Learning through service

CENG students contribute to their community, world

Service-learning is the “buzz” in education. It refers to a teaching and learning strategy that integrates community service with instruction and reflection to enrich the learning experience, teach civic responsibility, and strengthen communities.

“This class was extremely beneficial. Producing something that was going to be a reflection of my effort made me want to take the whole engineering experience much more seriously.”

Materials Engineering student enrolled in service-learning course

brick press that will turn clay into houses in Zambia, to “PolyHouse,” the yearly project of an industrial engineering class to make home improvements for a disadvantage family.

Please see SERVICE LEARNING, Page 8

Engineering Plaza opens

Design links past with future of engineering education

With its distinctive Fibonacci spiral and located at the core of a consolidated engineering “campus” in the northwest sector of the university, the Engineering Plaza was designed to serve as the heart of Cal Poly’s world-renown engineering programs. The Plaza is set between the new Engineering IV building, right, and the Bonderson Student Projects Center, left, both of which also opened to students in February. To become a Plaza member, see Page 4.
Enhancing CENG ties: Aiken named Director of Alumni & Donor Relations

The College of Engineering is stepping up efforts to formalize connections to constituents with the appointment of Donna Aiken as Director of Alumni & Donor Relations. Aiken, a 1988 Cal Poly English graduate, is an “old hand” at the job, having served as alumni relations director before becoming executive assistant to the Dean in 2002.

“One of my goals is to create events that give alumni, friends and supporters reasons to come back and renew their ties to the college,” says Aiken. “And I’m particularly excited about enhancing communications via the upcoming online community being developed by the university—this will be a wonderful venue for people to socialize and network professionally.

“I think when our alumni and friends start visiting the online community, they’ll find that they’ve tapped into a rich pool of resources,” Aiken explains, “and they’ll realize, again, the immense value of their Cal Poly connections.”

Right: The dramatic angles of the new Bonderson Student Projects Center and Engineering IV loom over Engineering Plaza.
Primed for action: An expanded DAC tackles new goals

Dean’s Advisory Council to help shape CENG’s future

They come from industry, academia, government, and research institutes. They include presidents of U.S. and international universities, corporate CEOs, engineering deans, successful entrepreneurs, distinguished researchers, and a former congresswoman. More than 50 in all, these esteemed individuals have agreed to serve the College of Engineering as members of the Dean’s Advisory Council (DAC).

Although the DAC has long provided sound advice and a strong connection to industry, the group has taken on a new look and new vigor with diversification of its membership, a revamped committee structure, and an updated plan for action. Its mission is to assist and advise CENG in the following roles:

- As an advocate, helping to foster relationships with industry, scientific and professional communities, and government.
- As a guide to assist in developing a strategic plan and launching new programs.
- As a sounding board for the dean and college leadership.
- As an active resource in fund raising.

The DAC consists of an executive committee and six standing committees that address strategic planning, industry-university partnership, program review and assessment, outreach and external relations, alumni relations and a campaign for naming the college, and facilities and infrastructure. Along with standing members, the new DAC committees include CENG departmental advisory board representatives; Cal Poly officials, such as Sandra Ogren, vice president for University Advancement; and students. In fact, the chair of the Dean’s Student Advisory Council, Tony Guntermann, also sits on the DAC Executive Committee.

“Bottom line, we want to be more active on behalf of the college,” states DAC chair, Paul Bonderson, “so we have established a structure that focuses our energies.”

In drawing up the new structure, Dean Noori and the DAC Executive Committee have outlined specific charges to the standing committees, which include:

- Assessment of CENG’s progress towards the strategic and annual goals.
- Helping establish the Project Based Learning Institute and industry-university partnerships.
- Identify innovative academic programs to enhance the quality and improve the national visibility of the college.
- Develop a plan for promoting CENG programs, faculty, and competency areas.
- Identify resources for CENG’s facilities and to equip the Bonderson Projects Center.

Some of the most immediate action items for the DAC include organizing alumni events and implementing a campaign for naming the college.

Bonderson, Co-chair Kathleen Holmgren and Noori all agree that the council’s diversity greatly enhances its strength. “Always when you add new members you gain fresh perspective,” notes Holmgren. “And increasing the group’s diversity will enrich the discussions, ideas, and available resources.”

Dean Noori states, “Our graduates need global awareness, therefore it’s important for administration and faculty to work with colleagues from a broad variety of institutions across the U.S. and internationally. I am delighted that so many highly accomplished leaders have joined the DAC—no question, we cannot build our future without these partners.”

For more information and a list of members, see http://ceng.calpoly.edu/corporate/dac/.
New scholarships invest in the best students

Alums Dale Nix and Don Heye sponsor four-year scholarships to top students

What makes a top university? Dedicated and distinguished faculty, certainly; state-of-the-art facilities; cutting-edge curricula; and, key to the equation, the best students.

“Keeping Cal Poly competitive as one of the nation’s premiere engineering colleges means that we must enroll top students,” notes Dean Mohammad Noori. “That’s why we’re very grateful to Dale Nix and Don Heye, two alumni who have stepped forward this year with gifts to fund scholarships, primarily for outstanding incoming freshmen.”

The Dale Nix Freshman Scholarships will be awarded to five freshmen, starting in 2007-2008. Each of the recipients will receive a $4,000 award. Candidates will be selected on the basis of merit by the College of Engineering.

Named for the parents of 1958 AERO graduate, Don Heye, the Marvin Arnold & Irene Jaquette Heye Scholarship will provide $17,500 to an entering or current Cal Poly engineering student who presents an exceptional academic record and has been involved in extra-curricular activities, community service or work. Established through the San Diego Foundation, the scholarship—like the Nix awards—is renewable for up to four years.

“This is the first time, to my knowledge, that the

CENG students Miguel Cabrerra, Victor Cervantes and Alba Ruiz were all smiles at the 2006 Winter Commencement.

college has offered four-year scholarships,” says Noori. “We hope that they will be the first of many targeted to reward meritorious students and attract them to our highly acclaimed engineering program.”

The Engineering Plaza

Make your Cal Poly engineering experience timeless.

How do you express your gratitude?

By becoming part of the Fibonacci-inspired Engineering Plaza, you can say “Thank you” in stone for Cal Poly’s world-class engineering education.

For a limited time, the College of Engineering is offering alumni, parents and friends an opportunity to purchase a personalized, laser-inscribed concrete paving tile in the new plaza. Consider purchasing a tile for yourself, or dedicate a tile to your child, parents or family.

The paving tile sizes, names and prices follow the same sequence that inspired the plaza:

Golden Ellipse:
1’x1’ tile
Tiles available: 237
Price: $610
Characters: 42

Golden Section:
8’x8’
Tiles available: 10
Price: $6765
Characters: 220

Golden Rectangle:
2’x2’ tile
Tiles available: 15
Price: $987
Characters: 76

Golden Triangle:
13’x13’
Tiles available: 7
Price: $10987
Characters: 309

Golden Mean:
5’x5’ tile
Tiles available: 3
Price: $2584
Characters: 165

All sizes are listed in feet. Spaces are considered characters. Tiles are reserved in the order donations/pledges are received.

To purchase an Engineering Plaza tile, log onto www.ceng.calpoly.edu/plaza or contact Joe Donahoo at (805) 756-6870, jdonahoo@calpoly.edu.

The Fibonacci Series

The design of the plaza models the Fibonacci sequence, a mathematical equation that is found throughout nature. Adapted from the Sanskrit “mountain of cadence” by Leonardo Pisano Fibonacci (1170-1250), the sequence describes a spiral. In the Engineering Plaza, that spiral suggests the beginning of engineering knowledge, which Cal Poly graduates take out into the world.
**Bonderson fellowships energise two campuses**

*Gift establishes a combined Master’s-Ph.D. fellowship program at Cal Poly and UC Santa Barbara*

Philanthropist [Paul Bonderson](#) (EE ’75) believes strongly in Cal Poly. He also appreciates the engineering program at UC Santa Barbara, where his son Richard went to graduate school.

Seeing the synergies and complementarities between the two universities made Bonderson consider how the schools could capitalize on their strengths. Which led to a $500,000 gift establishing the Bonderson Fellowships for Master’s – Ph.D. degrees in Biomedical and Materials Engineering. The gift from Paul and Sandra Bonderson is divided between Cal Poly and UCSB. It will support two students, who spend two years at Cal Poly earning M.S. degrees in either biomedical or materials engineering, and then attend UCSB for three years to earn Ph.D.s in those same fields.

“The Bonderson Fellowships are unique and wonderful in many ways,” says Dr. [Ed Sullivan](#), assistant dean for Graduate Programs & Research. “This is the first time the College of Engineering will work at the graduate level with one of the UC campuses. The program represents a tremendous opportunity for the student recipients, but because candidates are jointly advised by faculty from both schools, it also allows our Cal Poly faculty to collaborate with colleagues at Santa Barbara. In his wisdom, Mr. Bonderson has included funds for faculty support, so the program really boosts faculty research opportunities.”

