



## Carnegie Mellon

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### Alert Now Emergency Service Offered to Entire Campus

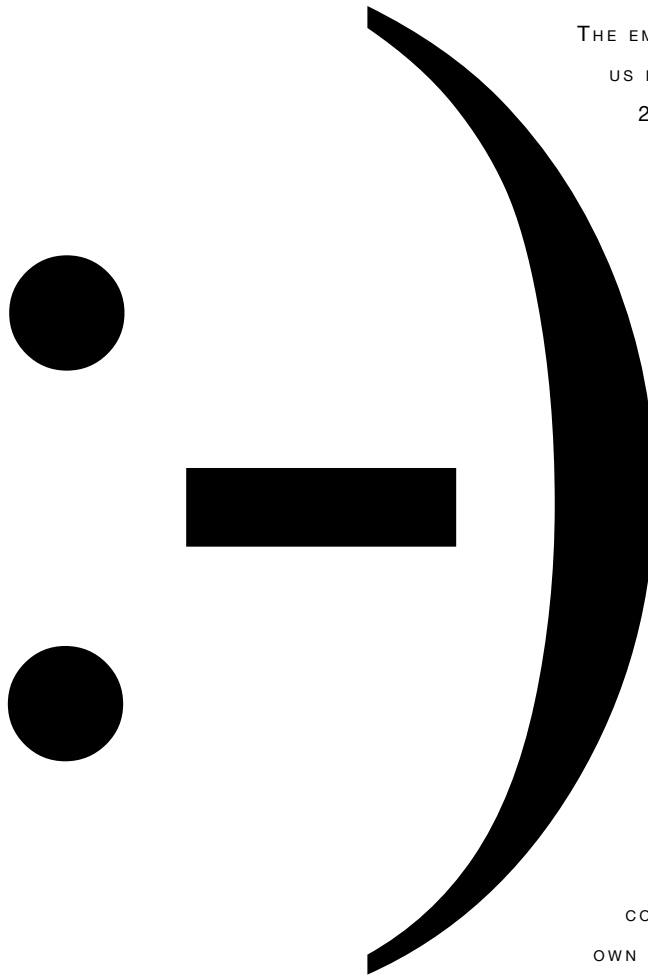
#### SMART Radios Under Development

■ Bruce Gerson

Making people aware that an emergency situation exists is a critical first step in crisis communications. For people to take precautionary measures, they must first know that there's a need to do so. This fall, the Environmental Health & Safety (EH&S) Department hopes to make that first step easier by offering its Alert Now emergency notification service to all students, faculty and staff.

Alert Now is a rapid message service that can send thousands of voice messages within minutes. In the past,  
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### Smiley Celebrates 25<sup>th</sup> Anniversary



THE EMOTICON — THAT CULTURAL PHENOMENON THAT LETS US KNOW WHEN PEOPLE ARE JOKING IN EMAIL — TURNS 25 THIS MONTH. HARD TO BELIEVE IT ALL STARTED WITH A SIMPLE THREAD ON A CARNEGIE MELLON ONLINE BULLETIN BOARD. THE STORY GOES THAT SOMEONE JOKED ABOUT A CONTAMINATED WEAN HALL ELEVATOR, SOMEONE ELSE TOOK IT SERIOUSLY AND CONFUSION ENSUED. HOW TO AVOID MISCUES? MARK JOKES WITH A “#” IN THE SUBJECT LINE, ONE WRITER SUGGESTED. NO, ONE WAG INSISTED, “&” IS DEFINITELY THE FUNNIEST CHARACTER ON THE KEYBOARD. FINALLY, SCOTT FAHLMAN, RESEARCH PROFESSOR OF COMPUTER SCIENCE, POSTED A MOMENTOUS SUGGESTION. “I PROPOSE THE FOLLOWING CHARACTER SEQUENCE FOR JOKE MARKERS: :-). READ IT SIDWAYS,” HE ADDED HELPFULLY. AND SO, AT 11:44 A.M., SEPT. 19, 1982, THE EMOTICON, OR “SMILEY,” WAS INVENTED. RAPIDLY ADOPTED AND EMBELLISHED BY OTHER COMPUTER BUFFS, FAHLMAN’S INSPIRATION CONTINUES TO SAVE EMAIL AUTHORS FROM THEIR OWN LAME JOKES. THE SCHOOL OF COMPUTER SCIENCE PLANS A CELEBRATION FOR THE SMILEY ON ITS BIRTHDAY, WEDNESDAY, SEPT. 19.

### New Social Site Promotes “Mind Over Chatter”

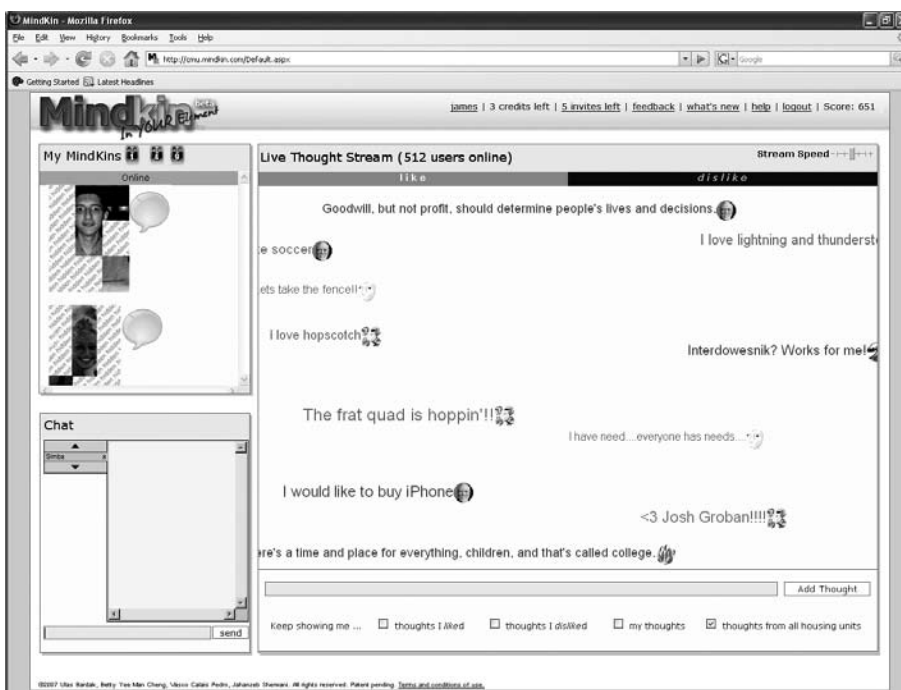
■ Byron Spice

Not that long ago, signing up for Facebook was one of the first things new students did once they hit campus. By the time this year’s freshmen arrived last month, though, most were already veteran users of Facebook and other social networking sites.

So you ask, why introduce another social networking site at orientation?

Unlike typical sites, this one, called Mindkin, is designed to connect people based on whether they like each other’s thoughts — not their responses to a questionnaire or the photos they post.

“We always want to find new ways for the first-years to get in touch with each other,” explained Amanda Reapsummer, one of the head orientation counselors. “This is different  
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MINDKIN’S CENTRAL FEATURE IS “THOUGHT STREAM,” A SCREEN THAT SCROLLS IDEAS SUBMITTED BY USERS. FOR A BETTER LOOK AT THE SITE, VISIT WWW.MINDKIN.COM OR HTTP://CMU.MINDKIN.COM.



# the PIPER

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Inquiries concerning application of these statements should be directed to the Provost, Carnegie Mellon University, 5000 Forbes Avenue, Pittsburgh, PA 15213, telephone 412-268-6684 or the Vice President for Enrollment, Carnegie Mellon University, 5000 Forbes Avenue, Pittsburgh, PA 15213, telephone 412-268-2056.

Carnegie Mellon University publishes an annual campus security report describing the university's security, alcohol and drug, and sexual assault policies and containing statistics about the number and type of crimes committed on the campus during the preceding three years. You can obtain a copy by contacting the Carnegie Mellon Police Department at 412-268-2323. The security report is available through the World Wide Web at [www.cmu.edu/police/statistics.htm](http://www.cmu.edu/police/statistics.htm).

Obtain general information about Carnegie Mellon University by calling 412-268-2000.

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## Arts-Based Robotics Program Gets Off To Flying Start

■ Anne Watzman

Some people made edible robots and ate them. Others explored their neighborhoods with sensors registering air quality or noise, while still more worked in teams to build robots that competed against each other. Middle school students, twenty-something computer nerds and 50-year-old artists all mingled together during the summer kickoff of Robot 250, Carnegie Mellon's arts-based robotics program designed to foster creativity, build a sense of community and increase the technical literacy of the Pittsburgh region.

So just how does Robot 250 achieve such an ambitious goal? By bringing students, families, artists and the general public together to build their own customized robots using cutting-edge technology and educational materials developed at the Robotics Institute. But Robot 250 doesn't stop there. Another important part of the program is creating robotic art installations for display in public spaces during the Pittsburgh region's 250<sup>th</sup> anniversary celebration next year. These installations will help Pittsburgh celebrate its robotic roots.

