HANDS ON
RESEARCH SOLVES
REAL-WORLD PROBLEMS

ALSO INSIDE >>
SWANTON FIRE FUELS ACADEMIC EFFORTS
AN ALUMNA CLIMBS EVEREST
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12 SOLVING REAL-WORLD PROBLEMS
  Faculty and student research leads to practical solutions
WE RECENTLY SURVEYED several hundred alumni at ran­
dom about their experience at Cal Poly, and they expressed a
nearly unanimous sentiment: Cal Poly’s learn by doing educa­
tional experience was crucial to their professional success.

As Honored Alumnus Darran Littlefield said, “After being hired
by a large consulting company, I was placed in an intensive
training course with 250 new hires from around the world. I
worked harder; it was simply because Cal Poly’s incredible
students and faculty work every day to examine real-world
problems, question assumptions and find practical solutions.

That comes to life in Cal Poly’s laboratories and in the field, where
things are the way they are – and whether we can make them better.

The essence of that philosophy is the act of questioning why
things are the way they are – and whether we can make them better.

We trust you will take great pride as you read about it in our
magazine’s overall list of the West’s best universities, including
both public and private institutions, that provide “a full range
of undergraduate and master’s-level programs but few, if any,
drupal programs.”

U.S. News ranks colleges that grant doctoral degrees, such as those in the University of California system, in a separate
category.

Cal Poly President Warren J. Baker observed, “This is a won­
derful tribute to the quality of our faculty and students. This
ranking should be reassuring to employers, who have already
expressed a high regard for our graduates. Because of Cal Poly’s
renowned learn-by-doing teaching methods, employers know
that our graduates are ready to contribute on day one.”

Cal Poly’s College of Engineering program ranked third
among public engineering programs, bested only by the U.S.
Military and Naval Academies, for schools whose highest de­
gree is a bachelor’s or master’s.

CAL POLY TEAM TAKES SILVER IN AIRCRAFT DESIGN CONTEST

STUDENT AIRCRAFT DESIGNERS from Cal Poly con­
tinued to soar at the American Institute of Aeronautics and
Astronautics (AIAA) annual Undergraduate Team Aircraft
Design Competition. The team took second place in the
competition, which drew 22 international entries.

Cal Poly’s Hummingbird Aeronautics won the silver for
its design of the Tersus, a 150-seat “environmentally compat­
ible” transport aircraft.

Hummingbird Aviation – which included aerospace engi­
eering students Ashley Evans, Kevin Lovell, Markus Purslow,
Jason Stavro and Jonathon Wilson – received a $1,500 prize
from the AIAA Foundation for their second-place design.

Virginia Polytechnic University won $2,500 for first prize,
and Georgia Institute of Technology received a $1,000 award
for finishing third.

CAL POLY TO IMPROVE K-12 TEACHING WITH SHARED $12.6M GRANT

CAL POLY HAS RECEIVED a shared $12.6 million grant to
strengthen the quantity and scale of successful techniques
for K-12 teacher preparation with special focus in math, sciences
and special education.

Cal Poly is partnering with CSU Monterey Bay and CSU
Bakersfield in the grant program, which will focus on high­
needs schools in Central California.

The $12.6 million grant will be spread over the next five
years to fund the Central California Partnership for Teacher
Quality Programs (CCCP-TQP).

The Tulare County Office of Education and the Kern County Superintendent of Schools are also participating in
the program.

CAL POLY MAKES U.S. NEWS LIST FOR 17TH STRAIGHT YEAR

FOR THE 17TH YEAR IN A ROW, Cal Poly has been rated
the best public-master’s university in the West by U.S. News &
World Report, in its 2010 America’s Best Colleges guidebook.

Cal Poly moved up four spots, from 10th to sixth, in the
magazine’s overall list of the West’s best universities, including
both public and private institutions, that provide “a full range
of undergraduate and master’s-level programs but few, if any,
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Looking for a Way to Get Involved with Cal Poly?

Check out the new Get Involved page on the online version of Cal Poly Magazine and choose from many ways you can support your alma mater.

Visit www.GetInvolved.CalPoly.edu to discover how you can:

• Join a parent’s group
• Attend events
• Post jobs and internships for students and alumni
• Mentor students (coming soon)
• Sign up for daily, automatic news feeds about Cal Poly
• Take classes
• Travel with fellow Mustangs
• Receive Cal Poly newsletters
• Check out Cal Poly’s Facebook, Twitter and YouTube sites
• Give to your college or department and help support student projects, scholarships, enterprises and more.

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PHONG V. DANG, a finance major in Cal Poly’s Orfalea College of Business, is the 2009 California Polytechnic State University recipient of the prestigious William Randolph Hearst CSU Trustees’ Award for Outstanding Achievement.

Dang was among 23 students selected by the California State University to receive the 2009-10 William R. Hearst/CSU Trustees’ Award for Outstanding Achievement. The winners, one from each campus in the system, were honored by the trustees in September at the CSU Office of the Chancellor in Long Beach.

The award is among the highest forms of recognition for student achievement in the CSU. Hearst Scholars demonstrate superior academic achievements, community service, financial need and the ability to overcome adversity.

Dang, who transferred to Cal Poly in fall 2008 from Santa Rosa Junior College, is working on a bachelor’s degree in business with an emphasis in finance Management. Now a junior with a 3.70 GPA, he plans to complete his degree in business, gain career experience and then return for an MBA. Ultimately, he hopes to pursue a career in finance.

Dang first arrived in the United States from Vietnam with his father and two younger brothers in 2005 at the age of 21. At Santa Rosa Junior College, despite language and cultural differences, he earned the Dean’s Highest Honor every semester and the ability to overcome adversity.

Dang’s father works supporting the family and sending funds to Phong’s mother, who is still in Vietnam. Dang stayed behind in the United States in the next two years.