Dr. [Matthew Tirrell](#), dean of UCSB’s College of Engineering, is likewise enthusiastic. “Cal Poly has great project-based learning, producing superb, hands-on engineers; at UCSB, we have great research and Ph.D. programs,” he states. “We think that this fellowship program does a service for the field and for California by exposing students to the best of both our environments. The cooperation will bring excellent students to graduate school at UCSB and will provide Cal Poly students with early access to the research opportunities at UCSB.”

For more information, contact Assistant Dean Edward Sullivan at esulliva@calpoly.edu or 805-756-2131.
CENG welcomes Dr. George Bekey, research scholar

Former USC professor to assist with research, grants

One afternoon last February, a group of youngsters at Mesa Middle School got a treat: Dr. George Bekey introduced them to “Robo Sapien” and “Robo Raptor.” The kids loved the robots, but they should have been even more impressed by the genial roboticist.

USC Professor Emeritus George Bekey served as associate dean for research in USC’s School of Engineering, where he founded the Robotics Research Laboratory. He has more than 35 years of research funding from such agencies as the National Science Foundation, NASA, and the National Institutes of Health.

Dean Mohammad Noori recently recruited the distinguished researcher to as a “Special Consultant” and to serve on the College of Engineering Dean’s Advisory Council. This winter, Bekey was named a Cal Poly Research Scholar in Residence.

“I think Cal Poly is a GREAT university, with the potential to become even better,” states Bekey. “After having nearly 40 years of continuous funded research at USC, I am interested in helping faculty achieve more success in research at Cal Poly by serving as a grant writing expert and advisor, and I can give talks and assist faculty and students in robotics projects.

“I appreciate the honor of being named a Research Scholar, and I view these activities as a way of earning my keep, and passing on what I have learned to younger colleagues.”

CENG joins hands across the world in engineering education partnership

Engineering education for a global marketplace to be the focus for six universities

Cal Poly, Seoul National University of Technology (SNU), and six other universities from around the world have agreed to work together to address the future of engineering education.

Meeting in Seoul, Korea, last November, presidents, deans and senior administrators from the eight participating institutions discussed how to foster practical engineering experience, meet the needs of industry, and educate for the global marketplace. Dean Mohammad Noori and Dr. Unny Mennon, now Cal Poly’s interim assistant vice provost for Academic Programs, contributed a paper on “Project Based Engineering Education to deliver Globalization Experiences.”

In addition to Cal Poly and SNU, the participating universities include Michigan Tech, Northumbria University (United Kingdom), Kanazawa Institute of Technology (Japan), Chalmers University of Technology (Sweden), Evtex University of Applied Sciences (Finland), Nanyang Technological University (Singapore), and Czech Technical University (Czech Republic).
Rick Sturckow (ME ’84) will pilot the next NASA Space Shuttle mission. During the STS-117’s 11-day mission, the six-member crew will install a new truss segment, retract a set of solar arrays and unfold a new set on the starboard side of the International Space Station.

Although the shuttle was due to launch earlier, the external fuel tank of Atlantis was damaged during a Feb. 26 hail storm. As of this magazine’s printing, NASA anticipated announcing a Spring 2007 flight date.

This is the third space mission for Sturckow, a lieutenant colonel in the Marine Corps in addition to his commission as a NASA astronaut. Sturckow was a member of the crew of the first International Space Station assembly mission aboard the shuttle Endeavour (1998) and 11th mission to the International Space Station aboard the shuttle Discovery (2001). He was also the College of Engineering’s 2002 Honored Alumnus.

The following preflight interview was conducted and posted by NASA (www.nasa.gov/mission_pages/shuttle/shuttlemissions/sts117/interview_sturckow.html).

Give me a thumbnail sketch of your education and your career.

I got out of high school when I was 16 and I worked for two years at International Harvester — I was a truck mechanic, a lube boy. I did brake jobs, transmissions, that sort of thing. Then I went to college, at Cal Poly in San Luis Obispo to study mechanical engineering. They had a racing program there with the SAE, Society of Automotive Engineers, which is why I wanted to go there, and that’s where I did the majority of my racing. I also did some stock car racing on my own car that I built, and drove it on dirt tracks in California. And then, I think we already talked about, the guy came up to me and said, you ought to join the Marines and be a pilot. Tell me about your Marine career before you got this job.

After you graduate Officer Candidate School, every Marine officer goes to The Basic School. It’s six months of infantry officer training at Quantico, Va. The theory is that if you’re going to support Marines on the ground from the air you should know something about what they do on the ground, so we learned that. I went to flight school at Pensacola, Fla., and then advanced jet training at Beeville, Texas, went to F-18 training at Lemoore, Calif., and then I went to a Marine fighter squadron in Beaufort, S.C. I was stationed there for four years, we did, a pump to the Western Pacific, to Japan, Korea, Okinawa, the Philippines, for about seven months, then I came home, went to Top Gun, and then we deployed to Sheik Isa Air Base in Bahrain for Desert Shield, and Desert Storm. I flew 41 missions there, and then came back and I went to test pilot school at Edwards Air Force Base, and then I was a test pilot at Pax [Patuxent] River, Md., and then I came down here to Houston.

And you have been flying in space fairly regularly ever since. The “flying in space” part of this astronaut job, we know, can be dangerous. I want to know what it is you think we get out of flying people in space that makes it worth the risk that you’re willing to take.

The human aspect of exploration is very important to maintain the interest of all of us Americans in space exploration. If we don’t send people there it’s hard to get the American public fired up about what it is we’re doing. It’s great to send robots and orbiters and do some limited surface exploration, but till you put a human on that other body, you’re not going to know what it’s really like there. And that’s, I think, what interests people.
Service Learning

From Page 1

in San Luis Obispo. While the projects provide practical experience in engineering design, project management, and teamwork, they also generate the motivation and personal satisfaction that comes from helping others.

Brick press builds homes in Zambia

Instructor Liz Schlomer’s industrial engineering students developed a brick press that helps address critical housing problems in Zambia. During fall quarter, the class assessed needs, prepared a business plan, conducted a feasibility analysis, did soil testing and built a prototype. This spring, Unny Menon, engineering professor and interim assistant vice provost of academic programs, is helping the students take the product from prototype to reality.

Some of the project challenges include the fact that electricity and diesel fuel are hard to come by in rural Zambia, and even tools are limited. “Our students are deploying a lot of ‘learn-by-doing’ in fulfilling this learning mission, that will ultimately make a difference at a village far away from campus,” says Menon.

That perspective is echoed by Chris Deaneer, student team project manager: “It’s cool to know you’re working on something for Africa, that you’re making a difference. For the first time I felt involved with a project that will benefit not just one or two people but may change an entire community.”

Service-learning key part of MATE curriculum

Service-learning is an important component of the materials engineering freshmen curriculum. “By incorporating service-based instruction and inquiry into the existing freshmen design sequence, we hope to enhance supporting course content knowledge, promote social and civic responsibility, develop empathy for others, and increase retention among women and underrepresented individuals in Materials Engineering,” explains Will Hughes,

Grant funds course in museum design

A grant from ASM International — The Materials Information Society — enabled materials engineering chair, Kathy Chen, to develop a project-based, service-learning museum design course. The class required that students go through a formal design sequence that involved developing user profiles; meeting with experts, including exhibit developers, education specialists, design experts, and the museum curator; establishing functional and design requirements; testing prototypes; and revising their projects.

“The students came up with three interactive displays, featuring amorphous metals, NiTi shape memory alloys, and color changing liquid crystals,” reports Chen. “As an instructor, I was very pleased with the learning value of the course, particularly in design and project management. But what really stood out was how my students responded to the

In a team-building exercise, MATE freshmen try to pour water from bucket to bucket using only ropes.

a post-doctoral scholar, who is teaching the year-long course.

As a course “warm up,” the new materials engineering majors designed, built and tested solar water heaters last fall. Over winter, three teams assessed needs and developed project proposals for community clients, including the Charles Paddock Zoo, the Scitechatorium, a children’s science museum, and the Oak Park Recreation Center. By the end of spring, the Cal Poly students will install their “deliverables”: a heat shield for the zoo’s large refrigeration unit, a solar water heater that doubles as a museum teaching exhibit, and a drain-

IME students designed a brick press to help the people of Zambia build housing.

Zambian ambassador to the United States Inonge Mbikusita-Lewanika, center front, visited the IME department in November.
EdGE initiative promotes Service Learning

The name says it all: Educating Global Engineers or “EdGE.” EdGE started when materials engineering professor Linda Vanasupa and her colleagues created the initiative as a response to growing concerns about the future of engineering in a global society. Planned over several years, EdGE was implemented in Fall 2006 as a five-year commitment by the College of Engineering.

