Advantage
College of Engineering, Cal Poly, San Luis Obispo, California, Spring 2009

Alumnus founds lab to improve quality of life for injured vets

Jon Monett, a Cal Poly 1964 industrial engineering alumnus, recently donated $500,000 from the Monett Foundation to the College of Engineering.

These funds will be directed towards the Quality of Life Plus Laboratory (QL+), a multidisciplinary facility dedicated to the development and application of technology to improve the quality of life of wounded and disabled veterans of the military, law enforcement and intelligence organizations.

A veteran of both the U.S. Air Force and a 26-

Please see QL+ LAB, Page 2

Mustang ’60 Shop opens doors to students

Cal Poly Engineering students have a brand new place to saw, grind, sand, drill, weld, bend and shape metal, wood, plastic and other materials as they work on their award-winning projects: the Mustang ’60 Project Shop in the Bonderson Projects Center.

Dedicated in recognition of 1965 mechanical engineering alumnus John Neilsen and his wife Connie, who supported equipping the shop with an upgrade challenge fund, the space was named

Please see MUSTANG ’60 SHOP, Page 2

Features
- Alum Jon Monett (IE ’64) sponsors lab to improve quality of life for injured vets
- Mustang ’60 Shop open for student projects
- Students invest in themselves

College News
- Ed Sullivan remembered for many contributions to CENG
- Engineering Student Affairs office bursting at the seams
- Cal Poly Rose Float wins Viewers Choice Award

Student News
- Cal Poly SWE chapter again named best in the nation
- Javier Mendez awarded scholarship from Verizon
- Multidisciplinary team wins national seismic design award

Project-based Learning
- CENG students work on clock renovation in Germany
- CPE students designing Wii game for the disabled
- Testing storm water filters

Faculty News
- Michael Cirovic honored for innovation in education
- AERO’s Jordi Puig-Suari featured on Seed Online
- Multicultural Engineering Program director honored

Alumni News
- Rory Cooper (EE ’85) featured on Cheerios box
- Chris Gocong (BME ’06) flys high with Eagles
- Jeanne Skrocki (AERO ’85) named opera concertmaster
Mustang ’60 Shop

From Page 1

the Mustang ’60 Project Shop to honor the memory of those who lost their lives when the Cal Poly football team plane crashed on October 29, 1960.

“I was a freshman at Poly when the plane went down; it was an emotional time,” said John Nielsen. “Connie and I felt that dedicating a Mustang ’60 Project Shop would be a way to remember those fallen students.”

At the dedication ceremony, Cal Poly Engineering Dean Mohammad Noori presented the Nielsens with an engraved plaque and said, “We are enormously grateful that you recognize how important it is to preserve and enhance project-based learning, a paradigm which has made Cal Poly a leader in engineering education worldwide.

“By choosing to name this facility the Mustang ’60 Project Shop, you have also gone to the heart of Cal Poly, by recognizing a sad, but important event in the history of the university. You have given us a way to embrace those fallen students. I know that past students, especially alumni of that era, will be touched and will find this tribute healing, while this recognition will enrich the historical legacy of Cal Poly for future students.”

The Nielsens established the John & Connie Nielsen Student Projects - Lab Upgrade Challenge Fund in 2007, committing $240,000 as a challenge to fellow alumni and friends. The Fund matches all unrestricted gifts to complete shops in the Bonderson Projects Center and the Aero Hanger, which combined are expected to accommodate more than 500 students from more than 30 majors per quarter.

Nielsen, who retired from General Mills after designing, building and managing the engineering functions in several plants throughout the U.S., became inspired to help upgrade Cal Poly shops while serving on the Mechanical Engineering Industry Advisory Council.

“I met Paul Bonderson, who built the Projects Center, and George Leone, the ME technician, who does such a great job maintaining the shops and working with student clubs,” says John. “What excited me most was the enthusiasm of the students and the projects they develop—much more sophisticated projects than what we did in the ’60s.”

Several student groups, including Cal Poly’s Steel Bridge and Rose Float teams, put the Mustang ’60 lab to use immediately after the dedication, although it was still undergoing some construction and wasn’t expected to be completely operational until summer quarter.

“Projects are what make Cal Poly students stand out,” said Nielsen. “When the students go out into the work field, they will already know how to build things, solve problems in the real world, and actually operate the machines and manufacturing processes required to make the project work.”

QL+ Lab

From Page 1

year career with the Central Intelligence Agency, Monett envisions QL+ as becoming an important center, where Cal Poly students and military develop life-enhancing products and techniques for those who have served their country.

During his years with the CIA, Monett focused on developing tools for the collection of intelligence. He rose in the agency to the position of senior executive. On his return to civilian life, Monett started a company that became known as Telemus Solutions, a global security consulting and intelligence advisory services provider.

“When I sold Telemus last July, I started to think about ways to acknowledge the role Cal Poly played in my life and to show my appreciation for the men and women who, in the course of serving their country, have been wounded or disabled,” said Monett.

“The lab is needed because companies tend to focus on products with high revenue potential, but often the problems affecting vets are much smaller. I want to give Cal Poly students—who are so good at solving problems—the opportunity to initially focus on prosthetics. QL+ is the first step and will hopefully open the door for others to join this effort.”

Cal Poly president Warren Baker, left, and Jon Monett (IE ’64) unveil a plaque for the new Quality of Life Lab as Dean Mohammad Noori looks on.

Publisher: Cal Poly College of Engineering
1 Grand Avenue
San Luis Obispo, CA 93407

Title: Engineering Advantage
Frequency: Published biannually
Issue No.: Vol. 5, Issue 2

Spring 2009
To: Alumni, Parents, and Friends  
From: Mohammad Noori, Dean

Regarding the Budget Crisis and Cal Poly Engineering:

You may be wondering how Cal Poly is affected by the far-reaching economic crisis. While exact numbers and specifics are almost impossible to pin down at any given moment, I’d like to offer a general overview.

The Cal Poly operating budget began the year with a $3 million shortfall and has been cut twice since then. The first budget cut was a $1.6 million one-time budget reduction. The second budget cut was $3.5 million and represents a reduction to the on-going base budget. The cuts plus the already existing deficit added up to an $8.1 million budget challenge for the university for 2008-2009.

For the College of Engineering, the cuts have exacerbated an ongoing funding problem that stems from the higher cost of engineering education and from an increase in enrollment without additional compensation from the State. In fact, despite an increase in cost of instruction, the college has received approximately the same amount of funding from the State Legislature over the last six years. As a result, the gap between the actual cost of educating a full-time engineering student and the amount received by the State has grown to $1800 per student.

By all reckoning, the State budget will not improve significantly for the next several years. University challenges for 2009-2010 include unfunded mandatory cost increases for such things as healthcare, energy, and new space on campus; and, as of this writing, we may be facing an additional $2.9 million budget reduction to campus if federal stimulus funds are not sufficient.

Offsetting some of the reductions is a 10% increase in the State University Fee, a provision of the recent California Budget. Also on the table is the possibility of an increase in the College Based Fees, which was endorsed by a vote of the students (see story on Page 8). The fee increase, however, is not yet certain as of April 1 and hinges on the ultimate impact of the state budget on the California State University (CSU).

What we do know is that without revenue enhancement, we will need to reduce course offerings due to the non-renewal and/or non-hiring of lecturers, increase class size, reduce student research opportunities, and defer maintenance or updating of facilities and equipment. In short, our ability to maintain our standing as one of the nation’s premiere engineering schools would be in serious jeopardy.

The fact of the matter is that our funding challenges have become endemic because of the changed relationship between the State of California and higher education: Cal Poly is no longer a state-supported institution, but rather state-assisted, and the shortfall must come from students and from alumni and other private donors.

The recent vote by our students to raise their fees has set a marvelous example of sacrifice and commitment to ensure the value of a Cal Poly education. If alumni and friends likewise step up, I have no doubt that we can continue investing in the areas that distinguish Cal Poly Engineering: our Learn By Doing projects, labs and technology; student scholarships and outreach to help ensure a diverse workforce; support for faculty so that we may recruit and retain the nation’s brightest teachers; student club activities that provide wonderful opportunities for leadership and competition; the list goes on . . .