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To learn more about the 2009 Honored Alumnus, visit Cal Poly Magazine online at www.magazine.calpoly.edu.

ALUMNI ASSOCIATION RECOGNIZES 2009 HONORED ALUMNI

CAL-POLY GRADS WHO’VE GONE ON to successful careers in diverse industries such as California agriculture, education, publishing, architecture and tire recycling were recognized at Homecoming in October as this year’s Honored Alumni.

Reipients of the award this year included Ed Boutonnet (CRSC ’82), president and CEO of Ocean Mist Farms; Wallace B. Gordon (ARCH ’79, ’80), president of Dennis Lewis McKinley Architects of San Francisco; Darron S. Littlefield (BUS ’84), co-founder and partner of Point B Solutions Group, LLC, headquartered in Seattle, Wash.; and Arlene Chandler, (EDUC ’63) who served as Cal Poly’s associate dean of women and taught sociology, marriage and family relations and child development at Cuesta Community College, where she served as Chair of the Human Development Division.

Also honored were Jon Monnett (ENG, ’64) chairman of Quality of Life Plus (QL+), a company he founded to generate research, development and innovations to aid and improve the quality of life for those injured in the line of duty; Paul L. Cousineau (GRC ’83) director of Innovation and Continuous Improvement for Dow Jones, publisher of the Wall Street Journal and Barron’s; and

For more on the 2009 Honored Alumnus, visit the CSU Web site at www.calstate.edu.

FINANCE MAJOR IS 2009 CAL POLY HEARST SCHOLAR

IN REMEMBRANCE

Frank Calabrese, a Cal Poly graduate and longtime university employee, died Sept. 19, 2009, in San Luis Obispo after battling brain cancer. He was 62.

Calabrese attended St. Mary’s Elementary School, Bellarmine College Preparatory, Garnet Community College, and Cal Poly. For the past 30 years, Frank devoted his energies and talents to Cal Poly, working in various capacities, including instructor in the field of industrial arts and technical specialist in fire and security alarms systems. He is survived by his wife, Pamela Logan, and many siblings, nieces, nephews and cousins.


Sandlin received his master’s degree in aeronautical engineering from the Air Force Institute of Technology while stationed at Wright Patterson Air Force Base near Dayton, Ohio, and his doctorate from the University of Arizona in 1967. Between March 1967 and February 1968, he served as a flight test officer for a fighter wing in Vietnam. In 1969, he accepted a position as a professor of aeronautical engineering at Cal Poly, where he started the departmental master’s program with research grants from NASA. He served as department head during the late 1980s and early ’90s, retiring in 1992.

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A WILDFIRE THAT COULD HAVE SPELLED disaster for Cal Poly’s Swanton Pacific Ranch instead is fueling an academic renaissance, as faculty and students prepare to take an unprecedented look at the aftermath of a major blaze.

In August, the Lockheed Fire in Santa Cruz County swept through the ranch. The fire devastated 1,100 of the ranch’s 3,200 acres, and the property off Highway 1 in Davenport was evacuated.

“There hadn’t been a wildfire of this magnitude at the ranch since 1948,” said Brian Dietterick, Cal Poly faculty member and ranch director. The fire swept through the ranch’s Little Creek watershed and across Lion’s Flat Ridge, burning 92 percent of Little Creek and leaving behind a wasteland of blackened ground and fallen, burned-out trees.

Dietterick said the fire was devastating but created opportunities for students in the Natural Resource Management and Forestry Management programs to participate in once-in-a-lifetime research.

“This is an exciting time at Swanton Pacific Ranch,” he said. “We have several studies planned and are looking forward to finding outcomes for fire mitigation and post-fire forest management.”

When the ranch received the evacuation order at 10 p.m. Aug. 12, Dietterick followed the ranch’s emergency operation plan, securing utilities and locking facilities. All ranch personnel and animals were moved to the property’s shipping corral area near Highway 1, outside the evacuation area. Cal Fire worked with the Swanton team when they surveyed the land during and immediately following the fire. “They relied on our local knowledge of the area to conduct post-fire reporting,” Dietterick said.

continued…

STUDENTS AND PROFESSORS STUDY THE EFFECTS OF A FIRE AT SWANTON PACIFIC RANCH

A HOTBED OF RESEARCH
The pre- and post-fire erosion study began as a pre- and post-harvest sediment export study. From 2000-07, students and faculty studied the erosive effects that timber harvesting had on the Little Creek watershed. Researchers spent seven years creating baseline measurements for a three-year study, which began in 2008. The researchers were in their second year of the study when the Lockheed Fire ripped through the watershed.

The team regrouped, tacked the 2008 data to the baseline and shifted to begin a three-year look at erosion after a wildfire.

“As we have the benefit of a comprehensive pre-fire baseline period to study post-fire events,” Dietterick said. “Our initial observations show a tremendous amount of darker sediment, which indicates high level of ash – something we expected.”

What the group didn’t expect was a major storm that would hit the coast of California just two months after the fire. The mid-October storm dumped 11 inches of rain on the higher elevations of the ranch and about four inches in the valleys. Following the rain, researchers found that only about an inch of topsoil, underneath the burned vegetation, was infiltrated by the rainfall. “As a result we found that the overland water flow was quickly delivered to stream channels that created an extreme erosive effect on the channel sediment in Little Creek, thus widening and deepening the channels,” Dietterick said.

Dietterick hopes to learn whether the post-fire erosion amounts are consistent with sediment export that occurs following disturbances from other land-management activities. Studying tree mortality and survival following a wildfire is also important to the timber harvest operation at the ranch. Swanton’s forest is comprised of Douglas fir, redwoods, Manzanita, knobcone pine and other varieties of trees.

The study will look at various conditions that lead to tree mortality and survival based on fire behavior. The findings could lead to changes in how the ranch manages its annual timber harvests.