Vanasupa believes that with the advent of a truly global economy and a shrinking supply of natural resources, there is a need to educate a new kind of engineer. “With EdGE, we are educating engineers who will think differently about their roles in society,” she said.

In developing EdGE, Vanasupa drew inspiration from two sources: a visit to Japan and the birth of her daughter. The experiences opened her eyes to both the current potential for sustainable engineering, and the need to mindful of resources so that future generations will not inherit a weakening planet. In the Department of Materials Engineering alone, approximately 80 percent of the curriculum has been altered to reflect the new EdGE philosophy.

For 48 materials engineering freshmen, EdGE means the Early Engineering Experience, a year-long course which introduces students to the concept of serving the community, thereby cultivating a lasting sense of responsibility. The flagship EdGE course is led by Dr. William Hughes, a post-doctoral scholar sponsored by the Center for the Advancement of Scholarship in Engineering Education (CASEE), a National Academy of Engineering center.

As part of the course, students meet the needs of local clients through a design project that uses only renewable energy. Clients this year include the Atascadero Zoo; the SciTechtorium, a children’s museum; and the Oak Park Center, a community recreation center located in a low-income housing project.

In the short-term, the service learning component of EdGE gets freshman excited about the field of engineering. Long-term, Vanasupa said, “…their thinking becomes focused on a sustainable society.”

Cal Poly MATE student partners with Olympus

Three Japanese engineers from Olympus Corporation headquarters in Tokyo visited Cal Poly in February to inspect a project developed by biomedical and materials engineering graduate student Brent Huigens and to discuss the future of the collaborative relationship he helped cultivate.

Last summer, Huigens completed a summer internship with a new division of Olympus—Olympus Microsystems (OMI). He worked on the design of a test-stand to evaluate the accuracy of the company’s Wavelength Switching Array product. The WSA is a mechanical system of human-hair-width mirrors designed to make a selective transfer of data possible in an all optical network.

After submitting a proposal for Olympus to fund the completion of his test-stand, Huigens brought the project back to Cal Poly. Olympus is currently providing $15,000 per quarter, which funds Huigens along with two other materials engineering students, Steven Meredith and Ryan Rivers.

“This is where Cal Poly has the edge,” Huigens said, “We have a lot to offer in terms of a real value based partnership.” He believes Cal Poly students can deliver practical results to corporate partners, unlike more research oriented universities, “because we raise a different breed of engineer.”

Huigens will graduate in spring 2007, but said, “There is a lot of potential for this to become a much bigger partnership in the future.” Meredith and Rivers will continue development of the second phase test-stand after Huigens leaves Cal Poly.

Because its mirrors are so small, the WSA functions through Micro Electro Mechanical Systems (MEMS). Huigens said MEMS “naturally brings together multiple disciplines” because the tiny size of the machines allows possible application to any number of specialties, such as computer science, materials, electrical and mechanical engineering. Huigens belongs to Micro Systems Technology, a multi-disciplinary group of students on campus that is involved with various MEMS projects.
A new home for projects
Opening of Bonderson Projects Center is a boon to Students

D.J. Parsons runs with the Pre-Crash Sensing Demonstration System — a multi-disciplinary project for the automotive industry that includes fellow ME students Danny Murphy, Duane Howard and Justin Carpenter — through Engineering Plaza.

The Adapted Padding Solid Quad Conversion team, left and below, took advantage of workspace on the roof of the Bonderson Projects Center as well as one of the upstairs assembly rooms.

Among the ME students on the Adapted Padding Solid Quad Conversion team were Mark Mirigian, Aubrey Gewehr, Mike Kerns, Ashley Leitzell, Jarrod Sheetz and George Katsanis. Kinesiology students Allison Silva and Julia Smith were also involved in the project.

Dylan Ross, on the right above, and Leon Goss displayed the Telescoping Antenna they designed and built both outside and inside the Bonderson Student Projects Center during a display of Mechanical Engineering department senior projects.

BONDERSON STUDENT PROJECTS CENTER
(Partial list of projects)
- Steel Bridge
- Concrete Canoe
- Electric Vehicle Engineering
- Tube Notching Machine
- Adapted Padding
- Solid Quad Conversion
- Wood Welding
- Ballet Pointe Shoe
- Underwater Remotely Operated Vehicle
- Biodiesel
- Hydrogen Energy Club
- Pre-crash Sensing
- Virtual Periscope Exhibit
- Magic Portal Exhibit
- Volcano Claymation Exhibit
- Gymnastics Test Device
- Ankle-Foot Orthosis Characterization
- Manual Vestibular Stimulation Device
- Motorized Wheelchair into Autonomous Robot
- Hydrogen Electrolyzers & Fuel Cells
- Team Tech
Cal Poly’s Steel Bridge team was one of the first clubs to use the Bonderson Student Projects Center for assembly. At right, CE/ENVE students Luke Ayer, Kirk Torossian, Matt Pearce and John Puccinelli test their bridge out front. “It’s designed to support 2,400 pounds, so it should hold four regular-sized guys,” says Pearce. A senior who hopes to build much bigger bridges in the future, Pearce adds, “We were ecstatic to get the space in Bonderson to work on this project. Any support is greatly appreciated.”

Steel Bridge team member John Puccinelli grinds one of the steel rods on the bridge the team will enter in the SCE at UC San Diego in April.

Left: Civil and environmental engineering students Jason Marshall and Skye Orvis hand-paint tiles for the floor of the Cal Poly concrete canoe. “The space in Bonderson has been invaluable,” says concrete canoe co-manager Jason Kump.

Left: In a project that will truly keep CENG students on their toes, IME professor Blair London, right, and students including Ruth Borrud, Ed Greenwell, Laura Shabram, Christina Caputo, and Nicole Sutter are designing a Ballet Pointe Shoe.

ME students Jason Shannon and John Paul Lara place a wooden cover over the “Magic Portal,” a video teleconferencing display designed for the San Luis Obispo Children’s Museum. The portal will allow children to see and converse with their peers at the Avila Marine Institute.
Engineering team hoping it pays to be flexible

Cal Poly’s patented “Flexible Fastener” has dozens of practical applications

Frankly, Dr. Saeed Niku doesn’t look anything like Superman, but there he is in his mechanical engineering classroom bending a 3/4-inch steel bolt with his bare hands.

Niku, however, isn’t performing a feat of superhuman strength or pulling off a mere optical illusion. He’s simply displaying a Flexible Fastener, a patented, bendable bolt designed, built and marketed by a team of Cal Poly students and faculty.

“The Flexible Fastener has a myriad of applications, from seismic retrofits of old buildings to biomedical products like artificial knees,” says Niku, who credits students sitting around in his office after a philosophy of design class for the inspiration of the idea for a bolt that could fit into non-aligned holes but maintain strength.

Patented in 2005 and now available for licensing, Flexible Fasteners move side-to-side like a spring but remain stiff and retain shear strength top-to-bottom.

For the seismic retrofitting industry, the bolt’s lateral flexibility opens up a host of solutions and opportunities. Barry Adam, project manager for the California Central Coast Research Partnership, a Cal Poly organization that facilitates collaboration between the university and industry, says the Flexible Fastener “allows whole structures to flex to better withstand the jolt of a temblor.”

Adam says the fastener “is capable of carrying axial loads and is compliant in lateral directions. It can be used to connect, tighten or load elements in an axial direction along the length of the bolt, yet it is flexible enough to connect non-parallel surfaces, go through mismatched or misaligned holes, or handle machine applications where small lateral movements are required.”

Aside from the prestige and the potential revenue to the university, Niku says the patent has given the team “a great feeling of satisfaction to see the idea reduced to useful practice.”

The product was initially funded by the National Collegiate Innovators and Inventors Alliance and the Lemelson Foundation. For more information, call 805-756-1508 or go to www.geocities.com/flexiblefastener.

Cal Poly receives NSF grant for project-based learning scholarships

$500,000 to fund Honors Program interdisciplinary projects

Thanks to a $500,000 National Science Foundation grant, some of Cal Poly’s academically talented but financially needy students will receive scholarships that will allow them to participate in a project-based, interdisciplinary curriculum within the university Honors Program.

The scholarships will provide financial aid for students in the fields of science, technology, engineering and mathematics. Recipients will be required to participate in projects that have practical value for industry, the local community, or the global community.

Industrial and manufacturing professor Sema Alptekin, director of Cal Poly’s Honors Program, spearheaded the proposal effort with support from Mohammad Noori, dean of the College of Engineering, and Phil Bailey, dean of the College of Science and Mathematics.

