

CEE GRADUATE NAMED UNIVERSITY MEDAL FINALIST

CEE major Siu-Ting Mak—a tall, modest, Chinese-born pianist who was the first in his family to attend college—was one of five finalists for this year’s University Medal, UC Berkeley’s highest honor given to one graduating senior each year.

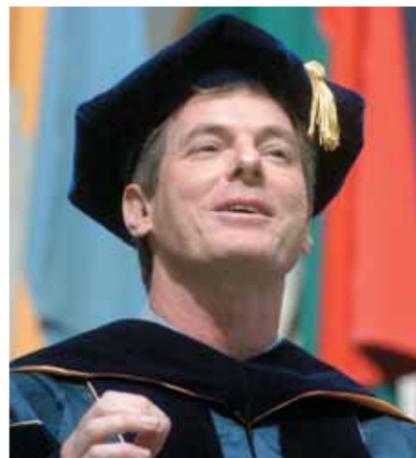
This fall Mak will continue his studies, pursuing his master’s and possibly Ph.D. in CEE’s Structural Engineering, Mechanics and Materials Program. Inspired by a junior year research assignment on self-anchored suspension bridges, he has a particular passion for public works like bridges, roads, water treatment plants and air pollution control systems that unobtrusively keep the world’s infrastructure humming smoothly.

“I want to affect people’s lives, not in fancy ways,” Mak says, “but in implicit ways, something that people might not even notice. But if they do, they would appreciate its benefits.”

During his four years at Berkeley, Mak also performed with Cal Community Music, entertaining seniors at East Bay convalescent homes and retirement centers. An accomplished pianist, he started studying music at age five and now has a penchant for chamber music and contemporary compositions.

He credits his parents, who live in Hong Kong, with giving him a desire to learn and his mother with suggesting that her high-achieving son apply to U.S. colleges. Now, he says, he considers his choice of Berkeley the best decision he ever made. And he appears to have started a family trend of coming to California; his sister is now studying business at San Francisco State University.

Mak was one of 1,144 undergraduate and graduate engineering students, a record high, to receive their degrees at commencement ceremonies last May 20 in the Greek Theater. Paul Jacobs (B.S.’84, M.S.’86, Ph.D.’89 EECS), CEO of San Diego-based wireless telecommunications company QUALCOMM, gave the commencement address. [f](#)



CEE major Siu-Ting Mak (top), one of five finalists for Berkeley’s University Medal, was among the record 1,144 engineering students graduating last May. QUALCOMM CEO Paul Jacobs (right) delivered the commencement address.

PEG SKORPINSKI PHOTOS



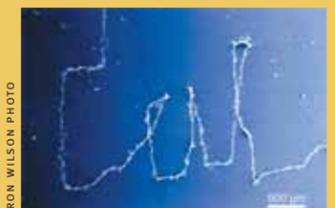
VINEYARD SENSOR TAKES TOP PRIZE: ME graduate students (from left) Alexander Do, Thomas Cauley III and Brian Sosnowchik, pictured here with Special Assistant to the Chancellor for Science and Technology Tom Kallil, won the top prize in the first annual white paper competition sponsored by the Center for Information Technology Research in the Interest of Society (CITRIS) and Big Ideas@Berkeley. The paper, “Mitigation of Water Scarcity in California,” described their VinePod, a wireless network of sensors designed to help control frost in California’s vineyards. Mounted on 12-foot poles in order to monitor air temperature, humidity, and soil and leaf moisture, the sensor transmits data to a central computer and signals which areas are most at risk for developing frost when temperatures dip below freezing. The Berkeley team shared first place with a UC Santa Cruz team, and both teams won \$7,500. Kallil organized the competition to showcase the creativity of UC student research.

AARON WALBURG PHOTO

Cutting-edge research from Berkeley Engineering

A NEW VIDEO-CONFERENCING SYSTEM is in development by EECS professor Ruzena Bajcsy and colleague Klara Nahrstedt at the University of Illinois. Tele-immersive Environments for EVERYbody, or TEEVE, is an inexpensive but sophisticated distributed multi-tier application that uses off-the-shelf equipment to deliver high-quality full-body images from all angles. The researchers say it is best suited for training in activities such as physical therapy, sports and the performing arts. www.citris-uc.org/TEEVE-April2006

