

engineeringNews

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PHOTO COURTESY OF TBP



THE AXE IS BACK

TRADITION: For many years, the Cal and Stanford chapters of Tau Beta Pi, the engineering honor society, have played each other in a game of touch football on the day of the actual Big Game. This year's "Little" Big Game took place at Cal on November 22. "Stanford managed to get about eight people to come out, and they were all really nice, so it was a pretty friendly game," reports chapter president Christina Sedighi (center). "Honestly, we stopped keeping track of the score at some point and just mutually agreed to call it a game — and so now the axe is back in our possession!"

Cal sweeps national competitions



PHOTO COURTESY OF HES

Q: Who was the first Hispanic-American astronaut to fly in space?

A: Franklin Chang-Diaz

NUMBER ONE: From left, Tristan Fletcher, Romina Rodriguez and Mayra Chavolla as they win the Academic Olympiad. Three Berkeley engineers correctly answered this question and many others to win the national Academic Olympiad Bowl, one of several collegiate competitions held at the Society of Hispanic Professional Engineers' annual conference in November, this year located in Phoenix. To win the bowl, teams had to buzz in the correct answers on a vast array of topics, everything from technical engineering problems to trivia on the Department of Energy and Latin pop culture. CEE junior Romina Rodriguez, ME sophomore Tristan Fletcher and Mayra Chavolla (B.S.'08 ME) conquered regional rival Stanford after two tie-breakers and won the next two rounds by beating six other teams from around the nation.

Continued on page 2

POP QUIZ

★ ★ ★

What's the greatest engineering feat of all time?



Amanda Canyon,
EECS freshman
"I'd have to go with the personal computer."



Vu Le,
CEE senior
"Water. Learning about it and harnessing its power."



Jason Vanderveen,
ME grad student
"I'd probably say the space shuttle because of the range of environments in which it operates and the physical stresses it undergoes during launch."



Alex Placentra,
EECS freshman
"The Three Gorges Dam."

Cal earns top prizes

Continued from page 1

"We were screaming, 'Go Bears!', as everyone ran up to congratulate us," says Rodriguez, the team captain. "Our main goal was just to make it to the final round and, at first, we weren't doing well but then we started getting all these questions right and winning. In the end, we were up by 1,400 points and the next team had 400. We couldn't believe we had achieved that."

In fact, Cal's Hispanic Engineers and Scientists club achieved a lot at the conference. Rodriguez also won the national Technical Poster Competition for her poster "Mass Flux of Plastics at Piloted Ignition," which summarized the research she did last summer in ME professor Carlos Fernandez-Pello's Combustion Processes Lab. The project, funded by NASA, developed a testing method to determine the threshold of flammability in spacecraft material.

"I really liked it," Rodriguez says, reflecting on her lab work. "But in research, a lot of things can go wrong. You do experiment after experiment to ensure your results are accurate and precise. It's hard work."

ME/MSE sophomore Diana Olvera helped her team win first place in the Extreme Engineering Challenge, in which groups were given 24 hours to design, build and present a working model of an inexpensive clean water system for rural Latin America. And ME sophomore David Rodriguez, ME senior Sara Valdez, CEE senior Rachel Mellinger, ME/MSE senior Xioranny Linares and IEOE senior Daisy Carrillo took third in the design competition, in which teams designed, built and presented a prototype of a lunar surface system.

Thirty club members attended the conference this year, many with the goal of applying for internships or networking with representatives from more than 250 companies.

For Rodriguez, though, who wants to go to graduate school, the conference and its competitions gave her an opportunity to practice her presentation skills. "A lot of our members didn't want to enter the competitions because it's scary to put yourself out there," she says, "but it's worthwhile in the end. Some of the judges afterward gave me their business cards. They said they liked my work and would give me an internship if I was interested. All the stress really did pay off." ■



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

Ask an Engineering Student

Need advice about a class or professor? Curious about finding internships or research work? Worried about a grade? Interested in switching majors? Wondering if engineering is right for you? Send us your question (anonymity is fine, but please include your year and major) to engnews@coe.berkeley.edu. We'll have it answered by one of our student volunteers and publish the answer in an upcoming issue of *Engineering News*.