“Each year the Honors Program will develop up to three interdisciplinary team projects,” explains Alptekin. “The collaborative projects will address issues ranging from theoretical research to applied science and engineering projects, all directed toward industry, community service and humanitarian aid.”
Cal Poly SWE selects outstanding members

Last February, SWE announced five Outstanding Women in Engineering and Technology. The award is given in cooperation with Hewlett-Packard. The winners included:

- **Christine Le**, a master’s student in computer science, is president of the Association for Computing Machinery and served as social coordinator for the Vietnamese Student Association.
- **Emily Hakun**, an honors student in biomedical engineering, serves as Team Tech Co-Director.
- **Rachel Santee**, an honors student in mechanical engineering, has coordinated the Women in Engineering Program and competed in the American Society of Mechanical Engineers Student Safety Engineering Design Contest.
- **Patricia Compas**, a civil engineering senior, is co-founder of Engineers Without Borders and recipient of the “Innovation in Service” award on behalf of EWB.
- **Erin Matsumoto**, a bachelor’s and master’s student in electrical engineering with a 4.1 GPA, is a teaching associate and serves as a college ambassador, chair of the EE Student Fee Allocation Committee and board member of the Institute of Electronic and Electrical Engineers.

Project-Based Learning

Student News

About the CubeSats

Cal Poly’s two CubeSats have been in the making for over four years. Their primary missions include an energy storage experiment as well as implementation of an attitude control system using only magnetic torquers embedded within the side panels. Other CubeSats aboard the Dnepr rocket are those built by Boeing and the nation of Columbia, along with satellites built by the University of Louisiana, the AeroSpace Corporation and Tethers Unlimited. The rocket will have three Cal Poly pico-satellite orbital deployers (P-Pods) bolted into its fairing. Each satellite is a 10 cm (4 inch) cube weighing just 1 kg (2.2 lbs) into which the battery, transmitter and various experiments are packed. The Tethers Unlimited satellite will conduct an experiment on de-orbit mechanisms.

Regular launch updates are posted on the CubeSat Web site (www.cubesat.org – see Updates under Missions, DNEPR Launch2). More Cal Poly satellite information can be found at www.polysat.calpoly.edu.

CubeSats set to fly: Cal Poly students head for Kazakhstan for launch prep

Cal Poly aerospace graduate students **Roland Coehlo, Lori Brooks, and Jonathon Brown** have firsthand experience with the excitement and frustrations of space flight.

In March, the CubeSat crew traveled to Kazakhstan, where they made preparations for the second launch of Cal Poly-built pico-satellites aboard a Dnepr-1LV rocket from the Baikonur Cosmodrome. A day before the March 27 liftoff, however, the launch was put on hold. The CubeSat team on-site in Kazakhstan and on-campus in San Luis Obispo waited for official word while the 24-hour launch window ticked away.

It wasn’t the first time that the Cal Poly students have been disappointed. The first CubeSat deployment attempt on July 26, 2006 ended in failure just one minute after blastoff when the main engine of the Dnepr rocket’s first stage shut down due to damaged insulation inside the engine’s fuel and hydraulic lines.

“I think the Russian launch officials are being extra careful after last year’s crash,” says **William Whalen**, campus launch coordinator.

“They’ve announced a new launch date—April 17. We’re keeping our fingers crossed, but we’re hopeful that we’ll see the first two Cal Poly-built satellites get into orbit.”

CubeSat is an international collaboration of over 80 universities, high schools, and private firms. The upcoming launch will carry seven CubeSats, each built to specifications developed by Cal Poly and Stanford University’s Space Systems Development Laboratory. All the picosatellites will be launched from P-Pod deployers designed and built at Cal Poly.

In Kazakhstan, it was the job of Coehlo, Brooks and Brown to attach the deployers and CubeSats to the rocket, checking the electrical connections, and making other launch preparations.

“If all goes well on April 17, we’ll be communicating with the Cal Poly satellites when they make their first pass over Cal Poly,” notes Whalen. “At that time, team members located in the Earthstation Network at the ATL will send a call to the Cal Poly CubeSats in orbit, and the satellites will respond with data. We’ll all be very happy to hear that first ‘beep!'”

![Cal Poly AERO students Roland Coehlo, Jonathon Brown and Lori Brooks check out a rocket at the Baikonur Cosmodrome.](image-url)
Cal Poly's Society of Women Engineers (SWE) chapter held its 31st annual Evening with Industry dinner in February. Left: Keynote speaker Violettee Brown, chief executive officer of the Prophecy Consulting Group, received a gift basket from Evening with Industry co-director Heather Sebring.

Chevron scholarship recipients flanking Chevron representative Jon Fielding were, from left: Njuno Wanjiiku, Christine Sobrero, Jessica Kiefer and Erin Matsumoto.

Society of Women Engineers honors its scholarship winners

Northrup Grumman scholarship recipients Lisa Dakis, left, and Keian Christopher flank Northrup Grumman representative Yvonne Findley.

Jessica Paz received a scholarship from Raytheon company representative Kurt Spaeter.

Ashleigh Patterson, left, and Cory White received Lockheed Martin scholarships from company representative Jessica Boisselle.

Cal Poly CE students design transportation system for L.A.

Cal Poly's Society of Civil Engineers (SCE) entered a winning design in the "City of the Future" challenge, which was co-sponsored by IBM and The History Channel in partnership with the American Society of Civil Engineers.

Civil Engineering students Derek Benedict, Karen Nishimoto, Anthony Henderson, and Christopher Pratt formed “SLOMobility” specifically for the contest. The group designed a transportation system for the Los Angeles of 2106.

As the winners of the contest, SLOMobility received a $5,000 award, and each member was given a brand new IBM Thinkpad.

SLOMobility spent more than six weeks working on the project, the focal point of which was the versatile interconnecting Archway system. The idea for the Archway was first brought to the drawing board by Benedict, the team’s captain. It was drawn and refined by Pratt, and final modifications were made by the remaining team members.

Pratt, who serves as the SCE vice president of community service, believes his engineering coursework prepared him well for the challenge. “My structural design and concrete courses helped me visualize and analyze the structure properly and efficiently,” he said, “and my engineering knowledge allowed me to look at and break down the structure into manageable and simplified elements.”

The SLOMobility transportation design fits into the larger Los Angeles of the future, as designed by Eric Owen Moss Architects, the overall contest winners.
Cal Poly automotive engineers honored at SAE World Congress

Cal Poly’s automotive engineering club brought home cash and kudos from the SAE World Congress in Detroit after being named “Outstanding Collegiate Branch” by SAE International. CPSAE received the award for exemplary performance in technical meetings, projects, membership continuity, and recruitment.

Cal Poly’s SAE boasts a Class 1 membership. With about 100 student members, the club competes in all three major SAE competitions, including the Baja, Formula, and Super Mileage. In 2006, CPSAE beat UC Berkely and UCLA to finish 6th in Super Mileage.

The Cal Poly team rose to the challenge by designing and building a 95 lb. car with a top speed of 42 mph that obtained a staggering 861 miles per gallon.

SCE helps high school students test their bridge-building skills

Popsicle sticks and water-based glue. Those were the only materials allowed in the recent bridge-building contest sponsored by Cal Poly Society of Civil Engineers (SCE).

Chris Pratt, a fourth-year civil engineering student and SCE vice president, revived the competition in hopes of sparking an interest in civil engineering: “I want kids to be excited about building things,” he said. “When these kids get to their junior year in high school and say, ‘Hey I want to be a civil engineer,’ that’s our goal.”

Professor Dan Jansen was impressed by the younger students: “At first I was skeptical, but one team went over 1,300 pounds—that’s pretty darn amazing.”

Thirteen teams from four schools used their nascent engineering skills to see who could build the strongest structure. The winning bridge, built by Morro Bay High physics students, was able to sustain 1,319 pounds of pressure, even though the team had to sand it down on the spot to narrowly meet the weight limit of 450 grams.

SWE, MATE students bring fun, hands-on engineering projects to 4th grade students

Looking around a 4th grade class as groups of youngsters tackled projects under the direction of Cal Poly engineering students, SWE Education Outreach Director John Hup- ton noted, “This is the idea: get young students interested and excited about science, math, and all things related to engineering.”

Each year, volunteers from the Society of Women Engineers (SWE), bring hands-on activities and engineering enthusiasm to local fourth grade classrooms. In addition to numerous other sites, SWE traveled to Adam Elementary in Santa Maria, where eight Cal Poly students worked with 120 youngsters.

“Our mission is to open the doors of the profession to young people, especially girls, who remain underrepresented,” said Helene Finger, director of the Women’s Engineering Program. “With our SWE members serving as real-life role models, the program definitely plants a seed about career and college opportunities.”

Student teams from the Materials Engineering Department also visited San Luis Obispo County schools during National Engineers Week.
ME’s Rosenberg honored as one of SLO’s “Top 20 under 40”

Louis Rosenberg was recognized as one of San Luis Obispo’s most talented young professionals who make a difference in the community when he received The Tribune newspaper’s annual “Top 20 under 40” in January.

Rosenberg stands out as the Cotchett Endowed Professor of Educational Technology with a joint appointment in the College of Education and the College of Engineering. His teaching and scholarly work focus on developing innovative technologies to support K–12 education.