I would be happy to answer any questions you may have about the college or university budget. And I encourage alumni, especially, to consider making a gift now (we’ve included a return envelope in this publication) and to make an ongoing commitment to Cal Poly Engineering. Together we can overcome the immediate funding challenges and also ensure a legacy of excellence.
High-flying alum honored by Cal Poly Engineering

Gregg Chamitoff didn’t even have his feet on the ground when he was named by the College of Engineering as its Honored Alumnus for 2008—he was weightless aboard the International Space Station serving as the U.S. flight engineer.

The 1984 electrical engineering graduate claims he “left Cal Poly with the tools I needed to navigate and succeed in the real world.” Succeed, he did. The NASA astronaut has collected an impressive array of degrees and awards on his path to Outer Space.

After leaving Cal Poly, Chamitoff earned a master’s in aeronautical engineering at Caltech (1985) and a doctorate in aeronautics and astronautics at MIT (1992), where he worked on the Hubble Space Telescope, space shuttle autopilot upgrades and the space station’s altitude control system.

His many honors include election as an American Institute of Aeronautics and Astronautics (AIAA) Associate Fellow; the AIAA Technical Excellence Award; the NASA Silver Snoopy Award (for outstanding achievements in human flight safety/mission success); the NASA/USA Space Flight Awareness Award; C. S. Draper Laboratory, Institute of Electrical and Electronics Engineers and Tau Beta Pi fellowships; and Phi Kappa Phi and Eta Kappa Nu honor society memberships. He has published widely on aircraft and spacecraft guidance and control and Mars mission design.

Cal Poly Rose Parade float wins first Viewers Choice Award

Cal Poly San Luis Obispo and Cal Poly Pomona captured imaginations—and votes—with their “Seaside Amusement” float during the 120th Rose Parade on New Years Day.

Portraying a dazzling boardwalk scene with a working rollercoaster, Ferris wheel, bumper cars, and a parachute drop, the float won the inaugural KTLA Viewers’ Choice Award for the Tournament of Roses.

The float was the 61st co-produced with Cal Poly Pomona—and still the only entry in the annual parade that is designed, built and decorated solely by students and volunteers. Students in the Rose Float programs at each campus build half of the float, which is trucked to the Pomona campus every November for final assembly.

Cal Poly’s “Seaside Amusement” float cruises down Colorado Boulevard at the 2009 Rose Parade.
Engineering Student Affairs: Busting at the seams

Tucked into Engineering South across from the Rec Center is Engineering Student Affairs (ESA), home to advising, outreach, multicultural, and women’s engineering programs.

ESA consists of two full-time and two part-time advisors, who serve 5,304 students, or 1,768 students per advisor. Which boils down each day to 20 appointments, 20 to 30 walk-in visits, and an untold number of e-mail queries for each advisor.

Stacey Breitenbach, Assistant Dean of Student Affairs says advisors face questions that range from “What GE course should I take?” to complicated personal issues such as learning disabilities and family problems. Because ESA desks are “cheek-to-jowl,” advisors take students outside or hunt for an empty room in the building to find privacy when students are in crisis.

In addition to academic advising, ESA hosts a medley of other programs designed to boost student success, including the International Exchange Program, an increasingly popular option for engineering students, and SOAR (Student, Orientation, Advising and Resources), the summer program that helps freshmen register for classes and prepares them for their college experience. Other ESA events include Fall orientation courses, quarterly registration advising in the residence halls, a change of major student panel, and Academic Success workshops.

Concerned that the K-12 “pipeline” for science, technology, engineering and math disciplines are drying up, ESA also embarked on a K-12 outreach program, which includes elementary school classroom activities, high school student shadow days and a successful engineering summer camp for middle and high school students.

“We want to introduce students to engineering at an early age so they think it’s fun and possible, a career they can seriously consider,” Breitenbach says. Outreach efforts are also directed at parents in underrepresented groups.

PIQE, or Parents Institute for Quality Education, informs parents about grants and financial aid, and how to motivate and prepare their children for the college track.

Engineering Student Affairs reaches current students, prospective students of all ages, as well as underrepresented engineers at Cal Poly and in the community. Unfortunately, the economy is threatening the level of support ESA would like to offer. Scholarships will be lower next year and budget cuts are limiting the number of K-12 students who will have opportunity to experience exciting on-campus engineering events. Advisors struggle to meet the privacy expectations of students and demand for the International Exchange Program is outgrowing staff time.

Despite obstacles, Engineering Student Affairs advisors, staff and students work diligently, side-by-side in Engineering South to offer students and community members the best services possible.

Dr. Edward C. Sullivan
Professor
Associate Dean for Research and Graduate Programs
1944 – 2009

Cal Poly Engineering loses one of its best

Dr. Ed Sullivan was known by his students and colleagues alike as an outstanding scholar, teacher and humanist. He passed away on February 16, 2009 from metastatic melanoma.

“Ed paid special attention to young people and promoted the interests of women and underserved students,” says Dean Mohammad Noori. “His office was always a place where the new faculty, his co-workers and/or the students would turn to seek advice.”

Dr. Sullivan joined the Civil & Environmental Engineering Department in 1989, teaching transportation engineering classes emphasizing traffic analysis and modeling, evaluation methods and traffic collision modeling. But he was known far beyond Cal Poly.

He taught as a lecturer at Beijing Jiaotong University and a visiting professor at the Universidad Central de Venezuela. Before coming to Cal Poly, Dr. Sullivan worked as a research engineer and professor at UC Berkeley’s Institute of Transportation Studies for 18 years.

Sullivan won numerous awards for his work in transportation engineering, and was also recognized by Cal Poly’s Litton Award for excellence in research and development. He was recently honored by the Transportation Research Board in Washington D.C. with the 2008 Frank M. Masters Transportation Engineering Award for his innovative research on road pricing.

“Ed’s departure is indeed a tragic loss to all of us who knew him,” Noori said. “Although we have lost his physical presence, we did not lose him as a role model in our lives.”
How do Cal Poly engineering students celebrate the discipline they love so much? They throw a week-long party in February.

“National Engineers Week (N.E.W.) gives students a break from heavy course loads as well as an opportunity to discuss current industry issues and reach out to the community,” explains Dylan Pavelko, Engineering Student Council’s (ESC) N.E.W. Commissioner.

N.E.W. outreach efforts include Fourth Grade Days, organized by the Society of Women Engineers (SWE). “Our mission is to show children how they can apply math and science in exciting ways,” says Lacey Jones, SWE’s Career Guidance Director. This year, SWE volunteers visited 13 local elementary schools and helped the youngsters build toothpick bridges, explore the relationship between engineering and science, and discuss engineering structures we see in every day life.


At the seminar, Dr. Yarrow Nelson talked about his bioremediation project that is helping decontaminate ground water supplies at the Guadalupe Dunes. Engineers Without Borders project manager Justin Reynolds spoke about EWB’s efforts to provide basic sanitation and clean water to a remote community in the northern hills of Thailand, and Casey Kelleher presented the Polytech Waterbag, an ingenious portable water purifier designed and developed by Cal Poly students for use in disaster relief zones.

True to Cal Poly’s hands-on style, Engineering Issues concluded with an impromptu water filtration activity. Attendees divided into three teams and using basic supplies, made their best attempt to filter water.

Another N.E.W. event that gave students the chance to show off their knowledge was the Egg Drop.

One of the two winners, James Pavis, used aeronautical engineering concepts to win the competition: “I streamlined the body so it was aerodynamic. I put control fins on so it was pointed in the right direction, and I built a crude structure of straws to carry the blunt of the impact and paper to act as a skin and distribute the load equally to other parts of the structure,” he says.

With a Wii Tournament, free bowling and pizza, Ultimate Frisbee competition, club faire and improv comedy show. N.E.W. added up to a week that connected students outside of the classroom and reminded them that engineering is serious, exciting, and even fun.
A CSU first: Cal Poly to offer a master’s degree in Biomedical Engineering

The California State University’s first Master of Science degree in Biomedical Engineering will be awarded to as many as 10 graduates at Cal Poly this June.

Recently approved by CSU Chancellor Charles Reed, the degree builds upon the university’s biomedical engineering program, which was established in 2005. The popular and rapidly growing major was developed in response to industry growth in the production of stents, MEMS, tissue engineering, and other medical products.

