

engineeringNews

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RACHEL SHAFER PHOTO



HANDHELD EXERCISE

GO BOULDER: ME graduate student Kyle Lawrence searches for a handhold on a wall outside Davis Hall earlier in the summer. The rock, with its rough surface, has drawn recreational climbers like Lawrence who inch their way to the top without using any gear. The technique, called bouldering, is designed for short routes. "This is a way to get some of my energy out," Lawrence says.

Window into MSFT

Craig Mundie, Microsoft research chief, to speak on October 9

PHOTO COURTESY OF MICROSOFT



CRAIG MUNDIE: Don't miss this rare opportunity to interact with Microsoft's leadership.

What would you ask Microsoft?

On Thursday, October 9, Craig Mundie, the company's chief research and strategy officer, will answer your most burning questions and demo several advanced technologies highlighting how computing can impact the world. The event is part of the College's "View from the Top" lecture series and will begin at noon in

Sibley Auditorium, Bechtel Engineering Center.

Mundie, one of two senior executives who took over from Bill Gates in June, is responsible for directing the company's long-term technical strategy and investments. He also oversees Microsoft Research.

To get you thinking about your questions, *Engineering News* asked a few EECS Ph.D. students to submit *theirs*. Mundie replies. Here's a sampling:

Continued on page 2

POP QUIZ



What do you think of the economy?



Timofey Titou, EECS junior

"I think it's in big trouble, but I'm not worried about getting a job. Computer science is in demand. And having a quality education gives a sense of security."



Eric Lin, EECS sophomore

"It's pretty bad. What's going on right now will change the way we do investment business in the future."



Chardee Galan, CEE/architecture freshman

"It's interesting how it affects everything. I've noticed that people don't want to renovate homes or build new ones as much now."



DJ Gaker, CEE grad student

"Everything has its ups and downs. Maybe we're worried for the next five years or so, but it'll swing back around."

Window into MSFT

Continued from page 1

Russell Sears: What are the big research opportunities?

Mundie: My personal view is that there's never been a more exciting time to be in the computer science field. We are on the cusp of major advances — such as the shift to manycore chips and parallel programming and the coming together of local computers and the Internet cloud — that will spark a revolution in what we can do with technology. Computing will take on more humanistic qualities, predicting our needs and providing proactive assistance. Our interactions with computers will become far more natural and personalized and encompass our entire environment rather than being limited to desktops and devices. And computers will start transforming the lives of the five billion people on Earth who don't yet have access to information, particularly in the fields of health, education and agriculture. In every one of these areas there is a vast amount of exciting research to be done — and a lot of that research is taking place at Microsoft.

Ben Rubinstein: In its heyday, Bell Labs was an industrial research lab that contributed significantly to basic research. Now MSR and Yahoo! Research seem to be taking Bell's place. Has the game changed? What must MSR do differently to ensure its survival in the long run? And do you see a place for basic research in the industrial research lab?

Mundie: Bell Labs has proved to be one of the greatest innovation engines of all time, and in many ways the mission of today's leading research labs — to consistently advance the state of scientific art — remains unchanged. At MSR, we attribute much of our success to our approach of bringing together many of the world's top minds in a highly open and collaborative environment. MSR researchers aren't bound by the confines of product cycles, freeing them up to take a longer-term view — and enabling them to focus on everything from basic research to technology transfer across the entire company.

Equally important are the partnerships we have with academic institutions worldwide, which enable researchers to make the greatest impact. ■



Read the full Q&A online at
[www.coe.berkeley.edu/
news-center/publications/
engineering-news](http://www.coe.berkeley.edu/news-center/publications/engineering-news).

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Random beauty



FOLIAGE FOR FALL: ME junior Michelle Pang created this leaf by writing a program in MATLAB, the numerical computations and graphics program, and executing on the code for 2,000 iterations. She and other students created leaves for an E 77 assignment that asked students to develop a program to select points at random and plot them based on their ability to satisfy a set of algorithms and characteristics. Have you created an image or graphic for class that we can feature in *Engineering News*? E-mail engnews@coe.berkeley.edu.

announcements



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

E 190 placement test

Take this test on MONDAY, OCTOBER 6, from 5:30 to 7:30 p.m., in Sibley Auditorium, Bechtel Engineering Center. EECS, ME, IEOR and ChemE majors must pass Engineering 190 in order to graduate. If you plan to enroll in E 190, you're required to take the placement test, offered three times a year. No sign up is necessary, but you will need to check in with your student I.D. Contact tech_comm@berkeley.edu for more information.

Engineering major info sessions

On MONDAYS, there will be a faculty talk at 4 p.m., followed by a student panel and presentation at 5 p.m., in Sibley Auditorium, Bechtel Engineering Center. <http://engle.berkeley.edu>

October 6	Chemical Engineering
October 13	Nuclear Engineering
October 20	Electrical Engineering and Computer Sciences
October 27	Mechanical Engineering
November 3	Civil Engineering
November 10	Bioengineering
November 17	Environmental Engineering

Mentoring entrepreneurs lecture

On TUESDAY, OCTOBER 7, Ram Shriram, founder of Sheralo Ventures LLC, will speak in Sibley Auditorium, Bechtel Engineering Center, at 5 p.m. as part of CET's A. Richard Newton Distinguished Innovator Lecture Series.

Girls rule

Calling all female engineers! On WEDNESDAY, OCTOBER 15, train to mentor young girls in engineering and science from 5:15 to 7:15 p.m. in 290 Hearst Memorial Mining Building. You will be matched with one Berkeley Engineering alumna to become a Berkeley Engineering Mentoring Team. To register or for more details, please call Dawn Kramer at 510.643.7828 or e-mail dkramer@berkeley.edu.

