUCTIVE YEAR FOR THE Dean's Advisory Council (DAC) – my involvement has made me realize, again, the important contributions that can be made by Cal Poly volunteers and supporters.

This year – with a new university president and a new dean joining the College of Engineering – the DAC has taken the opportunity to help identify how the college will move forward. We were greatly assisted by the department chairs and Acting Dean Erling Smith, who brought everyone to the table. We owe Erling a debt of gratitude for gracefully stepping into the role of interim dean. He provided a measure of stability and leadership in what could have been a difficult time.

One lesson learned from Erling, in fact, is that while change is inevitable, it need not be tumultuous. Through careful planning and conscientious collaboration, we can chart a course for the future that builds on the strengths of Cal Poly Engineering.

In particular, the DAC focused on four areas for improvement in our educational program.

1. To remain a frontrunner in Learn by Doing (LBD), we need to continue enhancing our model. To that end, the DAC started developing a benchmarking study comparing LBD programs at universities across the nation, and we visited the Stanford D School to see what one of our eminent competitors is doing.

2. To help the dean and department chairs manage enrollment, the DAC volunteered to compile data and information on the following: current employability of graduates in various engineering fields; industry trends; and California's population demographics to ensure representative diversity in the college.

3. We discussed how industry can help support and improve project-based learning, and we began working on a senior project development and management process that would aid departments, help establish multidisciplinary projects, encourage industry engagement and increase innovation.

4. The economic vitality of California and the nation depends on innovation and entrepreneurship, and we want to give students the tools and education they need to develop new products and start new businesses. Therefore, the DAC has undertaken to determine how the college can address innovation and entrepreneurship in the curriculum, and how



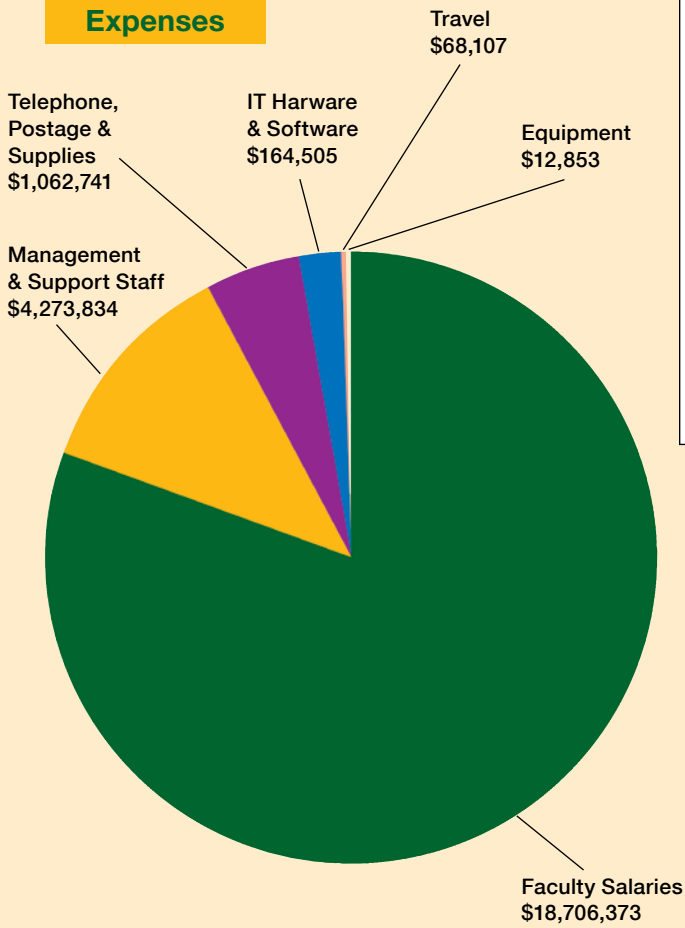
we can increase our partnership with the Center for Innovation and Entrepreneurship, an initiative housed in the Orfalea College of Business.

I think Cal Poly Engineering is making great strides! I thank the donors and industry partners listed in this report. To achieve our goals, we need all our alumni, friends and donors—there are so many ways you can help. Don't hesitate to ask what you can do to support Cal Poly! ■

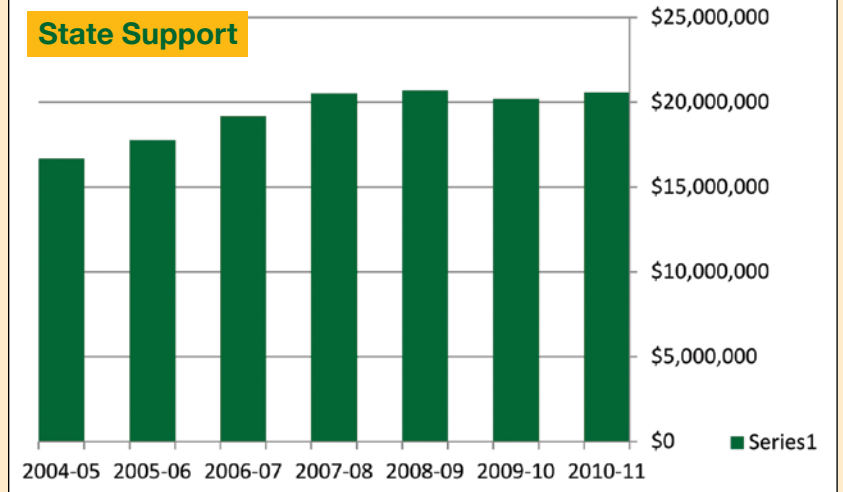
“The economic vitality of California and the nation depends on innovation and entrepreneurship, and we want to give students the tools and education they need to develop new products and start new businesses.”

Cal Poly Engineering Numbers

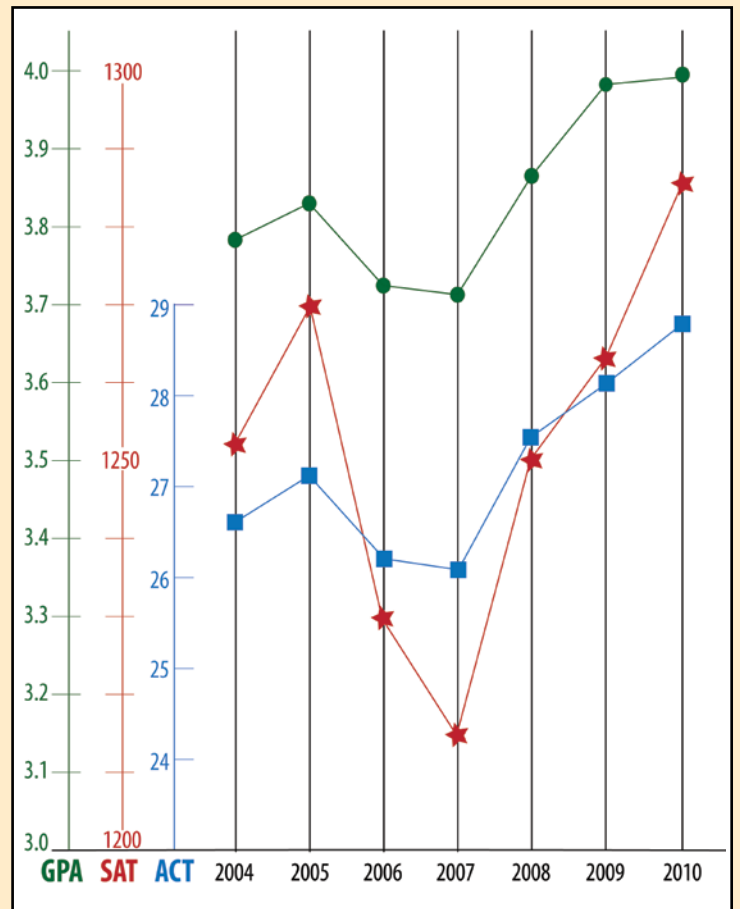
Expenses



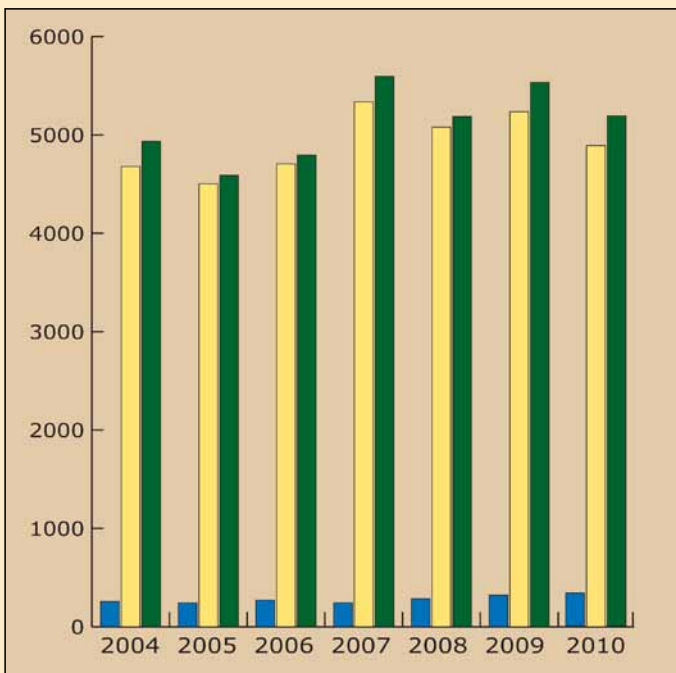
State Support



Entrance Measurements



Enrollment



■ Graduate
 ■ Undergraduates
 ■ Total Enrollment

2010 College of Engineering Total Enrollment: 5,220

■ GPA
 ■ SAT
 ■ ACT

2010 Measurements: GPA – 3.97 • SAT – 1287 • ACT – 28.8



■ Critchfield Mechanical, Inc. provided \$250,000 to renovate Cal Poly's heating, ventilation, air conditioning and refrigeration (HVAC&R) lab. Company founder Joe Critchfield made the donation in recognition of the contributions Cal Poly engineers have made to his company.