Early observations found that redwoods seemed to be more fire resistant. “We believe that the redwood’s thicker bark and higher moisture levels insulated the trees from the fire,” Dietterick said. From the Swanton timber management perspective this was good news, because redwood timber is most valuable.

The hill-slope erosion study came together quickly as the Swan-ton team prepared for the mid-October storm. “We knew the storm was coming, and we worked quickly to get nine one-meter square wood boxes set up on Lion’s Flat Ridge,” Dietterick said.

The study will reveal where overland water flow occurred and where the water was transported. “We’re measuring the water coming off the one-meter squares, as well as the amount of sediment mass being moved,” Dietterick said.

Findings will help the researchers identify sources of sediment that have might be delivered to the streams, thus determining how local salmon habitat might be affected. This could also help determine how to mitigate post-fire sediment runoff that would adversely affect the salmon population.

More studies are already underway on the working ranch and many more are planned. Next on the list is determining how to salvage the trees that survived the fire and how to manage the number of fir trees that will die as a result of it.
RIGHT NOW, FACULTY AND STUDENTS in every Cal Poly college are undertaking real-world research, working to solve problems and make changes that will affect the day-to-day lives of people around the state, nation, and even the world.

Their projects are funded by millions in private and public grant dollars. Their work is done hand in hand with government agencies such as NASA, the FDA and the National Science Foundation, and heavy hitters in industry, such as Boeing and Raytheon.

Cal Poly administrators say such research is both a logical extension and crucial element of the university’s “learn by doing” and polytechnic education models.

“At other universities, these kinds of research opportunities aren’t as readily available to undergraduate students. But we pride ourselves on creating an environment in which undergraduates become true partners with faculty in seeking practical solutions to real-world problems,” said Susan Opava, Cal Poly’s dean of Research and Graduate Programs.

“These are the kinds of opportunities that make Cal Poly special, and they are a key part of our ‘learn by doing’ philosophy. When you talk to our alumni, they often note how vital their hands-on research experience was to their subsequent success after Cal Poly.”

Cal Poly research projects were funded by more than $28.7 million in 2008-09. About 47 percent of that came from federal grants, and about 25 percent from state and local government funding. The rest came from non-profit organizations, business and industry and other sources.

Many projects take advantage of the university’s polytechnic campus, drawing faculty and students from several disciplines for a broad, rounded expertise pool.

There are just a few of the cutting-edge research projects happening around campus:

Students Jacob Heick and Julia Huber-Rockow analyze milk samples in a spectrophotometer at Cal Poly’s Dairy Products Technology Center.

MISS MUFFET WAS ON TO SOMETHING

College of Agriculture, Food and Environmental Sciences

Miss Muffet was onto something – that whey stuff is pretty good for you.

Rafael Jimenez-Flores, a professor at Cal Poly’s Dairy Products Technology Center, has spent years studying the nutritional benefits of milk and whey – the liquid remaining after milk has been curdled and strained during cheese-making.

When the Office of Naval Research provided funding recently for a variety of research projects at Cal Poly, Jimenez-Flores saw where his work could create an important benefit.

“We came into focus with the part of ONR that deals with warfighters’ health,” he said. “These soldiers are undergoing intense physical exertion – as much as, if not more than, that of a high-performance athlete.”

But soldiers often can’t keep up with all the calories they burn in the stressful and adverse conditions. They don’t get the same nutrition as an athlete, Jimenez-Flores said, because they have to pack light when going on missions for days at a time. They need something compact and light but dense with nutrition.

So Jimenez-Flores, Food Science Professor Hany Khalil and some graduate students have developed a freeze-dried nutrition bar that packs in whey protein, vitamins, bacteria that help in the digestive process and important lipids that may help with cognition.

The bars have a neutral flavor, like milk, Jimenez-Flores said. So they can be manufactured with flavoring that would make them taste good, too.

Jimenez-Flores hopes to maintain funding to further refine the nutrition bars. For the next step, faculty in Cal Poly’s Kinesiology Department will identify student athletes and others who regularly experience high physical exertion, to test the effectiveness of the bars.

“We’ll be able to test these bars right here on campus,” he said. “What we hope to see is a dramatic difference between these and existing energy bars.”

FISHING FOR COMPROMISE

College of Science and Mathematics

As the government steps in with limitations to moderate and prevent overfishing along the West Coast, some anglers are worried and scared for their livelihoods.

Cal Poly professor Dean Wendt doesn’t think it needs to be that way.

If scientists, fisheries managers and fishermen communicate well and have sound data, Wendt said, they’ll find common ground and productive compromises.

That’s the thought behind the California Collaborative Fisheries Research Project that Wendt is undertaking with Cal Poly faculty, students and staff and community members through his San Luis Obispo Science and Ecosystem Alliance.

“The state and federal governments are charged with managing our resources, but they need good data to do it. It’s surprising what they don’t know,” Wendt said. “There’s a lot of disagreement. And if groups work in isolation, I think that creates conflict.”
The research, going on since 2006 along the San Luis Obispo and Monterey County coastlines, involves Cal Poly students and faculty members heading out on boats with commercial and recreation anglers to record data about catches (including species, catch frequency and fish size). The data will be used for more precise management of fish species on the coast.

The work is funded by support from several organizations, including the California Sea Grant, California Ocean Protection Council, the Packard Foundation, and others. Wendh believes the process SLOSEA uses could have an effect beyond fisheries and marine biology.

“I think this is a model for the way scientists should interact with the community and the government on important problems,” he said, “and I think it’s a great training opportunity for students to see that science is not something that’s just done in a vacuum.”

Leslie Longabach, a graduate student researcher with SLOSEA, agrees.

“I plan to continue with such community-based environmental work in my career,” Longabach said, “and it has been an invaluable experience to interact with community members and resource managers as well as academics.”