Get in the News!

Clarence Cory trivia quiz

Test your knowledge of COE's father of electrical engineering* and Cal history

1. Cory Hall's namesake, Clarence Cory, taught the first electrical engineering course at Berkeley in 1893-94. Which two industries were expanding at that time?

- a. telegraph
- b. telephone
- c. electric light and power
- d. radio

2. Not long after he arrived, Cory provided this service to campus.

- a. developed detailed instructions to faculty on how to wire their offices for electricity
- b. implemented an electric street railway along Bancroft Way
- c. powered lamps in the library by running wires from his electrical engineering lab
- d. provided strings of tiny incandescent lightbulbs to "beautify" the campus Christmas tree

3. On his summer breaks, Cory liked to

- a. hike the Sierra Nevada
- b. travel in South America
- c. photograph rare plants
- d. write mystery novels

4. According to Cory, this was the most important research his electronics laboratory undertook in 1916.

- a. a solution to bringing high voltage transmission lines to Las Vegas
- b. the dispersion of San Francisco's fog using high-voltage electricity
- c. an electric automobile prototype
- d. guidelines for safe and reliable automobile headlights



CLARENCE CORY

COE PHOTO ARCHIVES

5. In the 1920s, Cory, now dean of the College of Mechanics, decided this field wasn't a worthy research topic:

- a. radio
- b. automobiles
- c. air transportation
- d. hydroelectricity

6. San Francisco and Los Angeles benefitted from which technology developed by Berkeley's EE researchers, under Cory's leadership:

- a. electric-powered dry docks
- b. neon signage
- c. electric streetcars
- d. high-voltage, long distance power transmission

*Courtesy of "Clarence Cory and a History of Early Electrical Engineering at UC Berkeley," a paper by John Torous (B.S.'07 EECS) www.eecs.berkeley.edu/department/Clarence%20Cory%20History.pdf

Answers: 1. b and c 2. c 3. a 4. b 5. a 6. d

< announcements >



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

Industry internships

The Annual EECS 2009 Internship Open House will take place on THURSDAY, JANUARY 22, at Pauley Ballroom in the MLK Student Union from 10 a.m. to 1 p.m. Come learn about internships at companies such as Amazon.com, Facebook, Microsoft and more. For more information, visit www.eecs.berkeley.edu/IPRO/internship.

Get ready for the job interview

Practice your interviewing techniques while being recorded on camera in a small group setting. This Career Center workshop will take place on MONDAY, JANUARY 26, from 3 to 5 p.m. in Room 104A at 2111 Bancroft Way. Space is limited. RSVP today at <http://career.berkeley.edu>.