“Since 2005, we have added eight professors with expertise in electro-physiology, tissue engineering, micro- and nano-electrical mechanical systems, micro-fluidics, bone mechanics, neo-vascularization, and physiology,” states Dr. Lanny Griffin, chair of the Biomedical & General Engineering Department.

“This well-rounded faculty has developed robust curricular offerings in bioinstrumentation, biomechanics, biomaterials, systems physiology, clinical engineering and rehabilitation engineering. In addition, the program has had the strong support of industry partners, including St. Jude Medical, Abbot Vascular, Advanced Bionics, Edwards Life Sciences, and Boston Scientific,” explains Griffin.

“These two factors have enabled us to offer the advanced degree which has grown out of our existing specialization in Biomedical Engineering.”

Unique in the CSU, the Cal Poly Biomedical M.S. degree program has an emphasis on the design and development of medical devices. The majority of degree candidates plan to enter the medical device industry, while several will go on to medical and Ph.D. degree programs.

“We see the approval of the master’s degree as affirmation of the program we’ve built and the official stamp of approval for us to take the next step forward,” says Griffin.
Students vote to invest in the best

Faced with deficits, budget cuts, and the prospect of reducing class offerings and increasing class size, among other consequences, Cal Poly administration earlier this year proposed an increase in student fees—and asked for the blessing of students.

In two days of voting on March 11-12, 78 percent of the 8,998 votes cast were in favor of the proposed series of increases in the College Based Fees. In all, more than 47 percent of the student body cast their ballots in the advisory vote.

“We are gratified by this endorsement from Cal Poly Engineering majors as well as from students throughout the university,” says Engineering Dean Mohammad Noori. “This vote means that our students care deeply about sustaining Cal Poly’s excellence, and that they’re willing to sacrifice in order to invest in their degrees.”

On April 1, Cal Poly President Warren J. Baker announced that at the request of the California State University’s Chancellor Charles B. Reed, he will wait on the decision to implement the fee increase until there is more clarity on the state budget and its impact on the CSU. “We would be remiss to make a decision until we know how Cal Poly’s 2009-10 operating budget might be affected,” he said.

First enacted in 2002, the College Based Fees represent the only fees in the CSU system that go directly to the college or department of the student paying the fee.

If approved, the fee increase will be effective Fall 2009 with an initial raise of $100 more per quarter, bringing the fees to $362. In fall of 2010, the fee will increase by another $100 per quarter and in fall 2011 there will be an additional $100 per quarter increase.

By the third year of implementation, the new fees would help narrow the gap in funding brought on by the state budget crisis. Although private support from donors and alumni will still be needed to fund facilities and technology, student projects, faculty research, and other areas that contribute to Cal Poly’s standing as a national leader in engineering education, the approved fees would help keep many college programs in place and ensure that students graduate on time.

Northrop Grumman hopes to inspire CENG students with gift of unmanned helicopter

Cal Poly Engineering received a special donation on April 2 from Northrop Grumman: an unmanned Yamaha RMAX™ Helicopter.

In presenting the helicopter, Frank Flores, vice president of Engineering and Programs in Northrop Grumman’s Strike and Surveillance Systems Division, said, “Northrop Grumman and Cal Poly share a passion to develop the next generation of technical leaders for our nation. We want this donation to inspire students.”

Cal Poly is one of only three universities in the nation to receive RMAX™ Helicopters from Northrop Grumman, which will be used for multidisciplinary robotics research, such as the development of autonomous control algorithms.

A mural for the MATE department

Materials Engineering Chair Kathy Chen and art senior Hannah Chatham pose in front of Chatham’s senior project, a painted mural in Lab Room 203.

Ryan Malherbe (AERO), right, and Nick Camacho (IME) wheel the RMAX helicopter into its new home in the ATL.
Cal Poly SWE sets the gold standard

Society of Women Engineers named nation’s top chapter

Cal Poly’s Society of Women Engineers won eight awards at this year’s SWE National Convention, including the Gold Award for Outstanding Large Collegiate Section.

Recent graduate Kate Van Dellen (AERO ’08) and electrical engineering graduate student Jessica Kiefer were named as the nation’s Outstanding Undergraduate Member and Outstanding Graduate Member, respectively.

The Gold Award was a redeeming victory for Cal Poly SWE, whose five-year winning streak was disrupted when they took third last year. The award is granted to SWE chapters with outstanding leadership, outreach and membership.

“Cal Poly SWE has one of the best programs in the nation with strong members and encouraging mentors,” said Van Dellen, former president of the Cal Poly chapter.

Cal Poly won second place in the national Team Tech competition for the redesign of a surgical system for Stryker Endoscopy. The team’s system will be used in arthroscopic surgery, reducing surgery time and increasing ease of use for surgeons.

Including the Gold Award, Team Tech and Outstanding Member awards, Cal Poly SWE won five team and three individual awards. The other awards are:

- Boeing Multicultural Program Award;
- Membership Upgrade / Transition Award;
- Third place Print Newsletter; and
- First place Collegiate Poster Competition, Emily Hakun.

“We could not be more proud of Cal Poly SWE,” said engineering dean Mohammad Noori. “Year after year they prove their competitiveness. I must also mention Kate and Jessica: we are privileged and gratified to be able to claim the two topmost SWE students in the nation. Cal Poly SWE truly represents the national gold standard for this prestigious organization.”

Cal Poly’s Society of Hispanic Professional Engineers wins four national awards

At this year’s Society of National Hispanic Professional Engineers (SHPE) National Conference, Cal Poly SHPE earned first and second place in the design competition, while also winning awards for Outstanding Membership and Outstanding Chapter of the Year for Region 1.

The first place design team worked on a project called StîrTech. It is a self-sustainable, renewable energy source that could help bring civilization to the moon. Second place went to a different team of Cal Poly students with their project, Lunar Emergency Protective Shelter (LEPS). LEPS provides immediate and temporary protection in the case of hazardous conditions on the moon.

More than 3,000 students from around the country attended the national conference in Phoenix, AZ, including 77 Cal Poly SHPE members. At the closing banquet SHPE organizers announced that this was the largest gathering of Hispanic engineers in the history of the United States.
Multidisciplinary team power leads to national contest win

What do you get when you team Cal Poly civil engineering students with Cal Poly architectural engineering majors? A structure that stands up to the test—in this case, a national seismic design competition hosted through the Earthquake Engineering Research Institute (EERI).

“Mustang Tower” took first place in the mid-February contest held in Salt Lake, Utah.

Team members included civil engineering students Neda Saeedy, Robert Thompson, Jeff Stallman, Keith Robertson, Steven Wolfe and Renee Morales; the “arch-ies” were Alan Tonissen, Eduardo Lopez and Joseph Thompson.

The team designed the five-foot tall multi-story wood “office building” based on seismic analysis, or the computer generated response of the amount of movement the building would endure during an earthquake.

During the competition, the Tower had to literally “stand up” to simulations of the devastating El Centro, Northridge and Coby earthquakes on a shake table.

Teams from 18 universities competed in the 2009 event, which annually coincides with the EERI’s national convention.

CPE freshman receives Verizon Wireless Hispanic Scholarship

Computer Engineering Freshman Javier Mendez is furthering a personal and family dream. The son of migrant farm workers who endured hardships and were unable to finish their primary education, Javier said, “I knew I did not want to throw away what my parents had endured. Instead I wanted to prove to them that, by graduating from college, every challenge they faced and valiantly fought for me was worth it.”

Mendez was recently honored for his academic excellence by Verizon Wireless and the Hispanic Scholarship Fund (HSF) with a $2,500 scholarship.

“We’re grateful to Verizon Wireless for their commitment to education and their continued support of our Hispanic youth,” said Gary Jimenez, HSF’s Vice President for the Southern California Region. “We are very proud of students like Javier who can personally attest to how these awards contribute to their success.”

Since 2003, Verizon Wireless has contributed nearly $600,000 to the Hispanic Scholarship Fund, which is the nation’s leading organization supporting Hispanic higher education.

IMAPS puts Cal Poly on the map

The Cal Poly International Microelectronics And Packaging Society (IMAPS) student chapter drew international notice with a 1st Place award in the student chapter booth competition at the 41st International Symposium on Microelectronics held in Providence, RI.