The visionaries behind Robot 250 are Robotics Institute Associate Professor Illah Nourbakhsh and Carl DiSalvo, a fellow in the Studio for Creative Inquiry in the College of Fine Arts and an assistant professor at the Georgia Institute of Technology.



PHOTO BY RAY BUDD

STUDENTS ENROLLED IN CARNEGIE MELLON'S C-MITES PROGRAM FOR GIFTED CHILDREN HAD A CHANCE TO BUILD THEIR OWN ROBOTS EARLIER THIS SUMMER AS PART OF ROBOT 250.

"We had been working on educational robotics projects and decided to make art and design a larger part of them," said Nourbakhsh. "We asked ourselves, 'What's the largest public robotics education program we can imagine that focuses on using art and design to get people interested in science and technology?'"

"We were looking for a way to make robotics more accessible,"

and reach as many as 75,000 families and school-age children.

Robot 250 is built around three themes: neighborhood and play, environment, and history and heritage. Under the leadership of Project Director Dennis Bateman, more than 150 people are working in teams to design robots that will allow them to explore and learn new things about their neighborhoods. They will then interpret their findings

## Greek Inspiration



JENNIFER KIM, A JUNIOR IN THE BACHELOR OF SCIENCE AND ARTS PROGRAM, WAS PART OF A GROUP OF STUDENTS, FACULTY AND ALUMNI THAT TRAVELED TO GREECE THIS SUMMER AS PART OF THE STUDY CLASS "SPARTA, GREECE: INQUIRY AND VISION." UNDER THE GUIDANCE OF ADJUNCT ASSISTANT PROFESSOR OF ART PATRICIA MAURIDES, STUDENTS FROM THE SCHOOLS OF ART, ARCHITECTURE AND MUSIC, AND THE BACHELOR OF HUMANITIES AND THE ARTS PROGRAM TOURED THE COUNTRY TO LEARN ABOUT ITS HISTORY AND THE CULTURAL INSPIRATION IT'S PROVIDED THROUGH THE AGES. DURING THE TRIP, ART PROFESSOR LOWRY BURGESS FINISHED PORTIONS OF HIS PROJECT, "SEEDS OF THE INFINITE ABSOLUTE," WHICH HE HAS BEEN WORKING ON FOR MORE THAN 33 YEARS. KIM IS SHOWN HERE IN FRONT OF THE PARTHENON.

**"THE ARTS-BASED APPROACH DIFFERENTIATES US AND PICKS UP ON THE RICH ARTS TRADITION AT CARNEGIE MELLON AND THE CITY OF PITTSBURGH." — CARL DISALVO**

DiSalvo added. "The arts-based approach differentiates us and picks up on the rich arts tradition at Carnegie Mellon and the city of Pittsburgh. Art also makes technology culturally significant. We can question it and make it in a way that is more human."

The first phase of the three-year program began in June, runs through February 2008, and is funded with grants from the Heinz Foundation and the Grable Foundation with additional support from Intel Corp. This initial phase features educational workshops and open studios at six sites around Pittsburgh: the Mattress Factory, a contemporary art museum on Pittsburgh's North Side; the Neighborhood Nets Showcase at the Stephen Foster Community Center in Lawrenceville; Carnegie Science Center's Mission/Discovery at the Hill House; the C-MITES program for gifted children at Carnegie Mellon; and the Homewood-Brushton and Greater Pittsburgh YWCAs. Plans call for Robot 250 to run through 2009

by creating kinetic robotic sculptures. Their tools include Telepresence Robot Kits (TeRKs), which allow almost anyone to build robots using "recipes" developed by Community Robotics, Education and Technology Empowerment (CREATE) Lab researchers. Robot 250 participants will also rely on Gigapan, a robotic platform for capturing very-high-resolution panoramic images from a standard digital camera; and Canary, a sensor that enables people to collect data on various aspects of the environment.

"As Pittsburgh prepares to celebrate its 250<sup>th</sup> anniversary in 2008, it's appropriate that the celebrations include our region's leading role in robotics," Bateman said. "More than looking back, Robot 250 will highlight the future of Pittsburgh, emphasizing educational and creative opportunities in robotics."

For more on Robot 250, see [www.robot250.org](http://www.robot250.org).



# EH&S Opens Alert Now Enrollment to Entire University Community

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EH&S used the service to communicate with about 400 deans, department heads, administrators and floor marshals, but now the service is being expanded to include everyone in the university community.

“After the tragedy at Virginia Tech, many colleges have done some soul searching. University officials across the country realized that in times of crisis, they need to communicate with everyone very quickly,” said Madelyn Miller, director of EH&S.

The Environmental Health & Safety Department provides services

Carnegie Mellon has signed an agreement with Sima Products Corporation of Oakmont, Pa., to develop a Scalable Mesh Alert Radio Transmission (SMART) emergency communications system. The SMART system will use a combination of wireless technologies to deliver emergency messages to desktop radios that will be placed in various locations around campus. Messages can be sent campus-wide and targeted to specific campus locations.

Tim Means of SIMA Products explained that once an emergency message is drafted by university personnel, it will



## STAY INFORMED ... AFTER THE CALL AND ALL YEAR ROUND

Once you receive a message from Alert Now, stay tuned for updates by visiting Carnegie Mellon's homepage at [www.cmu.edu](http://www.cmu.edu), and the Web Portal at [my.cmu.edu](http://my.cmu.edu) — the top spots for emergency news and information. In fact, stay informed all year round by subscribing to Carnegie Mellon's RSS (Really Simple Syndication) feeds for homepage stories, news releases and news blogs. RSS is an easy way to follow multiple Web sites all in one place. To subscribe to the RSS service, visit [www.cmu.edu/homepage/rss.shtml](http://www.cmu.edu/homepage/rss.shtml).

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**“AFTER THE TRAGEDY AT VIRGINIA TECH, MANY COLLEGES HAVE DONE SOME SOUL SEARCHING. UNIVERSITY OFFICIALS ACROSS THE COUNTRY REALIZED THAT IN TIMES OF CRISIS, THEY NEED TO COMMUNICATE WITH EVERYONE VERY QUICKLY.” — MADELYN MILLER**

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that protect the university community and the environment. The department is responsible for many university safety programs, ranging from biology and chemical safety, to fire safety and emergency preparation.

Miller encourages all students, faculty and staff to consider enrolling in Alert Now. To register for the service, visit <https://my.cmu.edu/site/main/page.alert>. To access the secure Web site, you must first log in to the Web Portal using your Andrew ID and password.

“This will be a completely voluntary program, so only those who want the calls will get them,” Miller said. “Should you volunteer for the service, you shouldn't worry about interruptions. You'd only get a call in a dire emergency.”

While the expanded Alert Now service is already in effect, an additional means of emergency communication will be under development over the next 15 months.

be sent via the Web to the radio tower at WDUQ-FM, Pittsburgh's National Public Radio affiliate. The tower will then transmit the message over the commercial FM bandwidth to desktop radios in campus locations.

“Safety for students, faculty and staff is the number one priority for the university, and Sima's SMART radio system will give us the ability to notify students in classrooms, dorm rooms and anywhere on campus,” Miller said. “Reaching different groups with specific messages will allow us to better manage information during emergencies. We need more than one way to get the word out, and this system will add several layers to our current efforts.”

Dave Hochendoner, chief technical officer for Sima Products, said redundancy is important.

“The SMART system gives the university the ability to warn students

in multiple ways, so that when phone, Internet or power fails, they are still up and running,” Hochendoner said. “Our receivers are backed-up by battery and we provide multiple ways to generate warnings.”

Carnegie Mellon design students, Associate Design Professor Eric Anderson and Assistant Human Computer Interaction Professor John Zimmerman will collaborate with SIMA on product development during the fall and spring semesters. This semester, students in Anderson's Product Design Studio will

conduct research, and design and present product proposals that address several physical forms, human factors and preliminary production considerations.

Next semester, Zimmerman and Anderson will lead a small team of students in an independent study group that will also present proposals based on what it learns about how the user interacts with the product.

The project is funded by a \$200,000 grant from the Technology Collaborative, a local economic development organization.

