

Think different: Whiz kid speeds through school

Alum lands dream job at Apple at age 19



PHOTO COURTESY OF HONGZHAO LIU

ME senior Hongzhao "Joseph" Liu (right, with ME Chair Albert Pisano) won second place in the 2006-

2007 competition of the American Institute of Aeronautics and Astronautics Undergraduate Individual Aircraft Design for his paper "Euclid: A new light sport airplane." Participants had to design a two-seat aircraft that complies with the FAA's Special Light Sport Aircraft Category. Liu worked under the guidance of ME Professor Ömer Sava on his aircraft design, which is named "Euclid."

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Scott Goodson's (B.S.'07 EECS) story was remarkable enough when he enrolled as a Berkeley junior at only 16 years old. Two years later, he's completed two internships at his dream company, Apple, worked on OS X and the iPhone and been hired full time by the Cupertino corporation.

It would seem to be destiny. Goodson, a native of southern California who skipped several grades and petitioned to leave high school as a freshman to go to college, has always been a Mac fanatic. He got his first Apple when he was 10 and soon was so adept at working on Macs that he started his own Apple repair service, "The Apple Guy," from home. He was 11 at the time.

He gets his engineering bent from his family. His father earned a master's degree in chemical engineering from Caltech, then went on to earn an MBA. Scott was only three when he first sat at a computer, on his dad's lap, and continued to spend much of his childhood working on computers at home.

Goodson, now 19, joined the Apple staff two months ago as a full-time software engineer and is living in Cupertino, across the freeway from the Apple campus. Being on the inside, he's very impressed with the company.

"It is absolutely the best place to do software engineering in the world," he says.

But computer software is not his only love. He has a strong interest in neuroscience and says he could some day find himself working in that field. One of his favorite

classes at Berkeley Engineering was EE 129, Neural and Non-Linear Information Processing.

"Human brains are the most interesting things on the planet," he says, much more interesting than computers, he says, because people created computers. "We are superior in that sense. But even our own brains cannot understand themselves. [The class] really

catered to my fascination."

Goodson says his success with Apple and generous starting salary speak well for his alma mater. He says his two-year tenure at Berkeley Engineering gave him a solid foundation in computer science that he doesn't think he could have received at a lesser university.

"Berkeley gave me the best education that could be

expected in a classroom environment, so that I could focus my energy on the transition to the corporate world when I got to that point."

From his earnings as an Apple intern, Goodson recently went on a 40-day guided tour of Europe and there practiced one of his other fascinations, shooting video and still images. He came home with more than 9,000 photos and 45 gigs of data. As might be expected, he's still sorting through them. In many of the photos of himself in exotic locales, Goodson is wearing his Cal sweatshirt or baseball cap.

"I proudly keep the Berkeley spirit alive wherever I go," he says.



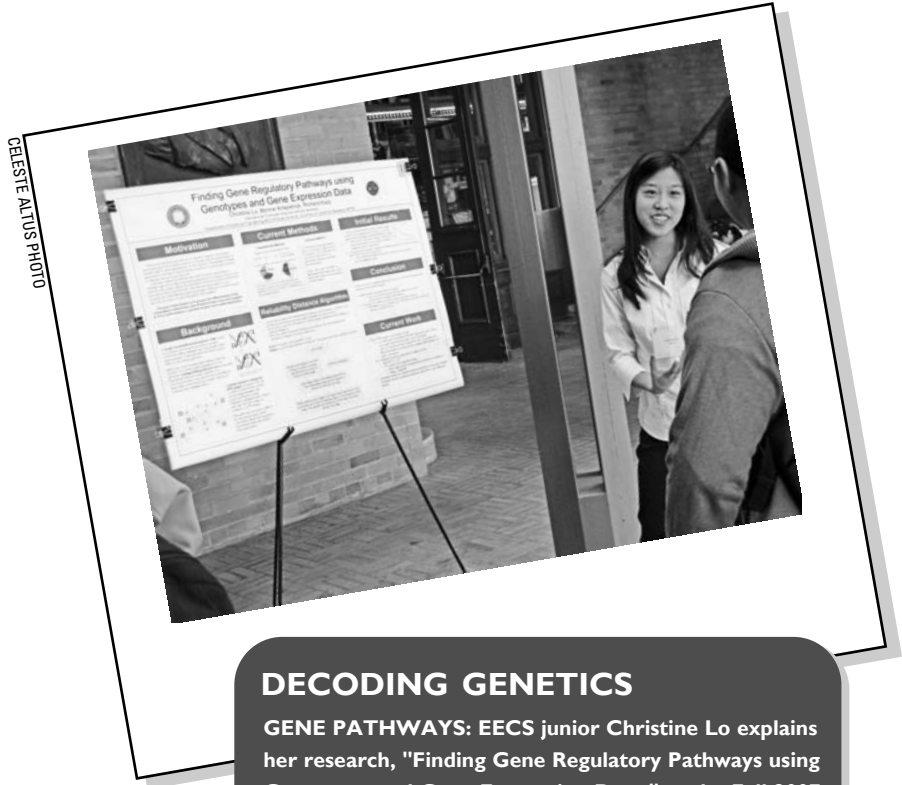
PHOTO COURTESY OF SCOTT GOODSON

GOOD APPLE: Scott Goodson (B.S.'07 EECS) on Mykonos, Greece, a stop on his recent European tour.

