

# Berkeley's new rayce car

CalSol readies for next year's solar car competition



PHOTO COURTESY OF JEREMY SCHIFF

In late August, a team of engineering graduate students and Cal alumni from the Center for Entrepreneur-

ship and Technology (CET) launched Fotoflexer, an online digital photo editor. The free software is available at [www.fotoflexer.com](http://www.fotoflexer.com). Members of the startup team include EECS Ph.D. students **Jeremy Schiff** (pictured) and **Dominic Antonelli**, EECS alumni **Neil Warren**, **Frank Wang** and **Tracy Wang** and CET adjunct professor **Jon Burgstone**.

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This time, Cal is determined to outshine Stanford. The last time the two solar rivals faced off in 2005, CalSol raced its car, the Beam Machine, across 2,500 miles in 68.5 hours, only to take second in its class just behind Stanford. "Our goal *this year*," says team lead, ME junior Lawrence Burkart, "is to win."

The 2008 North American Solar Challenge starts July 13 and runs eight days. Cal will be one of 25 college teams racing a self-designed, self-built car along a route that goes from Dallas, Texas, to Calgary, Alberta, Canada. Much like the Tour de France, teams race their cars in timed stages. On a sunny day, drivers often top 75 miles per hour. The team clocking the fastest cumulative time wins.

Since its close finish in 2005, much has changed for Cal. The Beam Machine group has graduated or moved on. Burkart, himself new, leads an entirely new group of 25 active members, who are divided into mechanical and electrical teams.

The competition's rules have also changed. Drivers must now sit at a 27-degree angle in their cars instead of reclining flat to make it a more realistic configuration. That means completely new designs from years past.

CalSol spent much of last year attacking the aerodynamics of the driver's seat and says it's 80 percent done with its design. The result is a car that "will look like a mini Stealth Bomber," explains Burkart. "We needed to keep it as flat as pos-

sible because the solar cells absorb the best when the sun is shining right on them."

Unlike the Beam Machine, CalSol's new car (as yet unnamed) has three wheels instead of four, saving money and weight.

"Weight is key," Burkart explains.

"In fact, we went a little crazy on weight reduction in the computer design. Then we looked at it and realized we couldn't machine it so we had to make some adjustments and be realistic. But overall we're really happy with the design. It's pretty cool and innovative. And no other car will have the suspension we have."

Within the next few weeks, the team will begin construction. Over winter

break, they hope to finish molding the shells and building the suspension system. In January, they plan to build the chassis, then attach the suspension and steering. In early March, the team hopes to install the electrical system and solar arrays. If all goes well, they'll be testing the car by the end of April.

To get there, though, CalSol needs to overcome its biggest challenge: funding. Members have raised about \$30,000 but need \$50,000 more to cover the cost of building the car.

Even so, the team is determined. "We're going to build this car come hell or high water," says ME junior Aaron Chang.



RACHEL SHAFER PHOTO

**SUNNY SIDE:** From left, Aaron Chang and Lawrence Burkart, members of CalSol.

Join now!  
<http://www.me.berkeley.edu/calsol/index.php>



RACHEL SHAFER PHOTO



## SLICE OF PIE. AND PIE.

**CHOW DOWN:** Engineers compete to see who eats the most during a pie-eating contest on October 9. The contest, sponsored by Cal's chapter of the Institute of Industrial Engineers, was part of the club's "Engineering Survivor" Week. After winning a series of fun competitions, the "undergraduate" team was named the Engineering Survivor.

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## Surfer to CEO

Don't miss alum Kirk Hachigian speak on November 9!

PHOTO COURTESY OF COOPER INDUSTRIES



**O**n Friday, November 9, Kirk Hachigian (B.S.'82 ME) will be on campus to talk to students about achieving success in industry. Hachigian is chairman, president and CEO of Cooper Industries, a global manufacturer of electrical products and tools with 31,000 employees and annual revenues of \$6 billion. The event, part of the College's "View from the Top" Speaker Series, will

**VIEW FROM THE TOP:** Take risks and follow your interests, Kirk Hachigian advises.

take place at noon in 290 Hearst Memorial Mining Building.