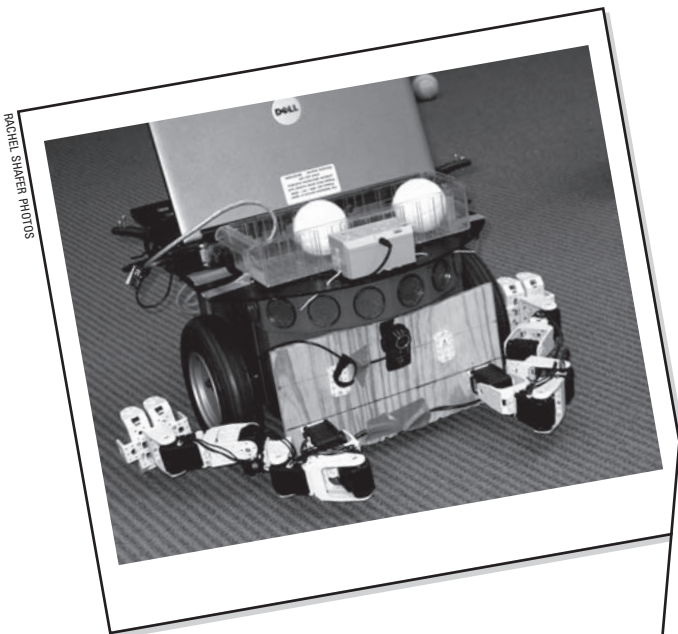
Paid Apple internship

Apple is looking for a product design engineer intern for this summer. The intern will validate functional requirements (form, function, manufacturing and reliability) and design constraints (cost, timing and quality), as well as document design history and qualifications for transfer to production. Deadline to submit your resume is TUESDAY, FEBRUARY 3. To apply or for more information, visit Callisto at <http://career.berkeley.edu/>.

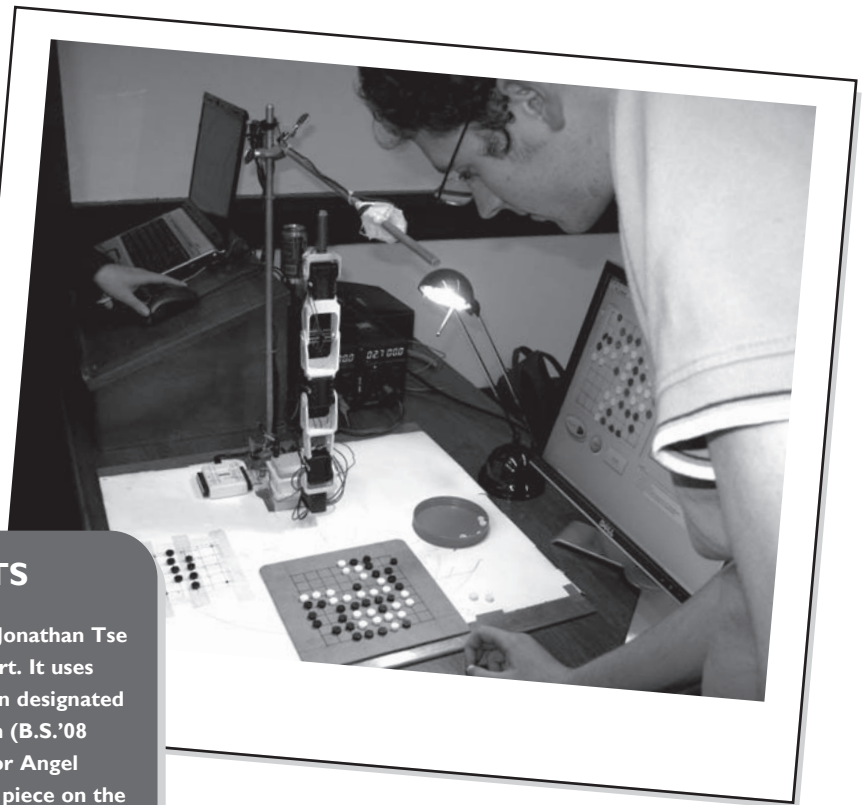
Congratulations

The winner of the fall *Engineering News* Survey raffle drawing is ME senior Jerry Kim. Kim won a \$100 Best Buy gift card. Thanks to everyone who participated in the survey. We welcome your comments and suggestions anytime. E-mail engnews@coe.berkeley.edu.

< focal point >



RACHEL SHAFER PHOTOS



EE125 INTRO TO ROBOTICS PROJECTS

Above left, the “L-Bot,” built by EECS seniors Derek Ti and Jonathan Tse and Eng. Sci. junior Wan Xie, collects balls from a tennis court. It uses vision components to detect the balls and to keep itself within designated boundaries. Above right, the “Go-Bot,” built by Jeff C. Jensen (B.S.’08 EECS), Physics/CS senior Nimbus Goehausen and EECS junior Angel Hernandez, plays the game of Go. Here, Goehausen places a piece on the Go board. He’ll press a button, a camera will identify the movement, the computer will determine the next move, and a robot arm will carry out that move using an electromagnetic gripper.