www.scottgoodson.com



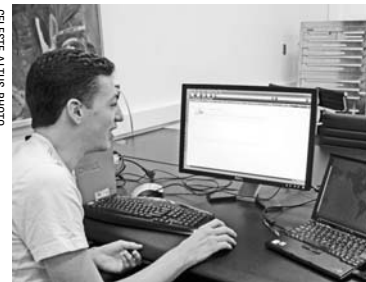
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DECODING GENETICS
GENE PATHWAYS: EECS junior Christine Lo explains her research, "Finding Gene Regulatory Pathways using Genotypes and Gene Expression Data," at the Fall 2007 Science and Engineering Poster Session on November 20. Lo researched a computation method that attempts to find a path to gene expression. Future knowledge of genome-gene expressions will lead to personalized medicine and disease risk assessment.

Recommender system is no joke



VERY FUNNY: Tavi Nathanson uses Jester to rate a Chuck Norris joke.

What began as a simple summer research project will end up being EECS senior Tavi Nathanson's master's thesis. Nathanson, who will be pursuing his master's in the

spring, is doing research on a project called Jester: Jokes for *Your* Sense of Humor. An experiment using a constant-time recommender system, Jester groups users with similar preferences and recommends jokes to them, just as Amazon.com recommends books or music CDs.

The site asks users to rate eight sample jokes, such as: "Q. Did you hear about the dyslexic devil worshiper? A. He sold his soul to Santa." Users rate the jokes on a scale from "not funny" to "very funny." Based on the results, it recommends other jokes suited to the user's taste.

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Eva Agus
CEE Ph.D. student
 "My mom is visiting from Indonesia, so I'm going to hang out with her. Otherwise I have experiments to do in the lab: gotta chlorinate some seawater!"



Jack Ye
MSE Sophomore
 "I'm going to have a rest. I'm also planning a trip with my friends to Yosemite."



Neil Kumar
EECS Freshman
 "I might be going back to India to see my family. And I'll be looking ahead to my classes and research next semester."



Wylie Stroberg
ME Sophomore
 "I'm gonna go home to Ojai, in Southern California, and do absolutely nothing."

What are your plans for the holiday break?

Recommender system

Continued from page 1

Jester previously used an algorithm called Eigentaste 2.0, which matched users with others who rated items similarly. But, as the user kept rating items, the algorithm didn't use the new ratings to improve recommendations for that user. Nathanson is working to refine the algorithm to make it highly adaptive but still just as fast and scalable.

"Being able to use Jester to test the algorithm is extremely useful and fun," he says. "When I come up with an idea, I can test it fairly quickly. While coming up with algorithms is somewhat theoretical, Jester adds a hands-on aspect to my research."

This past spring, Nathanson and IEOR graduate student Ephrat Bitton extended the algorithm, which they named Eigentaste 5.0, to constantly keep track of a user's favorite group of items. As the user keeps rating items, his or her favorites continue to change.

Nathanson got involved with Jester while looking for a research project at the end of his sophomore year. He emailed IEOR/EECS Prof. Ken Goldberg, who recommended Jester because the six-year-old program was in need of an overhaul, and because Eigentaste has so much potential.

"[Professor Goldberg] didn't give me a specific task, per se, he said, 'Just play with it,'" Nathanson recalls. "Over the summer, I rebuilt the system and recreated the interface. I had an almost-working version of Jester 4.0," he says. When Nathanson stepped in, Jester's political jokes had gotten a bit stale.

"I removed about 15 of the most glaringly outdated jokes," Nathanson says, smiling. "They were mostly about [former President Bill] Clinton."

Nathanson presented the work on Eigentaste 5.0 in October at the Association of Computing Machinery Conference on Recommender Systems in Minneapolis.

Filtering jokes is just one possible use of Eigentaste. It can be used for any recommending service and may become part of a future website that recommends charities for people interested in philanthropy.

"The fundamental issue is recommending things on the fly," Goldberg says. "We think there are many potential applications."



<http://eigentaste.berkeley.edu>



Attention, seniors who seek teaching experience!