## When Caffeine Isn't Enough



SOMETIMES STARBUCKS JUST ISN'T A SUBSTITUTE FOR SLEEP AND THE UNIVERSITY LIBRARIES KNOW IT. THE METRONAPS ENERGY POD NEAR THE MAGGIE MURPH CAFE (DEMONSTRATED HERE BY UNIVERSITY LIBRARIES COMMUNICATIONS SPECIALIST CINDY CARROLL) IS ONE OF SEVERAL NEW ADDITIONS TO HUNT LIBRARY THAT STUDENTS, FACULTY AND STAFF WILL NOTICE THIS FALL. THE ENERGY POD, WHERE MEMBERS OF THE CAMPUS COMMUNITY CAN CATCH A FEW ZS, COMES FROM TEPPER SCHOOL ALUMNUS ARSHAD CHOWDHURY (TPR'03), CO-FOUNDER OF METRONAPS, HEADQUARTERED IN THE EMPIRE STATE BUILDING. ALSO NEW ARE THREE GROUP STUDY ROOMS IN HUNT AND TWO IN THE ENGINEERING AND SCIENCE LIBRARY. COMFORTABLE, MOVABLE FURNISHINGS, WHITEBOARDS, ELECTRICAL OUTLETS, GOOD VENTILATION AND SOUNDPROOFING WERE TOP PRIORITIES FOR THE STUDY ROOMS. MEANWHILE, THE TRANSFORMATION 2007 PROJECT TO RELABEL AND RESHELVE COLLECTIONS FROM THE DEWEY DECIMAL SYSTEM TO THE LIBRARY OF CONGRESS SUBJECT CLASSIFICATION SYSTEM CONTINUES. THE LCC IS THE STANDARD ARRANGEMENT IN MOST ACADEMIC LIBRARIES IN THE U.S.

PHOTO BY BRUCE GERSON

# University on the Hunt for Scottie Dog's Graphic Identity

■ Bruce Gerson

Last spring, students, alumni and a campus-wide mascot committee finally made it official by selecting the Scottish terrier as Carnegie Mellon's mascot. Game over? Not quite.

While everyone knows what a Scottie Dog looks like, a graphic identity for the Carnegie Mellon pup is now under development. To help create an appropriate and consistent visual representation, the Mascot Identity Task Force, co-chaired by Dean of Student Affairs Jennifer Church and Director of Athletics Susan Bassett, has partnered with SME Branding, a firm with 17 years of experience creating mascot identities for many professional sports teams and leagues, colleges and universities.

SME's long list of clients include Boston College, BYU, Dartmouth, the Detroit Pistons, the Florida Panthers, Georgetown, MIT, the University of Florida, Penn, Penn State, the University of Texas, the NBA, the NHL and the NCAA.

Over the next several weeks, SME will be on campus meeting with student and alumni focus groups and the mascot committee to help guide their efforts. They hope to have a preview of the mascot graphic to share with the university community at homecoming.

"We hired SME Branding to help us create a strong mascot visual to provide a powerful representation of Carnegie Mellon's mascot, the Scottie Dog," said Sophie Nassif, director of university initiatives for Carnegie Mellon's Marketing Communications.

Nassif said a mascot costume,

merchandise, community events, photo opportunities, interactive Web and video elements, and much more will come later.

In a student survey last February, nearly 78 percent of the 2,370 respondents were in favor of selecting the Scottie Dog as the official university mascot. In an alumni poll, 25 percent of the 400 respondents identified the Scottie Dog as the school mascot.

Nassif said the Scottie Dog has similar characteristics to that of the university. "It's bold, confident, dignified, tenacious and powerful," she said.



## Vroooooooooom!



PHOTO BY BRUCE GERSON

PARKING SERVICES MANAGER MICHELLE PORTER WON'T NEED TO WORRY ABOUT PAYING HIGH CAR-RENTAL FEES NOW THAT ZIPCAR IS AVAILABLE ON CAMPUS. THE UNIVERSITY HAS PARTNERED WITH THE WORLD'S LARGEST CAR-SHARING COMPANY TO PROVIDE CARS TO STUDENTS, FACULTY AND STAFF ON AN HOURLY OR DAILY BASIS. TWO ZIPCARS — A TOYOTA PRIUS AND A MAZDA 3 — WILL BE AVAILABLE FOR USE 24 HOURS A DAY, SEVEN DAYS A WEEK TO ALL STUDENTS AND STAFF 18 YEARS OR OLDER. GAS, MAINTENANCE, INSURANCE, 180 MILES PER DAY AND RESERVED PARKING WILL BE INCLUDED IN THE \$7 HOURLY AND \$55 DAILY RATE. MEMBERSHIP FEE IS \$35. FOR MORE INFORMATION OR TO RESERVE A CAR, VISIT [WWW.ZIPCAR.COM/CARNEGIEMELLON](http://WWW.ZIPCAR.COM/CARNEGIEMELLON).

## Mindkin Uses Thoughts, Not Looks, To Connect People

CONTINUED FROM PAGE ONE

from the networking sites they've previously used. With Mindkin, you're not so much choosing to be friends with someone as you are identifying with their ideas."

In fact, the only way people connect through Mindkin, the brainchild of four Carnegie Mellon graduate students, is by sharing their thoughts and identifying musings from other users that they like or dislike. The site's central feature is "Thought Stream," a screen that scrolls ideas submitted by users. The ideas don't include the author's name, but users can identify the ones they like or dislike. If a user likes enough ideas from the same author, that author's identity is eventually revealed so direct contact can be made.

Ulas Bardak, a grad student in the Language Technologies Institute (LTI), said he and the other students began working on Mindkin two years ago because sites such as Facebook and MySpace seemed superficial. Those sites include questionnaires about interests and attitudes, but no

guarantee that answers are honest or consistent. Perhaps more important than questionnaires are the photos that people post of themselves or their friends.

"What it boils down to is 'Looking for people who look nice,'" Bardak said of conventional sites. This focus on appearance has led to practices like posting photos of fake friends who look cool and presumably make the user more hip by association. That didn't make sense to Bardak and the others — grad students Betty Cheng and Vasco Calais Pedro of the LTI and Jahanzeb Sherwani of the Computer Science Department. "We were looking for something to cut through all of that," Bardak said.

Mindkin uses some gaming theory to keep the site manageable. A system of credits forces users to be selective in identifying ideas they like or dislike, which makes it impossible for someone to simply "like" all of the ideas scrolling through Thought Stream.

Of course, two people might like each other's ideas and still fail to spark

as friends. But Cheng said evaluating ideas without being prejudiced by who they belong to could make social networking much more, well, social. "You want people to meet new people on the site, not stay in their own little groups," she added. Authors with thought-provoking ideas may have some advantages on the site, but extroverts and introverts can both do well.

Though Mindkin got a weeklong public demonstration during the Employment Opportunities Conference this past February, orientation offered the first chance to subject it to sustained use by a large group. Without a large number of people sharing ideas at any one time, Thought Stream simply isn't very compelling.

In addition to the regular Web site, [www.mindkin.com](http://www.mindkin.com), a special orientation site was also created: <http://cmu.mindkin.com>. "We welcome older students — sophomores, juniors and seniors — to join the site and give the incoming first-years some advice, tips and secrets about campus life," Cheng said.

The group has received a provisional patent on the concept and is looking for ways to commercialize it. A stand-alone site, such as Facebook and MySpace, is just one possibility. Adapting it for use on mobile phones, for instance, might make it a useful tool at scientific conferences or other large gatherings where people are trying to make contact with strangers.

The School of Computer Sciences' Olympus Project, an initiative to foster the growth of computing innovation in Western Pennsylvania, has adopted Mindkin as one of its projects and will feature the social networking site at its next "Show and Tell" for venture capitalists on Sept. 25 in the Collaborative Innovation Center.

"There are multiple paths we can take with this thing; we just don't know which one," said Bardak, who added that input from orientation users can help determine that direction. "We want our users to tell us what they want."

# Cohon Offers Insight on the Presidency, Priorities and ... Barbeque?

■ Susie Cribbs

This past May, the university's Board of Trustees appointed Jared L. Cohon to a third, five-year term as president. The Piper sat down with Cohon over the summer to learn more about what it's like to be president, the achievements he's most proud of, his plans for the next five years and even a little bit about what makes him tick.

## **Why did you decide to stick around for another five years?**

You mean, "What were you thinking?" (Laughs). I guess the answer is that there's more to be done and more that I think I can do effectively. By saying that, I have in mind, in particular, further movement along the path laid out by our strategic plan. And fundraising. It's the latter that is especially important to me in this third term. In 10 years, as you can imagine, you build up a lot of relationships with donors and prospects. I want to continue to build on those relationships and benefit the university through increased fundraising. I think that's extremely important for the future of Carnegie Mellon.

## **What do you consider your biggest professional accomplishment in the last 10 years?**

I feel good about our progress on all of our priorities in the strategic plan — undergraduate education, interdisciplinary research, diversity, internationalization of the university, and our contributions to the local economy and community. I think we've done a lot on all five of those things, and we've moved in a positive direction.

And I'll add a sixth one — the university's finances, in particular fundraising. We've made tremendous strides in building up a strong Advancement group, a fundraising infrastructure, and in raising the sights of our alumni and donors.

## **Are there any priorities in the plan that you think we've done better on than others?**

We've seen real progress in all of them. Probably the one that most people on campus would think of as the most dramatic change is how global we've become in a short period of time. That's accurate. ... But I think we've seen significant progress on all of the priorities. We are certainly a very diverse campus, more so than we were 10 years ago. Our undergraduate programs are stronger and more diverse, and providing a broader experience for students than they did 10 years ago. In interdisciplinary research, we've made tremendous strides in building up our strength in biomedical research especially, but also in our other priority areas of information technology, environment, and humanities and fine arts. And certainly,

Pittsburgh is doing better. We see real vitality in the technology business sector, and Carnegie Mellon and Pitt working together had a great deal to do with that.