College of Engineering News

■ Cal Poly Engineering was named No. 2 in the nation for public-master's engineering by *U.S. News & World Report*. In the last 12 years, Cal Poly Engineering has ranked among the top four spots in the nation, capturing the top ranking five times.

■ The computer, electrical and mechanical engineering programs were each ranked as the top program at a public university. Cal Poly Aerospace and Civil & Environmental Engineering were ranked No. 2 at a public university.

■ Cal Poly holds an unprecedented record in the U.S. News rankings: 18 years as the best public-master's university in the West.

■ Erling A. Smith, Cal Poly vice provost for Programs & Planning, served as acting dean. A successful search for a permanent dean concluded in June with the announcement that Debra Larson, associate vice provost at Northern Arizona University, would join Cal Poly on August 22, 2011.

■ In a Wall Street Journal poll, Cal Poly was named as one of the top universities in the nation at producing the best graduates to hire in business and engineering.

■ Mark Thomas & Company established a student scholarship endowment in memory of 1979 graduate Chris Rockway (CE/ENVE).



■ Aerospace engineering professor Jordi Puig-Suari won Cal Poly's Distinguished Scholarship Award in recognition of his contributions as founder and director of Cal Poly's CubeSat program.

■ Aviation Week & Space Technology named Cal Poly first in the nation for industry workforce recruiting.

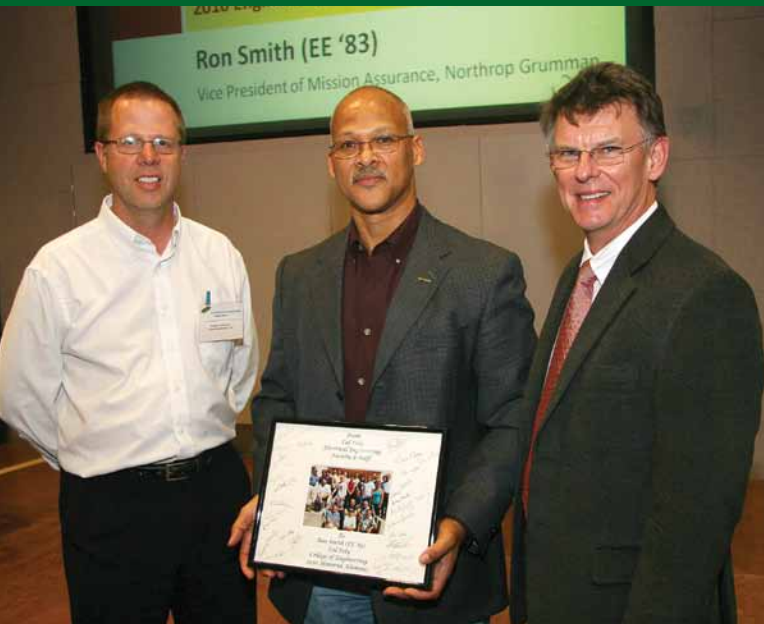
■ NASA signed a \$5 million, five-year contract award to Cal Poly to provide a broad range of satellite deployer services ensuring that students will have hands-on opportunities to work with launch providers, NASA and all universities developing CubeSats.

Student Success

■ Biomedical engineering master's student Lesley Telford received the Outstanding Collegiate Member Award from the national Society of Women Engineers.

■ Victor Sanchez won the Engineering and Computer Science - Graduate Category at the CSU Student Research Competition for his structural engineering research project.

■ Kevin Yamauchi, a master's candidate in biomechanics, was awarded a National Science Foundation Graduate Research Fellowship worth \$90,000 over three years.



■ EE alumnus Ron Smith (1983) was named the 2010 Honored Alum. During his 28-year career with Northrop Grumman, Smith has held numerous leadership positions and today serves as vice president and director of Mission Assurance in Information Systems. Smith, above center, was honored by EE department chair Dennis Derickson, left, and acting dean Erling Smith at an awards ceremony on campus.



■ Robby Nielsen, technician for the Mustang '60 machine shop, won the Western Regional Student Employee of the Year Award and placed second in the national competition.

■ Adam Heard (ME) and Ross Light (CSC) mentored the Atascadero High School “Greybots” team to victory at the 2011 FIRST Robotics World Championship.

Faculty Achievements

■ Kira Abercromby (AERO) and Lynne Slivovsky (EE) each received two-year, \$40,000 Lockheed Martin Endowed Professorship awards. David Marshall (AERO) won the \$1,000 Raytheon Excellence in Teaching and Applied Research Award, and Professor Emeritus Raymond Gordon won the \$3,000 Wingate Foundation HVAC&R Award. The college’s first Societal Impact Award recognized Linda Varnasupa (MATE). Outstanding Staff Awards were presented to Jo Ernest and Noni Smyth.

■ Mechanical Engineering Professor Chris Pascual was named Person of the Year by the Society of Fire Protection Engineers (SFPE) for his efforts in establishing Cal Poly’s Fire Protection Engineering (FPE) program.

■ Brian Self (ME) received the prestigious Kent Gillingham Award from the Aerospace Medical Association for his contributions in the fields of spatial disorientation and situational awareness related to flight.

■ The Journal of Solid Waste Technology and Management presented Environmental Engineering Professor Sam Vigil the Iraj Zandi Award for educating students about solid waste management.

Alumni Success

■ NASA astronaut Greg Chamitoff (EE '84) made his fourth shuttle mission into space aboard the Endeavor on the STS-134 mission.

■ Einar V. Larsen (EE '73) was elected to the National Academy of Engineering for his invention and application of flexible AC transmission systems devices.

■ Tricia Compas (CE/ENVE '09) received the Creativity Foundation’s 2011 Legacy Medal for her promise as an inventor and entrepreneur in creating the Polytech Waterbag, a portable, low-cost device to provide clean drinking water to disaster victims.

■ Stephanie Brown Trafton (IE '04), 2008 Olympic gold medalist, was inducted to the Mustang Athletics Hall of Fame.

■ Katherine Gage (ME '10) received the Outstanding Collegiate Member Award from the national Society of Women Engineers. ■

President, Engineering Student Council **Dylan Pavelko**

“TEAMING UP FOR SUCCESS” IS NOT only the theme of this Annual Report, it’s also an apt description of the Engineering Student Council (ESC).

ESC builds communication, community and collaboration among engineering students, student organizations, faculty and industry. As the overarching student organization for Cal Poly Engineering’s diverse spectrum of clubs and leadership activities, ESC enjoys an unrivaled perspective of the school’s spirit of competition – and its extraordinary culture of collaboration.