The local chapter of public service program Teach for America (TFA) reminds students that it has a partnership with UC Berkeley that allows seniors to defer graduate school admission for two years while they share their elite education with children in low-income schools.

The nonprofit organization recruits graduates of top academic institutions to teach in various U.S. communities for two-year assignments. TFA places the teachers, who earn a full salary and benefits from their school. No teaching experience or credential is necessary, and graduates select the age range they are comfortable teaching, from kindergarten through 12th grade.

There is an urgent need for math and engineering teachers, organizers say. According to the National Center of Education, by the eighth grade, students in low-income areas are on average two to three grade levels behind their higher-income peers in science and three grade levels behind in math.

Veronica Vela (M.S.'05 IEOR) taught middle-school math through the TFA program in New York City in 2001. She says she was often the only person in a student's life who had a career in math and science.

"I had a wonderful experience

with Teach For America," she says. "I found it very challenging and rewarding work. It's a wonderful opportunity that allows for a lot of personal development."

She says it was a time of tremendous personal growth for her. There were difficult days in the classroom, but she had 150 students who were always counting on her to return.

"My dedication and perseverance grew so much," she says.

The TFA program has 17,000 active and alumni members, with an average college GPA of 3.65.

Organizers say the program allows engineering scholars to give back without sacrificing their futures in the industry.

"We want to make it very easy for engineers to share their high level of understanding, then go on and have a career," says John Burke, a TFA alum and director of the Bay Area Recruitment Team.

Information and applications are available online, and the next deadline is January 4, 2008. Early applicants are more likely to be placed in their location of choice.



www.teachforamerica.org

New EngNews acting editor



Hello! This is Celeste Altus, your *Eng News* acting editor through February, while Rachel Shafer is on leave. I am a local journalist and niece of five Cal grads, so I grew up going to Cal games and hearing, "Go Bears!" I am eager to hear what you have been up to, whether it is new research, a visit to the Swiss Alps or a service project. Email engnews@coe.berkeley.edu.

Got snacks?

Berkeley Engineering Alumni Relations (BEARs) is hosting a "Feed the Bears" study break during finals week. Join us for free goodies and refreshments from 3:00 to 4:30 p.m. Monday, December 17, in front of Kresge Library, outside the Bechtel Engineering Center.

E-Week on its way

The 2008 Engineers Week is scheduled for February 19 to 22. All engineering student societies are encouraged to get involved and help host events during the week to make it one of Cal's best E-Weeks ever! Anyone wanting to help out should contact Q.J. Flores at vp@ejc.berkeley.edu. E-week is only once a year, so don't let it pass you by.

Congratulations EECS IT scholars!

Each year, seven Berkeley EECS students are awarded the Information Technology Scholarship, funded by an anonymous donor from the Computer Science doctoral program, for \$10,000 over two years. It is granted based on academic merit. This year's winners are Nir Ackner, Scott Crawford, Jerry Hong, Brian Jaekyung Kim, Priyanka Reddy, Hsiu-Fan Wang and Hisham Zarka.



What do you like about your job?

Sitting at my desk working on computer-aided design is just the beginning. The fun starts when the parts return from the machine shop and I begin to build. Then I test the finished product in a vibration lab and thermal vacuum chambers that reproduce a space environment. There's traveling to collaborating laboratories for technical meetings, reviews and integration work. I also visit NASA centers to use the engineering facilities and for launching the satellites. Every day is different.

<career corner>

WITH ME ALUM GREG DALTON

Dalton (B.S.'03 ME) is an aerospace engineer at UC Berkeley's Space Sciences Laboratory, a job he landed right after graduation. His work at the lab involves developing the mechanical concept and design, fabrication, assembly, testing and integration of satellite instruments associated with space exploration. This includes building ground support equipment, designing data acquisition systems, building flight hardware and understanding NASA requirements and guidelines for space-qualified mechanisms.

How did you go about finding your interest/passion?

I was the son of an engineer and spent years in the garage building models, working on cars, discovering electronics and taking things apart to satisfy my curiosity. I pursued my mechanical inking as a U.S. Navy machinist mate on a nuclear-powered submarine before coming to Berkeley.

What do you recommend students do during school to prepare for a career?

Internships. You have to get your feet wet before you leave school, whether for your resume or just to discover your interests.

What's the secret to landing a job?

Relationships. Everyone you meet could be a

potential future employer or coworker.

Treat people with respect and be confident. College teaches you how to learn. You just have to convince others that you have the resources to learn. Knowing the fundamentals of engineering will be invaluable.

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

The work environment is the most important aspect of my job. Salary can be important, but believing in what you are doing and working with others who support you can pay dividends.

Have additional questions? Email gdalton@ssl.berkeley.edu

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