## **What kind of legacy do you hope to leave at Carnegie Mellon?**

I joked when I first became president that what I wanted on my epitaph was "And he did not start a law school or a medical school." That would define success. (Laughs again.)

In general terms, I hope that there will be a feeling that the university continued to advance on its upward trajectory in a way that stayed true to its core values. And if anything, the Cohon years saw a reinforcement of those core values and an appreciation for how they distinguish Carnegie Mellon from other universities and position Carnegie Mellon for success in the 21<sup>st</sup> century. What I'm talking about is problem-solving, interdisciplinary collaboration, hard work, innovation — those are our core values. And everything we've done in the last 10 years and will do in the next five really flows from those characteristics.

## **Professionally, your proudest accomplishment is achieving so much in the strategic priorities. Is that what you feel best about personally?**

I take pride in the fact that I came to know Carnegie Mellon quickly and well enough to lead it in a way that I think is true to, and respectful of the way Carnegie Mellon does things. And I greatly respect the way Carnegie Mellon does things.

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**"I'M PLEASED THAT AFTER 10 YEARS I STILL HAVE THIS RUSH: 'Wow! I'M PRESIDENT OF CARNEGIE MELLON!'" — JARED COHON**

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## **What's your goal for the next five years?**

After a review of the strategic plan, I want to continue progress on that plan. ... I'm especially keen on establishing Carnegie Mellon's global presence. We throw around the term, "the global university," and I'd like to define what that means for Carnegie Mellon, and to be it. I think we're on our way to that. That also means, though, Carnegie Mellon Pittsburgh really embracing fully the notion of being a global university and working through all that it means. And I don't think we're there yet.

Every other one of the priorities has more to be done. And then, fundraising. Obviously we are at a crucial time in the capital campaign, coming into the end of the so-called quiet phase and into the public phase. It's already the largest campaign in the university's history, and when we become public it will be by far the largest. This again is extremely important for the future of the university. I don't mean just the money that



JARED L. COHON

we need to raise, which is so important to us, but also creating the fundraising infrastructure and further developing the Carnegie Mellon community as one that gives back to the university.

## **That's a lot to do in five years.**

Well, this is a busy place.

## **What is the toughest thing about your job?**

Just the size of it. It's endless. You could work 24 hours of every day and still not do all that you want to do or even should do.

## **How do you still find time to be a husband, dad and grandfather?**

I make time. I have to. That's the biggest challenge. But it's an enormous privilege to be president of Carnegie Mellon. I'm pleased that after 10 years I still have this rush: "Wow! I'm president of Carnegie Mellon!"

## **What's the best thing about being president of Carnegie Mellon?**

Carnegie Mellon itself. It is truly a special university, with a unique culture and just the most wonderful people — students, staff, faculty, alumni ... everyone involved. Because it's a

special place, it attracts special people, people who are committed to the work. "My heart is in the work" is more than just a slogan, I think. Hard workers. Intellectually honest people. A group of people who are willing to experiment and make change on a timescale that is not typical at other universities. A devotion to collaboration and teamwork, which really sets us apart from other universities. All of that makes it a pleasure to be president at Carnegie Mellon.

## **What do you think is the next big thing for Carnegie Mellon?**

No one knows. That's another one of the magical things about Carnegie Mellon. The way Carnegie Mellon has operated consistently for the last 40 years has been to create a strategy that positions us to take advantage of opportunities as they arise. Given that that's the way the world works, I can't really say what the next big thing is. It's likely to fall within the priorities I mentioned. ... But who knows? Come back tomorrow to find out. That's the fun of being here.

## **Carnegie Mellon has always seemed like a family. How do you hope to keep that family together in light of the university's globalization?**

That's a good question and I don't have a good answer. We are a close-knit community ... I hear that all the time from people who have been here a long time.

CONTINUED ON PAGE TWELVE



# Carnegie Mellon Experts Weigh-in on Bridge Inspection Technology, Processes

**New Carnegie Mellon Center Could Help Prevent Future Collapses**

■ Chriss Swaney



PHOTO BY BRUCE GERSON

RESEARCHERS IN THE CENTER FOR SENSED CRITICAL INFRASTRUCTURE RESEARCH ARE INVESTIGATING HIGH-TECH INFRASTRUCTURE-MONITORING SYSTEMS THAT CAN BE INSTALLED WHEN BRIDGES ARE CONSTRUCTED. PICTURED ABOVE IS THE NEWLY RENOVATED HOMESTEAD GRAYS BRIDGE.

The Minneapolis bridge that collapsed earlier this summer had passed inspections, but the design was classified as “structurally deficient,” a term used by the Federal Highway Administration to identify a bridge that needs to be repaired or eventually replaced but is not in danger of imminent failure. Minnesota officials were warned of the classification as early as 1990. So why didn’t inspectors notice any problems, especially in light of a 2005 federal requirement that all states adopt new quality-assurance processes for testing?

The problem rests in the fact that most of that inspection is still done visually, but inspectors at times can’t see everywhere they need to see. That’s especially true of bridges built before the 1967 collapse of the Silver Bridge over the Ohio River — an

event that spurred the creation of the National Bridge Inspection Standards and the National Bridge Inventory, according to James H. Garrett Jr., an infrastructure expert at Carnegie Mellon and head of the university’s Civil and Environmental Engineering Department.

In the days following the Minnesota bridge collapse, Garrett told Associated Press national science reporter Seth Borenstein that researchers in the Center for Sensed Critical Infrastructure Research (CenSCIR), which he co-directs, are investigating high-tech monitoring systems for bridges and other types of infrastructure systems that can be installed when new bridges are constructed.

Garrett and Jose M.F. Moura, co-director of this new research center, said that the center performs enabling

research aimed at delivering cost-effective, sensor-based monitoring systems for a broad range of critical infrastructure applications. It brings together a multidisciplinary team of experts committed to creating new, fast, reliable monitoring systems to collect and process data about myriad complex network systems critical to both the nation’s security and daily commerce.

What CenSCIR researchers envision for critical infrastructure systems is similar to the human nervous system, where various senses feed valuable data to be processed for instant use or future reference.

“We want our infrastructure systems to sense aches and pains due to attacks or deterioration, and proactively (or reactively) cause some form of response in a more timely manner than we currently see,” Garrett said.

As a flurry of national and regional news agencies tried to piece together what happened to the eight-lane Minnesota bridge Aug. 1, Carnegie Mellon civil engineers helped the media put the disaster into perspective. Here’s just a sampling of what some of them had to say.

- Steven J. Fenves, a guest researcher at the Commerce Department’s National Institute of Standards and Technology and a professor emeritus of Civil and Environmental Engineering, told the New York Times that “a crack is very difficult to observe visually.”
- Irving J. Oppenheim, a professor of Civil and Environmental Engineering was interviewed by the Pittsburgh Post-Gazette about spans known as “deck truss” bridges, the same design as the one that collapsed in Minneapolis.
- David A. Dzombak, a professor in Civil and Environmental Engineering and an associate dean in the College of Engineering, co-authored an op-ed piece in the Aug. 12 edition of the Pittsburgh Post-Gazette about the need for state officials to invest in “new methods of construction, maintenance and monitoring” of our critical infrastructure.



## ASK ANDREW

Dear Andrew,

**I noticed lots of folks buried behind pillows, computers and boxes a few weekends ago and started to wonder about the Class of 2011. How many students are there? Where did they come from? What do you know about them?**

Those new faces you mention belong to the 870 men and 566 women who represent the best and brightest high school students from around the globe. If my math is right, that makes for 1,436 first-year students who should by now be getting a feel for their new Carnegie Mellon home.

Where do they come from? All over. Members of the Class of 2011 hail from 25 countries and 47 states, including the District of Columbia, with Arkansas, Mississippi, Wyoming and South Dakota missing from the distribution. Forty-eight percent of the students are from the Middle Atlantic states and 16 percent are from Pennsylvania. Ten percent hail from New England, 10 percent from the South, 9 percent from the West, 6 percent from the Midwest and 3 percent from the Southwest.

What we know about them is basically demographic. After all, we’ll spend the next four years learning about what really makes them tick. But for now, know that the average high-school GPA for first-year students was 3.63, and their average SAT scores are 660 in critical reading, 720 in



PHOTOS BY KEN ANDREYO

math and 660 in writing. Roughly 5 percent of the students are African American, 4.9 percent are Hispanic American and 24.3 percent are Asian American.

The students have come from all over the world, too. Thirteen percent of the Class of 2011 are international students. They represent Austria, Brazil, China, Colombia, Costa Rica, France, Greece, Hong Kong, India, Indonesia, Jordan, Korea, Oman, Malaysia, Mexico, Norway, New Zealand, the Philippines, Singapore, Taiwan, Thailand, Turkey, United Arab Emirates, the United Kingdom and Venezuela.

That being said, next time you see a new face — buried behind pillows and boxes or not — say hello and take the time to welcome them to campus.