Materials engineering undergrad Nic Vickers, president, industrial engineering graduate student Michael Krist, vice-president, and faculty advisor Dr. John Pan staffed the booth which consisted of posters on student research projects, outreach and chapter activities, and microelectronics facilities at Cal Poly.

Industrial & manufacturing engineering grad student Michael Krist, left, IME professor John Pan and materials engineering undergrad Nic Vickers celebrated a first place finish in the student chapter booth competition at the International Symposium on Microelectronics.
Cal Poly SWE honors five women engineers

Five members of the Cal Poly Society of Women Engineers (SWE) were honored as Outstanding Women in Engineering and Technology at SWE’s annual Evening With Industry banquet:

Lisa Aukeman, an architectural engineering senior, is the vice president of the Cal Poly Structural Engineers Association of California (SEAOC) club and has also served as vice president of Students in Free Enterprises (SIFE), an organization that focuses on assisting young entrepreneurs.

Jessica Kiefer, an electrical engineering graduate student, has served in numerous SWE leadership positions, including president. She also developed a 30-page instruction booklet for elementary schools to help young students learn about electrical engineering.

Katie Robinson, a biomedical engineering senior, is president of the Biomedical Engineering Society and chair of her department’s Fee Allocation Committee. She volunteers at Beyond Shelter, which sponsors art projects for children at homeless shelters.

Sheila Shideh, a civil engineering senior, organized National Engineers Week activities while serving on the Engineering Student Council and is a founding member of the Dean’s Student Advisory Council. She is also Social Director for the Cal Poly Society of Civil Engineers and a member of the Cal Poly Persian Club.

Nicole Stromness, a civil engineering senior, helped lead the multi-million dollar campaigns to expand the Cal Poly Recreation Center and refurbish the University Union as chair of the University Union Advisory Board. She has also participated in the Engineering Student Council and the Campus Fee Advisory Council.

MEP makes its mark

Members of the Cal Poly Multicultural Engineering Program (MEP) who received scholarships for the 2008-09 university year were honored at a February banquet in the ATL. Above: Society of Black Engineers & Scientists vice president Justin Harris (BME), left, received a scholarship from Hewlett Packard’s Ken Hako.

The five members of Cal Poly SWE honored as Outstanding Women in Engineering & Technology for 2009 were, from left: Lisa Aukeman (ARCHE), Sheila Shideh (CE/ENVE), Jessica Kiefer (EE), Nicole Stromness (CE/ENVE) and Katie Robinson (BME).
Stormy weather: Testing treatment of runoff water

With an estimated 60 percent of water pollution produced by the oil, solids and bacteria of surface runoff, the treatment of storm water has become critical for environmental engineers. Treating surface runoff is the focus of a project sponsored by United Storm Water, Inc. involving CE/ENVE grad students Alex Bowerman and Ryan MacLure, and Ben Burgoo of the Cal Poly Irrigation Training and Research Center (ITRC).

“Most people wonder why Pismo Beach is closed to surfers after a big storm,” Bowerman said, “but it’s because of the high bacteria levels from surface runoff. This project is testing storm drain filters, which do a pretty good job of removing solids and traces of oil but have mixed results with removing bacteria. We’re looking for the best biocidal chemical for the filters.”

Faculty advisor Yarrow Nelson said the project is both timely and important. “We do a pretty good job of treating waste water from industry and homes, but storm runoff goes untreated right into the ocean,” Nelson said. “Development of an effective storm filter would make a big difference.”

EE’s new chamber

Electrical Engineering student Chunrong Huang has spent most of the year caged up — working on the EE Department’s new EMC Chamber (or Faraday Cage) for testing radio frequency and reception. For details: http://www.ee.calpoly.edu/projects/anechoic_chamber
BME students look to the humble leech for secrets of the neural system

You don’t expect to find leeches in an engineering lab, but these humble creatures are at the center of cutting-edge neural-electronic research being conducted by Dr. Robert Szlak and a group of biomedical engineering students.

The team is working on a project to advance the simulation, modeling and experimental application of biological neural systems and integrated neural-electronic systems.

The project is funded by a $50,000 grant from the California Central Coast Research Partnership (C3RP). With this money, Szlak will develop a model to look at the chemical behavior of the neuromuscular junction when there is a neural toxin present. Because of the increasing prevalence of chemical warfare agents like nerve gas, it is becoming difficult to detect these agents and assess the threat. Szlak’s research will work towards a real-time detection system, which could better determine the theoretical impact of neural-toxin levels on an organism.

Two experimental procedures using the neuromuscular junction of leeches have been developed to validate the proposed model. Graduate and undergraduate students have created and implemented challenging leech dissection protocols for the project.

One of the participants, Chandra Miller, a junior electrical engineering major, plans on getting her master’s in Biomedical Engineering at Cal Poly. She says, “When I’m done with school, I want to design various internal medical devices and to apply my electrical engineering undergrad work to the medical field.” This project gives her a chance to utilize both skill sets. Miller will take part in the electrophysiology portion of the neurotoxin experiment. This involves putting an electrical current through the motor neuron cell in the leech ganglion and muscle cells in order to artificially stimulate cells and record responses.
CPE students make Wii work for everyone

Nintendo’s Wii is a unique video game system because of the wireless controller which detects movement, enabling players to golf, bowl, race cars and more, all from their living room. Computer engineering students Steven Pungdumri, Bunvandy Taing and Matthew Hall, have collaborated with biomedical engineering student Mallory Embree to adapt this technology for quadriplegics, calling it “Wii-B-Fit.”

Pungdumri was very interested in working on a project with an interdisciplinary team because “it allows us to solve a broader issue that a team consisting of solely computer engineers may not be able to address as adequately.” He says Embree’s background in biomedical engineering has helped the group with issues of accessibility and ergonomics.

The Wii-B-Fit team goal is to enable persons with physical disabilities to play the game system with anyone else. Ideally, clients with any disability will be able to use their product. The team hopes to make most Wii games accessible, but will produce at least two game titles for quadriplegics.

Taing was drawn to this project for the opportunity to connect with and help people. “Using the money supplied to us for research that will help disabled people is a good way to give back to the community,” he says.

Wii-B-Fit is in the planning and prototype stages this quarter, Pungdumri, Taing, Hall and Embree will continue working on this project through spring.

Cal Poly students help preserve the engineering heritage of Bavaria

In 1842, Johann Mannhardt built the clock that would chime the hours from the tower of the Frauenkirche Church in Munich, Germany, for 120 years.

When it came time to replace the clock, it was removed to the basement of the Deutsches Museum, the equivalent of the Smithsonian in Washington, D.C., where a design team at the Munich University of Applied Science had the opportunity to discover its groundbreaking engineering secrets. The team was lead by guest professor Dr. Frank Owen from Cal Poly’s Mechanical Engineering Department.

“Along with railroads and steam engines, clockworks were a cornerstone of the beginning of modern engineering,” says Owen. “And this particular clock was revolutionary because Mannhardt figured out how to make the clock’s components with much better precision than had been possible before then.”

Owen began the Mannhardt Clock project with an international team of students, who worked with a master clockmaker, Hungarian Thomas Rebényi. “We learned about old mechanical stuff and Thomas learned about the magic of modern solid-modeling software,” says Owen. “This was a difficult task; it resembled a gigantic reverse engineering project, where one takes an existing machine and tries to re-engine its design.”

When Owen came back to Cal Poly, he brought the project with him and four ME students took it up as a capstone design project: Jesse Chestnutt-Linn, Jared Walton, Eric Roesler, and Steffen Hauser. Their goal was twofold: first, to document the technological history of the clock—scholarship that will become part of the collection of the prestigious Deutsches Museum for use by technology historians—and also to build and animate a working computer model of the clock for museum visitors.

Walton, Roesler and Hauser were fortunate enough to spend a month in Germany, donating their expertise to the Deutsches Museum to work on the project. Hauser says, “It’s amazing to go overseas and work with international partners—science is truly an international language.”

“These students have banked a lot of goodwill in Germany,” notes Owen. “Cal Poly can be proud of role we’ve play in supporting a piece of historical technology.”

The clock on the Frauenkirche Church during the 1930s.