< of note >

Your 2009 goal? Join a club

A partial directory of undergraduate societies, competitive teams

American Nuclear Society – professional development, community outreach www.nuc.berkeley.edu/ans

American Society of Civil Engineers – social activities, academic support and professional development www.calasce.org

American Society of Mechanical Engineers – social activities, academic support, professional development asme.berkeley.edu

Association of Women in EECS – social events, community outreach, academic support www-inst.eecs.berkeley.edu/~auwicsee

Berkeley Engineers and Mentors – multidisciplinary group; mentors students from local schools in math, science and engineering beam.berkeley.edu

Berkeley Innovation – multidisciplinary group; brainstorms and develops semester-long projects innovation.berkeley.edu

Berkeley Nanotechnology Club – multidisciplinary group; promotes innovation and entrepreneurship www.ocf.berkeley.edu/~nano

Bioengineering Honor Society – membership by invitation; social activities, academic support, professional development bioehs.berkeley.edu

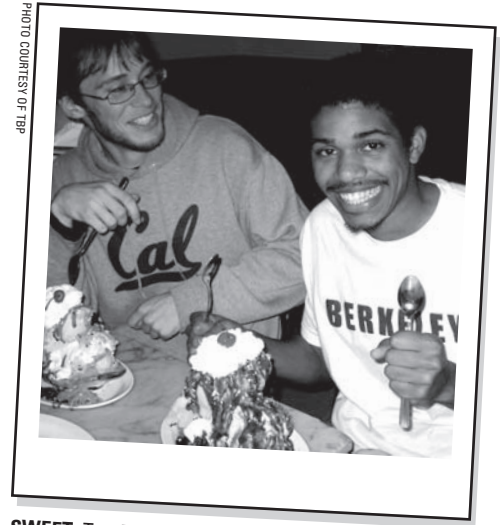
Biomedical Engineering Society – social activities, academic support, professional development www.calbmcs.org

Cal Construction Team – participates in regional competitions solving construction management problems www.calasce.org/aboutus.html

Cal Enviro – designs and builds an environmental engineering project for competition www.ocf.berkeley.edu/~justinm/env

CalSol – designs, builds and races a solar-powered, one-person car www.me.berkeley.edu/calsol

Cal Supermileage Vehicle – designs and builds a fuel-efficient car for competition smv.berkeley.edu



SWEET: Tau Beta Pi members at Fentons Creamery last fall.

California Engineer Magazine – produces this 80-year-old undergraduate research journal twice a year caleng.berkeley.edu

Chi Epsilon – civil engineering honor society; membership by invitation; social activities, academic support, professional development www.ce.berkeley.edu/~xe

Computer Science Undergraduate Association – social activities, self-directed projects, professional development www.csua.berkeley.edu

Concrete Canoe – designs and builds a concrete canoe for competition canoe.berkeley.edu

Engineering World Health – designs and builds medical equipment for the developing world www.ocf.berkeley.edu/~ewh

+ 15 others! View the complete directory at *Engineering News* online. ■

Hot new research

In October, ME professors Xiang Zhang and David Bogy and ME graduate student Liang Pan reported a new

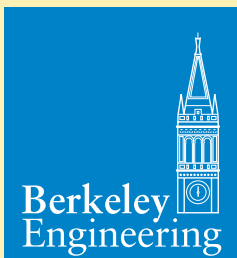
way of creating computer chips. The study appears in *Nature Nanotechnology*.

The researchers combined metal lenses that focus light through the excitation of electrons — or plasmons — on the lens' surface with a “flying head” that resembles the stylus on the arm of an old-fashioned LP turntable and is similar to those used in hard disk drives. The result? They were able to create line patterns only 80 nanometers wide at speeds up to 12 meters per second.

The research will make current microprocessors more than 10 times smaller, but far more powerful. www.berkeley.edu/news/berkeleyan/2008/10/29_plasmonic

—By Sarah Yang, Media Relations

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