# Listen Up: Podcasts May Improve Student Performance

■ Jonathan Potts

Want to create a podcast for that new course you're teaching? First, you need to decide what goals you want your students to achieve — and whether an iPod will really help them do it.

So says Ashley Deal, an academic technology researcher in the Office of Technology for Education and the Eberly Center for Teaching Excellence. Deal wrote a paper in which she reviewed several studies of podcasting use in higher education. The results show that podcasts have no intrinsic educational value, but can be used thoughtfully to improve student performance.

"Whether a technology is successful or not depends on how it is implemented," Deal said.

A podcast is an audio or video recording published to the Web and distributed through an RSS (real simple syndication) feed. Users who subscribe to the feed will have a podcast downloaded to their computer each time one is published. They can view or listen to the file on their computer, or transfer it to an MP3 player like an iPod — hence the term podcasting.

**"... THE FACT THAT MOST STUDENTS ACCESS LECTURES AT HOME OR ON THEIR COMPUTERS INDICATES THAT EVEN IN THIS AGE OF MULTITASKING 'MILLENNIALS,' STUDENTS ARE AWARE OF THE CONCENTRATION AND FOCUS REQUIRED FOR PRODUCTIVE STUDYING AND LEARNING." — ASHLEY DEAL**

To Deal's surprise, the surveyed studies showed that most students listened to podcasts on their computers, rather than on the go with their iPods.

"People are excited about the possibility of anytime, anywhere education, but the fact that most students access lectures at home or on their computers indicates that even in this age of multitasking 'Millennials,' students are aware of the concentration and focus required for productive studying and learning," Deal said.

Deal's investigation into educational podcasting — which did not include any studies conducted at Carnegie Mellon — found three basic uses for podcasting: creating audio or video archives of classroom lectures, assigning students projects that required them to create podcasts, and developing supplemental course materials.

Neither the case studies of lecture podcasting nor those of student-generated podcasts directly measured whether student performance or learning outcomes improved. But studies of podcasting that supplemented classroom instruction showed more substantial results.

In one such study, a medical professor wanted to improve his students' ability to identify heart murmurs, so he recorded the sounds of murmurs, with commentary, onto CDs. Students who listened to the CDs recognized murmurs with 85 percent accuracy, compared to 30 percent for those who only had

access to traditional instruction. Later, Barrett made the recordings available as podcasts.

Barrett succeeded, Deal said, because he focused on a clear educational objective and devised a learning activity to meet that objective. He then used technology to facilitate the learning activity, rather than placing technology at the center of the instructional design process.

"If your starting point is with the technology, you run the risk of arriving at forced solutions," Deal said. "Or, 'When you have a hammer, everything looks like a nail.'"



## Upcoming Events

### University Lecture Series

Bill Perkins of the Heinz School  
"It's Time To Act: The Reality of Climate Change"  
4:30 p.m., Monday, Sept. 17  
Adamson Wing, Baker Hall 136A

### University Lecture Series

Randy Pausch, professor of human-computer interaction and co-founder of the Entertainment Technology Center, will kick off a new series called "Journeys."  
"Really Achieving Your Childhood Dreams"  
4:30 p.m., Tuesday, Sept. 18  
McConomy Auditorium, University Center (UC)

### Center for the Arts in Society Research Forum

College of Fine Arts Dean Hilary Robinson will discuss "Reading Art, Reading Irigaray," an influential work in philosophy, gender, linguistics and psychoanalysis by feminist theorist Luce Irigaray.  
4:30 p.m., Tuesday, Sept. 18  
Hunt Library — Fine and Rare Book Room, 4<sup>th</sup> Floor

### Movie Screening

"In the Shadow of the Moon," a feature documentary about the Apollo space program. Produced by Academy Award-winning filmmaker Ron Howard and THINKFilm.  
7:30 p.m., Wednesday, Sept. 19  
McConomy Auditorium, UC

### Solar House Open House

Check out Carnegie Mellon's entry in the October Solar Decathlon.  
11 a.m., Thursday, Sept. 20  
Construction Junction, N. Lexington Ave., Point Breeze

### University Lecture Series

Distinguished Professor of Anthropology David Harvey, Graduate Center at CUNY "Geographies of Globalization"  
Co-sponsored by the English Department and the Literary & Cultural Studies program  
4:30 p.m., Thursday, Sept. 20  
Adamson Wing, Baker Hall 136A

### Andy Awards Ceremony

Carnegie Mellon will present its annual Andy Awards to individual staff members and/or teams whose outstanding dedication and performance have had a significant impact on the university.  
Noon, Friday, Sept. 21  
McConomy Auditorium, UC

### Soccer

Men vs. Mt. Union, Noon  
Women vs. Denison, 2:30 p.m.  
Saturday, Sept. 22  
Gesling Stadium

### Football

The Tartans vs. Allegheny College  
7 p.m., Saturday, Sept. 22  
Gesling Stadium

### University Lecture Series

"Journeys," Psychology Professor Roberta Klatzky  
"Waiting for Life to Happen"  
4:30 p.m., Monday, Sept. 24  
Adamson Wing, Baker Hall 136A

### Project Olympus Show and Tell

Computer Science Professor Lenore Blum will give an overview of Project Olympus, an initiative designed to foster the growth of ideas and talent in the region.  
3:30–5 p.m., Tuesday, Sept. 25  
Collaborative Innovation Center, 1<sup>st</sup> floor lecture hall

### School of Art Lecture Series

Jennifer and Kevin McCoy, Brooklyn-based artists who create projects about how our thoughts, experiences and memories are structured through genre and repetition.  
5 p.m., Tuesday, Sept. 25  
Kresge Recital Hall, College of Fine Arts (CFA)

### Carnegie Mellon Wind Ensemble

8 p.m., Wednesday, Sept. 26  
Carnegie Music Hall, 4400 Forbes Ave.  
\$5/\$4, Carnegie Mellon students free with ID

### University Lecture Series

Jonathan Sawday, Strathclyde University  
"Calculating Engines: Minds, Bodies, Sex and

Machines on the Eve of the Enlightenment"  
Co-sponsored by the Humanities Center  
4:30 p.m., Thursday, Sept. 27  
Adamson Wing, Baker Hall 136A

### School of Art Lecture Series

The 2007 Robert Lepper Distinguished Lecture in Creative Enquiry  
Mona Hatoum's poetic and political oeuvre is realized in a diverse and often unconventional range of media.  
7 p.m., Friday, Sept. 28  
McConomy Auditorium, UC

### Rachel Carson Legacy Conference

"Sustaining the Web of Life in Modern Society"  
Keynote speaker is Pulitzer-Prize winner E.O. Wilson, professor emeritus, Harvard University  
8 a.m.–5 p.m., Saturday, Sept. 29  
Connan Room, McConomy Auditorium, Rangos Hall, UC  
Further information: [www.rachelcarsonhomestead.org/](http://www.rachelcarsonhomestead.org/)

### Carnegie Mellon Contemporary Ensemble

5 p.m., Saturday, Sept. 29  
Kresge Recital Hall, CFA

### University Lecture Series

Devra Davis, director of the Center for Environmental Oncology at the University of Pittsburgh Cancer Institute, and professor of epidemiology at Pitt's Graduate School of Public Health  
"The Secret History of the War on Cancer"  
7:30 p.m., Tuesday, Oct. 2  
McConomy Auditorium, UC

### School of Art Lecture Series

Martin Kersels, a Los Angeles-based artist who works with sculpture, video and performance.  
5 p.m., Tuesday, Oct. 2  
Kresge Theater, CFA

### Guitar Solo and Ensemble

8 p.m., Wednesday, Oct. 3  
Alumni Concert Hall, CFA

### University Lecture Series

Ashish Arora, professor of economics at the Heinz School  
"From Underdogs to Tigers: the Growth of the

Software Industry in Emerging Economies"  
4:30 p.m., Thursday, Oct. 4  
Adamson Wing, Baker Hall 136A

### Women's Volleyball

Carnegie Mellon Invitational  
6 p.m., Friday, Oct. 5,  
10 a.m., Saturday, Oct. 6  
Skibo Gymnasium and UC

### Drama Production

"The Three Sisters"  
Oct. 5–13  
Chosky Theater, Purnell Center  
For tickets/show times call 412-268-2407

### University Lecture Series

"Journeys," Raj Reddy, Herbert A. Simon University Professor of Computer Science and Robotics  
"Technology and Society"  
4:30 p.m., Monday, Oct. 8  
Adamson Wing, Baker Hall 136A

### School of Art Lecture Series

Nina Katchadourian, whose work exists in a wide variety of media, including photography, sculpture, video and sound.  
5 p.m., Tuesday, Oct. 9  
Kresge Theater, CFA

### Carnegie Mellon Philharmonic with Conductor Walter Morales

8 p.m., Wednesday, Oct. 10  
Carnegie Music Hall, 4400 Forbes Ave.  
\$5/\$4, Carnegie Mellon students free with ID

### Football

The Tartans vs. Case Western Reserve  
Noon, Saturday, Oct. 13  
Gesling Stadium

### Homecoming

Festivities include class reunions, college receptions, intriguing presentations, performances and campus tours, the Alumni Awards dinner and the pageantry of college football.  
Thursday–Sunday, Oct. 25–28  
Further information: <http://alumni.cmu.edu/homecoming/index.html>

For more events, visit  
<http://my.cmu.edu/site/events/>



# Research To Go

## Data Truck Brings the Lab to the Experiment

■ Jonathan Potts

At Carnegie Mellon, social science research rolls on six wheels and makes wide right turns.