Known for his involvement in interactive museum exhibits, Rosenberg has launched a center for Exhibit Design, in which Cal Poly students from engineering and education design and build museum exhibits. Currently, Rosenberg’s students are developing high-tech exhibits for the San Luis Obispo Children’s Museum, the Avila Beach Marine Institute, and the Cabrillo Marine Aquarium in Los Angeles.

Moss receives ASCE Middlebrooks Award

Dr. Robb Moss and co-authors won the highest award given by the American Society of Civil Engineers for published work in the Journal of Geotechnical and Geoenvironmental Engineering. Moss, an expert in geotechnical engineering, received the 2006 Thomas A. Middlebrooks Award for “Standard Penetration Test-Based Probabilistic and Deterministic Assessment of Seismic Soil Liquefaction Potential.”

Dean’s Office

Mohammad Noori, dean, and Dr. Joe Rencis, ME Department at the University of Arkansas, organized “Tips for Tenure and Promotion: A Symposium for New and Prospective Faculty” at the International Mechanical Engineering Congress and Exhibition ASME Congress in Chicago.

Noori co-authored papers published in Structural Health Monitoring Journal, including “Structural System Identification and Damage Detection using the Intelligent Parameter Varying Technique: An Experimental Study” (Vol. 6, No. 1, March 2007) and “Harmonic Class Loading for Damage Identification in Beams Using Wavelet Analysis” (Vol. 6, No. 1, pp. 67–80).

Ed Sullivan, assistant dean, attended the annual meeting of the Transportation Research Board in Washington D.C., where he made a presentation on strategic planning to the Congestion Pricing Committee.

Aerospace Engineering

Dan Biezd received $36,000 from NASA Ames for continuation of his project on “Development of Multidisciplinary Flight Control Techniques for the Simulation of Intelligent Unmanned Autonomous Vehicles.”

Eric Mehiel presented “Optimal Nonlinear Direct Adaptive Control for Spacecraft” at the 2006 AIAA Guidance Navigation and Control Conference (GNC) held in Keystone, CO. He received a $76,000 grant from Cutting Edge Communications for development of Space System Simulation Software, and a $32,000 C3RP grant renewal for his project, “A Four-Axis Reaction Wheel Platform for Spacecraft Attitude Simulation.”


Civil & Environmental Engineering

Jim Hanson was elected a member of the United States University Council on Geotechnical Education and Research (USUCGER) Board of Directors. He currently serves as USUCGER treasurer. Additionally, Hanson was appointed Corresponding Editor of the Journal of Professional Issues in Engineering Education and Practice, published by the American Society of Civil Engineers. As the lead author, Hanson presented “Effects of Placement Conditions on Decomposition of Municipal Solid Wastes in Cold Regions” at the 13th Annual Cold Regions Engineering Conference in Orono, ME. He was invited to serve as a panel speaker on “Long-Term Performance of Waste Containment Systems – 30 years after RCRA” at the American Society of Civil Engineers GeoDenver 2007 conference, and he taught a course module on Slope Stability and Landslides sponsored by the University of Wisconsin – Madison.

Computer Engineering

Art MacCarley presented “A Data Fusion Approach to Automated Vehicle Detector Testing” at the IEEE Digital Signal Processing and DSP in Education Conference in Teton, WY, and “Automated Consensus-based Data Verification in the Caltrans Detector Testbed” at the National Research Council, Transportation Research Board Annual Meeting in Washington, D.C. At the January meeting of the IEEE Central Coast Section, MacCarley presented “What Your Car Knows About You That You Don’t Know: Data Retention in Automotive Electronics.”


Computer Science & Software Engineering

Ignatios Vakalis, chair, presented “Computational Science at the Undergraduate Level: A paradigm for interdisciplinary connections” at the 2006 Project Kaleidoscope National Assembly in Chicago. He gave a talk on “Curricula Models for Undergraduate Computational Science Education” at the Joint National Meeting of the Mathematical Association of America and the American Mathematic-
Robots in the classroom

CPE Professor Art MacCarley opens “GATEway” to engineering

Don’t all kids dream about building robots? Since 2003, youngsters at Mesa Middle School in Nipomo have gotten a chance to do so in a class taught by Dr. Art MacCarley, a professor in Cal Poly’s computer and electrical engineering programs.

With 14 kits provided by the College of Engineering this year, students in MacCarley’s GATE (Gifted and Talented Education) class constructed robots and held a robot soccer competition. “The kids learn some primary concepts and have a lot of fun,” says MacCarley, who volunteers his time and expertise. “The covert goal is to get these bright students excited about pursuing science, technology, and engineering.”

Continued on Page 18.

WEP director receives fellowship

Leading the Women’s Engineering Program (WEP) for almost a decade, Helene Finger has, among other accomplishments, helped Cal Poly’s Society of Women Engineers become “Best in Nation” for the last six years. Now her sights are set on improving ocean water quality—and earning her Ph.D. in the process.

Finger has been awarded a Doctoral Scholars Fellowship by UC Santa Barbara to pursue her doctoral degree in Mechanical Engineering in the area of Environmental Engineering. She has also been selected to receive a prestigious 2007 National Science Foundation Graduate Research Fellowship, an award made to outstanding graduate students who can contribute significantly to research, teaching, and innovations in science and engineering.

The focus of Finger’s doctoral research will be to expand the scientific understanding of water quality impacts to ocean and coastal ecosystems. “My ultimate goal,” she states, “is to help improve public health and safety at beaches through effective and predictive watershed management.”

Diana Franklin co-authored “Segmented Bitline Cache: Exploiting Non-Uniform Memory Access Patterns.” She presented the paper at the International Conference on High Performance Computing (HiPC) in Bangalore, India. Franklin also serves on a National Science Foundation panel, reviewing research proposals for funding.

Hasim Gharibyan presented a paper on “Women in Computer Science: Why There is No Problem in One Former Soviet Republic” at the Frontiers in Education (FIE06) conference in San Diego.

Franz Kurfess and CSC graduate student Brett Bojduj presented “Case-Based Reasoning for Control of Spatial Representations” at the American Association of Artificial Intelligence (AAAI) Spring 2007 Symposium on Control Mechanisms for Spatial Knowledge Processing in Cognitive / Intelligent Systems held at Stanford University.

Electrical Engineering

Xiaomin Jin co-authored “Bandwidth Enhancement of Fabry-Perot Quantum-well Lasers by Injection-locking” pub-
ENVE professor recognized for almost four decades of leadership

In a June ceremony, environmental engineering professor emeritus Dr. Harold Cota will receive the Charles W. Gruber Association Leadership Award for outstanding service to the Air & Waste Management Association. Cota has been an active member of the organization for 38 years.

Cota is known for inspiring hundreds of Cal Poly environmental engineering students who have joined the profession. “The West Coast Section (WCS) has found that his steadfast support of the Student Chapter at Cal Poly and the entire WCS student/scholarship program has been a major key to our success,” said Sarah J. Head, Regional Program Manager and Director of the West Coast Section for A&WMA.

Under Cota’s leadership, the Cal Poly Society of Environmental Engineers has received the award for Best Student Chapter (Midsize University) for the past six years.

University, Beijing, China on “Study on GaN-based Violet-Blue Laser Diode.”

John Saghri was awarded a $20,000 research grant from Raytheon Space and Airborne Systems to develop automatic target recognition (ATR) and tracking for synthetic aperture radar (SAR) imagery. He presented “Exploitation of Target Shadows in Synthetic Aperture Radar Imagery for Automatic Target Recognition” co-authored by EE senior Andrew DeKela at the Application of Digital Image Processing Conference in San Diego (SPIE Proceedings, Vol. 6312, No. 41).

At the invitation of Raytheon Space and Airborne Systems, Saghri and graduate student Philip Losie participated in the company’s Noontime Technology Seminars Series. Their live-broadcast seminar, “SAR Automatic Target Recognition and Tracking Research at Cal Poly San Luis Obispo” reached an estimated audience of 500 engineers at Raytheon facilities nationwide.


Industrial & Manufacturing Engineering


Pan presented “Effects of Reflow Profile and Thermal Shock on Intermetallic Compound Thickness for SnPb and SnAgCu Solder Joints” at the IPC Printed Circuits Expo, APEX and the Designers Summit 2007 in Los Angeles. The paper’s co-authors included Tzu-Chien Chou (M.S. IE ’06). Pan also co-authored “Investigation of the Lead-free Solder Joint Shear Performance,” which was presented by James P. Webster (IE ’06) at the 39th International Symposium on Microelectronics (IMS) in San Diego.

At the IMS conference, where he served as co-chair of Student Activities for the Symposium Committee and co-chair of the wire bonding session, Pan received a Best Poster award for “Design of a High Speed Data Acquisition System for Lead Free Solder Joint Drop Testing,” co-authored with Webster and manufacturing engineering students Edward Clements and Visente Simental.