PLANNING AHEAD FOR DISASTER
College of Architecture and Environmental Design
For most people, “disaster mitigation” might conjure images of first-aid kits, water bottles, and flashlights. For some Cal Poly students, “disaster mitigation” is about far more.

“I think a little different than emergency preparedness,” said Bryan Eck, a senior environmental science major. “It’s a planning process. It’s not just about preparedness for the event itself. It’s about planning so that you can have a quick response and be resilient to disaster events that do occur.”

Eck is a third-year student at Cal Poly’s City and Regional Planning Department in 2006, seeking experts to update the State Hazard Mitigation Plan. California needed to update the plan to be eligible for millions of dollars in federal funding in the event of a disaster.

The 2007 plan update by professors William Siembieda, Ken Topping and Mike Boswell – with the help of graduate students and other faculty – was funded by a one-year $762,000 grant. It earned an “Enhanced Plan” designation from federal leaders, bringing in millions of extra dollars for California.

As a result, the team received a new three-year, $1.5 million grant to update the plan again for 2010.

The idea is to create a document that helps counties and cities lessen the impact of future disasters by thinking about how they plan their communities.

“It’s a little different than emergency preparedness,” Topping said. “Mitigation has to do with altering our city so it’s more resilient.”

That, said Siembieda, can be done in either a hard or soft approach. If you have a community in a floodway, you can build a structure, such as a flood wall. Or, you can move the population away from the flood zone, through land-use changes.

The Cal Poly team is poring through hundreds of local-level plans from around California and preparing a training manual to show communities how to better prepare their plans. And the new state plan will incorporate climate-change issues – for example, how coastal cities need to plan for an expected rise in sea level.

The project is a golden opportunity for graduate student Brian Laughlin.

“Not many students get that opportunity, ” Marshall said. “For my career, I’m really interested in hazards and the fact that I get to complete a major test at a non-university wind tunnel. ”

Brian Laughlin, a grad student. “It is almost unheard of for a university to complete a major test at a non-university wind tunnel. ”

Wendh believes the process SLOSEA uses could have an effect beyond fisheries and marine biology.

“I plan to continue with such community-based environmental work in my career,” Longabach said, “and it has been an invaluable experience to interact with community members and resource managers as well as academics.”

PICTURED LEFT TO RIGHT: Hazard Mitigation team members: Kenneth Topping, William Siembieda, Michael R. Boswell, Chris Reed, Alison Ford, Brian Laughlin, Phamdo Fischer-Ortiz, Bryan Eck.

FLYING INTO THE FUTURE WITH AMELIA
College of Engineering
Travelers may one day fly aboard a plane that needs significantly less distance to take off and land and that makes far less noise as it flies overhead.

NASA wanted to know how such an airplane might look and work. A group of Cal Poly Aerospace Engineering faculty and staff, led by Professor David Marshall, thought they had the answer. With an initial $874,000 grant in 2008, they provided four preliminary aircraft designs. NASA liked what it saw and gave Marshall’s group an additional $2.5 million through 2010 to refine one design.

“NASA was looking for novel ways to improve our airspace efficiency,” Marshall said. “Our proposal is to solve the problem of underutilized airports and runways. A lot of runways are too short for most commercial aircraft. NASA wanted to know how you could make a 100- to 150-seat craft that had short takeoff and landing, was quieter and had increased fuel efficiency.”

Cal Poly’s answer is AMELIA, or the Advanced Model for Extreme Lift and Improved Aeroacoustics. It’s a futuristic 150-seat craft with wings specially designed for more lift and powerful engines mounted on top, instead of below, to cut ground noise levels.

Marshall’s group – including other Cal Poly faculty members, more than a dozen undergraduates and graduate students, and three researchers from Georgia Tech – has created the designs and produced computer-generated images of AME­LIA. The next step is to produce a 10-foot model of the plane, which NASA will test in a wind tunnel.

NASA will use results to help create models for the physics of future-generation aircraft.

Cal Poly students are getting a unique chance to be involved in this cutting-edge research. Three students will accompany Mar­shall and Professor Tina Jameson to the NASA Ames Research Center in Mountain View for the wind tunnel tests. “Not many students get that opportunity,” Marshall said.

The work plays right into team member Bobby Ehrenman’s career plans.

“I hope to someday work at either an aerospace company or a bicycle designer focusing on wind tunnel testing,” said Eh­­renman, a grad student. “It is almost unheard of for a university to complete a major test at a non-university wind tunnel.”

KEEPING WOMEN IN THE STEM DISCIPLINES
College of Science and Mathematics
Julie Garcia wants to know why more women aren’t choosing or staying with science, math, engineering and technology majors and careers. She hopes students at Cal Poly and two other schools will help her find out.

A computer-generated illustration of the AMELIA aircraft designed by Aerospace Engineering Professor David Marshall and his student group.

Garcia, a professor in Cal Poly’s Psychology and Child Development Department, is working with Mary Murphy at the University of Illinois at Chicago and Sabrina Zirkel at Mills College, an all-female campus in Oakland, Calif. Through surveys and data collection over three years, they hope to deter­mine whether external forces drive women from the STEM disciplines.

“A lot of previous research looked at the individual – factors such as feelings of self-efficacy or maladaptive attributional styles,” Garcia said. “These theories neglect the importance of contextual factors that may affect women’s desires to enter and persist in the face of underrepresentation and societal stereotypes.”

That could include situational cues that suggest whether a professor believes a person’s abilities are fixed or malleable or whether a professor fosters a cooperative or competitive learning environment.

Faculty and student researchers in January will begin track­ing 100 freshmen – 50 males and 50 females – at each campus through their junior year to see how context affects performance and desire to stay in STEM majors over time. More than 1,500 other students will participate in experiments throughout the study, to determine causal links. In these experiments, researcher­s will manipulate situations – for example, having professors put out crafted messages to see how they affect students.