This summer, the university's Center for Behavioral Decision Research (CBDR) unveiled the Data Truck, a 36-foot mobile social science laboratory that allows university researchers to take their projects to go. The vehicle allows them to gather experiment participants more quickly and conduct research with groups of people — like senior citizens — who can't easily come to campus.

The truck's trailer is outfitted with a waiting area and eight workstations, where research participants can answer surveys, work on computers or test new products.

Tamar Krishnamurti, a Ph.D. student in the Department of Social and Decision Sciences, has used the Data Truck for her research into sexual decision-making. She parked the truck near Flagstaff Hill in Schenley Park, where she recruited people attending movies in the park to complete surveys about sexually transmitted diseases.

At least 60 people have participated in Krishnamurti's research this way. She said the Data Truck has drawn a more diverse group of participants than she could have recruited to campus for experiments.

"If I were running it on campus, it would take maybe two or three weeks of lab time (to get that many participants). That I could do it in a number of hours was amazing," Krishnamurti said.

The Data Truck was developed by George Loewenstein, the Herbert



PHOTO BY GLENN BROOKES

THIS SUMMER, THE UNIVERSITY'S CENTER FOR BEHAVIORAL DECISION RESEARCH UNVEILED THE DATA TRUCK, A 36-FOOT MOBILE SOCIAL SCIENCE LABORATORY THAT ALLOWS UNIVERSITY RESEARCHERS TO TAKE THEIR PROJECTS TO GO.

A. Simon Professor of Economics and Psychology and a member of the CBDR. The center — jointly operated by the College of Humanities and Social Sciences, the Tepper School of Business and the Heinz School — studies human decision-making in a variety of contexts, including consumer spending, drug addiction and the legal system.

In addition to helping researchers recruit a diverse subject pool, the truck can be used to study events as they unfold — for example, the effect of

exhaustion on marathon runners crossing the finish line or how alcohol impacts the judgment of tailgating Steelers fans at Heinz Field.

The Data Truck will also be available to Carnegie Mellon's Quality of Life Technologies Initiative, a joint venture with the University of Pittsburgh that is supported by the National Science Foundation. Researchers plan to use the Data Truck to study how people learn to use new technologies. This kind of work has important applications for

developing devices that will help senior citizens and people with disabilities lead more independent lives.

Researchers could take the truck to a church or assisted-living facility, and reach not only a broader population than those who normally volunteer for research, but also the very people for whom new technologies are being developed.

"By bringing experiments to the subjects, Carnegie Mellon is at the forefront of data-gathering," Loewenstein said.

## "Highlands Circle" Chronicles University's Building Blocks

■ Susie Cribbs

The University Advancement Division recently published "The Highlands Circle: A Commemorative History of Philanthropy at Carnegie Mellon, 1900–2005," which highlights the alumni, founders and university friends who have committed \$1 million or more to Carnegie Mellon during their lifetimes. Designed by Brady Communications (founded by alumnus John Brady, A'75), it borrows its name from the university's Highlands Circle giving society, which was established in 2005 to recognize that same category of Carnegie Mellon supporters. More than 100 individuals and 100 organizations were named to the society in 2005, representing roughly \$940 million in gifts to Carnegie Mellon since the university was established.

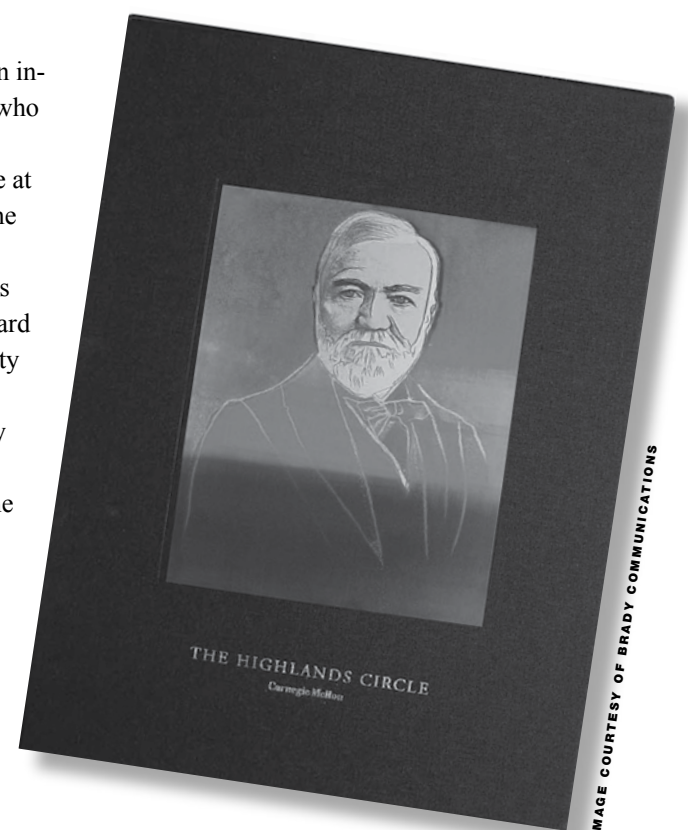
These charter members serve as the subject of "The Highlands Circle" book. Each two-page spread in the 251-page volume features an original portrait of the donor on the left, and a profile of their life, work and contributions to Carnegie Mellon on the right. These aren't just any portraits, though. Each one was rendered by a Carnegie Mellon student, faculty member or alum — including Andy Warhol, whose famous portrait of Andrew Carnegie fittingly opens the book.

Beginning with Carnegie's original commitment to begin the school and continuing through some of the university's most recent benefactors (like the Gates Foundation), the book tells the chronological story of how philanthropy can build a world-class

university. And it gives an in-depth look at the people who made it possible.

Though not available at your local bookstore, "The Highlands Circle" was distributed to all members of the society and the Board of Trustees, and University Libraries received a few copies as well. University Advancement also gave each person profiled in the book his or her original portrait.

For more on the Highlands Circle, see [www.cmu.edu/giving/societies/highlands-circle.shtml](http://www.cmu.edu/giving/societies/highlands-circle.shtml).







## INTERNATIONAL DISPATCHES

### Carnegie Mellon in Qatar

#### Carnegie Mellon Qatar Moves to Liberal Arts and Sciences Building

Carnegie Mellon in Qatar begins its fourth academic year in a new home, the Liberal Arts and Science (LAS) building in Education City. But this is only a pit stop as students and employees eagerly await the completion of Carnegie Mellon's business administration and computer science building sometime in spring 2008.

The move increases Carnegie Mellon Qatar's office, meeting and workstation space. The main campus phone numbers remain the same, but all faculty and staff have new phone numbers. Carnegie Mellon shares its space in LAS with the Georgetown School of Foreign Service and the Academic Bridge Program.

Carnegie Mellon's new building (shown below), which is being built by the Qatar Foundation, will measure an expansive 42,000 square meters. State-of-the-art features combined with a robust palette of colors, water features and trees will create warm and inviting spaces throughout the building. Designed by renowned architects Legorreta + Legorreta, the building will have at its core an open three-story atrium that will serve as a town square. Filled with natural light, the atrium will be home to a food court, assembly area and expansive walkway.

Carnegie Mellon's building is situated on the main east-west passage through Education City, and the design is intended to create the feeling that the building is a meeting place for everyone there.



### Summer Fun in the 'Burgh for Botball winners



PHOTO BY ANDY ZRIMSEK

This July, Carnegie Mellon hosted three high school students from the Al RU'YA Bilingual School in Kuwait who took the top spot at Carnegie Mellon in Qatar's first international Botball® competition. The students won a trip to Pittsburgh as the grand prize for beating 17 other teams from Qatar, the United Arab Emirates and Kuwait in May.

Their five days in Pittsburgh included a whirlwind of activities, from tours of the Robotics Institute and the Entertainment Technology Center to a Pirates game, caving, shopping, a city tour and recognition of their achievement by Pittsburgh City Council.

The Botball high school robotics competition is a U.S.-based organization that brings robotics to high schools. Student teams are equipped with a Lego® Mindstorm robot, along with instruction on how to program it to move autonomously through a course.

Carnegie Mellon Qatar introduced Botball to its undergraduate campus in Doha in 2005. Because of the overwhelming success of the Botball competitions, Carnegie Mellon in Qatar plans to encourage high school students from the entire Persian Gulf region to participate in the robotics competition next year. The students are pictured above in Pittsburgh City Council Chambers with Dean Chuck Thorpe (far right) and members of Pittsburgh City Council.