"I've always liked the challenge of making things," Hachigian explains. Fashioning his career is no exception.

It first started when Hachigian switched his major from economics to engineering, a practical decision, he says. More job opportunities

*Continued on page 2*



**Jeff Pickelman,**  
EECS senior

Candy corn. I like to bite off each color individually.



**Amanda Ackerman,**  
CEE master's student

Caramel apples. I came from a small town; it didn't seem dangerous to eat something homemade if you know the people it came from.



**Sahak Margossian,**  
NE/ME junior

Candy corn. It's got kind of a weird taste, but I like it.



**Mera Horne,**  
ME junior

Maybe Butterfinger™. They're small, dense and filling, and delicious too.

What's  
your favorite  
Halloween  
candy?

## Surfer to CEO

Continued from page 1

awaited an engineering major in the early 1980s. A transfer student from UC Davis, he found Berkeley's culture suited him. "It was busy and crowded," he says. "I loved the whole independence of it. I always did better in environments that were unstructured. It was a place for me to really grow."

Despite the demands of his engineering studies, Hachigian often got up at 5 a.m. He'd drive from Berkeley to the beach at Pacifica and hit the water just as the sun rose. "It was wild," he says, recalling his surfing mania. "And surfing there was always cold!"

After he graduated in — take note — manufacturing engineering, he landed a job as a design engineer at Hughes Aircraft in San Diego. He worked on night-vision systems and electrical test equipment, surfing in his spare time. But while the surfing was better there than up north, Hachigian discovered his career lay elsewhere. "Though I appreciated the science of engineering, I was never going to be a great engineer, so I had to move onto something else. It's important to know what you excel at."

For Hachigian, that was the much broader world of making products, where excelling meant leading a publicly traded company one day and building his own structure and vision. He earned an MBA from the Wharton School of the University of Pennsylvania and took a consulting job at Bain & Company. At 38, he became a GE vice president and joined Cooper Industries in 2001 as an executive vice president of operations. In 2005, he was appointed CEO.

Hachigian sees himself as a venture capitalist. "I like to say that I have a \$10 billion market value to experiment with," he says. "Every new product and acquisition is a bet that we can create more value for the company."

Though he doesn't use the technical knowledge from his engineering degree, Hachigian says his Berkeley Engineering years have been invaluable. "As CEO, I take vast amounts of data and synthesize them into clear, single points that must be understood by analysts, board members and employees. Engineering is probably the greatest background for people who want to do what I do."



[www.cooperindustries.com](http://www.cooperindustries.com)

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### SUDOKU

Below is the answer to last issue's puzzle.

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

Puzzle by webudoku.com

## RateMyProfessors.com?

What students and professors think

**I**t's time to register for spring classes, if you haven't already. To help you decide, will you use *RateMyProfessors.com*?

Launched in 1999, the website is the largest online listing of professor ratings. Visitors can review a professor's "scorecard," which compiles student ratings on a scale of one to five (five being the highest) in several categories: overall quality, average clarity, average helpfulness and average easiness. Reviewers can also write comments.

Berkeley students have reviewed more than 2,000 faculty and lecturers; of those, more than 80 are in engineering. There are no official numbers on how many student engineers use the site, but here's a random sampling of what students and professors think.

**BioE junior Matt Samuels:** "I do use the site and rely quite heavily on the ratings of others. They have been spot on."

**EECS junior Chris Lay:** "I don't use the site to decide my classes. Ratings found on the HKN (EE honors society, Eta Kappa Nu) website are much more complete and, in my experience, accurate. But I put very little stock in any statistics with fewer than five entries."