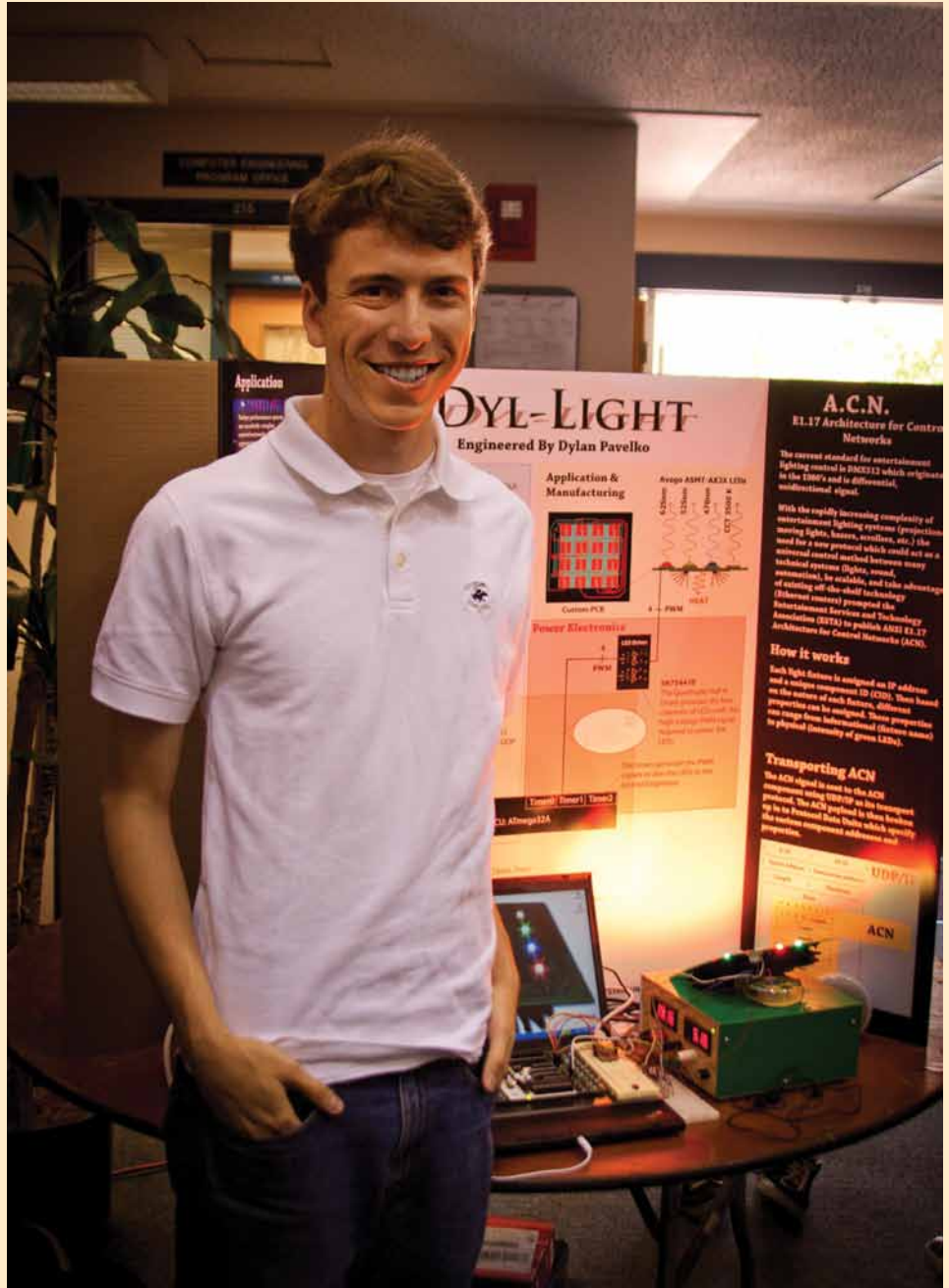
Just a sampling of ESC’s highlights this year:

- **Inaugural Presidents’ Council:** We assembled a “P-Council” composed of presidents from each engineering student organization for a first-of-its-kind summit. There, in the company of peers, these student leaders could share the special challenges and successes of running a student organization, explore common interests, build uncommon friendships ... and emerge with more than their share of best practices.

- **Engineers Week:** This year was, by far, our largest celebration of engineering yet, with 18 different events and hundreds of student attendees. We also teamed up with industry as never before – and the week of interacting with these top companies truly made me excited for all our futures!

- **Mustang Mentoring Day:** This event was yet another occasion for students to team up, this time with alumni. For the second year, Cal Poly alumni came back to campus to spend a day mentoring engineering students on making the most of their remaining time at college as well as exploring career possibilities from fresh vantages.

And, throughout the college, the winning ways of student teams were on spectacular display through projects such as CubeSat / PolySAT and the Society of Civil Engineers’ concrete canoe and steel bridge competitions. Humanitarianism was exemplified by the PolyHouse project and Engineers Without Borders. Innovation was displayed by projects such as the assistive prosthetic device created by



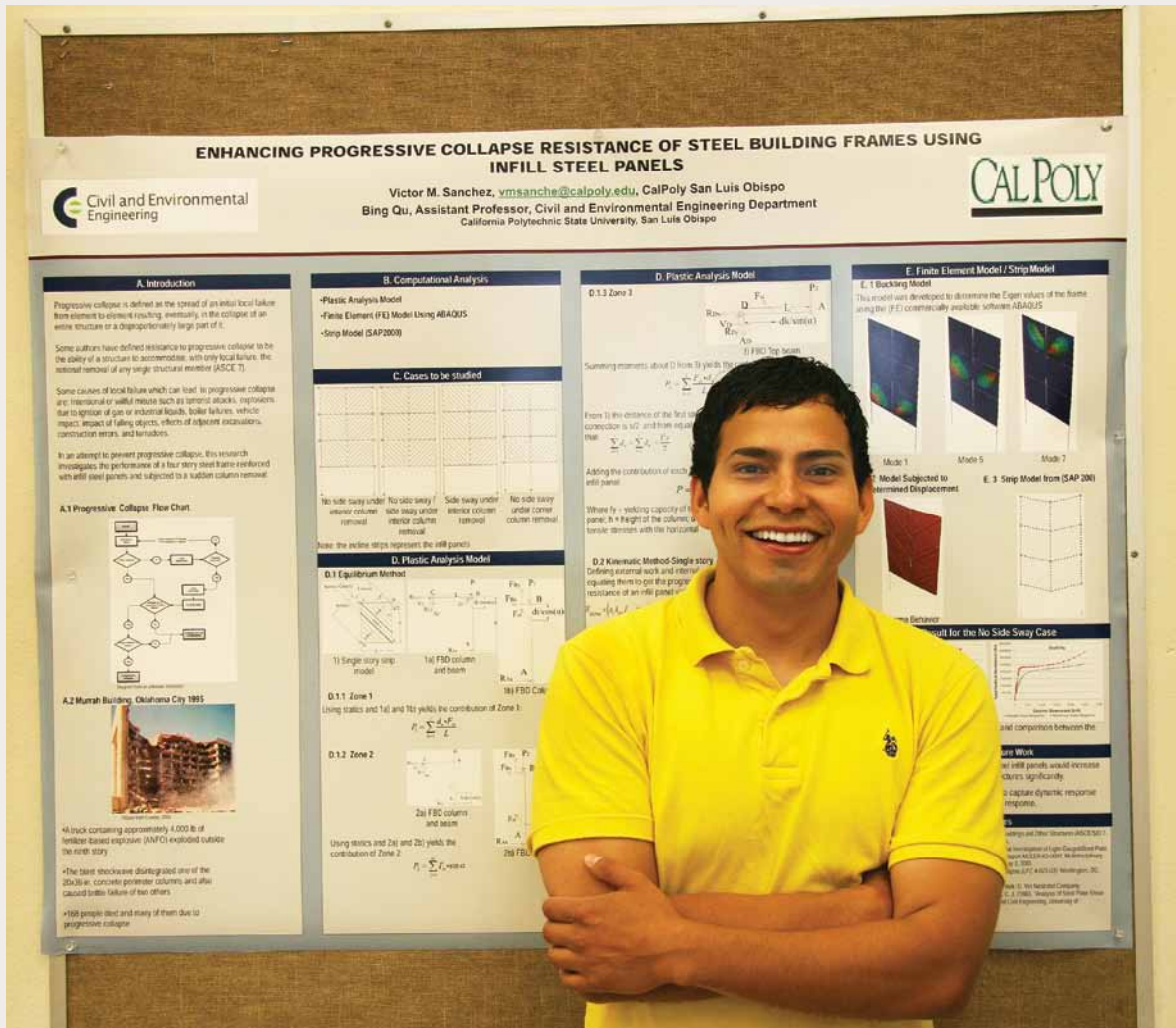
Electrical Engineering student Dylan Pavelko, who served as president of the Engineering Student Council, graduated in June

Team Tech.

When it comes to teaming up, the year was teaming with success!

“**We also teamed up with industry as never before – and the week of interacting with these top companies truly made me excited for all our futures!**”

“I’ve had a great experience here, and the scholarships I’ve received literally helped me survive. I’d like to give back by working with other AVID kids. I’ll tell them to work hard, do more reading and realize that there’s no limit to knowledge.”



TWO YEARS AFTER VICTOR SANCHEZ CAME TO THE United States from Mexico, the Twin Towers collapsed. The event sparked his interest in civil engineering, and the research he has done at Cal Poly may help prevent future disasters.

Victor won the Engineering and Computer Science – Graduate Category at the 2011 CSU Student Research Competition for his project on “Enhancing Progressive Collapse Resistance of Steel Building Frames Using Thin Infill Steel Panels.”

It was not the first time he competed on behalf of Cal Poly. In 2008, Victor led a team to first place in the National Society of Hispanic Professional Engineers (SHPE) Design Competition.

“The competition was fun but challenging,” he says. “Cal Poly instills high expectations, which shows in our winning record.

“The CSU Research Competition is especially difficult. We first had to submit our paper to our department and then to Dean Opava in the Office of Research and Graduate Programs. I think anyone who makes it to the competition from Cal Poly has a good chance of excelling.”