Garcia hopes the data yield practical and easy-to-imple­ment solutions about the messages educators pass along to their students. She hopes the data yield practical and easy-to-imple­ment solutions about the messages educators pass along to their students.

The goal is to prevent girls who are interested in science, math, and engineering from dropping out of those disciplines.

“Creating a better learning environment is very possible with STEM educators at the high school and university levels,” Garcia said. “Creating a better learning environment is very possible with STEM educators at the high school and university levels.”

Seven Cal Poly students, mostly undergraduates, will take part
REVOLUTION IN GREEN

FUTURE WARS AND CONFLICT will not be about oil but about water, plants and food, predicts Horticulture and Crop Sciences Department Head John Peterson.

In fact, the world is already in the midst of a “second green revolution,” driven this time by technology.

Stress on food safety practices, developing more accurate “use by” dates and reducing the risk of food-borne illness.

The project received a $600,000 USDA grant in October.

Such a model, Voest said, could allow businesses and regulators to tighten up the supply chain – providing better training to employees on food safety practices, developing more accurate “use by” dates and reducing the risk of food-borne illness.

The results of the study could benefit not only consumers but also produce companies and sales outlets. “It’s not just about protecting people from food-borne illness,” he said.

There’s also the possibility of helping the industry reduce the amount of its product that is lost to spoilage.”

Editor’s Note: For more on this story, view our accompanying photo slideshow at www.magazine.calpoly.edu for a look at how Greenheart Farms uses technology to produce a billion plants per year. Additionally, you can listen to a podcast of a conversation between John Peterson and Hoy Buell as they discuss Cal Poly’s fast-growing wine and viticulture degree program and the local wine industry.
WHEN PRESIDENT BARACK OBAMA lauded Redwood City nonprofit HopeLab this summer for its efforts to help children get fit, he shined a spotlight on the work of Cal Poly alumna Nicole Guthrie.

The president called HopeLab a model of social innovation at a press conference. And he singled out HopeLab’s creation of the gDitty physical activity monitor and online rewards program conceived by Guthrie and designed to get kids up and moving.

HopeLab uses research to develop innovative solutions to improve the health and quality of life of children with chronic illness. The company, which launched in 2001, focuses on cancer, obesity, sickle cell disease, major depressive disorder, and autism.

Guthrie’s boss asked her in 2007 to explore research tools to measure physical activity as HopeLab began to think of ways to get 10- to 14-year-olds (or tweens) to develop lifelong healthy habits related to physical activity that might prevent obesity and related health issues.

She began by researching existing physical activity monitors. The market was flooded with adult monitors that measured activity in sustained workouts, she said. But tweens tend to be active in shorter bursts throughout the day, and many monitors do not capture those brief but often intense spikes in activity.

HopeLab developed a prototype activity monitor specifically calibrated to measure a tween’s physical activity and that produced clear data. But Guthrie faced the additional challenge of finding a way to make an activity monitor interesting to youngsters.

Initially, she considered the idea of a monitor that played music, after noticing how many teens had mp3 players. But market research told HopeLab that there were too many established music players out there.

“So we had to come up with another idea,” Guthrie said. “That’s when the Web-based rewards program was developed.”

Users upload recorded data of their physical activity to the gDitty Web site, where they can customize a personal profile page with an avatar. They earn and accumulate points for varied levels of activity and receive incentives such as gift cards to retail stores or online shopping sites, or they can choose to donate to a cause.

A six-week study of 182 middle-schoolers was completed in June 2009. Users were placed in one of three conditions to earn points: use the gDitty with access to the online rewards, use the gDitty only, or use gDitty with Dance Dance Revolution (a video game that promotes activity).

“We used Dance Dance Revolution,” Guthrie said, “so we could compare the gDitty with a product known to motivate physical activity in a fun, engaging way.”

Results from the study were clear — tweens with access to the gDitty Web site recorded 30 percent more moderate to vigorous physical activity than those that didn’t have access to the site.

Guthrie and HopeLab will now conduct a longer, larger-scale study to figure out how to best motivate kids to participate and at the same time develop a cost-effective product.

The 12-week study, underway now, will determine what best motivates tweens. One arm of the study relies on self motivation, encouraging users to beat their personal best scores. Another group receives random bonuses on any given day. At any time, any user might earn more points than they normally do. A third group of users will have access only to “virtual” rewards, such as the ability to customize their gDitty avatar and profile page, rather than gift cards.

Still considered in the early phases of development, gDitty holds the potential to help children live healthier lives.

Promoting health has long been the aim of Guthrie’s work. She worked as an intern on the Women’s Health Initiative at Stanford University in 1995 and then did research on prevention of heart disease through nutrition (work that paralleled her Cal Poly senior project).

She then pursued a master’s degree in nutrition, with a focus on preventive health, at UC Davis. After earning that degree, she went on to UC San Francisco to work on a study of how soy affects breast density and the early detection of breast cancer in pre-menopausal women.

Guthrie said her experience at Cal Poly helped her explore what she found interesting and go after it.

“The most important thing Cal Poly taught me is that it’s okay to be curious and ask questions,” she said. “That experience is carried over in my work. It’s my passion.

“I’m lucky enough to work for HopeLab, which allows me to explore and try new things. If an idea doesn’t work out, I’m allowed to try something different. I love that.”
ALUMNA ATOP THE WORLD

MEGAN DELEHANTY CLIMBS TO THE SUMMIT OF MT. EVEREST

CAL POLY ALUMNA MEGAN DELEHANTY joined a small sisterhood May 23 when, fighting extreme conditions and physical and mental fatigue, she reached the top of Mt. Everest. Only about 200 women have ever climbed to the summit of the world’s tallest mountain (making up about 5 percent of all Everest summits), and only about 35 were Americans.

