

engineeringNews

APRIL 25, 2008 VOL. 78 , NO. 85

RACHEL SHAFER PHOTO



AFTERNOON OF TINKERING

SOLDER IT: Eng. Sci sophomore Jennifer Wong and EECS sophomore Ryan Luecke practice their soldering skills at Tinker Day, a new event for people who like to make things in a casual, low-key environment, sponsored by the Society of Women Engineers. On its inaugural day, participants tinkered with electronics, but projects will vary week by week. Tinker Day takes place every Friday at 2 p.m. in Hesse Hall.

Clean and green

CET hosts clean tech competition and awards researchers a total of \$20,000



INNOVATORS: The first place team accepts its prize from CET director Ikhlaz Sidhu (far left). The team is led by Craig Jacobson (third from left).

Clean tech research took the spotlight on April 8 during the Center for Entrepreneurship and Technology (CET)'s Clean Technology Innovation Prize Competition, held at Barrows Hall. Four teams walked away with a combined \$20,000 in prize money and the coveted attention of venture capitalists and industry executives, who served as judges. The competition seeks to recognize clean technology researchers working on applied projects with commercial potential.

The first place team, led by Lawrence Berkeley National Laboratory researcher Craig Jacobson, is producing low-cost fuel cells destined for developing countries. The \$10 fuel cells will replace inefficient and polluting kerosene lamps and campfires that are now used to light homes lack-

Continued on page 2

POP QUIZ



What are your summer plans?



Nalditya Kusuma, EECS junior

"I'll be interning for the whole summer as a software developer in Oakland."



Shaobo Zhu, MSE sophomore

"I'm trying to find an interesting research project to work on."



Sara Senanian, ME junior

"I'm taking E 190 and EE 100 this summer so I can graduate on time."



Maribel Pabalan, CEE freshman

"I'm going to take sociology and maybe math at my local community college in Yuba City."

Clean and green

Continued from page 1

ing their own electricity. About the size of a short pencil, the cells convert kerosene or other hydrocarbon fuels into electricity that will power an LED light. Homes don't need to be wired. While there are plenty of fuel cells on the market, the lab's version is different because it's so inexpensive and durable. The secret, after 10 years of research, is replacing the cell's expensive and brittle ceramic layer with cheap stainless steel.

"This next-generation technology leapfrogs having to install a whole power infrastructure," says Jacobson. "It will help people who really need it, and that's very motivating. We'll use our prize [\$10,000] as seed money to start a company." He estimates the potential market to be worth as much as \$50 billion.

Judges awarded second place and a \$5,000 prize to researchers who are developing sensors that prefer to float down the river, no life jacket needed. CEE Ph.D. student Andrew Tinka, in conjunction with CEE assistant professor Alexandre Bayen, leads a team working on a fleet of "drifters," GPS-enabled mobile sensors that float through river systems to collect data on pollution, salinity levels and temperature. A bit larger than a can of tennis balls, the sensors are unusual because they are designed to move with the phenomena they're measuring.

The Sacramento-San Joaquin River Delta region is the project's first proving ground, where 10 sensors have already made several river journeys. "There are 1,500 kilometers of rivers and channels in the delta system," Tinka explains. "It's very complicated. But with sensors that move with the water, you have a better chance of understanding not only where agricultural runoff enters the system, but also where it goes and to what degree it contaminates." Other applications include analyzing salt levels in the delta, which provides drinking water to 20 million Californians, and to understand what might happen during a levy breach. Tinka's team will put their prize money toward the project's research costs.

Two teams tied for third place, and each took home \$2,500. Read about all the winners and their projects at the website below.



<http://cet.berkeley.edu/>

SUDOKU

At right is the answer to last issue's puzzle.

4	2	3	1	5	9	7	8	6
5	8	7	6	3	2	4	1	9
9	6	1	4	8	7	2	3	5
1	5	2	8	9	4	6	7	3
6	3	4	2	7	5	8	9	1
7	9	8	3	1	6	5	2	4
8	4	9	5	2	3	1	6	7
3	1	6	7	4	8	9	5	2
2	7	5	9	6	1	3	4	8

Puzzle by websudoku.com

LEED consultants for a day

CEE students discover the finer points of eco-engineering

Here's your assignment: identify how a planned high-rise in Seattle can meet the toughest national standard for green building construction as established by LEED, Leadership in Energy and Environmental Design, guidelines. Sounds straightforward enough; an engineering/construction company might take a month to draft such a proposal. Except you have only 14 hours. And no access to a phone or to e-mail.