After receiving his master’s degree, Victor joined Brocade as a project manager – achievements he could not have

predicted when he arrived in the United States. His parents have minimal literacy, and none of his seven siblings or dozens of cousins and extended family have gone to college.

“I had never even heard of college until I joined AVID, a program for underserved students,” he says. “I did well in high school and was accepted at all the UC campuses, but couldn’t get financial aid because I wasn’t legal. After attending community college and earning my citizenship, I came to Cal Poly because of its reputation in engineering.

Victor’s accomplishments at Cal Poly include receiving the CSU-LSAMP Scholar’s Award, which recognizes underrepresented students in the STEM disciplines.

“I’ve had a great experience here,” says Victor, “and the scholarships I’ve received literally helped me survive. I’d like to give back by working with other AVID kids. I’ll tell them to work hard, do more reading and realize that there’s no limit to knowledge.” ■

Victor Sanchez (CE 2011)
Civil Engineering graduate student

Honors Program Scholarship
Chevron Scholarship

Donor Honor Roll



Construction workers adjust a crane used to erect the tower for the Cal Poly Wind Power project on a remote hillside on campus.

CORPORATION & FOUNDATION DONORS

3C Engineering Inc.
407 El Cajon Blvd LLC
Abbott Fund
Abbott Vascular
ACAT Global LLC
ACCO Engineered Systems
Aera Energy LLC
Aggressor LLC
Agilent Technologies Inc.
Air Systems Inc.
Air Treatment Corporation
Alcon Research
Alerton
All Green Landscape Solutions
Almaden Cycle Touring Club
Amgen Inc.
Anritsu Company
Antenna Design Inc.
APC Consulting

Aptera Motors Inc.
Arnold/Heye Community Enrichment Fund
ASHRAE - San Jose Chapter
ASHRAE San Joaquin Chapter
ASM International - Los Angeles
The Ayco Charitable Foundation
BAE Systems Inc.
Baker Concrete Construction
Baker Electric Inc.
Bechtel Group Foundation
Belimo
Bernardi & Associates Inc.
Blach Construction
Blue Dolphin Engineering
The Boeing Company
BP & Associates Inc.
Bureau of Land Management
C & D Zodiac Inc.
C. A. Davis Engineering
CA Plumbing & Mech Contractors Association
Cal Poly Panhellenic Program
Capital Engineering Consultants Inc.
The Charles Schwab Corporation

Chevron Corporation
Chevron Energy Solutions
Cisco Systems Inc.
Climatec
ConocoPhillips Company
Conservation Mechanical Systems
Coughlin Associates
The Covello Group Inc.
Crescent Moon Games LLC
Critchfield Mechanical Inc.
Crosswind Holdings LLC
Crown Valley Precision
Cuesta Construction Company
Custom Mechanical Sales
Cypress Semiconductor Corp
Daikin AC
Dawson Company
The DePauw Foundation
DeSoto Vineyards
DLH Industries Inc.
DMG Corporation
DMG North Inc.
Dorow I Inc.
Duckworth Environmental Services
E & J Gallo Winery

EAA Chapter 170
Eaton Corporation
Edwards Air Force Base
Edwards Lifesciences LLC
Elks Lodge #322
Employees Charity Organization
ECHO
Energy Labs Inc.
Enerpro Inc.
Faces Ala Mode
Fidelity Charitable Gift Fund
Fidelity Investments
Flack + Kurtz Inc.
FLIR Systems Inc.
Fluor Enterprises Inc.
Fluor Foundation
Founders Community Bank
Fresh Kitchens and Baths
Fugro West Inc.
G.S. Engineering Inc.
Gene Haas Foundation
General Atomics Aeronautical Systems
Global Impact Tellabs
Glumac International

MUSTANG '60 PROJECT SHOP IS FOCUS OF COUPLE'S NEW GIFT

THEY BUILT A LEARN BY DOING LAB and now they're staffing it.

In 2008, John and Connie Nielsen provided a grant to purchase and install the equipment to make the shop space in the Bonderson Project Center functional. They named the facility the "Mustang '60 Projects Shop" in honor of the Cal Poly football players and staff killed in the plane crash in the fall of John's freshman year.

Three years after making their original gift and watching the development of the shop, they decided "one gift was not enough." This year, they gave an endowment to fund the position of the Mustang '60 Shop Technician.

A 1964 mechanical engineering graduate, John recalls his own experience in the shops and labs at Cal Poly. They gave him the foundation for a rewarding career designing and testing machinery for the Army and large companies such as General Mills. Founding the Mustang '60 Shop was his way of giving back for his success.

"We've been extremely happy with how the shop technician, Eric Pulse, has built out the lab," says John. "He provided a layout and acquired the tools and technology to make Mustang '60 state-of-the-art. The facility now allows students to bring their design and projects to life – it's a core piece of Learn by Doing for the entire college.

"Connie and I want to make sure that Eric or another talented technician like him is on hand to keep the shop running and well maintained, plus support student projects."

A frequent visitor to campus as a member of the Industry Advisory Board for the Mechanical Engineering Department, John has had the opportunity to see a wide variety of student projects and also review the ME curriculum – and he's impressed.

"When I was at Cal Poly, we used World War II surplus equipment. But the ME department today is very progressive and focused on responding to changes in the industrial world. The faculty wants to provide the best training and up-to-date technology for modern engineers," he says.

"I hope other alumni will do what they can as well to support Cal Poly's Learn by Doing program." ■



“Connie and I want to make sure that Eric or another talented technician like him is on hand to keep the shop running and well maintained, plus support student projects.”

“The hands-on approach is another reason I like Cal Poly – it’s what I’ve always done.”



Mechanical Engineering student José Garcia enjoys working with the Cal Poly Urban Concept Car Team.

“MECHANICAL ENGINEERING WAS A PERFECT MAJOR for me.”

That’s how José Garcia, a third-year Mechanical Engineering student and Bechtel scholarship recipient, sums up his Cal Poly career – and the major he had never heard of in high school.

“I found out about mechanical engineering at a summer program at Berkeley. I fell in love with it, and that led me to Cal Poly.”

His love for cars and his father’s work as a diesel mechanic supervisor also fueled José’s interest. Today, he tinkers with his own ’67 Mustang and a ’68 Chevy truck. “The hands-on approach is another reason I like Cal Poly – it’s what I’ve always done.”

So, no surprise, José joined the Cal Poly Urban Concept Car Team, a vehicle division that focuses on meeting the real-life needs of drivers. The team drove off with a prestigious award for technical innovation and a third-place overall finish in its category at the 2011 Shell Eco-Marathon.

“It looks more like a traditional car,” says José, “but it’s loaded with technology – no other team could match our electronics system.” Even though he has done a lot of work on engines, “This was way different. The components around the engine – that was all new. It took a focused process and a lot of testing and improving, and it paid off.”

And that’s what makes the club a microcosm of real-

world industry, he says. “It’s multidisciplinary and multidimensional, involving manufacturing, building, testing and continual improvements.”

José is a bi-cultural, first-generation college student. Born in Los Angeles, he grew up traveling back and forth between San Diego and Mexico due to his father’s work. He credits the experience with giving him a sense of being at home in both countries, and fostering his natural curiosity and openness to new environments.

The Society for Hispanic Professional Engineers (SHPE) has also been key in his growth as a student and leader. “The chapter here is one of the biggest – and best – in the western region.” Through SHPE, José connected with Conoco Phillips, where he was an intern this summer designing pressure valves and handling some project management responsibilities.

“Being in clubs you develop really strong friendships and you interact a lot. You learn to be open-minded and to trust each other. You don’t get that from classes.” ■

José Garcia

Mechanical Engineering junior

Bechtel Scholarship

MATCHING COMPANIES

The following companies have generously matched gifts from their employees to Cal Poly Engineering.