Cal Poly engineering students worked on rebuilding the 120-year-old clock in the tower of the Frauenkirche Church in Munich, Germany.
Biomedical Engineering’s Meditec consortium connects Cal Poly students with top companies

Meditec is one reason Cal Poly’s Biomedical Engineering (BMED) is such a “hot” major. The consortium connects BMED students with projects generated by top biomedical companies. As a result, students might find themselves researching new product concepts, developing surgical tools or improving the process of device manufacturing.

Meditec partners include Edwards Lifesciences, St. Jude Medical, Advanced Bionics and Abbott Vascular, each of which has donated $50,000 for the privilege of submitting project abstracts. BMED professors pair the projects with students according to students’ interests and skill sets.

Dr. Kristen Cardinal, BMED professor and Meditec advisor, says that when students work for actual clients, they learn about the companies and how they operate in addition to having the chance to hone their technical skills. “Cal Poly students love projects,” she states; “and to give students a project that’s real and that a company needs right now, brings the experience to a whole other level.”

All Meditec projects are proprietary and students are required to sign a non-disclosure agreements. “These agreements make it a good experience for students who want to go into the industry because it means they are sending us good projects,” Cardinal says. Students are assisted by both a company technical advisor and a Cal Poly faculty advisor. Cardinal is the faculty contact for Edwards Lifesciences and Abbott Vascular, and Dr. Lily Laiho coordinates students working with St. Jude and Advanced Bionics.

Currently, Edwards Lifesciences projects focus on making the manufacture of heart valves more efficient and productive. Abbott Vascular, meanwhile, is interested in the research and development of new materials and new ways to make products for the cardiovascular system.

Although Meditec concentrates on the biomedical industry, the consortium welcomes students from all majors, and many of the projects require multidisciplinary teams. In addition, companies assign lower-division as well as senior and thesis projects.

Meditec models a win-win industry-academia relationship. Students apply the skills they are learning in the classroom to a real life situation, and they undertake cutting-edge applied research for industry leaders. What do the companies get out of the deal? Low-cost R&D and access to Cal Poly’s considerable student brainpower and resources.

Sempla Energy, CENG partner to nurture renewable energy

Cal Poly’s Electric Power Institute (EPI) has founded a Sustainable Energy Lab thanks to a $66,400 grant from Sempla Energy, the parent company of San Diego Gas and Electric (SDG&E).

“Cal Poly is at the top of a short list of California colleges with a comprehensive undergraduate power program,” says electrical engineering professor Ahmad Nafisi, EPI director. “The program plus the quality of our power graduates and has engaged the interest of SDG&E in becoming more involved with Cal Poly.”

EE professors Ali Shaban and Taufik, along with alumnus Scott Furgerson (ME '80), director of Electric Regional Construction & Operation for SDG&E, helped facilitate the founding of the lab.
**History Detectives do sleuthing at Cal Poly**

*PBS series tests landing gear part to see if it fell from Amelia Earhart’s plane in Hawaii*

Cal Poly has a unique history with famed aviator Amelia Earhart and that connection grew when the PBS series “History Detectives” landed on campus to test the remains of what might be one of the planes Earhart flew.

The show, which employs modern technology in an attempt to solve some of history’s greatest mysteries, is investigating Earhart’s disappearance in 1937 and trying to connect a metal landing gear part found in Hawaii with one of her test aircraft, materials engineering department chair Kathy Chen said.

“The show will be about if this piece of the plane could really be the same one that Amelia Earhart flew,” she said. “The metal will be tested to see if it is a piece of the type of aircraft Earhart flew. We’re looking for copper, magnesium elements in the aluminum, and we have that capability in one of our labs using a scanning electron microscope.

“We can tell whether this material is what it should be, but if it’s from the plane Amelia Earhart flew they’re going to try to figure that out on the show.”

Earhart touched down on the Cal Poly campus in 1936 when she brought her Lockheed Electra 10-E airplane for repairs.

“Cal Poly is one of the first colleges at the time to design and build our own aircraft,” library assistant Catherine Trujillo said. “She needed to get some repairs done on her plane, and this was the closest place to come.”

Earhart’s goal was to travel more than 34,000 miles around the world in her single-engine plane, and in July 1937 she set out for Howland Island on a 7,000 mile flight only to disappear.

The piece of aircraft being tested at Cal Poly is not from the same plane Earhart disappeared in, but it will reveal what the piece of aircraft is, University Archives Director Ken Kenyon said.

**CubeSat “CP-6” is ready for launch**

Even while Cal Poly’s very own satellites, CP-3 and CP-4, orbit at 700 km above the earth, work on the “next generation” CubeSat has been completed.

Already delivered to NASA-Wallops Flight Facility in Virginia for launch is CP-6, the newest student-designed and built pico-satellite.

“CP-3 and 4 have been in orbit for well over a year, and while they may remain in orbit for as long as 25 to 30 years because of their high orbit, their communications systems are becoming more unreliable,” says Austin Williams, an electrical engineering undergraduate and one of the leads on the CP-6 project.

The new satellite—scheduled to launch in June 2009 on a Minotaur I rocket—sports an improved “com” system, which will hopefully relay data back to Cal Poly’s ground station for at least two years.

PolySat program team member Justin Foley, a physics undergraduate, reported that at least seven students have worked on CP-6. “We’ve got aerospace majors, computer engineering majors, mechanical engineers—I’ve gotten a lot out of working with other disciplines on this project.”

In addition to CP-6, the Minotaur rocket will launch two Cal Poly-developed CubeSat deployers, known as P-PODs: one will carry a NASA satellite and the other will carry CP-6 along with CubeSats from the Aerospace Corporation and Hawk Institute for Space Sciences.

Cal Poly CubeSat team members Justin Foley (AERO), left, and Austin Williams (EE) are looking ahead to a June launch of CP-6 from NASA-Wallops in Virginia.
Faculty Notes

■ Multidisciplinary

Charles Birdsong (ME), Lynne Slivovsky (EE/CPE), and Brian Self (ME) along with mechanical engineering student Chris Gearhart and EE master’s student Alex Herold coauthored “Use of Ultrasonic Sensors in the Development of an Electronic Travel Aid.” Birdsong delivered the paper at the Institute of Electrical and Electronics Engineers (IEEE) Sensors Application Symposium in New Orleans.

Chris Clark (CSC) and Pat Fidopiastis (Biological Sciences) were awarded a C3RP grant for a project involving “Tracking Shallow Water Squid via an Underwater Robot System.”

Chris Clark (CSC), Paul Choboter (Math), and Mark Molino (Biological Sciences) have undertaken a project on “Efficient Assimilation of AUV Data in a High-Resolution Coastal Ocean Model” under a C3RP grant.

Chris Clark (CSC) and Mark Molino (Biological Sciences) have received a Partnerships in Higher Education Norway - North America grant to develop “technology for marine monitoring and ocean observation.”


Jianbiao Pan (IME), Richard Savage (MATE), and Brian Wright (B.S. EE, M.S. ENGR ’07) published “Designing and Manufacturing Microelectronic Packages for High-Power Light-Emitting Diodes” in Proceedings of the 40th International Symposium on Microelectronics: San Jose, CA.

■ Aerospace Engineering

Dianne DeTurris, co-chair, co-authored “Methane/GOX Air Augmented Rocket Plume Testing,” which she presented at the American Institute of Aeronautics and Astronautics (AIAA) Aerospace Sciences Meeting in Orlando, FL.

David Marshall had three papers presented at AIAA’s Aerospace Sciences Meeting. “Using CFD as a Design Tool on New Innovative Airliner Configurations” (AIAA-2009-0045) was co-authored with AERO graduate students Bryan Blessing and John Pham. “Propulsion System Modeling and Takeoff Distance Calculations for a Powered-Lift Aircraft With Circulation-Control Wing Aerodynamics” (AIAA-2009-1258) was co-authored with AERO lecturer Mark Water and AERO undergraduate Greg McKenzie.

Grad student Kevin Lane co-authored “A Surface Parameterization Method for Airfoil Optimization and High Lift 2D Geometries Utilizing the CST Methodology” (AIAA-2009-1461).

Rob McDonald gave invited presentations at Northrop Grumman Integrated Systems in El Segundo, CA, and at the University of Texas Research Symposium in Austin, TX. His talks included “MDO – Uncertainty and the Aircraft Sizing Problem,” “Error Allocation in Complex Systems Design; A Fidelity Trade Environment,” and “Multidisciplinary Design and Optimization (MDO), Natural Evolution of that Other Engineering Activity.”