It was an exhausting endeavor for Delehanty (GRC, 1985), a 47-year-old corporate international tax consultant from Suisun Valley, Calif., who has climbed many of the world’s tallest peaks in the last 13 years. But illness and injury over the two-month venture couldn’t crush her resolve.

“I went through a tough time on this expedition,” she said. “I let my injuries and sickness affect me mentally. But I was super determined. It was a strange mix. They say it’s a mental game climbing Mt. Everest.”

Everest had never been a grand goal, she said. She’s never had a long-term list of mountain climbing objectives since starting with a 1996 backpacking trip that led to the 14,949-foot summit of California’s Mt. Whitney.

Despite not having set objectives, she’s found herself atop many of the world’s tallest peaks, including five of the Seven Summits – the highest mountains on each of the seven continents.

“It’s about traveling, seeing new people and cultures, and taking photos,” she said. “It’s seeing the world and having an obstacle to overcome – something unusual and spectacular.”

It was in 2007 that she first considered Everest, when she was invited by a climber she met on Mt. McKinley two years earlier. That climb brought her within about 1,000 feet of Everest’s top, via the north face. “I had a good experience,” she said. “Over time, I felt like I had to go back.”

That chance presented itself this year, with Delehanty and 27 other members of the Himalayan Experience expedition team...
arriving at Mt. Everest on April 1 for a trip up the mountain’s south face. The team hiked for 10 days to base camp at 17,000 feet, where they stayed for five days, acclimatizing to the altitude. Delehanty had a rocky start, catching a cold, pulling her chest muscles twice in coughing fits, then tearing a muscle in her back. In the thin air, healing was slow.

The climbers spent the days and weeks practicing, getting accustomed to the higher altitudes and thinner air and climbing parts of Everest and nearby mountains. Delehanty’s injuries sometimes kept her from climbing with her team, and she couldn’t complete one of their acclimatization climbs. “Most of us arrive with pre-existing conditions, like ankle, knee or hip prob-
lems,” she said. “But we’re generally prepared to deal with them. We’re generally prepared to deal with them."

Over the next few weeks, the group ascended to camps 2, 3 and 4, and Delehanty practiced climbing at one of the camps on Everest. “I was at the gym, where I had spent so much time getting in shape for the climb, ‘she said. “It was the toughest day of my life, bar none.”

Russell Brice, her expedition leader, told her it would be a steep climb. “It’s so foreign and strange up there,” she said. “It’s a threatening environment. Your focus never changes. You still need energy to get down the mountain."

She was sure she’d weep when she reached the top. Once there, she said, “I saw my team members’ smiling faces, ” she said, “and I was happy to be there with them.”

Chuck Liddell’s two-step to “Boot Scoot Boogie” on ABC’s “Dancing with the Stars” on Oct. 13 was his last. The judges voted him off the show in its fourth week. The day after being eliminated, Liddell (B.S., Business Administration, 1995) told the San Luis Obispo Tribune he was glad he did the show. “The former Ultimate Fighting Champion has a role in an upcoming Mickey Rouke film.” – From the San Luis Obispo Tribune and Dancing With the Stars

Guayaki Yerba Mate imports directly from a small suppliers across Latin America with the goals of producing natural foods and preventing further rainforest deforestation. The company, founded by:B.S., Aero Mech Engineering of San Luis Obispo, a producer of small unmanned aircraft known as drones. Cal Poly grad Thomas Akerer (B.S., Aero Engineering, 2001) and Norm Timbs (B.S., Engineering Technology, 1992) started San Luis Obispo-based AeroMech 10 years ago.

– From the San Luis Obispo Tribune

Chuck Liddell (t), Cara Peck (Below)
CAL POLY ALUMNUS TOM SANDERS has spent most of the last four years capturing the images of World War II veterans in an effort to honor not only these aging warriors but all men and women in uniform.

The photographer’s quest has taken him across the country, garnering media attention and critical acclaim. It has also propelled him to a new level of professional success; he recently signed a deal with Welcome Books, a division of Random House, to publish his collection of veterans’ photos as a fine arts book in 2011.

Sanders (B.F.A., Applied Art and Design, 2006) found his calling through a class assignment his senior year at Cal Poly. The directive was simply to photograph interesting people. On a whim, he stopped at The Villages, a local retirement community, where he was introduced to Army Ranger Lt. Randall Harris.

Harris was a World War II veteran who survived a direct hit to the abdomen by cinching a canteen belt around his waist to hold in his intestines.

Villages staffers Dawneen Lorance, and Cal Poly grad Mindy Nissen (B.S., Social Sciences, 1976; M.A., Education, 1978), were so moved by the photo, they asked Sanders to photograph 15 additional veterans as the cornerstone of a Memorial Day celebration at the home.

“He spent time with them,” Lorance said. “At the Memorial Day event, he talked about how he realized that at 20 or 21, he was a privileged Cal Poly student, while at the same age, these guys were getting shot at. He got it.”

From his experiences with the veterans, Sanders said he has learned to make every day count and, at the same time, not to take disruptions in his own life too seriously. He also learned to appreciate the sacrifices made by others.

When Lorance moved to a new job at Belmont Villages in the Hollywood Hills, she once again called on Sanders to photograph her WWII vets. That home is one of 20 sister properties across the country. When a company executive saw the photos, Sanders was commissioned to shoot portraits of each of the resident vets at all of their properties.

Belmont displays the images as if in a gallery, complete with a grand opening that may feature a band and wine and cheese gala, a color guard, an opportunity to meet Sanders, and a ceremony honoring active military members to honor each of the vets. The events are well attended by local media, caretakers and by family members who often travel long distances to see their loved ones celebrated.

For his efforts, Sanders is rewarded with many thanks, “There is a place in heaven for what you are doing,” one woman told him.