Abbott Fund
 Abbott Laboratories Foundation
 Adobe Systems Inc.
 Aerojet
 AES Corporation
 Agilent Technologies Inc.
 Alcoa Foundation
 American Electric Power Service Corporation
 Amgen Foundation
 Aramark Uniform Services
 AT&T Foundation
 BAE Systems
 Bechtel Group Foundation
 Blount International Inc.
 Boeing Company
 Charles Schwab Corporation Foundation
 Chenega Global Services
 Chevron Corporation
 Cisco Foundation
 Citrix Systems Inc.
 Clarkston-Potomac Group Inc.
 Coca-Cola USA
 ConocoPhillips Company
 Dolby Laboratories Inc.
 Edison International
 Eli Lilly and Company Foundation
 Emerson Electric Company
 Entropic Communications
 Ericsson Inc.
 Ernst & Young Foundation
 FLIR Systems Inc.
 Fluid Components International
 Fluor Foundation
 GenCorp
 General Electric Foundation
 General Mills Foundation
 Goodrich Foundation
 Google
 Hospira Inc.
 IBM International Foundation
 Illinois Tool Works Foundation
 Infineon Technologies Foundation
 Ingersoll-Rand Company

Intel Foundation
 Intuit Foundation
 JBT
 Just Give Cisco
 KBR
 Lam Research Foundation
 Lockheed Martin Corporation
 Marsh & McLennan Companies
 Medtronic Foundation
 Microsoft Corporation
 Motorola Foundation
 Nokia Inc.
 Northrop Grumman Foundation
 Novartis US Foundation
 Novellus Systems Inc.
 Oracle Corporation
 Pacific Gas and Electric Company
 Parker Hannifin Foundation
 Phillips North America
 Qualcomm Inc.
 Raytheon Company
 Rockwell Automation Charitable Corporation
 Saint Jude Medical Foundation
 Salesforce.com
 Salesforce.com Foundation
 Tellabs Inc.
 Texas Instruments Foundation
 The Alexander & Baldwin Foundation
 The PepsiCo Foundation Inc.
 The PIMCO Foundation
 Time Warner Foundation
 Toyota Motor Sales USA Inc.
 Tyco International Inc.
 United Technologies Corporation
 Venoco Inc.
 Verizon Foundation
 Wells Fargo Foundation
 Western Digital Technologies Inc.
 Woodruff-Sawyer & Company
 Xerox Foundation
 Yahoo! Inc. ■

Goldhammer Living Trust
 Goldman Sachs Philanthropy Fund
 Google Inc.
 Grand Aerie Fraternal Order of Eagles
 Grant J. Hunt Company
 Gregg Drilling & Testing Inc.
 Haas Automation Inc.
 Harlan Mechanical Systems
 Hatch Mott MacDonald
 Hathaway Dinwiddie Construction
 Hazard Construction Co.

Herve & Florence Goguely Family Foundation
 Honeywell International Charity Matching
 Honeywell Life Safety
 Hyle Engineering Co. Inc.
 Hyper-Tech
 Ingersoll Rand Industrial Refrigeration Inc.
 Ingersoll Rand/Trane Company
 Integrated Manufacturing Resources



Working with the Cal Poly Power & Energy Society, engineering students lift a solar panel on the roof of a home in Nipomo.

iRobot
 Jack's Helping Hand Inc.
 Jevan Dhara Foundation
 Johnson Controls Inc.
 Johnson Moreau Family Trust
 JumpSport Inc.
 Just Give Cisco
 JustGive
 KDAnderson & Associates Inc.
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 Kiwanis Club SLO Morning
 Knecht's Plumbing & Heating Inc.
 Lam Research Corporation
 Latis Automation
 Lawrence Livermore National Laboratory
 Lawrence Smith Foundation
 The Leach Family Foundation
 Lescure Company Inc.
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 Lockheed Martin Corporation
 Logos Systems International
 Loma Linda University
 Lutheran Community Foundation
 Luvata Electrofin Inc.
 M-E Engineers Inc.
 Mazzetti Nash Lipsey Burch

McQuay International
 Medtronic Inc.
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 Mt Tam Fresh Inc.
 National Instruments
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 Next Intent Inc.
 Norman S. Wright Mechanical Equipment
 Norman S. Wright/Airelink LLC
 Northern California Mechanical Contractors Association
 Northrop Grumman Corporation
 Northrop Grumman Foundation
 Northrop Grumman Space Technology
 NOVA Group Inc.
 NVIDIA
 OppenheimerFunds
 Pacific Coast Trane Service
 Pacific Gas and Electric Company
 Panda Restaurant Group Inc.
 Parker Hannifin Corporation
 Parker Hannifin Foundation
 Perceptive Development Inc. ►



Cal Poly President Jeffrey D. Armstrong, left, tours the QL+Lab with engineering students Dylan Pavelko and Nickolas Butler.

Petra-Mediterranean Pizza & Grill
Pilling Family Foundation Inc.
Postmark Inc.
Power Engineering Construction Co.
Pratt & Whitney Rocketdyne
Price Family Charitable Fund
Provost & Pritchard Consulting Group
Raytheon Company
RBF Consulting Foundation
The Reinhold Foundation
Rinaldi Ag Services
RK Electric Inc.
Robert Y. Sakamoto Family Trust
Russell Sigler Inc.
Ryder Engineering Corp.
The San Diego Foundation
San Diego Gas & Electric
Santa Maria Pacific LLC
Schwab Charitable Fund
Scoperta Inc.
Shalimar Restaurant
Sheet Metal & Air Conditioning Contractors National Association
Shimada Lee Foundation
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Simpson Strong-Tie Company
Skewes Living Trust
Skyworks Solutions Inc.
Smith Barney Charitable Trust
Snowden Engineering
Solar Sun Rings Inc.

Solar Turbines
Southland Industries
Space Systems/Loral Inc.
Splash Cafe Artisan Bakery Inc.
Sport Dimensions Inc.
St. Jude Medical Inc.
State Farm Insurance
— Sherman Chan
Stellar Solutions Foundation
S. D. Bechtel, Jr. Foundation
Still Time
Summit Steel Works Inc.
SunPower Corporation
Suzanne K. Eli CPA
TaylorTeter Partnership LLP
Telfer Consortium
TerraTech Inc.
Texas Instruments Inc.
Thai-rrific Restaurant
Mark Thomas & Company Inc.
Trane
Tsuchiyama Kaino Sun & Carter
UMKC Dental Hygienists' Alumni Association
Union Pacific Corporation
United Way Silicon Valley
VaCom Technologies
Van Beveren & Butelo
Vanguard Charitable Endowment Program
Vegan Spices Thai Cuisine
Vertical Systems LLC
Vetel Diagnostics Inc.
ViaSat Inc.

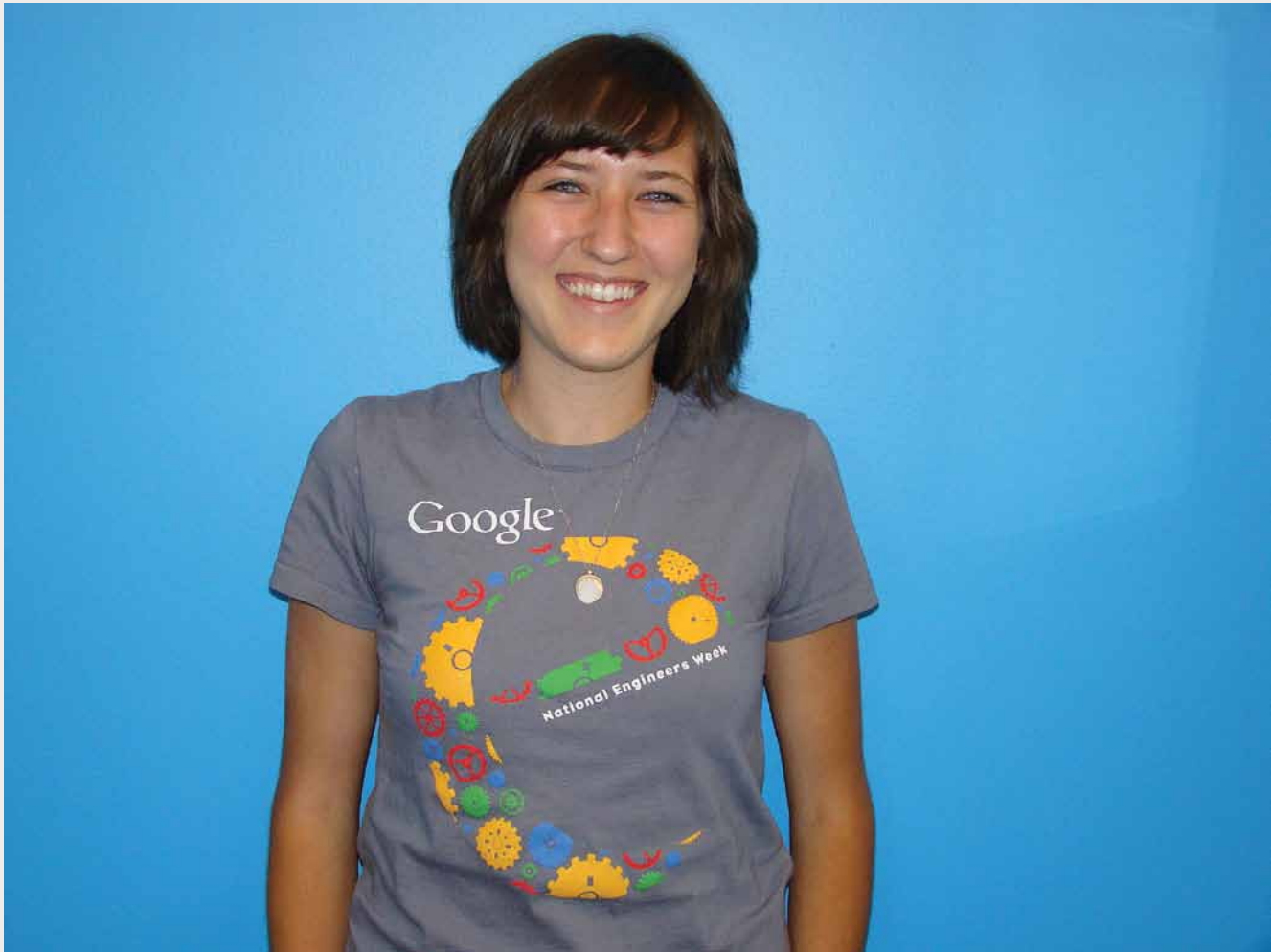
IN-KIND GIFTS

A & R Furniture
Air Monitor Corporation
AJ Contractor's Supply
Audio Ecstasy
BCI Acrylic Bath Systems
George & Shirley Bekey
Jack & Rebecca Bingham
Browder Painting Company Inc.
Brummel, Myrick & Associates
Keith Brummel
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Noreen Martin-Hulburd
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Larry Myrick
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Betty J. Wiggin
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Christine & Conrad Young
David M. Young ■