He completed work on the first year of his three-year, $3M NASA Research Announcement and received a $50,000 grant augmentation. To date, McDonald’s research has resulted in the development of a commercial software application by one of the contract partners and also led to significant improvements to Vehicle SketchPad (VSP), an aircraft design tool. In addition, six of his Cal Poly students received funding to conduct research of interest to NASA.

McDonald attended conferences and meetings sponsored by Aerospace Sciences, AIAA, NASA, and the Personal Aircraft Design Academy. He accompanied his students on trips to Boeing Phantom Works and Lockheed Martin Skunk Works for aircraft design reviews.

McDonald co-authored “A User Friendly Interface for Gaussian Process Metamodeling” with AERO graduate student Colin Baukol and senior Chaz Morantz, and “Underpowered Aircraft — Performance and Operational Possibilities” with undergraduate Andrew Ezzard. Both papers were presented at the 47th AIAA Aerospace Sciences Meeting and Exhibit in Orlando, FL.

Michael Cirovic became a member of the Cal Poly Electrical Engineering teaching faculty in 1968.

EE’s Mike Cirovic honored for innovation in education

In recognition of his more than 40 years of teaching, Professor Emeritus Michael Cirovic received the Olympus Lifetime of Educational Innovation Award. The national program, executed by Olympus in partnership with the National Collegiate Inventors and Innovators Alliance (NCIIA), recognizes individuals who have fostered or demonstrated innovative thinking in education.

The electrical engineering professor joined Cal Poly’s faculty in 1968. He has written five textbooks and co-authored a sixth. His contributions to engineering education includes the Design, Build and Test electronics lab in which students design subsystems, build them, and then create trial procedures to test operation. He also co-founded Innovation Quest, a nonprofit corporation that provides scholarships based on student ideas and projects.

Cirovic holds a BS and MS in Electrical Engineering from New York University. He served as the EE Department Chair from 2001 to 2007.

■ Civil & Environmental Engineering

Rakesh Goel, chair, presented “Evaluation of Current Nonlinear Static Procedures for Reinforced Concrete Buildings” and “Analysis of Ordinary Bridges crossing fault rupture zones” at the 14th World Conference on Earthquake Engineering held in Beijing, China. He co-chaired a session on “Structural Engineering Analysis” at the conference. He also co-authored “Role of shear keys...
in seismic behavior of bridges crossing fault-rupture zones" published in the *Journal of Bridge Engineering* (Vol. 13, No. 4, pp 398-408). He completed his tenure as an Associate Editor of the *Journal of Structural Engineering* and has recently been invited to join the Editorial Board of the Earthquake Spectra.


Dan Jansen chaired the session on “Use of Technology with Teaching” and presented “An Overview of Learning Styles and Technology Tools for Teaching” at the American Concrete Institute (ACI) Fall 2008 Convention in St. Louis, MO. He has also been appointed the new chair of ACI Committee 555 Concrete with Recycled Materials.

Robb Moss received research grants from the National Science Foundation (“Full Scale Dynamic Levee Testing,” a $325,000 joint project with UCLA) and the Department of Homeland Security (a $206,000 project on “Risk Analysis of CA Bay Delta Levees”). In addition, C3RP extended his grant for “Collaborative Shaking Table Tests with China.”


Cal Poly CubeSat founder honored by Seed Online

Dr. Jordi Puig-Suari, Cal Poly CubeSat founder and AERO professor, was featured in Seed Online in an installation called “Revolutionary Minds: The Game Changers.” He is pictured (above right) with CubeSat co-founder and Stanford University aeronautics professor Bob Twiggs. Puig-Suari and Twiggs are celebrated by the magazine because, according to SEED, “They are prizing openness over secrecy, access over scarcity, and they are creating a future that will help science fulfill its potential to make all our lives better.”


Computer Science & Software Engineering

Chris Clark published the following papers in the International Journal of Pavement Engineering and Technology, including, “Evaluation of IRI in Cracked Seated and Overlaid Concrete Pavements” and “Evaluation of Fatigue (Alligator) Cracking in the LTPP SPS-6 Experiment” (Vol. 2, No. 1, January 2009).

“Reinforcement Learning of Dynamic Collaborative Driving II: lateral Adaptive Control” (pp. 229 – 24).


Electrical Engineering

Dennis Derickson presented “100 KHz Axial Scan Rate Swept-Wavelength OCT using Sampled Grating Distributed Bragg Reflector Lasers” at the BIOS 2009 conference in San Jose. The paper was co-authored by EE graduate students Shane O’Connor, Michael A. Bernacil, Andrew DeKelaite, and Ben Maher. The paper derived from a project in which the researchers developed a very high speed wavelength tunable laser that is used for optical coherence tomography (OCT). In OCT, an optical beam is to probe features below the skin surface revealing sub-skin-surface structural information.


Jin is working on an international collaboration research project with students and colleagues from Peking University, Beijing, China. As a result of this work, she has co-authored numerous papers, including “Optimization of top polymer gratings to improve GaN LEDs light transmission” published in Chinese Optics Letters (Vol.6, pp. 788-790, 2008); “International engineering research and educational activity on GaN lasers and LEDs” presented at the IAJC-UIME Joint International Conference on Engineering and Technology 2008 in Nashville, TN; and “Light Extraction Improvement of GaN-based Light-emitting Diodes using Patterned Undoped GaN Bottom Reflection Gratings” presented by co-author and EE graduate student Simeon Trieu at the SPIE International Symposium on Integrated Optoelectronic Devices 2009, SPIE Photonics West 2009, in San Jose, CA.

Taufik and co-PI Makbul Anwari from Universiti of Teknologi Malaysia received a $73,400 grant from the Malaysian Ministry of Science Technology and Innovation to study “Power Quality and Performance Study of a Fuel Cell Based Power Electronics System.” This is the second international research collaboration Taufik has had with Professor Anwari.

New CENG faculty

Dale Dolan
Assistant Professor, Electrical Engineering
- Ph.D./M.A.Sc. University of Toronto (Electrical Engineering)
- B.A.Sc. University of Toronto (Electrical Engineering)
- B.Ed. University of Western Ontario (Education)
- B.Sc. University of Western Ontario (Zoology)

Expertise and Interests: Sustainable/renewable energy generation, power systems, electromagnetics, power electronic applications for distributed generation, grid connection impacts of renewable generation, energy policy, sustainable energy project economics, and sustainability of technologies.

Vladimir Prodanov
Assistant Professor, Electrical Engineering
- Ph.D./M.S. State University of New York, Stony Brook (Electrical Engineering)
- B.S. Technical University, Sofia, Bulgaria (Communication Science and Technology)

Research Expertise and Interests: Continuous-time circuits, active filters, integrated circuit design, radio-frequency circuits and systems, low-noise amplifiers, synchronization of electrically-large arrays.

Tina Smilkstein
Assistant Professor, Electrical Engineering/Computer Engineering
- Ph.D./M.S. University of California, Berkeley (Electrical Engineering)
- B.A. Nanzan University, Nagoya, Japan (Business Administration)

Research Expertise and Interests: Analog and digital integrated circuits, clock distribution/clock signal integrity, and healthcare technology including energy scavenging for electronic prosthetics, unobtrusive monitoring of the older and disabled to extend independent living, enabling technologies and sensory prosthetics.

Cal Poly’s David Cantu honored as outstanding MEP director of the year

David Cantu has guided as many as 8,000 students as the director of the College of Engineering’s Multicultural Engineering Program (MEP), which provides an academic support community for educationally disadvantaged students, including many who represent the “first generation” of college attendees in their families.

Seeing students succeed is Cantu’s ultimate reward, but this year he was formally recognized for his contributions at a national conference in Los Angeles for the Association of Multicultural Engineering Program Advocates. There he was presented with the 2008 Outstanding MEP Director award.

Cantu has been the director of MEP since 1985. He explains the importance of the program by asking “In five years, will we have the technological workforce needed to sustain the economy?” “We will,” says Cantu, “if we educate all types of people in order to keep up with advancement and innovation in engineering. MEP can help fill all these seats.” He also says that California’s changing demographics make the program more essential than ever before.