Six civil engineering undergraduates tackled this exact assignment in February at the Associated Schools of Construction Student Competition in Sparks, Nevada. Junior Kristen Ray led the team in what she calls "a summer internship packed into one day," where college teams, posing as LEED consultants, competed to deliver the best plan to a panel of industry judges.

To prepare for the challenge, Ray led a fall DeCal class that studied the LEED rating system. But the competing teams didn't receive crucial details, such as building specifications and construction plans, until the morning of the competition.

Despite the hurdles, Cal drafted a 20-page report on time and presented it after staying up all night researching, analyzing and calcu-

lating every requirement (competitors were allowed Internet access). The team found ways to meet LEED certification, such as installing solar panels and insulated windows. Though it didn't place in the top three, the team walked away with a valuable resume builder: expertise in the LEED rating system, a skill that's now in great demand by the construction industry.

Ray plans to organize another team for next year's competition. "Berkeley is a natural place for green building design," she says. "We have the mind power to do well."



PHOTO COURTESY OF KRISTEN RAY

TEAM ECOLOGICAL: Members are, from left, junior Kristen Ray, senior Andrew Ignacio, senior Mike Liu, junior Alex Alshanetsky, junior Jon Buckalew and senior Frank Menjivar. They were advised by CEE professor Bob Bea.



www.ce.berkeley.edu/news/view.php?item=138

< announcements >



Get the complete College calendar at www.coe.berkeley.edu/events.

A send-off for seniors

Congratulations to the class of 2008! You're a graduate of the greatest public university in the country and one of the finest engineering colleges in the world. The College of Engineering invites you to a festive celebration on Monday, May 12, from 5 to 6:30 p.m. in the Betty and Gordon Moore Lobby of Hearst Memorial Mining Building. RSVP by e-mailing Dawn Kramer at bears@berkeley.edu. We wish you much success and happiness and welcome you to the alumni community!

Feed the Bears!

Are you in need of a Finals Week study break? Then stop by the Berkeley Engineering Alumni Relations (BEAR) "Feed the Bears" table on Monday, May 19, from 3:30 to 4:30 p.m. outside Kresge Library at the Bechtel Engineering Center. Grab a free snack and drink! We'll see you there.

Commencement information

Commencement 2008 will be a traditional all-College ceremony held from 8:30 a.m. to 12 p.m. Saturday, May 24, at the Hearst Greek Theatre. Departmental receptions will follow at various locations on campus. Questions? Contact Dawn Kramer, commencement manager, at dkramer@berkeley.edu.

Senior donors wanted

The College's 2008 Senior Gift Campaign, separate from the Cal Senior Class Gift Campaign, raises critical funds that directly impact engineering student programs and activities, including scholarships, research, student societies and much more. All seniors who give \$35 or more will receive a free Berkeley Engineering Alumni license plate frame! Time is running out, so make your donation today at www.coe.berkeley.edu/seniorgift.

< professor minute >

WITH ME PROFESSOR AL PISANO

Pisano is chair of the ME department and holds a joint appointment in EECS. He earned his Ph.D. in ME from Columbia University in 1981. Prior to joining the Berkeley faculty in 1983, he held research positions with Xerox Palo Alto Research Center, Singer Sewing Machines Corporate R&D Center and General Motors Research Labs. His research interests include MEMS for a wide variety of applications, including RF components, power generation, drug delivery, strain sensors, biosensors and disk-drive actuators.

If you had a few extra hours, what would you do?

Rebuild the engine of my 1960 MGA and drive it around. Lose 25 pounds and play tennis eight hours a week. Set up a machine shop in my garage and build new kinds of internal combustion engines. Take my family on a tour around the world. Go to Tiburon and sip margaritas during the sunset. Build a machine that creates more spare time. Go back to riding my sprint bicycle and climb Mt. Tamalpais!

What are you currently reading?

Several books, a few chapters at a time for each. *The Arab Mind*, *The Time Machine*, *The Map that Changed the World*, *The Art of*

Happiness: A Handbook for Living, the MG sports car repair manual and *Mr. Boston: Official Bartender's and Party Guide*.

What should students do to ensure a successful career?

Develop a true love and passion for engineering. An academic record gets you into the room for the job interview, but a "fire in the belly" is what gets you the job and the respect of your peers and manager. And it gets you to the finish line in all difficult engineering tasks.

If you would like us to feature your favorite professor, please e-mail his or her name to engnews@coe.berkeley.edu.



What first inspired you to go into engineering?

When I was a young boy, my father ran a bulldozer and a steam shovel, and he brought me to work frequently. I fell in love with large earthmoving equipment and decided that mechanical engineering was the route to take to be able to design and build it. Later in my academic studies I discovered "mechanical engineering science" and got on the research track.