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Waste Connections Inc.
Weld-Met Consulting Services
West Lake Fresh
Western Allied Corporation
Western Allied Mechanical Inc.
Western Digital Technologies
Wingate Foundation
Wittler-Young Company
Wolfe Engineering Inc.

Wood-N-Peg Ranch
XCEL Mechanical Systems Inc.
Xerox Corporation
Yogurt Creations
Zaharoni Industries Inc. ■



A GIFT FOR GIVING

ALYSSA DAW, A 2010 SOFTWARE ENGINEERING GRADUATE, has always wanted to make a direct impact with her work.

“When I was growing up, my mother worked at a bio-medical center. What struck me was you don’t have to have a medical degree to save people’s lives – there’s a lot you can do with software to make a difference.”

During her Cal Poly career, Alyssa made an impact as a tutor, a leader in the Society of Women Engineers, and a cross-country and indoor/outdoor track and field athlete, as well as for her commitment to women’s equality, for which she won a Farrer Scholarship.

Last year she also became a voice for a new generation of student philanthropists when she and Brian Oppenheim led a class gift initiative for their department – an effort so successful that the class of 2011 followed in their footsteps.

“Students feel positive about Cal Poly Computer Science and want to be sure it stays great and gets even better,” says Alyssa.

The young alumna – now a software engineer at Google – is once again leading the way. When she heard that an anonymous donor had committed \$35,000 as a challenge to raise funds for a cutting-edge Human-Computer Inter-

action (HCI) Lab, Alyssa jumped in with a \$2,500 gift.

“I see the HCI Lab as a special opportunity to invest in the future of computing and to give students exposure to the rapidly changing field of user experience design. Cal Poly’s Learn by Doing approach was a perfect match for me, and it definitely prepared me for a challenging, stimulating environment like Google.”

“I really like the idea that each of us has been given some kind of talent, a gift. Whether we’re an individual or Google itself, figuring out how to best to give back is a hard problem to solve – and really interesting – and that’s what inspires me.” ■

“I see the HCI Lab as a special opportunity to invest in the future of computing and to give students exposure to the rapidly changing field of user experience design.”



Silvia Aguilar and Robert Kobara hold up their Team Tech project, a prosthetic assistive device for climbing stairs.

ROBERT KOBARA'S EDUCATIONAL PATH BEGAN IN THE hospital, sparked by a world of beeps, buzzes, blinking lights and a welter of optical cabling and circuitry. He was fascinated. A junior in high school, he had been diagnosed with a brain tumor on a Tuesday; by Thursday, he found himself in UC Davis Medical Center for a life-changing week.

"I had never seen such a convergence of machines, electronics or diagnostic equipment," recalls the second-year Biomedical Engineering major and C&D Chrones Scholarship recipient. "I was hooked."

"Not long after my surgery, when I saw that Cal Poly had biomed engineering, that was it for my college choice," explains Robert. "It's been a blast. I'm learning about products – like stents and valves – and what biomed is about. And, through the Team Tech project, I'm really getting exposed to design."

Team Tech is the national design competition sponsored annually by the Society of Women Engineers. One of Cal Poly's Team Tech projects this year focused on building an assistive device for a prosthetic client: 20-year-old Cameron Clapp.

"This product allows someone like Cameron to go up and down stairs 'under their own power.' It could be revolutionary," marvels Robert. "And to know that I contributed is really meaningful. I'm finding my niche."

"The challenges of our assistive device make it the biggest project of its kind, and the interaction with Cameron made it unique," agreed Silvia Aguilar, another C&D Chrones Scholarship recipient and Team Tech participant.

Silvia, a third-year Mechanical Engineering major, seems to be excited by everything at Cal Poly. In addition to her Team Tech work on assistive technology, she is intrigued by automotive engineering, and she's been involved with eWeek, the Pilipino Cultural Exchange Club, the Society of Women Engineers, Cal Poly Women's Volleyball Club, the Society of Hispanic Professional Engineers, and Engineering Ambassadors.

"I love leading tours for prospective students," she says. "What wows them are our labs—how much hands-on experience they can have here. Parents are even more amazed at what can be created at the undergraduate level."

"The scholarship has played a huge role in allowing me to be involved in all my activities," Silvia notes. "In fact, I wouldn't be here without it. My mom – a single mom with an administrative job – would simply not have been able to afford Cal Poly. I'm grateful and I want to soak up as much as I can. I don't sleep!" ■

Robert Kobara

Biomedical Engineering sophomore

C&D Chrones Scholarship

Silvia Aguilar

Mechanical Engineering junior

C&D Chrones Scholarship



Computer Science students concentrate on a project.

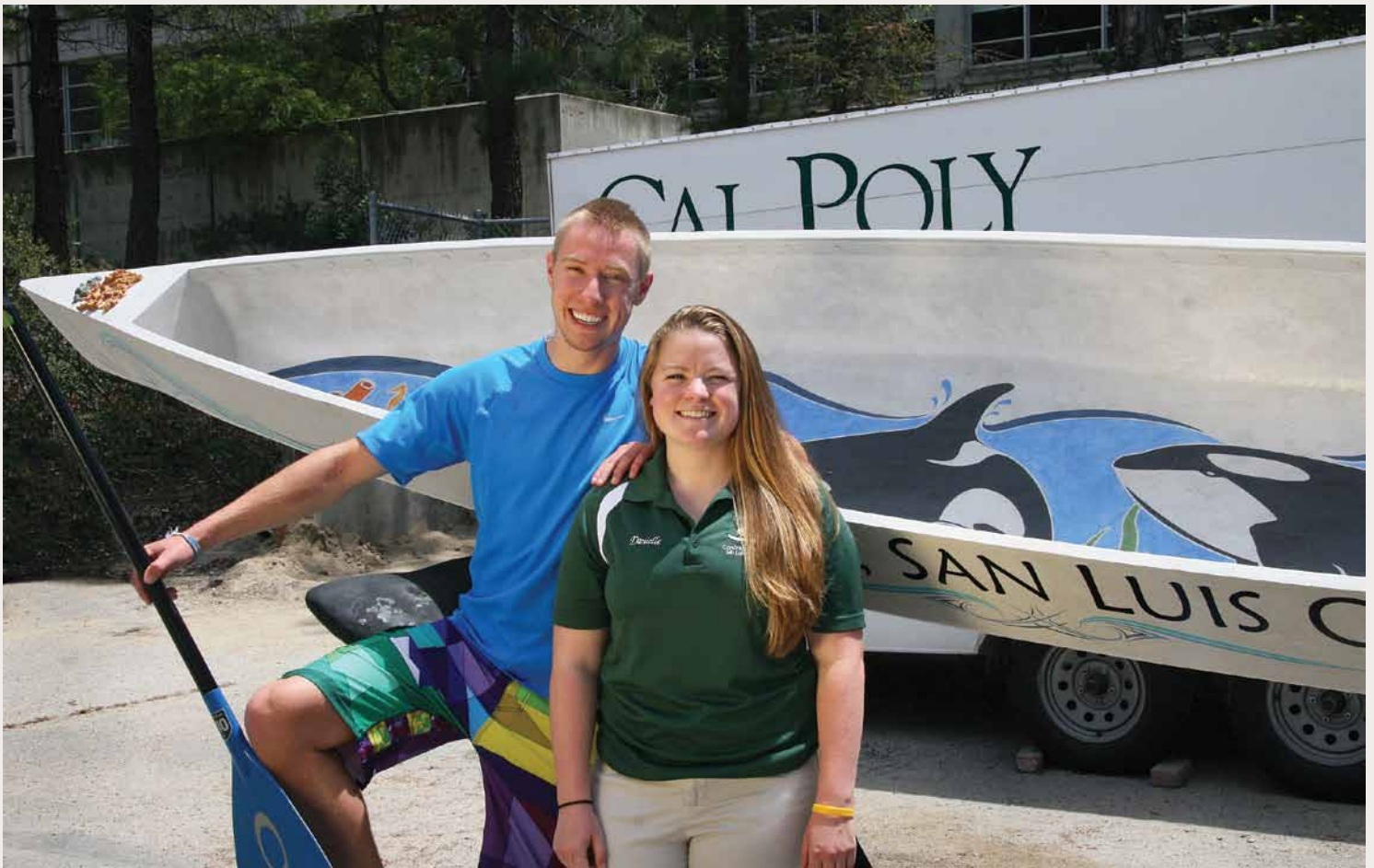


Materials engineering student Kyle Savage works on the carbon fiber body for the Cal Poly Urban Concept Supermileage Car.