USING ELECTRIC FIELDS TO MAKE NANOFIBERS, Berkeley researchers are able to deposit them in a direct, continuous and controllable manner. The technique, known as *near-field electrospinning*, imposes order on the chaotic process of spinning polymers into tiny fibers, which characteristically tangle randomly almost as soon as they are created. The work, by ME professor Liwei Lin and colleagues, offers the possibility of producing specialized materials like wound dressings and bio-scaffolds out of nanofibers. www.berkeley.edu/news/media/releases/2006/04/12_nanofibers.shtml

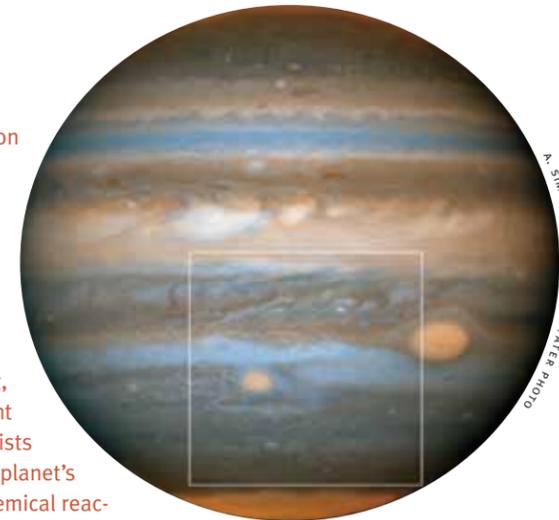


RON WILSON PHOTO

COMMON HOUSEHOLD AIR FRESHENERS and cleaners emit chemicals that could pose health risks when used regularly or in small indoor spaces, according to a study led by CEE professor William Nazaroff. “We’ve focused a lot of effort in recent decades on controlling the big sources of air pollution,” Nazaroff says. “However, now we’ve learned that we also need to pay attention to pollution sources that are right under our nose.” www.arb.ca.gov/research/abstracts/01-336.htm

Eyeing Jupiter’s new red spot

Scientists are now analyzing images of a new storm on Jupiter they photographed through NASA’s Hubble Space Telescope. ME professor Philip Marcus and astronomy colleague Imke de Pater snapped Red Jr., which first appeared in 2000 as a white spot but recently took on the brick-red hue of Jupiter’s 300-year-old Great Red Spot, the most powerful storm in the solar system. Red Jr. was first white, then brown; its new red color could mean it is intensifying, signaling a global warming trend on Jupiter that might have applications for Earth and other planets. Scientists theorize that the storms stir material high above the planet’s cloud cover, where solar ultraviolet rays initiate a chemical reaction that causes the red appearance. http://science.nasa.gov/headlines/y2006/02mar_redjr.htm [f](#)



N. SIMON-MILLER AND I. DE PATER PHOTO

Cheap mass production for RFID tags

An inexpensive mass production process for radio-frequency identification (RFID) tags could make the technology widely affordable. Similar to a barcode, RFID tags are tiny silicon chips placed on an object and encoded to track it electronically. EECS professor and Alien Technology founder J. Stephen Smith developed a process that could cut the per-unit price from 50 cents today to about five cents in just three years. The Department of Defense, Wal-Mart and the Food and Drug Administration plan to use RFIDs to track everything from army boots to counterfeit drugs. www.citris-uc.org/publications/newsletter/february2005#feature2 [f](#)

More meaningful maps

Software that renders helpful route maps has been created by EECS professor Maneesh Agrawala, who studies human perception and cognition to make computer software capable of delivering data in truly human-friendly formats. *LineDrive* creates route maps that, instead of focusing on details like exact scale and irrelevant streets, emphasize turning points along the route. He also developed a system for manufacturers to create assembly instructions for products like furniture and toys that reduce assembly time by 35 percent and cut assembly errors in half. www.coe.berkeley.edu/labnotes/1005/agrawala.html [f](#)

New metamaterial could improve ultrasound

Using tiny Helmholtz resonators—chambers that vibrate in response to a stimulus, just as the body of a guitar resonates when its strings are plucked—ME professor Xiang Zhang and colleagues have developed an ultrasonic metamaterial to get greater insight into sound waves. Metamaterial research is an emerging field that uses manmade substances to alter the way materials refract light or electromagnetic radiation. The researchers say the ultrasonic technology could be applied to enhance the resolution of ultrasound imaging, a technique widely used in medical diagnosis and treatment to visualize muscles and internal organs. www.berkeley.edu/news/media/releases/2006/05/31_metamaterial.shtml [f](#)



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