### Australia

#### Heinz Australia Introduces New Programs

The Heinz School in Australia now offers degree programs in public policy and management and information technology. The programs, which take two years to complete, are a new development, said Executive Director Tim Zak. "The two-year programs have a strong practical component and an internship that gives students experience in the workplace, as well as the skills and knowledge required for a wide range of public policy and management roles," Zak said. Students will also be able to take advantage of the formal exchange program between Pittsburgh and Adelaide.

#### Shortage of Software Engineers Addressed

The University of Queensland, Boeing Australia and Carnegie Mellon have formed a partnership to address the shortage of software engineers in Australia. The launch of the joint Master of Software Engineering program was announced this summer. The curriculum will be offered through distance learning, enabling working professionals in remote locations to complete their studies.

Carnegie Mellon is providing materials for several courses. David Garlan, director of the Master of Software Engineering programs in Pittsburgh, told the University of Queensland News

Online that the collaboration would complement Carnegie Mellon's "existing broad base of international collaborations in the area of professional software engineering master's programs."

Craig Saddler, president of Boeing Australia, said the company is "delighted to be the catalyst in getting this highly regarded course to Australia." He predicted that the program would be of great interest to Boeing's 4,000 Australian employees.

#### Telstra Scholarships Offered

Applicants to the information technology program at Heinz Australia are eligible for scholarships offered annually through a program funded by Telstra, a major telecommunications company. The Telstra Media Communications and Technology Scholarships are valued at \$90,000 each.

#### ETC Makes Trip to Brisbane

ETC Australia faculty and students visited the vibrant city of Brisbane this summer. The trip to Brisbane, which is the hub of video game activity in Australia, was led by ETC Australia Director John Buchanan and included visits to companies to discuss job opportunities for students.

### Portugal

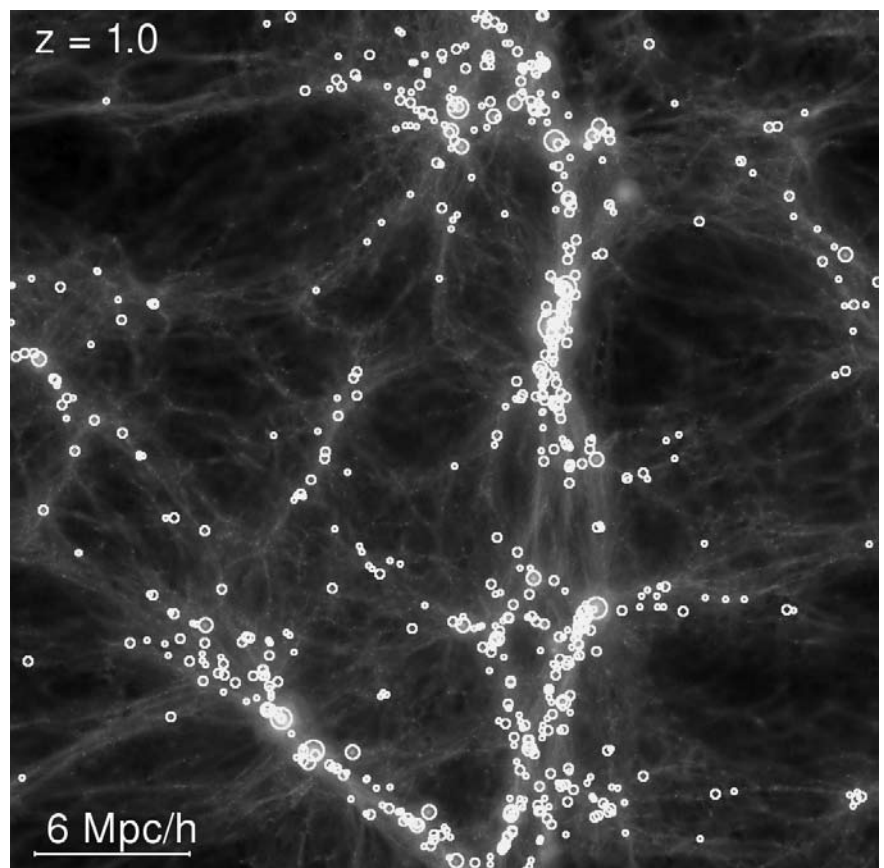
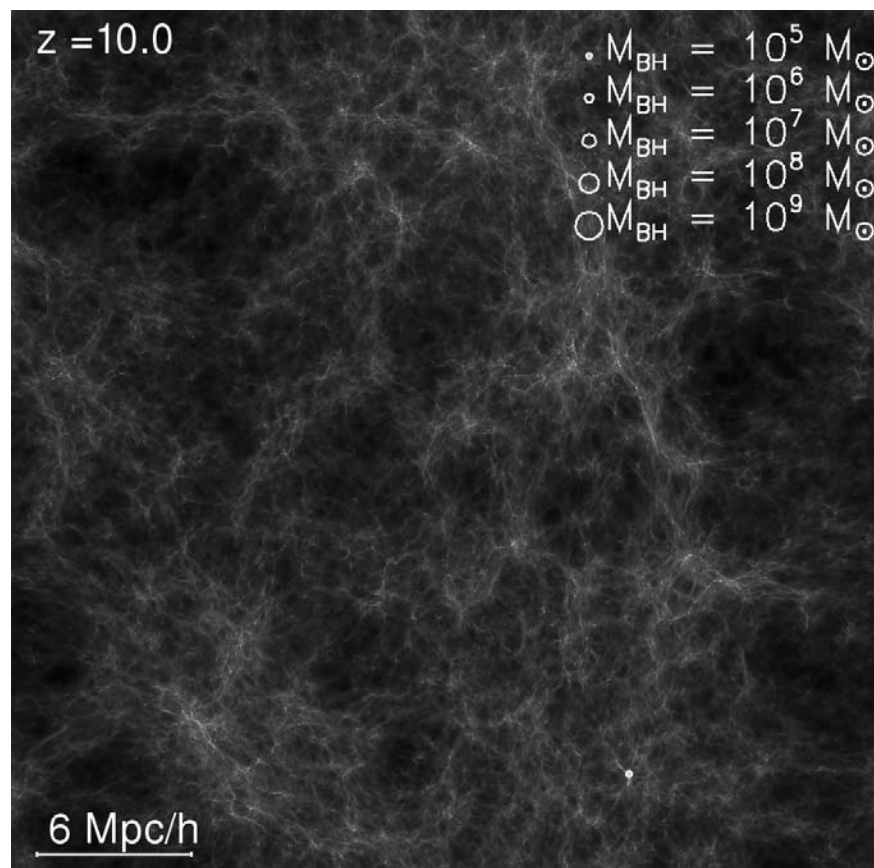
#### Human-Computer Interaction Master's With Madiera

This fall, Carnegie Mellon and the University of Madiera in Portugal launched a dual master's degree in human-computer interaction that involves course work on both sides of the Atlantic Ocean. The 16-month program, sponsored by the regional government of Madeira, starts in Pittsburgh with a semester of core courses at the Human-Computer Interaction Institute, followed by 12 months of further course work and a capstone project course at the University

of Madeira. Associate Professor of Design Shelley Evenson and Nuno Jardim Nunes, head of the Mathematics and Engineering Sciences Department in Madiera, direct the degree program, which is part of a long-term educational and research collaboration between Carnegie Mellon and Portugal's Ministry of Science, Technology and Higher Education announced last year.

# Simulation Helps Put Black Hole Puzzle Together at Last

■ Amy Pavlak



IMAGES COURTESY OF TIZIANA DI MATTEO

THESE STILL FROM THE BHCOSMO SIMULATION DEPICT THE EMERGENCE OF BLACK HOLES (SHOWN AS DOTS) WHEN THE UNIVERSE IS JUST 300,000 MILLION YEARS OLD (LEFT). AS THE UNIVERSE EVOLVES, SUPERMASSIVE BLACK HOLES AND LARGE GALAXIES FORM (RIGHT).

Black holes have always been the black sheep of the galactic family. First predicted by Einstein — even though he thought they were too weird to be real — black holes have puzzled astrophysicists for decades. But today, Carnegie Mellon astrophysicist Tiziana Di Matteo is putting that puzzle together with the help of a super-powered cosmological computer simulation she developed called BHCosmo.

In recent years, experimental observations have revealed that black holes are important regulators of galaxy formation and, ultimately, the fabric of today's universe, according to Di Matteo. "There appears to be a close connection between the formation and evolution of galaxies and of their central supermassive black holes. However, the nature of this relationship has yet to be understood in detail."

Enter Di Matteo's computer simulation, the first to incorporate the physics of black holes into a highly sophisticated model of cosmic evolution. BHCosmo allows Di Matteo to study the interplay of galaxy formation and black hole growth over the past 13 billion years of cosmic history.

Di Matteo's computer model starts from scratch — a universe full of dark matter and gas. She added equations to

place black holes at the center of fledgling galaxies and describe how they swallow gas. With these calculations in place, Di Matteo could sit back and watch what unfolds over millennia and millions of light years.