Dan Waldorf received a $38,000 C3RP grant to research “PVD/CVD Coatings for Improved Life of Nano-Grain Cutting Tool for Machining Aerospace Alloys.” He presented “Plotting a Bright Future for Manufacturing Education: Results of a Brainstorming Session,” at the ASEE Global Colloquium on Engineering Education in Rio de Janeiro, Brazil.

Materials Engineering

Kathy Chen, chair, was invited to speak on “Developing and Growing Materials Engineering Outreach Activities” at The Minerals, Metals and Materials Society (TMS) Annual Meeting in Orlando, where she also chaired a session and helped organize a program on “Outreach Programs in Materials Science and Engineering.”

Chen and Blair London presented “Crossing the Engineering Border into Art and Society with a Materials Selection for the Life Cycle Course” at the Frontiers in Education (FIE) conference in San Diego.


Mechanical Engineering


Mackin and co-authors published “Quantitative Model Based Interpretation of Experimentally Measured Nanoscale Stress Sources at Wafer Bonded Interfaces” in the Proceedings of the 210th Meeting of The Electrochemical Society held in Cancun, Mexico.

At the 2006 ASME International Mechanical Engineering Congress & Exposition in Chicago, Mackin and co-authors presented “Measuring the Mechanical Properties of Freestanding Nanoscale Membranes” and “A Standard Approach for Measuring Adhesion Energies in Stiction-Failed Microdevices.”

Jim Meagher and Xi Wu presented papers at the Society of Experimental

Mei-Ling Lui awarded Fullbright Scholar grant

Computer science professor Mei-Ling Lui headed to the Republic of Macedonia in February, where she will conduct research and teach a graduate seminar in distributed computing as a U.S. Fulbright Scholar at the South East European University.

Sponsored by the U.S. State Department, the Fulbright Program is an international educational exchange established in 1946 to build mutual cultural understanding between the U.S. and other countries. Fulbright Scholars are selected for their academic or professional achievements.
Mechanics Conference in Florida, including “Response of a Warped Flexible Rotor with a Fluid Bearing” and “Investigation of Coupled Lateral and Torsional Vibration of a Cracked Rotor under Radial Load.” ME students Clinton Judd and Chris Lencioni worked on these projects through integrated research experience as part of a laboratory class, then co-authored the papers.

Saeed Niku and James Widmann traveled with three ME students to Taeug, Korea, where they participated in the Annual Capstone Design Exhibition sponsored by the Capstone Design Education Center, part of Seoul National University of Technology. The students—David Ulrich, Nick Wile and Ryan Johnson—displayed three Cal Poly engineering senior designs at the event, including a CNC Hydraulic Tube Bender, an Instrumented Wireless Smart Ball, and the Supercmileage Vehicle.

Peter Schuster chaired a session on Engineering Education at the American Society of Mechanical Engineers conference in Chicago. He co-authored “Development of a Biofidelic ’Legform’ Impact Test Device” with ME graduate student John Davis, who presented the paper at the Society of Automotive Engineers (SAE) Global Congress in Detroit. Schuster also published “More than Engines and Tires,” in the February issue of JETS “Pre-Engineering Times,” online at http://www.jets.org/newsletter/0207/.

The American Iron & Steel Institute has funded three research projects by Schuster, including “Bumper Test Fixture,” “Global Adaptable Car Front Bumper Reinforcing Beam System,” and “Bumper Design for New IIHS Low-Speed Impact Protocol.” He is also working on “Enhancing Human Physical Performance through Detailed Human Modeling” under a $35,000 C3RP grant.

Brian Self co-authored “Rotation rate and duration effects on the somatotgraphy illusion” published in Aviation Space & Environmental Medicine (Vol. 77, No.12, pp. 1244-1251) and “Effect of tactile feedback on unmanned aerial vehicle landings” published in Proceedings (pp. 1090-1097) of the Interservice/Industry Training, Simulation, and Education Conference held in Orlando, FL. At the 36th Annual Frontiers in Education Conference in San Diego, Self and co-authors presented “Work in progress: Building an evaluative research foundation for just-in-time teaching.” He and co-authors presented “Human Factors of Remotely Operated Vehicles” at the 50th Annual Meeting of the Human Factors and Ergonomics Society in San Francisco.

Y.C. Yong served as a Visiting Professor at the National University of Singapore, where he advised the Industry-Sponsored Design Projects Program, a program he helped develop in 2005.

Christopher Clark
Assistant Professor, Computer Science
- Ph.D. Stanford University (Aeronautics & Astronautics)
- M.A.Sc. University of Toronto (Mechanical Engineering)
- B.A.Sc. Queen’s University (Mechanical Engineering)

Research Expertise and Interests:
- autonomous underwater robots, multi-robot security systems, modular and reconfigurable robots, and intelligent vehicle networks.

Tom Mase
Associate Professor, Mechanical Engineering
- Ph.D. U.C. Berkeley (Mechanical Engineering)
- M.S. U.C. Berkeley (Mechanical Engineering)
- B.S. Michigan State University (Mechanical Engineering)

Research Expertise and Interests:
- modeling and design of golf equipment and fitting of golf equipment, impact modeling using explicit finite elements, and continuum mechanics.

Patrick Lemieux
Associate Professor, Mechanical Engineering
- Ph.D. California Institute of Technology (Mechanical Engineering)
- M.Sc. Cranfield Institute of Technology (Thermal Power)
- B.Sc.Eng. University of New Brunswick (Mechanical Engineering)

Research Expertise and Interests:
- internal combustion engines (reciprocating and gas turbines), fluid mechanics and gas dynamics, thermodynamics and heat transfer, alternative energy, especially wind energy and energy efficiency.
AERO alum named to top post at Cuesta College

Cal Poly aeronautical engineering alumnus Edralin J. “Ed” Maduli was recently selected interim Superintendent/President of Cuesta College. Maduli has served as Cuesta’s Assistant Superintendent/Vice President of Administrative Services since 2001.

After receiving his bachelor’s degree from Cal Poly in 1967, Maduli earned an M.S. in aeronautical engineering from the University of Oklahoma, and an M.B.A. from Golden Gate University.

Before joining Cuesta, Maduli served more than twenty years in the U.S. Air Force, attaining the rank of Lieutenant Colonel. He was Director of Fiscal and Administrative Operations at Las Positas College before becoming Las Positas’ Vice President for Business Services.

As for me, I have a one-year-old son named Carl and a three-year-old daughter named Cornelia, so my years since leaving Cal Poly have been quite busy. We live in a new passive solar home here in Colorado and are ‘off the grid’ without electrical hook-ups, since we have solar panels and a wind generator and make all of our own electricity. Our only energy use was about 500 gallons of propane last year and wood for our high-tech wood burning stoves. It’s entirely possible to live sustainably!”

David Ingram (ET ’73) is working two jobs, one as a still welding engineer with Marvin Engineering, Inc. in Inglewood, CA and the other with Jacobs Engineering, where he is assigned to the Shell Refinery in Wilmington, CA.

Bud Izen (ET ’73) runs Bud Izen Computer Consulting on a part-time basis while helping his wife Shelly operate a scrapbook and paper-crafting store called Scrapbook Fever! in Salem, OR.

Terrence Moore (ET/ME ’74) works as a construction project manager with Oregon’s Department of Administrative Services.

Horace Morana (EE ’77) is director of sales for a start-up that helps businesses and non-profits create an eBay presence. He and his wife Kristi, a member of the Cal Poly College of Liberal Arts Advisory Board, moved back to San Luis Obispo in 2000.

Brian Morris (ME ’76) is a senior project engineer for Hilmar Cheese Company in Oakdale, CA, where he has lived for the past 20 years. He comments, “My wife, Linda (Home Economics ’74) and I are very proud that our entire family has degrees from Cal Poly.” Sons Randy and Drew have degrees in mechanical engineering and computer science, respectively.

Robert Reding (AERO ’71) is the senior vice President of technical operations for American Airlines. He also serves on the President’s Council for Cal Poly.

Richard Rolston (CSC ’79) is a senior software engineer for Digital Insight. He is currently completing his master’s in computer science at Loyola Marymount.

Joe Sadel (ET ’77) works for Sadelco R&D. in Santa Barbara, CA. After the first Gulf War, his company sold communication test equipment to a Saudi contractor; but, Joe writes, “Sorry, no pics of Saudi’s.”

Charlie McDowell (CSC ’74) was recently appointed to the post of associate dean for Undergraduate Affairs at UC Santa Cruz’s Baskin School of Engineering.

Neil Shannon (ET ’76) has been appointed director for the American Welding Society (AWS) District 19, serving Oregon, Washington, Alaska and portions of southwest Canada). As district director he will also be serving on the national AWS Board of Directors. Neil is a project manager and senior special inspector for Carlson Testing of Portland, Ore. He is a Senior Certified Welding Inspector and an International Code Council special inspector.