< of note >

Last tango in Berkeley

BioE senior closes out college dancing career

Slow-slow-quick-quick. When most of us are daydreaming about the steps we'll take toward lunch, BioE senior David Shis is going over the steps to his fox-trot.

"Dancing is a really fun release and a good break from academics," he says. "I just like to move."

The 21-year-old, who graduates in May, is a member of the UC Berkeley Ballroom Dancers team. He joined the club, founded in 1957, as a freshman after taking a free Latin dance lesson they offered. On April 26, he'll compete with the team for the last time, at the Cardinal Classic, hosted at Stanford.

There, Shis and his partner, L&S senior Stephanie Yang, will do what they do best: dance. The duo competes in the Top Tier, or championship level; they will perform 10 dances in all, five "standards"—waltz, tango, Viennese waltz, fox-trot and quick-step—and five "Latin" dances—cha-cha, samba, rumba, paso doble and jive. They consistently place in the top three.

"It's a fitting ending," Shis says. "I started out as a beginner and I never imagined I'd be dancing at this level. Now I'm even teaching an intermediate class. I guess after putting in 18 hours per week I'd better be somewhere."

That's right, 18 hours per week. Basically a part-time job. Not to mention at least three competitions each semester, including the USA DanceSport National Championships, and social outings with the team. But juggling school and dance hasn't been as easy as 1-2-3.

"It's been really challenging keeping up with schoolwork and

dance," says Shis, who's from Irvine. "But I'd strongly recommend it. I found something to let loose and have fun in a good, social, physical way. The team was like another family."

Shis even says his engineer's mind helps him with his moves. "Ballroom dancing is actually very analytic. You have to memorize steps. There's a lot of thinking, self-discovery and refinement. Engineering is also a constant drive to perfection."

So, will our very own Fred (or should I say Bear) Astaire hang up his shoes once he graduates? Not. Shis plans to stay in the Bay Area, look for a biotech job and pursue as many social ballroom opportunities as possible. He may even try to find a studio and, the hardest task of all, a partner. Most advanced dancers already have one.

For now, he's focused on the upcoming competition, and on one move in particular: the pesky *fall-away slip pivot*. "Whenever we get to the pivot part, we have trouble getting around each other and moving out of it in a balanced way," Shis says. "And our coaches are always telling us we need to sway more."

The 70-member strong, student-run Berkeley Ballroom Dancers group provides classes, practices and events for dancers of all levels.

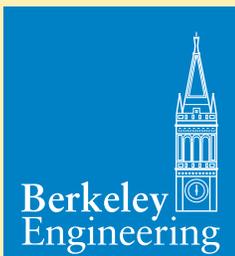
—By Megan Mansell Williams



Berkeley's chapter of Eta Kappa Nu (HKN), the EE honor society, won a 2006–2007 Outstanding

Chapter Award. The award recognizes chapters for excellence in their activities. Cal's chapter offers everything from academic services to evenings of dim sum. Officers held a retreat at Lake Tahoe earlier this year; pictured, from left, are senior **Johnny Tran**, sophomore **Jerry Zhang** and junior **Nir Ackner**.

engineeringNews



University of California
Engineering News
312 McLaughlin Hall
Berkeley, California 94720-1704
Phone: 510 642.5857
Fax: 510 643.8882

engnews@coe.berkeley.edu

www.coe.berkeley.edu/engnews/index.html

Published biweekly on Fridays during the academic year by the Engineering Marketing and Communications Office, College of Engineering, University of California, Berkeley.

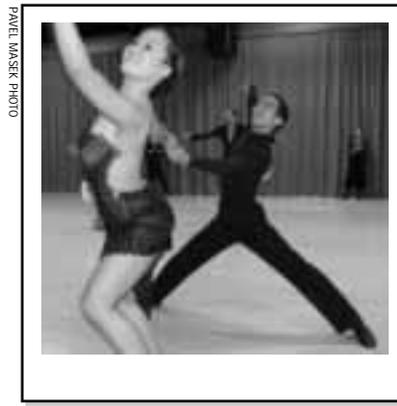
Copy deadline is 4:00 p.m. on the Monday preceding publication.

Rachel Shafer
managing editor and writer

Patti Meagher
copy editor

S. Shankar Sastry
dean

Karen Rhodes
executive director, marketing and communications



LET'S DANCE: David Shis and Stephanie Yang danced the rumba last month at the NorCal USA Dance "Spring Fling," held at Oakland's Just Dance Ballroom.

<http://ucbd.org/>