Staffers at the retirement community say the experience has opened up conversations between the veterans themselves as well as with their families, caretakers and others.

“He photographed opened up a lot for me,” said fighter pilot Bill Warren, who served in the Air Corps, forerunner of today’s Air Force. He likes to explain to young people “what the war was all about.”

He also receives letters and e-mails from people asking him to photograph aging family members who have served their country, requests he is troubled he won’t be able to fulfill quickly enough.

The urgency of his mission is reflected in Department of Veterans Affairs’ estimates that more than 1,100 WWII vets die each day. Sometimes, they die between the time Sanders takes their picture and the tribute event at their home. In fact, Harris is now one of the fallen.

Sanders’ work with veterans helped him find his niche in portrait photography. He said he is drawn to “authentic, genuine people” who have a story to tell and that he tries to create a “timeless image with a lot of truth.”

He said his work has evolved and that his studies at Cal Poly helped him with his art in ways he didn’t anticipate. Not a painter, for instance, he didn’t understand why he had to paint a color wheel in an art class. Now, though, he says he has a sharp eye for color. And he believes the perspective he acquired in classes such as philosophy and English helps him to convey an intrinsic humanity in his subjects.
Swim meets are almost poetic displays of churning limbs, spraying water and motion, a great way to spend a sunny afternoon whether you’re competing or watching from the stands. More of these events will be coming to the Cal Poly campus, thanks to the newly constructed Anderson Aquatics Center, which includes an Olympic-sized pool that will serve as the training facility for the Cal Poly swim team. The facility is named after Dick Anderson, professor emeritus of physical education and a former Cal Poly athletic director from 1963 to 1968. According to former student athletes, Anderson was an inspiration, helping many of them become teachers and coaches in high schools, community colleges and universities. He passed away in 2006. "Dick Anderson had a dramatic impact on so many Cal Poly students," said Alison Cone, Cal Poly director of intercollegiate athletics. "It is fitting that the aquatic center bearing his name is a first-class, state-of-the-art facility." One athlete that excelled under Anderson’s guidance was the late Gene Lenz (ARCE ’61), the only Olympic swimmer in Cal Poly’s history. Lenz competed in the 1960 Rome Olympics. To honor Lenz’s accomplishments, Lane 4 of the new pool is named after him. In the future, other notable alums will be honored with named lanes. Gene and his wife, Ethel Lenz (MA EDUC ’66), partnered with former Cal Poly swimmer Geoff Capell (PE ’65, MA PE ’66) and other supporters to found the Dick Anderson Endowment, a scholarship for Cal Poly student swimmers. Members of both the Anderson and Lenz families were on-hand for the dedication of the new facility in September, which featured the Gene Lenz Memorial Award for Excellence, given to Cal Poly swimmer Peter Kline. The generous support of the entire Cal Poly aquatics family has resulted in a facility that will impact generations of future Cal Poly swimmers, fueling the enthusiasm of Head Swimming Coach Tom Milich. "It enables us to recruit at an entirely different level," he said. "Because of this facility, we can attract better athletes to compete against better schools." Last year, Cal Poly took five swimmers to the Olympic trials. Milich’s goal is to take 25. "We opened up the new facility with a meet against Cal Berkeley – the defending national champions," Milich said. "Our next goal is to get UCLA and USC on the schedule." The new facility is a Myrtha pool, with nonporous stainless steel on the sides and concrete topped with polyvinyl liner on the bottom. Because it is nonporous, the pool is not as susceptible to algae and requires fewer chemicals and less maintenance. The water stays flat due to the drain-off system. "Every world record in swimming has been set in a Myrtha pool," Milich said. The new pool is 50 meters long, 25 yards wide, averaging 6 feet, 8 inches in depth. The deepest point is 13 feet. It holds 800,000 gallons of water. The old pool, which was built in the late 1960s, had only six lanes. This new facility has eight Olympic lanes and 18 competition lanes. One high dive and one low dive are already in place. Another high dive and low dive are scheduled for installation. The new center also features a 15- by 30-foot therapy pool, kept at 85 degrees. "Our advocates made this happen – a testament to the value of private support and what it means for our students," Cone said. "We are forever in their debt."
ALEX G. SPANOS STADIUM is home to a brand new three-story, state-of-the-art, multimedia scoreboard thanks to a $625,000 gift from alumni Albert (Al) Moriarty (B.S., Physical Education, 1957) and his wife, Patty, a couple with a long Cal Poly history.

Inducted into the Hall of Fame in 2002, Al played football all four years during college, starting as a freshman on the legendary, undefeated team of 1953. And on the wall of their home is a picture of Patty performing as a drum major in front of the old scoreboard – basically a couple of two-by-fours nailed together.

They are excited about the new scoreboard because they believe enhanced facilities will help attract top athletes, prospective students, community support – even tourism to the area.

"Look what we have to sell," Al said. "We have a gold mine around here. We live in an area that's beautiful, and Cal Poly has everything going for it: top academics, the arts, a well-rounded atmosphere and quality of life."

Al is a big-picture thinker who takes a comprehensive approach to sports. In addition to training, he believes that superior athletes have to develop pride, discipline and confidence. "You can be physically equipped, but to win you have to be mentally tough." He also believes presentation is part of the game: "You have to be physically equipped, but to win you have to be mentally tough."

Nowhere has that philosophy played out more than in Spanos Stadium. When he was first asked to serve on the Mustang Athletic Fund in 1992, one of the stipulations of his involvement was that Athletics would make an effort to build a bigger, better stadium. He has been a juggernaut advancing that concept ever since. At one point, he even had a friend build a model to help sway the planning committee toward an all-season stadium with a retractable roof.

"When it came time for the west side to be developed, the budget didn't allow for suites atop the bandstand. Al fought to build a model to help sway the planning committee toward an all-season stadium with a retractable roof," Athletics Director Alison Cone said.