Cantu has three degrees from Cal Poly: a B.S. and M.S. in Biology and a master’s degree in Counseling and Guidance. He started working at on campus in 1980 as an advisor in career services. He then worked for a statewide initiative called MESA, which focuses on pre-college, low-income students interested in math, engineering and science—work he continues in his MEP position.

Helping students help each other is Cantu’s biggest motivator. Only one-third of engineering universities across the country have an MEP program and Cal Poly is lucky to have this tool for community building and to support its multicultural engineering clubs. Cantu’s hope is that the state and Cal Poly provide stable funding and an ongoing commitment to MEP—a reasonable wish from someone who has given 24 years of outstanding service to Cal Poly’s underrepresented students.
Advantage


**Industrial & Manufacturing Engineering**

Tali Freed and Cal Poly were awarded a patent, in collaboration with Tanamura & Antle, on RFID tagging of reusable plastic containers. She and Larry Rinzell led other RFID projects, including successful implementation of RFID for inventory tracking and reporting at the Diablo Canyon PG&E nuclear power plant and development of an RFID Access Control System at PolyGAIT.

Freed, Rinzell, and PolyGAIT researchers Shaun Kelly (CAFS) and Heather Smith (COSAM) received multiple grants from the Horticultural Research Institute to undertake a multi-year study of RFID for nursery plants.

Freed co-authored “RFID Antenna Coverage Optimization” with IME graduate student Bryce Taylor at the Industrial Engineering Research Conference in Vancouver.

During her sabbatical year in Israel, Freed is teaching RFID courses in several universities and industrial organizations, creating academic RFID research labs that work closely with PolyGAIT, and working on several RFID projects in industry.


Pan also co-authored numerous papers published in the Proceedings of the 41st International Symposium on Microelectronics (IMAPS 2008) held in Providence, RI, including the following: “The Effect of Ultrasonic Frequency on Gold Wire Bondability and Reliability” co-authored with ME graduate student Minh-Nhat Le and C.V. Pham; “Drop Impact Dynamic Response Study of JEDEC JESD22-B111 Test Board” co-authored with IE graduate student Michael Krist, Andrew Farris (MS EE’08), and MATE graduate student Nicholas Vickers; “Board Level Failure Analysis of Chip Scale Package Drop Test Assemblies” co-authored with Nicholas Vickers, Andrew Farris, and MATE student Kyle Rauen.

**Materials Engineering**

Kathy Chen, chair, was invited to participate in a workshop at Lawrence Hall of Science at UC Berkeley for the Nanoscale Informal Science Education Network, which brings together educators and museum developers to collaborate on ways to engage a diverse public in nanoscale science, technology, and engineering. She also attended the The Minerals, Metals & Materials Society (TMS) Annual Meeting with 26 Cal Poly MATE students in San Francisco.


**Mechanical Engineering**

Russ Westphal received two research grants from Northrop Grumman. “Boundary Layer Data System for the Aerodynamic Efficiency Improvement Program” ($54,000) involves a Cal Poly team in the development of small, self-contained, robust instruments capable of high altitude in-flight measurement of flows near aerodynamic surfaces. These instruments must be light-weight, fully autonomous, and self-powered. Westphal also has a $20,000 Laminar Flow Technology Development project.

Saeed Niku published Creative Design of Products and Systems (Wiley, 2008). The textbook presents general designs and concepts, and offers a strong cross-disciplinary perspective.
Redwood Technology Consortium names Stratton to be member of the board

The Redwood Technology Consortium has announced that Steve Stratton (ME ’81) has joined the RTC Board of Directors. Stratton joined College of the Redwoods in January 2002 as Manager of Integrated Technology where he provided management of daily operations, and implementation of new data systems. http://www.redwoodtimes.com/ci_110232077/ADID=Search-www.redwoodtimes.com-www.redwoodtimes.com

Alum promotes higher education in science and technology career

MAS Magazine, Bakersfield, CA

When he was in high school, Miguel Cabrera (B.S., Mechanical Engineering, 2006) would help his dad pick grapes in the summertime.” If you aren’t going to college, these fields will always be here for you,” the elder Cabrera told his son. Miguel was the first in his family to go to college. “Graduating from Cal Poly was a huge accomplishment for my family,” he said. Today Cabrera works as a petroleum engineer for Chevron in Elk Hills. He also serves as a role model for young Latinos through his involvement with the South Central Valley Chapter of the Society of Hispanic Professional Engineers (SPHE). “I always tell students I was just like them — I wasn’t a perfect student, but I wanted to do something meaningful with my life,” Cabrera said. http://www.masbakersfield.com/home/ViewPost/82892

Rory Cooper (EE ’85) featured on Cheerios box

In 1980, Rory Cooper suffered a spinal cord injury while serving in the Army. He didn’t let that interfere with his life or education, however. He came to Cal Poly for both his bachelor’s and master’s degrees, wheelchairs in tow.

One of his Cal Poly professors, Mark Hutchensreuther, remembers Rory as being “completely comfortable with himself.” Also, says “Hutch,” “[H]e had three different wheelchairs which he used for different purposes. I believe one of the special chairs was for his favorite sport of wheelchair basketball . . .”

In 1988, Rory competed in the Paralympic Games in Seoul and came home with a bronze. He excelled off the court, too, earning his Ph.D. in electrical and computer engineering with a concentration in bioengineering from University of California at Santa Barbara in 1989.

He is the founding director and VA Senior Research Career Scientist of the VA Pittsburgh Healthcare System (VAPHS) Rehabilitation Research and Development Center of Excellence, co-director of the NSF Quality of Life Technology Engineering Research Center, FISA & Paralyzed Veterans of America (PVA) Chair and Distinguished Professor of the Department of Rehabilitation Science and Technology, and professor of Bioengineering and Mechanical Engineering at the University of Pittsburgh, and a professor in the Departments of Physical Medicine and Rehabilitation and Orthopaedic Surgery at the University of Pittsburgh Medical Center.

His achievements recently earned Rory a spot on a special edition Cheerios cereal box featuring veterans for the 28th National Veterans Wheelchair Games as part of a national campaign organized by VA, VA Canteen Service, and General Mills.

Rory comments that the Cheerios box “is a nice recognition of people with disabilities from a mainstream company. I am happy to be able to help promote a positive image for our wounded, injured and ill veterans.”

Alumni News
AERO alum Jeanne Skrocki is Concertmaster of the Opera Pacific Orchestra

Jeanne Skrocki (AERO ’85) is Concertmaster of the Opera Pacific Orchestra and Assistant Concertmaster of the Pacific Symphony Orchestra. She has also served as concertmaster for the American Ballet Theater, Inland Empire Symphony, Neumark Ensemble and the Mozart Camerata. Ms. Skrocki holds a B.S. degree in Aeronautical Engineering from California Polytechnic State University, San Luis Obispo.

http://www.redlands.edu/jeanne_skrocki.asp

Mobius Microsystems adds Scott Hills as vp of operations

Mobius Microsystems Inc., an innovator in precision timing ICs, has announced the appointment of Scott Hills (EL ’74) as vice president of sales. Hills joins Mobius with over 24 years’ experience in semiconductor sales management, most recently as vice president of worldwide sales at Semicoa, a leading provider of high reliability discrete devices.

http://www.businesswire.com/portal/site/home/permalink/?ndmViewId=news_view&newsId=20090217005413&newsLang=en

Illumina Inc. appoints Bill Bonnar senior vice president of Operations

Illumina, Inc. (NASDAQ:ILMN) has appointed Bill Bonnar as Senior Vice President of Operations. In this newly created role, Bill is responsible for overseeing Illumina’s global manufacturing and supply chain efforts, and will report to Joel McComb, Senior Vice President and General Manager Life Sciences Business.