AERO students line up the RMAX helicopter for a test flight.

Scholarship recipients **Jazz Gilbert & Danielle Steinmetz**



Civil Engineering students Jazz Gilbert and Danielle Steinmetz helped lead the Cal Poly Concrete Canoe Team to its second national title.

SCHOLARSHIPS DO MUCH MORE THAN KEEP STUDENTS afloat. In fact, scholarships often allow students to participate in activities that challenge their knowledge and creativity, such as the National Concrete Canoe Competition.

Danielle Steinmetz and Jazz Gilbert were part of the winning team that claimed the “America’s Cup of Civil Engineering” for the second consecutive year at the American Society of Civil Engineering (ASCE) National Concrete Canoe competition. Danielle, a Kimley-Horn scholarship recipient, was team captain; Jazz, a ChevronTexaco scholarship recipient, helped build and paddle the canoe.

“Not many other majors get as excited about concrete the way we do,” says Danielle. “But through the competition you learn how to push the limits – not only of what you know and what you can do, but who you can be.” She credits this year’s repeat success to an abundance of hard work by team members, which included Civil Engineering, Industrial & Manufacturing Engineering, Mechanical Engineering and Art and Design majors.

“Each of us put in an average of 40 hours a week – everyone worked together to support each other.”

Likewise, Jazz is “all in” for club activities that augments his studies. “As a freshman, I went a little overboard. I joined numerous clubs and was dorm president. But since sophomore year, I’ve stuck with ASCE. Their field trips, competitions and national convention are second to none. That one club is plenty!”

Although accepted at UC Berkeley and UCLA, Jazz opted for Cal Poly after a tour of the campus. “It just clicked. Its Civil Engineering Department is renowned. You can get a job with more ease than anywhere else, and I felt at home.”

That feeling of community included a sense of new opportunities to learn more, do more and expect more from himself. “Engineers are often stereotyped as being quiet and introspective – but that’s not what you see in the most successful ones. Cal Poly helps you grow as a whole person. In addition, the ChevronTexaco Scholarship has allowed me to use what I’m learning in contexts outside the classroom. I’m learning not only how to build structures but how to build a strong social network, as well as public speaking, presentation and collaboration skills.”

Both Danielle and Jazz plan to get graduate degrees and then pursue careers in structural engineering. ■

Jazz Gilbert

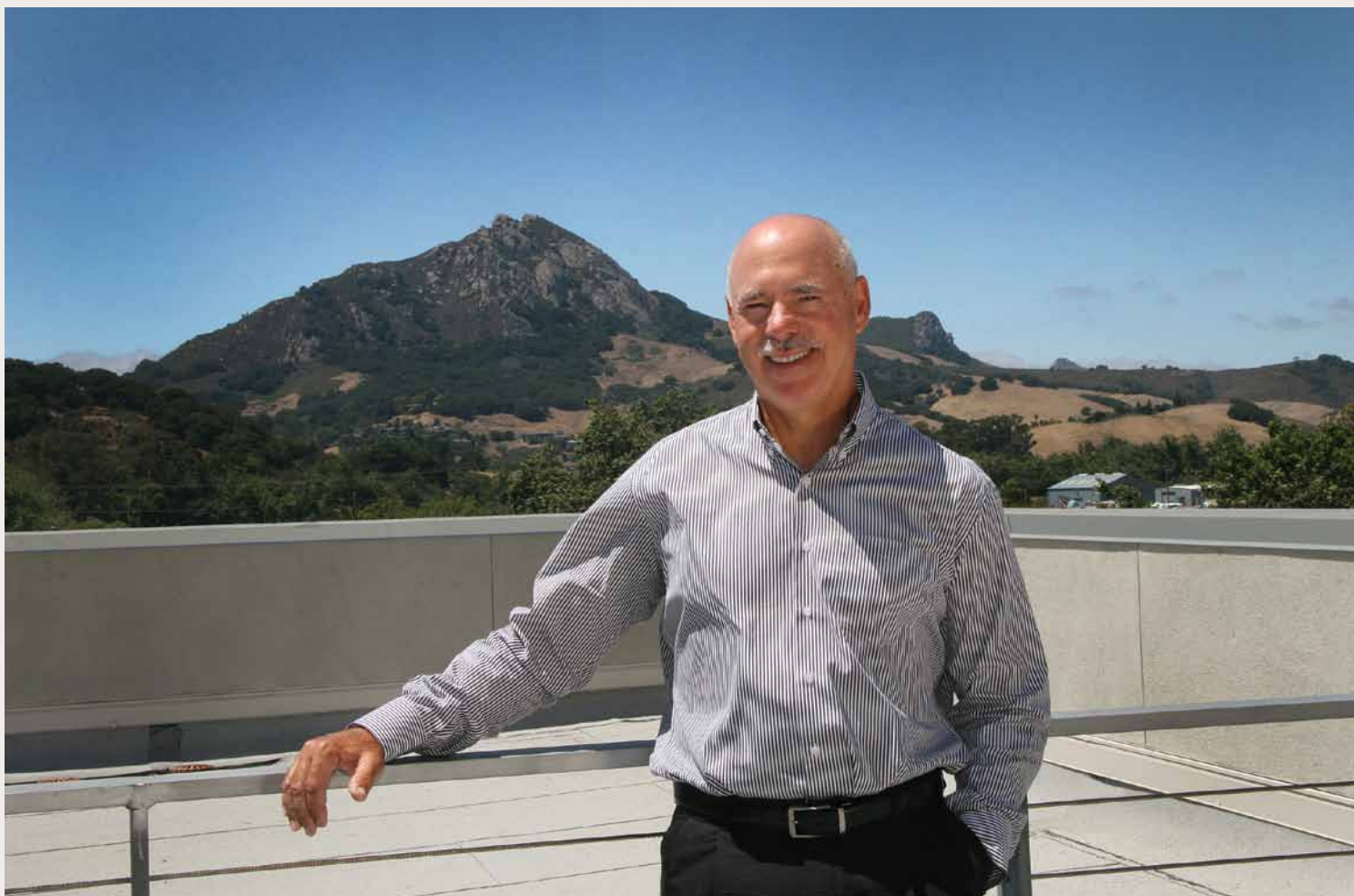
Civil Engineering junior

CherwonTexaco Scholarship

Danielle Steinmetz

Civil Engineering senior

Kimley-Horn Scholarship



ALUM GIVES BACK TO CAL POLY IN MANY DIFFERENT WAYS

“I WAS HIRED BY TRW BECAUSE OF CAL POLY,” SAYS Kraig Scheyer, a 1979 Environmental Engineering graduate.

“The projects and real problems we worked on in class gave me the skills to go right to work doing pollution control testing all over the U.S. I knew, even then, that I owed a lot to Cal Poly’s Learn by Doing education, so I always felt appreciative and connected to the university. That connection was strengthened by all the Cal Poly alumni I’ve worked with at both TRW and Northrop Grumman – at one time, I had three Cal Poly engineers working for me.”

Kraig, recently retired as Northrop Grumman’s vice president of administrative services, has been an ongoing Cal Poly donor and a volunteer.

Now, to honor the university in a long-lasting way, he’s made Cal Poly part of his estate.

“My first volunteer service to Cal Poly was to coordinate Northrop’s relationship with the university,” explains Kraig.

“That led to my becoming part of the Dean’s Advisory Council, which I’ve really enjoyed.

“My involvement made me better understand the priorities of the college and how to enhance the programs. Plus, the DAC opened my eyes to all the ways you can become engaged as a mentor, in projects, through alumni events, and as a donor. There are many ways to invest and give back to Cal Poly!

“I decided that it was a good time for me to make a bequest to the college. I could continue making annual donations, but I would be limited in what I could give at any one time. The bequest allows me to make a more significant gift because it’s a commitment that will be carved out of my estate, and, hopefully, a bequest offers possibilities for growth of the gift.

“My hope is that my gift will help continue the legacy of Learn by Doing at Cal Poly.” ■

“**The projects and real problems we worked on in class gave me the skills to go right to work doing pollution control testing all over the U.S. I knew, even then, that I owed a lot to Cal Poly’s Learn by Doing education, so I always felt appreciative and connected to the university.**”

TEAMING WITH OTHER STUDENTS TO DESIGN A “SPORTS BOT” TO encourage children to be more active was right up Jorge Hernandez’s alley, even with no prior experience in robotics.