"I think it will increase the fan experience at games," Cone said, "and the players will enjoy the things that happen with a video replay board. So it's very exciting."

In addition, the scoreboard will serve as a learn-by-doing lab. Interns from the Journalism Department and from Parks and Recreation will program the big board, develop entertainment and statistical content and create marketing campaigns for sponsors.

Never one to call it quits, Al has yet more ideas, this time for the east side of the stadium. The head of a financial services company he started while a junior here, he says, "Poly helped me get started; football helped me get my foot in the door."

Now, he says he plans to use his midable skills amassing people and resources to complete the stadium enhancements, which would allow Cal Poly to compete at the highest level.

A born salesman, he doesn't hesitate to tell people, "You'd be smart to get involved with Cal Poly. I'm a great forecaster and I see big things for this school."

THE BIG PICTURE

PHILANTHROPY

MAKING YOUR DOLLARS MAKE SENSE

THE GIFT THAT KEEPS ON GIVING

MANY PEOPLE SAY CAL POLY has given them so much and now they want to give back, but they don't consider themselves wealthy and need their savings to last through what could be decades of retirement.

That's where a Charitable Gift Annuity (CGA) can make sense.

A CGA is an all-purpose giving vehicle in which a donor gets a fixed payout while the assets appreciate tax write-off and a lifetime income stream. Depending on the age of the donor, the current rate of return can be as high as 9.5 percent, and at least part of the annual income from the annuity is tax free.

The typical donation is usually between $10,000 and $50,000. Prior to the gift being funded, the rate of return is determined by the donor's age and the age at which he or she decides to start taking distributions. The longer the distribution is deferred, the higher the rate. The rate is fixed, and distributions continue throughout the life of the donor.

Sound too good to be true? We talked to Charles Dana, a computer science professor emeritus who likes CGAs so much he's funded several since he retired at age 51.

"It feels more like an investment than a donation," he said. "Since I get money back, I can make bigger gifts."

Dana funded his first CGA at age 53, followed by five more over the next five years. He will start receiving distributions from the first CGA at 65. He "laddered" the maturity dates (the age at which he starts to receive distributions) on different CGAs so his income will go up each year after that to combat what he calls "the notion that I'm on a fixed income."

"I retired on the early side," he said, "and I wanted to make sure I didn't live longer than my resources."

He also likes the idea of being able to honor his parents, who were educators. "They always put more into the job than they took out of it," he said. By making this gift, he is following in their footsteps, giving back to the department that provided him such a rewarding career.

For more information on how a Charitable Gift Annuity can work for you and Cal Poly, contact Stacy Cannon at (805) 756-2993 or scannon@calpoly.edu.
HOT SHOTS

TOM MACKIN

GOES TO THE END OF THE WORLD ON THE DISCOVERY CHANNEL

BY SCOTT ROARK

IF A NUCLEAR HOLOCAUST doesn’t get us, global warming might. Or perhaps a stray comet. Regardless of the scenario, a post-apocalyptic world would certainly need engineers to recover.

And that is how Mechanical Engineering Professor Tom Mackin landed a role on the reality television show "The Colony" on the Discovery Channel.

A series in the spirit of "Survivor," it casts a group of people into an 80,000-square-foot Los Angeles warehouse without electricity, food or water after the hypothetical "end of modern civilization."

"Engineers would probably be a hot commodity after the Apocalypse," he said with a smile. "Bottom line: You’re going to need people that build things."

To audition for the series, which aired last summer, Mackin responded to a broadcast e-mail from the Discovery Channel. They were looking for a mechanical engineering professor. Mackin sent a brief bio. A Skype interview followed, then a meeting with a film crew member, and he was in.

The show features marauding "gangs" on the outside of the warehouse, trying to steal the group’s limited resources. Emotions run high, conflicts abound and drama ensues.

Mackin was not in the warehouse with the others, though. Instead, he provided commentary and insight during multiple episodes of the show, explaining what the group needed to do to survive.

First order of business? According to Mackin, it’s clean water.

"The group initially collected water from the Los Angeles River – not the cleanest source – and filtered it through sand," Mackin said. "Eventually, a more reliable system for water purification was developed."

In a real-life scenario, security would quickly follow water and food on the priority list. "You would then have to build weapons to protect yourself; that’s the reality. Security would come before creating a reliable source of energy," explained Mackin.

He found the logic in the video crews’ decision-making a bit less apparent.

"It was funny," he said. "They told me not to shave before the filming of the first episode, to look rugged. When I arrived on the set in Burbank, they took one look at my four-day-old stubble and promptly had me shave. Maybe it was the high-definition cameras," he said, laughing.

HOT SHOTS

GIVING?

As the end of the year approaches, many pause to review, reflect, thoughtfully addressing your charitable giving between now and December 31 can help maximum benefits for you and your charitable interests. We hope you will consider including Cal Poly in your year-end giving plans.

For more information about these giving options, contact:

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IT’S YOUR LEGACY.
EXPLORE IT.
GRAPHIC COMMUNICATION INSTITUTE PUBLISHES BOOK ON SECRETIVE RUSSIAN PRINCESS

THE PRINCESS DIARIES was fiction, but a new book about a real-life princess who lived in San Luis Obispo has been published by the Cal Poly Graphic Communication Institute (GrCI).

Tatiana Volkonsky, a Russian princess and long-time San Luis Obispo resident died in 1988, never publicly revealing secrets of her past.

Author Friedl E. Semans Bell is the daughter of Hubert Semans, the first dean of humanities on campus, and the princess’s younger son, Alec Kelley, graduated from Cal Poly.

For more information go to http://grci.calpoly.edu/projects/friedl-bell.html. Sale proceeds will benefit the Graphic Communication and English Departments at Cal Poly.