**EECS graduate student Ilya**

**Gurin:** "I only use the site if I'm not sure whether I really want to take a class and can't get better information from another site. I find that Tau Beta Pi's reviews are more helpful for engineering classes." (Gurin says he's also reviewed professors on *RateMyProfessors.com*.)

**ME professor Panos Papadopoulos** (rated 4.3) says he doesn't mind the site but puts far more weight on the departmental evaluations. "This is where instructors have an opportunity to review responses to focused questions, which really help improve the quality of teaching."

**MSE professor Ron Gronsky** (rated 5) also relies more on departmental evaluations. He says he's never visited the website but has heard of it.

**IEOR adjunct professor Jon Burgstone** (rated 4.8) says he loves the concept. "I think additional student feedback leads to better teaching. I wish more students would participate."



[www.RateMyProfessors.com](http://www.RateMyProfessors.com)

## Attention mechiees!

The ME department wants to create a stronger link between students and faculty. Come to the ME Town Hall meeting on Tuesday, October 30, from 4 to 6 p.m. in 3110 Etcheverry to learn about department achievements and changes and to voice your own opinion on how the department should be run. Contact Nathan Tom at [nmt08@berkeley.edu](mailto:nmt08@berkeley.edu) for more information.

## Career Center events

The Career Center's "Speed Resume Critique Session" will take place on Tuesday, October 30, from 1 to 4 p.m. in Kerr Lounge, MLK Student Union. The CEE Career Fair takes place on Wednesday, November 7, from 4 to 7 p.m. in the Stephens Lounge (third floor), MLK Student Union. You must bring your Cal student ID to be admitted. Resumes recommended. For more information, go to <http://career.berkeley.edu>.

## Networking in academia

Graduate women engineers: Don't miss "Networking Your Way to an Academic Career," a two-part workshop that takes place on Tuesday and Wednesday, November 6 and 7, from 5 to 6 p.m. in 3110 Etcheverry. The first part, presented by consultant Andrea Sparrey, covers the fundamentals of networking. The second part, presented by EECS professor Tsu-Jae King Liu, covers networking for engineers. The workshop is part of the "Mental Toughness" speaker series for graduate women engineers. For more information, go to [www.me.berkeley.edu/gwe](http://www.me.berkeley.edu/gwe).

## MIT infosession

The MIT Lincoln Laboratory, a pioneer in advanced electronics, will hold an infosession on Monday, October 29, from 5 to 7 p.m. in the HP Auditorium, Soda Hall. Go to [www.eecs.berkeley.edu/IPRO/infosessions.shtml](http://www.eecs.berkeley.edu/IPRO/infosessions.shtml) for more information.



# professor minute

## WITH ASSOCIATE PROFESSOR STEVEN BRENNER

Brenner, a BioE affiliate, is an associate professor of plant and microbial biology. He received his A.B. from Harvard in 1992, his M.Phil. from the University of Cambridge in 1994 and his Ph.D. in molecular biology from the University of Cambridge in 1997. He joined the Berkeley faculty in 2000. His research interests include gene regulation by alternative splicing and nonsense-mediated mRNA decay, prediction of protein function using Bayesian phylogenomics, and medical and environmental metagenomics.

"But I'm getting old, and soon I shall remember only the latter."

### Whom do you most admire?

These days I spend the most time admiring my baby daughter.

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

Climb Mt. Kilimanjaro, explore Yogyakarta, or catch up on sleep.

### What should engineering students make sure they do at Berkeley before they graduate?

I would get sued if I put my suggestions in print.

### What are you currently reading?

E-mail.

### What is one thing you would like to learn how to do?

It would be terrific to figure out how to pay my mortgage.

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

### What first inspired you to go into engineering?

I was a sloth. I would go to great lengths to build systems to do my work for me.

### To date, what has been the most memorable moment in your career?

I wish I could recall. As Mark Twain said to his biographer Albert Paine, "When I was younger, I could remember anything, whether it had happened or not." He added,