David Short (Construction Management ’77, M.S. CSC ’78) is a senior project manager overseeing the construction of Visa’s Leading Program Management Office. He has taken three trips to Thailand since the 2004 tsunami in order to help with the reconstruction effort.

John Stuart, Jr. (EE ’76) is chief operation officer for the Florida Keys Electric Cooperative. From 2001 through 2005, John was co-owner and manager of a scuba diving center in Key Largo, FL.

Steve Witten (CSC/IE ’74/76) took an early retirement from Hewlett-Packard in October, 2005. He has since done a variety of consulting work and says, “In April 2007, I will be off to Poland to teach software engineering and consulting as...”

Keith Aiken (EL ’65), retired from the FBI, currently does computer forensics for the Sacramento Sheriff’s Dept. and private forensics under the business name TracesMKA.

Thomas Collins (EE ’66) retired and sold his digital instrument manufacturing business in 1999.

Gary Compton (EE ’65) retired from Agilent Technologies. He formerly worked for Hewlett Packard for 23 years and Varian Associates for 11 years. He also served three years in the Navy during Vietnam. Gary says his education “prepared me well for working in the electronics’ industry, and I am grateful that I had an opportunity to attend Cal Poly.”

David Dickey (EL ’62) is enjoying retirement after an accomplished career in aerospace and computer electronics, which included co-owning his own company, Empire Engineering. He and his wife Carol now split their time between their homes in Shell Beach, CA and Orcas Island, WA, and they still participate in Cal Poly affairs.

Dan Muhlfelder (AERO ’66) worked for NASA-Ames Research Center and then went to work for the Westinghouse-Marine Division in Sunnyvale, CA, which eventually became Northrop Grumman. In 1974, Dan received his J.D. degree and passed the California Bar. Now retired, Dan lives in the Palm Springs area.

John Nakata (EE ’65) retired after 40 years with Lockheed Martin. He continues to volunteer with the Consumer Electronics Association.

Richard Udd (EE ’64) retired in 1997 after 33 years designing electronic warfare equipment for Raytheon in Santa Barbara. With Kitten, his wife of 47 years, Richard moved to his home town in Western Colorado, where he is active in service organizations and has ample time for hiking, fishing, and skiing in the Rockies while pursuing his hobby of automobile restoration.

Walter Wilson (EL ’65) retired as senior vice president from Solectron in 2000. He says, “In retirement I have spent much time traveling, and serve on the Board of a public company.”
Alumni Notes

Alums who serve: CENG grads are now veterans of Iraq war

*Problem-solving skills taught at Cal Poly cited as invaluable while on the streets of Baghdad*

Most who graduate with a degree in engineering from Cal Poly immediately begin their careers with a position in industry, but a number of men and women decide to take a different path and join the armed services.

There are several reasons why these alumni choose to serve. LT *Victor Glover* (GENE ’99) said, “I wanted to do something different. I went to a lot of job fairs during my time at Cal Poly and the more I looked into post-college careers the more I wanted to do something outside of the box.” LT *David Grammier* (GENE ’04) and his family have a history of service. “I have always wanted to be in the army,” said Grammier, “I guess you could say that it is part of my family heritage.”

Whatever their reasons, these men and women volunteer to place themselves into some of the most dangerous situations imaginable, serving in support of Operation Iraqi Freedom and the larger Global War on Terror.

Captain *Steven Schutt* (AERO ’99) is a KC-135R Aircraft Commander currently stationed at Robins AFB, GA. He recalls one evening he spent refueling F-15 fighters over downtown Baghdad. “That night, we continually gave fuel to the fighters, who were engaged against insurgents and whose air strikes saved over 30 troops’ lives,” said Schutt. “My boom operator remembers seeing the tracer fire on the streets.”

Grammier, currently the Executive Officer for Bco 2-22 College of Engineering graduate *Victor Glover* (GENE ’99) served as a lieutenant in the U.S. Air Force, flying combat missions over Iraq.

IN Battalion at Ft. Drum, NY, was an Infantry Platoon Leader assigned to patrol the Abu Grayib suburb of Baghdad. “During this time, my platoon either killed or captured more than eight high value individuals,” said Grammier, “including the persons responsible for the kidnapping of the American reporter Jill Carrol.”

Immersed in foreign cultures and unfamiliar places, the soldiers must learn to adapt quickly to their surroundings. Some attempt to learn the language, while others familiarize themselves with the Muslim religion. “People really appreciate it when you can ask them a question in their own language,” said Glover.

These soldiers feel that the education they received at Cal Poly prepared them well for any situation. “All the way back to Officers Candidate School, where we studied navigation,” said Glover, “or even now in Test Pilot School where I am studying graduate level flight test engineering, the preparation I received at Cal Poly has helped me to excel.”

“Although not many people would say that a CPE/GENE background would come in handy to an infantry soldier,” said Grammier, “I found that the problem-solving skills I was taught proved invaluable.”

Glover offered advice for current students who may be considering a career with the armed services. “First, do well in school,” he said. “Second, research it like you would any other job. As a graduate of Cal Poly you’ll be a hot commodity to whomever you decide to ‘lend your services,’ corporate or government.”

a profession’ in the International Faculty of Engineering at the Technical University of Lodz.”

1980s

*Albion Bowers* (AERO/ME ’82/89) is the deputy director for research at NASA Dryden Flight Research Center.

*Grace (Saiki) Blackburn* (IE ’82) and her husband have an engineering consulting firm headquartered in Auburn, CA, where they live with their three children. They love “living in the foothills (above the fog line, below the snow line, but still close to the mountains and coast).” Blackburn Consulting also has offices in West Sacramento and Modesto, and provides geotechnical & environmental engineering, forensics and construction management services.

*Spence Burton* (ET ’87) works for BAE Systems IT as a senior management consultant in support of the GoLearn Program Office. GoLearn supplies Human Capital Management systems and services to federal agencies.

*Dwight Christensen* (EL ’84) is doing full-time body work in massage therapy. “After recently finishing a six-month engineering contract,” he says, “I have found that I really enjoy being my own boss, getting the rewards of working hard and having the flexibility to take time off when needed.”

*Gordon Judd* (ME ’88) is general manager at NRG Energy Center San Francisco, an underground steam utility.

*Brian Kramer* (AERO ’83) is the owner and president of Rolling Hills Research Corporation which conducts aeronautical research for NASA and the Department of Defense. Brian says his company is also a leading provider of research water tunnels for universities.

*Jim Schrempp* (CSC ’80) is co-founder and vice president of engineering at Audible Magic Corporation, which has offices in Los Gatos and Berkeley, CA. He says, “Our services help with copyright compliance and enable e-commerce.” In his free time Jim maintains a personal website: www.jimschrempp.com.

*Russ Sharer* (IME ’80) is Vice President of Marketing at Occam Networks in Santa Barbara.

*John Taber* (EE ’89) is currently working as a software quality assurance engineer in the Bay Area.

*Michele Tanaka* (IE ’89) is a program manager at Palm, Inc.

*Bill Valentine* (ME ’86) is currently the vice president of Technology Development for Celerity, Inc. He heads Celerity’s Engineering Center of Excellence, where he oversees a diverse team responsible for designing chemical delivery systems in the semiconductor and electronics industries.

*George Westlund* (CSC ’85) works in the Common Management Systems (CMS) Support Group within Information Technology Services (ITS) at Cal Poly. He has been employed at Cal Poly since 1977.

*Erik Wilmot* (EL ’89) recently took a position as senior hardware test engineer with Boston Scientific after working for 17 years at Acuson. Erik is working with ultrasound equipment that images plaque on artery walls from inside the vessel itself.
ME grad aims to revolutionize rehab

Edward Liou (ME ‘04) is helping to develop the Alter-G trainer, a new product that may revolutionize the rehabilitation process by altering effective body weight.

“This means if you are recovering from an injury, or have over trained, want to run faster at a lower body weight, or simply want to see what it would be like to run on the moon, we can do it,” says Liou. Alter-G uses pressurized air to change body weight and reduce the strain on weakened joints or other injuries. Liou serves as Project Manager, but “pretty much does everything” at the new start-up.

Liou is grateful for the education that Cal Poly provided. “The variety of technical labs, other engineering support courses, and real-world teaching style of Cal Poly was priceless,” he says.

Because Alter-G is undergoing clinical trials, Liou is prohibited from making any medical claims. But, he said, “Seeing people’s faces light up when they try it for the first time is amazing. It has the potential to change the way people rehabilitate.”

Although he is not a practicing engineer, Chris writes, “My experience while at Cal Poly has been invaluable in advancing my professional life.”

Rachel Dvorsky (ENVE ‘99) works at TetraTech/KCM, a consulting firm in Portland, OR, where she is involved in water resources projects involving stormwater, wastewater and fish hatcheries. She is expecting her first child in May.