“My role – with other mechanical engineers on the team – was to prove the concept works,” said Jorge. And work it did. The Dual Sport Bot earned first place in the 2011 National Society of Hispanic Professional Engineers (SHPE) Design Competition. The ME and Computer Science team produced a basketball hoop that uses sonar sensors and infrared technology to detect players within a three-foot radius and then moves away from them. To shoot, children have to run after the hoop.

In another context, the concept was familiar: “My parents always said, ‘Strive for more,’” he says.

Born in Mexico, Jorge grew up in Santa Cruz, where his parents built successful small businesses – his father in landscaping; his mother in housecleaning. “They showed their children that you can succeed, even with limited resources.”

“Mom used to say, ‘Go to

Stanford. Be a Doctor.’ So, she was quite impressed that we won this national competition while Stanford took second. It shows Cal Poly can compete at the same level. It’s the same with Berkeley. Each school has a different learning style.

“I didn’t know about Cal Poly or think about engineering until I was in community college, and my professors talked about Cal Poly, San Jose State, Berkeley and UCLA. I knew Cal Poly was competitive, and that I needed to stand out. It was a turning point. I started studying harder and looking at the material in a different way.”

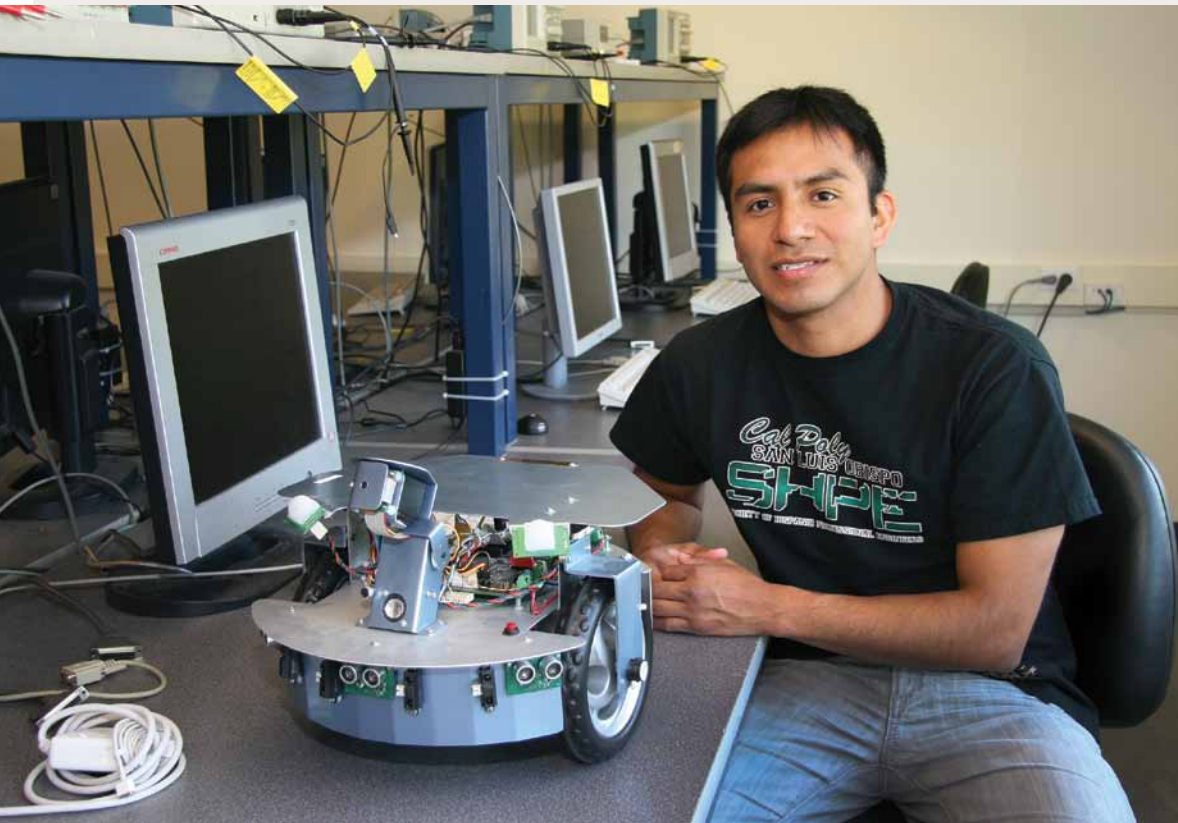
Jorge now shares that breakthrough with other students: “It’s one thing to study and another to study effectively.”

As an officer and academic peer counselor for SHPE, he coordinates workshops on time management and stress management, and produces study guides.

His scholarship from the National Science Foundation has made all the difference. “At my community college, doing work and school was tough, and I didn’t do particularly well. The fact that I can now focus exclusively on my studies helps a lot. I’m very competitive. The scholarship, together with the competitions, motivates me to reach higher ... and strive for more.” ■

Jorge Hernandez-Maldonado
Mechanical Engineering senior

MESA-National Science Foundation Scholarship



Mechanical Engineering student Jorge Hernandez worked on proving the concepts for the Dual Sport Bot.

“I didn’t know about Cal Poly or think about engineering until I was in community college... I knew Cal Poly was competitive, and that I needed to stand out. It was a turning point. I started studying harder and looking at the material in a different way.”

DEMOCRATIZING PUBLISHING – ONE USER EXPERIENCE AT A TIME

ZERO MASS ENGINEERING (ZME) LED BY CAL Poly Computer Science graduate Rob Ricci (1989) is powering the growing trend in do-it-yourself publishing. The company's inventive software development teams are innovating tools like CreateSpace, the self-publishing company that is a wholly owned subsidiary of Amazon.com, which provides services that makes it easy for an individual to self-publish books, CDs and DVDs.

"CreateSpace is the business brand, and we develop the underlying platform," said Dave Louw (Computer Science, '00), ZME software development manager.

ZME, a division of A2Z Development Center, Inc. (itself part of the Amazon.com group of companies) was launched as a result of the team's evolving software development role with CreateSpace. Various Cal Poly staff and alumni have overseen San Luis Obispo's thriving development shop over the past six years as it expanded from three people to over 40 employees, and continues to grow apace with the rapidly expanding self-publishing field. The vast majority of employees are current students or Cal Poly graduates.

"The technology developed by ZME is challenging the rules of traditional publishing; our overall strategy is to make independent publishing mainstream by 2015," said Dave. And he views Cal Poly as integral to that plan.

The company recently made a \$10,000 donation to Cal Poly's upcoming Human-Computer Interaction (HCI) Lab, which will support student-faculty research in human-computer interaction, user-centered design, software engineering, as well as mobile computing and game design.

"We look at CreateSpace as democratizing publishing, and ease of use is all important," noted Rob, senior development manager. "We want authors to focus on writing, not how to upload a manuscript or create a book. The people who build the tools should be thinking about how to make the process easier. We need software developers and system designers who understand how to make computers and other devices more intuitive to people."

Such concepts as "ease of use" or the "user experience" were almost unheard of 20 years ago, but they are core to ZME's approach to self-publishing.

"The HCI Lab will produce computer science grads with



Cal Poly Computer Science graduates Ro Ricci (1989), left, and Dave Louw (2000) have guided Zero Mass Engineering into the forefront of the self-publishing business.

the sophisticated understanding of software development and deep hands-on technical expertise that's demanded in today's best software systems and mobile apps – and by users," said Dave.

"We want to raise the profile of Cal Poly as the 'go to' place if you care about user experience and making great user software and other systems. We take pride in our high hiring bar, and companies like ours, Amazon and others have a vested interest in seeing that Cal Poly continues to attract the best and the brightest in this growing field." ■

“The HCI Lab will produce computer science grads with the sophisticated understanding of software development and deep hands-on technical expertise that's demanded in today's best software systems and mobile apps.”



AERO students Eric Paciano and Jonathan Lichtwardt work with professor Tina Jameson, middle, on the AMELIA aircraft model designed for wind tunnel tests.



Student assistants help keep the Mustang '60 Shop running smoothly during school.



Mechanical engineering student Jen Van Donk works on an artificial limb project in the QL+ Lab.

CAL POLY

ENGINEERING



"Launching satellites into space from Russia, working on green energy projects, helping community members in need... Year after year, I am completely floored by these awesome projects and I am so proud of my fellow classmates who are determined to use their engineering skills to help others."

"With your help, generations of students behind you will have the same opportunity you had to work on these fantastic projects and to receive an education that will not only boost their careers—it will help them make a difference."

"Please make a gift to support a great institution: Cal Poly Engineering."

Dylan Pavelko

President, Engineering Student Council 2010-2011

To make an online donation:

<http://giving.calpoly.edu/donations>

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