Youth outreach

Berkeley Engineers and Mentors (BEAM) is recruiting volunteers to mentor and teach engineering and science in low-income schools and after school programs. Visit <http://beam.berkeley.edu> or e-mail beam.teach@gmail.com.



career corner

WITH CHEMICAL ENGINEERING ALUMNA ELIM YEOH

After graduating from Cal, Elim Yeoh (B.S.'03 ChemE) worked as a technology marketing engineer for Chevron, marketing its licensed technologies to global competitors and managing several international accounts. In 2006, she took a job as a process engineer at a Chevron refinery in Oahu, Hawaii. "It was not a difficult decision to move to paradise," she says. "Since the refinery is relatively small, engineers take on different roles, which include managing capital projects to rebuild the facility and attending to daily operations to ensure that the refinery runs efficiently and reliably."

What do you like about your job?

I'm always eager to try new things, so being in a role where I get to work with people from all over the world, take on an array of responsibilities and overcome new challenges keeps me enthused about my job.

How did you go about finding your interest/passion?

By testing new waters. You don't know what you're capable of until you do it.

What's the secret to landing a job?

You should know the different jobs available

for engineers in your discipline. Attend all career fairs and prepare ahead of time. Always polish your resume. Be cautious what you put in the resume's "objective" line; for example, don't hand Chevron a resume that says, "I'm looking for a challenging position in biotech." If you're inexperienced with interviews, find a friend or professor to practice with. Interviewers often seek organized answers demonstrating a specific task, your actions and end results. Be confident in yourself and in your abilities because companies are looking for dependable engineers who can represent the company well.

What helped you make the transition from student to employee?

My internships provided an excellent stepping

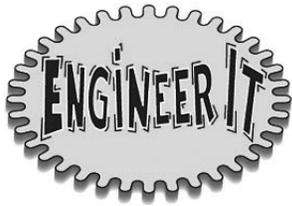
stone because I was able to learn different company cultures and values and build a bigger network.

What are some things to think about when considering a potential job?

Think about professional development opportunities, company locations, whether it has a 401(k) matching program, the flexibility to take on different assignments, and most importantly, the company culture. The culture speaks for the people the company hires and the values the company is grounded on.

Have additional questions? E-mail Elim.Yeoh@chevron.com.

< of note >



Study break!

“Engineer It” is now on exhibit at the **Lawrence Hall of Science**, the public science center just up the hill from campus. In hands-on, stress-busting activities, the exhibit introduces visitors to the engineering process. Build a boat and test its performance in a

Think it, build it, test it.

water tank. Construct a six-foot-tall structure and see how it does in the earthquake simulator. Put on foam plastic wings and experience lift and drag in the walk-in wind tunnel. No grading here! Grab a few friends and take your inner child on a field trip.

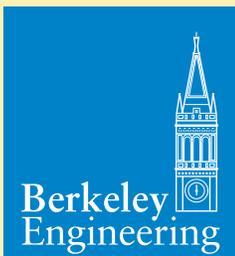
Hours: Open daily, 10 a.m. to 5 p.m.

Cost: Free with your student ID

Get there: Park in the lots just off Centennial Drive (bring quarters/small bills for the fee machines). Or take the campus shuttle Hill Line or AC Transit Bus #65.

Online: www.lawrencehallofscience.org

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Diabetes management, simplified

Individuals with diabetes live by the numbers. Glucose levels. Insulin dosages. Carbohydrate consumption. Dates. Times. Amounts. By writing each number in a logbook, they help their doctors manage the disease so they can stay healthy. The recordkeeping is onerous, yet, without complete data sets, doctors miss trends and may recommend ineffective treatments.

As a side project to his ME research last year, Chris Hannemann (M.S.'08 ME) began developing a system to help automate the process. His proposal, “Integrated Diabetes Management,” harnesses web-based applications and popular mobile devices to make living with the disease easier.

“Diabetes treatment involves a lot of guessing because you estimate nutrition information or forget to write something down, or you don’t remember the exact details of what happened on a particular day,” says Hannemann, who’s had Type I diabetes since the age of eight. “This takes some of the guesswork out of it.”

Here’s how his system works: The patient checks her blood sugar level using a glucometer, which automatically and securely transmits the reading to a smartphone and, simultaneously, to a web-based patient record database, where it’s stored. On her smartphone, a special application has popped up prompting her to record meal and exercise information. She does, aided by the application’s ability to search the web for nutrition information on her meal.

Based on all the input, the application instantly provides her with a recommended insulin dosage. She receives an automatic injection



RACHEL SHAFER PHOTO

INTEGRATED HEALTH: Chris Hannemann with glucometer (at left), mobile phone and insulin pump.

from her insulin pump, and the device wirelessly transmits that datum to her smartphone and database. She no longer must remember to write everything down.

Using either her smartphone or laptop, she then accesses her password-protected patient record database, and a customized application crunches her numbers and presents her with glucose level trends. When she visits the doctor, they log onto the database, review her record together and adjust her treatment accordingly.

Judges saw the project’s potential when they awarded Hannemann and his teammate Sarah Beth Eisinger (B.S.'07 EECS) second place and \$7,000 in the CITRIS-sponsored IT for Society White Paper Competition, part of the Bears Breaking Boundaries Contest in May.

With the award money, Hannemann, who now works at Esolar.com, is taking his system from idea to prototype, using the award money to buy hardware, develop software applications (with Eisinger’s help) and test his concept further.

Is a startup in the future? Maybe, he says; but for now he’s simply interested in ensuring the project is done right so that others with diabetes benefit. ■

“This takes some of the guesswork out of managing diabetes.”

Read Hannemann’s full proposal at <http://bigideas2.berkeley.edu>