Bill joins Illumina from KLA-Tencor, a leading semiconductor equipment provider, where he served in several senior operations management positions. He has a wealth of operations, manufacturing and management experience for some of the most complex equipment in the semiconductor industry.

http://www.reuters.com/article/2009/05/01/idUS82835-01-20090502

Pentadyne promotes Claude Kalev to CTO

Pentadyne Power Corporation, the world leader in flywheel energy storage systems, announced that it has promoted Claude Kalev (EL ’94) to the position of Chief Technical Officer. Kalev joined Pentadyne in June 2002 as Vice President, Electrical Engineering. He was a co-founder of Pentadyne when the company was incorporated in 1998.

http://pentadyne.com/site/2008-news/112008.html

Alumna’s high I.Q. earns her genius status

Santa Clarita Valley Signal, CA

Angelica Boggs (B.S., Computer Science, 2000) has recently joined the Greater Los Angeles Area Mensa, a chapter of American Mensa. Mensa, an international organization, is the best known high-IQ society in the world. To become a member, Boggs, 32, had to score in the top 2 percent of the general population. The test can only be taken once in a lifetime. It lasted 45 minutes and included brain puzzles, math problems and memory tests. “The test was pretty difficult,” she said. “I didn’t think that I passed part of it.” Mensa requires IQ scores of around 130.


Alums are engineering a new brew for “Beer Geeks”

SLO New Times

Home brewers John Moule (MATE ’97) and Eric Beaton (MBA Engineering Management ’99) have opened Creekside Brewing Co. in downtown San Luis Obispo. When the duo’s personal brew operations overflowed into their backyards and garages, they decided to go public with the hope of satisfying “a different downtown crowd, not just the typical college kid. We want to deal with people who enjoy the taste of alcohol. We cater to the beer geeks,” Beaton said.


Visalia engineer, Cal Poly alum earns state credential

Visalia Times

Craig Hartman (CE ’05), a principal in the Visalia 4Creeks Inc. office, was certified by the state of California and is now a registered Civil Engineer. Hartman began his career with Quad Knopf in 2004 as a student intern. During his time there, he worked on numerous land projects, water master plans, irrigation delivery and public works projects. He currently focuses on agriculture, energy and environmental projects at 4Creeks.

Read the story in the Visalia Times Delta:

http://www.visaliatimesdelta.com/article/20090204/ROI/902040305

Alum keeps father’s plastics company thriving

San Diego Daily Transcript, CA

When Gerry Krippner (B.S., Mechanical Engineering, 1988) graduated from Cal Poly 25 years ago, he didn’t plan on taking over the family business. But in 1990 that all changed. He spent his first few years at the company designing and engineering products. One day his father handed him a piece of paper and told him to sign it. Without question, Gerry did. When Gerry asked his father what he had just signed, his father replied, “Well, you’re the president now.” As CEO of HK Plastics Inc., Gerry and his two brothers run the company that was founded in 1974 by their father, Horst Krippner.

ENVE Alumni
40th Anniversary Celebration
Saturday, May 23, 2009

Are you an Environmental Engineering graduate from 1968 to 2008? If so, plan to attend a special 40th Anniversary Day on Saturday May 23 at Cal Poly.

For information, see http://ceenve3.civeng.calpoly.edu/cota/40thyear.htm or contact Wendy Martin, wendyenve@yahoo.com, Hal Cota, hcota@calpoly.edu, or Andry Gonzalez at 805-756-2137.

1968 Lab                         2009 Lab

(AC&R alums from 1968-1982, who graduated as ENVE’s will have their reunion on April 25. See http://www.ashrae.calpoly.edu/ for details).

Alumni, connect with PolyLink

PolyLink — www.calpolylink — is the ideal spot for alumni to network. Alumni at all professional levels can use PolyLink to sign up to mentor new grads, receive mentoring, post information about job openings at their companies and post business card information.

Gocong (BME ’06)
Flying high with Eagles

When the 2008 National Football League season began last September, Cal Poly Biomedical Engineering graduate Chris Gocong was close to securing a starting position with the Philadelphia Eagles in only his third year in the league. Call it a career third down at the one-yard line.

When the Eagles’ season finally ended one game short of the Super Bowl in January, the call was easy — “touchdown!”

The 25-year-old strongside linebacker started all 16 of Philadelphia’s regular-season games and all three of their playoff games, a 19-game gauntlet that ended when the Eagles lost to the Arizona Cardinals in the National Football Conference Championship game. Along the way, Gocong recorded 59 tackles, two sacks and a fumble recovery, helping the Eagles to the seventh-best defensive performance in the NFL.

At Cal Poly, Gocong made sure opposing quarterbacks often needed biomedical attention by recording a school-record 23.5 sacks in 2005. That season he also received All-American honors and the Buck Buchanan Award as the best defensive player in Division I-AA. Gocong’s ability to rush the passer — he had 42 sacks in 41 games at Cal Poly — pushed the Eagles to draft him in the third round of the 2006 draft.
## College of Engineering Directory

**College of Engineering**  
http://ceng.calpoly.edu

<table>
<thead>
<tr>
<th>Office/Department</th>
<th>Contact Information</th>
</tr>
</thead>
</table>
| **Dean's Office** | Mohammad Noori, Dean (805) 756-2131 mnoori@calpoly.edu  
Dan Walsh, Associate Dean dwalsh@calpoly.edu  
Stacey Breitenbach, Assistant Dean sbreiten@calpoly.edu |
| **College Advancement** | Donna Aiken, Dir. Alumni & Donor Relations (805) 756-6601 daiken@calpoly.edu |
| **Project Based Learning Institute** | Zahed Sheikholeslami, Director (805) 756-6225 zsheikho@calpoly.edu |
| **College Publications & Communications** | Amy Hewes, Director (805) 756-6402 ahewes@calpoly.edu  
Miles Clark, Web Administrator mmclark@calpoly.edu  
Dennis Steers, Writer & Photographer dsteers@calpoly.edu |
| **Engineering Advising Center** | Stacey Breitenbach, Assistant Dean (805) 756-5476 sbreiten@calpoly.edu  
Teana Fredeen, Outreach Coordinator (805) 756-5476 tfredeen@calpoly.edu |

### Departments

- **Aerospace Engineering**  (805) 756-2562 ddeturri@calpoly.edu  
  Dianne DeTurris, Interim Co-chair  
  Eric Mehiel, Interim Co-chair emehiel@calpoly.edu

- **Biomedical & General Engineering**  (805) 756-6400 lgriffin@calpoly.edu  
  Lanny Griffin, Chair  
  Robert Crockett, GENE Director rcrocket@calpoly.edu

- **Civil/Environmental Engineering**  (805) 756-2947 rgoel@calpoly.edu  
  Rakesh Goel, Chair

- **Computer Engineering**  (805) 756-1229 rgoel@calpoly.edu  
  Jim Harris, Director jharris@calpoly.edu

- **Computer Science**  (805) 756-2824 ivakalis@calpoly.edu  
  Ignatios Vakalis, Chair

- **Electrical Engineering**  (805) 756-2781 amaccarl@calpoly.edu  
  Art MacCarley, Chair

- **Industrial & Manufacturing Engineering**  (805) 756-2341 mwhite@calpoly.edu  
  Don White, Chair

- **Materials Engineering**  (805) 756-2568 kchen@calpoly.edu  
  Kathy Chen, Chair

- **Mechanical Engineering**  (805) 756-1334 adavol@calpoly.edu  
  Andrew Davol, Chair

- **Multicultural Engineering Program**  (805) 756-1433 dcntu@calpoly.edu  
  David Cantu, Director

- **Women's Engineering Program**  (805) 756-2350 krbangs@calpoly.edu  
  Karen Bangs, Director

---

**Come enjoy the Central Coast while you... update your professional skills**

We offer daytime classes filled with the latest information in your field. Come relax on evenings and weekends at the beach you remember, see the new and improved Avila Beach, experience Farmer’s Market and downtown SLO, hike Montana De Oro, kayak in Shell Beach, whale watch off Morro Bay, visit the dunes in Pismo Beach and see the seals in San Simeon.

**BRINGING LEARN BY DOING TO CORPORATE TRAINING FOR ENGINEERS**

Using Cal Poly’s proven “Learn by Doing” approach, the Engineering Summer Academy has courses designed to include a significant hands-on component. Our emphasis is on enhancing skills in areas of interest to the participants.

The Academy consists of two weeks of three-day seminars offered Wednesday through Friday, 9 a.m. to 5 p.m.  
- Session 1 — July 22-24  
- Session 2 — July 29-31  
- Seminar early bird fee: $1,300 ($1,500 after June 1) for each three-day seminar. Please contact:

Dr Zahed Sheikh  
Director, Corporate Relations & Project Based Learning Institute  
805-756-6225 zsheikho@calpoly.edu