Ahmer Khan (EE ‘98) is a product marketing manager for Credence Systems in Milpitas, CA. Ahmer is in the process of patenting a “digital backplane board” for the emerging digital interface standard (DigRF) market.

Mark Kozel (CSC ‘95) is a software engineer with ITT at Vandenberg Air Force Base, where he has worked for nine years. His current project is an antenna pointing system.

Heather LeRoy (CPE ‘96) is senior product manager for Good Technology in Santa Clara. Her company was recently acquired by Motorola.

Danny Maco (ME/CSC ‘94) is general manager and COO of MCC'OZ, a venture capital firm.

Curtis Marantz (M.S. CSC ‘90) is an international postdoctoral fellow working on an NSF project studying the song evolution and biogeography in a group of South American birds. His host institution is the Instituto de Zoología Tropical, Universidad Central de Venezuela, Caracas.

Mark Potter (EL ‘91) is an applications engineer at Datron World Communications in Vista, CA, responsible for designing HF Radio Systems for countries worldwide. Outside of work, Mark enjoys tennis and fishing. On a recent trip, he landed a colorful Dorado.

Vicky Q. Somera (CSC ‘90) had a daughter, Nicole, born August 20, 2006 (7lbs, 11oz, 20 inches). She also works at Cisco Systems in the IOS Infrastructure group, working on IPC (Interprocess Communications).

John Spruce (ME ‘94) was named CEO of Mechtronic Solutions, Inc., an engineering and manufacturing firm in Albuquerque, NM.

2000s

Sam Aborne (IME ‘01) serves as a Lean Six Sigma Master Black Belt for the US Army Europe Deployment of Lean Six Sigma. He works to improve operations in a variety of commands ranging from personnel to logistics and IT.

Edward Arata (MATE ‘02) recently moved to Zurich, Switzerland in order to complete his Ph.D. program at the Swiss Federal Institute of Technology Zurich. He spends his free time in Zurich snowboarding, traveling and doing photography. Edward and his girlfriend have been traveling all over central Europe and have a trip planned for Thailand.

Chris Balsillie (ME ‘00) is chief engineer for THB Design Associates. His projects have ranged from designing large floating oil platforms to working as a structural analyst with Boeing on the fully composite 787 Dreamliner.

Michael Brown (IE ‘03) is involved with new plant construction, hydrological facilities, and new generation sources in PG&E’s Power Generation Division. He offers, “If you are interested in what is going on in Electricity Generation, let me know!”

Taylor Cheung (M.S. ME ‘05) works for BAE Systems L&A in Santa Clara, CA. Part of the FCS ARV (Future Combat Systems Armed Robotic Vehicle) program, Taylor designs tanks and armored vehicles like the Bradley, FV, and M113.

Peter D’Aquanni (MATE ‘00) started Paragon-IP, a medical device company in Carlsbad, CA. Peter says, “It has been a great career move, and offers much opportunity.” He was married in 2006.

Kristen Davis (EE ‘03) started Sky Davis, a consulting business that helps engineers work through social issues at work and home. She recently moved back to Tempe, AZ in order to be close to her family.

Rigel Davis (ME ‘05) works for Pacific Gas & Electric at the Palo Verde Nuclear Generating Station near Phoenix, AZ. Rigel is part of a group that specializes in producing license renewal applications for nuclear power plants.

Sarah Doan (IME ‘01) works for Northrop Grumman Marine Systems in Sunnyvale, CA. She is part of the test engineering group, and tests turbine generators and main propulsion units for the Navy’s nuclear submarines (Virginia Class).

Julianne Durland (CE ‘01) does flood control work for Pacific Advanced Civil Engineering, Inc. (PACE), a small private firm in Fountain Valley, CA. She passed the P.E. in October 2006.

Michael Evers (MATE ‘03) works as an engineering consultant at Nektar in San Carlos, which makes Exubera, an inhalable form of insulin. “It feels great to work at a company who is so devoted to helping people with an affliction like diabetes,” comments Michael. He has also...
A late-afternoon rain shower produced a soft rainbow over the Bonderson Student Projects Center in January, a month before the building opened to students.

Alumni Notes

patented “ibumps,” a new technology for protecting small hand held devices such as ipods, cell phones and PDAs. He invites you to “check out the website at www.ibumps.com and get your free set today.”

Andrea Resch Gardiner (ENVE ’00) writes, “It’s been a busy couple of years. Got married in 2005 to Jason Gardiner, who I met through Liz (Davidson) Tashma. Jason was in the Marine Corps. After eight years of enlistment and duty in Afghanistan and Iraq, we moved to Denver, CO, where I began working with Environmental Resources Management. I received my PE in February 2006.”

Stephanie Firestone (IME ’03) is a Quality Engineer Investigator for Abbott Vascular in Redwood City, CA. Stephanie was recently married.

Nicholas Gasnier (EE ’05) works as an engineer for the Georgia Department of Transportation.

Benjamin Grant (ME ’02) is currently a Lieutenant at the Naval Post Graduate School in Monterey, CA earning an M.B.A. in Financial Management. He recently completed a three-year tour on the USS Albuquerque submarine out of Groton, CT. Benjamin was named North East Region Officer of the Year in 2004 and 2006.

Christina Klayko (CPE ’00) works part-time for Microsoft Corporation in the Macintosh Business Unit in Mountain View, CA. She lives in Mountain View with her husband Chris and their son, Caleb. Christina was diagnosed with Stage IIb breast cancer in 2005 and has since undergone surgery and 6 rounds of chemotherapy. She is finished with chemotherapy and writes that she is “looking forward to resuming life activities in 2007!”

Joseph Lee (IE ’06) has worked at Toyota for almost a year as a quality control engineer. He is part of the new model group, which will develop the new generation Corolla, Matrix, and Vibe.

Cassidy Levy (GENE ’06) started his second internship with Nike in Footwear Development right after graduating. He was soon offered a full-time position as associate developer for Kids Footwear. Before starting the job, Cassidy volunteered for a month at a boys’ orphanage in Haiti (www.theoswork.org) and surfed in the Dominican Republic.

Bonnie Lowry (CE ’06) works for a civil engineering firm in Ventura, CA. She is also in training for the L.A. Marathon.

James Marshall (ME ’03) is now working with the renewable energy company SunEdison as a senior research and development engineer.

Christopher McMurtry (AERO ’02) works as an Electronic Warfare engineer for the Air Force as a civilian at Edwards AFB. His current project is the F-22 Raptor, but he has also worked on the C-17 Globemaster and CV-22 Osprey, among others. Job duties include flight testing these aircraft and their electronic warfare equipment for the Air Force. Chris says, “I have logged over 60 hours as a flight test engineer in the C-17 and C-130J and maintain a private pilot’s license flying my father’s 1939 Piper Cub. My wife Kate, is active-duty in the Air Force as a First Lieutenant, soon to be promoted to a Captain, and works on the Airborne Laser program. We live in Lancaster, CA.”

David Mitchell (AERO ’06) works for the Rocket Propulsion Engineering Company in Mojave, CA. He is the project engineer for RP’s latest rocket engine design. David feels Cal Poly prepared him well; he writes, “It seems like everyday I call upon knowledge from several of my AERO upper division classes.”

Pablo Paster (B.S./M.S. GENE ’02) is a project engineer for The Dutra Group, a marine construction company. Matthew says, “There is currently much work being done to strengthen the levees of the Sacramento River.”

Stephen Pratt (CSC ’04) is working as a programmer for Yard Systems, Inc. in Santa Barbara, CA. Stephen was recently married.

David Putnam (ME ’05) is a mechanical engineer at Call Henry, Inc., which mainly contracts with the government (NASA & USAF). Currently his company has a contract with Vandenberg AFB. David writes, “A fellow alumni (EE ’05) and I comprise our entire local engineering department and are making Cal Poly proud.”

Markus Schneider (AE ’00) writes, “Since graduating from Cal Poly in 2000, I have left the world of engineering behind. After receiving my M.A. in Economics in 2004, I am now working on my dissertation.” Markus says his work is still heavily influenced by his engineering background.

Naing Yan (CPE ’03) is working at St. Jude Medical, Inc. in Sylmar, CA as a hardware designer engineer. He is involved in R&D and verification with the latest cardiac medical devices. Since graduation he has legally changed his name to Stanley Lim.
CENG golfers tee it up June 1

Enjoy dinner, wine tasting, and a day on the links with fellow alumni and corporate colleagues at the College of Engineering Corporate Golf Challenge, held Friday, June 1, 2007 at the Avila Beach Golf Resort in Avila Beach. Co-sponsored by Cannon Associates, the event celebrates the relationships between the College of Engineering and its corporate partners.

This special tournament is open to corporate teams and Cal Poly friends and offers an opportunity to re-connect with the college, network with fellow grads and professional colleagues, and have fun!

For more information on costs and how to sign up for the CENG Corporate Golf Challenge, contact Michelle Jenkins at (805) 756-5374, mjenkins@calpoly.edu.