Di Matteo's simulation took an enormous amount of computer power, so she called on the Cray XT3 system at the Pittsburgh Supercomputing Center, a joint effort of Carnegie Mellon and

## NEWS BRIEFS

### McCullough Named VP of Research; Gilman Acting Dean

Rick McCullough, former dean of the Mellon College of Science (MCS), was named Carnegie Mellon's vice president of research this past July. In this new senior leadership position, McCullough will nurture interdisciplinary research initiatives and oversee sponsored research, technology commercialization and a number of cross-college research centers. He will also work to obtain funding from foundations and corporations for research activities. Fred Gilman, the Buhl Professor of Theoretical Physics and head of the Physics Department, is serving as acting dean of MCS. Gilman will also continue to serve as department head, a position he has held since 1999.

### Brown, Powers Remembered

Biological Sciences Professor and former department head William Brown and Chemical Engineering Professor Gary Powers died this past July. Brown was an honored educator, winning the Julius Ashkin Teaching Award, the Richard Moore Education Award and the

Robert Doherty Award. He held key roles on numerous committees and was the Faculty Senate Chair from 2004 to 2005. A campus tribute is being planned for 10 a.m., Saturday, Nov. 10 in Rangos Hall. Remembrances may be made to Carnegie Mellon for the Dr. William E. Brown Scholarship Fund, c/o Sharon King, 6 PPG Place, 11<sup>th</sup> Floor, Pittsburgh, PA 15222-5488.

Powers was a respected educator known for his passion for teaching and dynamic personality. He was a pioneer in risk-assessment technology and a leading researcher in process systems engineering. A memorial service was held on Sept. 13. Memorial contributions may be made to the Spina Bifida Association of Western Pa., 134 Shernot Road, Wexford, PA 15090.

### "Boss" A Semifinalist for DARPA's Urban Challenge

The Tartan Racing team, led by University Professor William "Red" Whittaker and technology director Chris Urmson, has been named one of 36 semifinalists in the DARPA Urban Challenge, a \$2 million robotic vehicle race that will take place Nov. 3 at an urban military training

facility in Victorville, Calif. Tartan Racing's self-driving Chevy Tahoe, "Boss," will now compete for one of 20 positions in the starting lineup at the National Qualification Event, Oct. 26–31, which will also be at the Victorville training facility.

The Urban Challenge is a competitive rally for autonomous vehicles, with prizes of \$2 million, \$1 million and \$500,000 for the top three finishers that complete the course within a six-hour time limit. Vehicles have to navigate, park and deal with traffic on a 60-mile suburban course without human guidance. They must rely on sensors and computers to obey traffic laws, merge into moving traffic, avoid obstacles and negotiate intersections. Boss is equipped with lasers, radars and cameras, and has 10 computers and 200,000 lines of software behind the wheel.



PHOTO BY KEN ANDREYO

### Von Ahn Among World's Top Young Innovators

Assistant Computer Science Professor Luis von Ahn has been named one of the world's top young innovators under the age of 35 by Technology Review magazine in recognition of his pioneering work in the field of human computation. Von Ahn and 34 other TR35 winners will be featured in the September issue of the magazine and will be honored Sept. 25–27 at the magazine's Emerging Technologies Conference at MIT.

A major focus of von Ahn's research has been finding novel ways to tap the unique computational abilities of humans. His latest project, reCAPTCHA, is a new version of the "distorted letter" tests, called CAPTCHAs, that are used millions of times each day to ensure that users of a Web site are human and not rogue computer programs. The reCAPTCHA tests use words from printed texts that are in the process of being digitized, but cannot be deciphered with existing optical character-recognition programs. By solving the reCAPTCHA puzzle, a human user not only gains access to a Web site, but also helps make more books available online.



the University of Pittsburgh together with the Westinghouse Corp. Running the simulation required all 2,000 of the XT3's processors and about four weeks of run time.

Di Matteo and her collaborators, including Jörg Colberg at Carnegie Mellon, Volker Springel and Debora Sijacki at the Max Planck Institute for Astrophysics, and Lars Hernquist at Harvard, are still sorting through the ten trillion bytes of data the simulation produced. But so far, they've seen at least one thing to pique their interest — black hole behavior governs how galaxies grow and mature. Their finding verifies and deepens understanding of the relationships between black holes and the galaxies where they reside.

As galaxies formed in the early universe, they likely contained small black holes at their centers that formed from the gravitational collapse of the first stars. In BHCosmo, the first black holes appear when the universe is a spry 300 million years old. Millions of years pass, and the black holes keep gobbling up gas, which powers a luminescent state called a quasar.

"Quasar formation really captures when the fun happens in a galaxy," Di Matteo said. "You can only use a computer simulation to follow a complex, nonlinear history like this to understand how quasars and other cosmic structures come about."

As the simulation progresses, the quasar energizes the surrounding gas and blows it all the way out of the

galaxy. Without nearby gas, the black hole can't "eat" to sustain itself and becomes dormant. Because stars are made of gas that cools and fragments, the black hole's quasar also shuts down star formation when it pushes all the gas out of the galaxy. As the stars age, the galaxy can be described as "red" (what old stars look like) and "dead" (because no new ones are made).

Di Matteo's simulation allows her to watch the growth and evolution of thousands of black holes and galaxies. Its high resolution lets her zoom in to study the growth of any black hole that catches her eye.

"Using BHCosmo, we can study the detailed growth history of individual black holes, from the moment they are seeded to today, which provides a powerful way to follow the evolution of black holes over cosmic time," Di Matteo explained.

They can also examine what turns a small black hole into a supermassive one — do two black holes merge, or does one just suck in so much gas that it grows to a billion times the mass of our sun?

It's not clear what will emerge as the investigation into cosmic history deepens, but one thing is for sure: at least for Di Matteo, black holes are sitting center stage.

## Cleaning Up Panther Hollow Lake



PHOTO BY GLENN BROOKES

CIVIL AND ENVIRONMENTAL ENGINEERING STUDENTS AMANDA MITCHELL AND MARY SCHOEN HAVE TEAMED UP WITH THE PITTSBURGH PARKS CONSERVANCY TO CLEAN UP PANTHER HOLLOW LAKE. UNDER THE SUPERVISION OF JEANNE VANBRIESEN, ASSISTANT PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING AND BIOMEDICAL ENGINEERING, THE STUDENTS COLLECTED WATER SAMPLES OF THE ONCE-BUSTLING LAKE. VANBRIESEN SAID THE BIGGEST CHALLENGE IS THE MULTIPLE POINTS OF POTENTIAL WATER CONTAMINATION, WHICH THEY SAY IS COMING MOSTLY FROM WILDLIFE.

### Heinz Endowments Funds Remaking Cities Institute

The Heinz Endowments has awarded \$300,000 to create a Remaking Cities Institute (RCI) in the School of Architecture that will bring university, industry and community leaders together to make responsible, sustainable changes to Pittsburgh neighborhoods. The RCI will use a multidisciplinary work model to make decisions that bring aspects of land use, zoning, transportation, mixed-use development and neighborhood design together with urban geography, economics and policy. Key partners in the effort are the Heinz School's Center for Economic Development and the university's Urban Lab, an outreach program that uses faculty and student expertise to address urban-development issues in the Pittsburgh region. During the next year, the institute will use the grant to create a vision for the former LTV site in Hazelwood and to study its potential for advancing sustainable development in neighboring communities. Luis Rico-Gutierrez, associate dean of the College of Fine Arts, will direct the institute.

### "A Behavioral Theory of the Firm" Still Has Impact

More than four decades ago, two academic pioneers at what is now the Tepper School published "A Behavioral Theory of the Firm," a book that profoundly changed how researchers and managers worldwide understood the decision-making process within organizations. In a forthcoming special issue, the leading management journal *Organization Science* recounts the enormous impact of this groundbreaking work by the late Richard Cyert, former Carnegie Mellon President, dean of the business school and faculty member; and former Carnegie Mellon faculty member James March, who is now at Stanford University.

### Conference Focuses on Computer Science Research for Women

Frances Allen, the first woman to receive the A.M. Turing Award, the nation's top computer science honor, will be a keynote speaker at a conference focusing on computer science research opportunities for undergraduate women. The first-of-its-kind conference, titled "OurCS" (Opportunities for Undergraduate

Research in Computer Science), will be held Oct. 5–7 at Carnegie Mellon. Participants will learn about research by working in teams guided by scientists from academia and industry. They will also be given an opportunity to present talks or posters about their own research. Women graduate students from computer science departments across the country will provide additional insights by sharing their perspectives about life and work in graduate school. In addition to Women@SCS, OurCS is sponsored by Carnegie Mellon and Microsoft Research. Further information: [www.cs.cmu.edu/ourcs/](http://www.cs.cmu.edu/ourcs/)

### Carnegie Mellon Ranked Among Top National Universities

Carnegie Mellon ranked 22<sup>nd</sup> overall among national universities in U.S. News & World Report magazine's 2008 edition of "America's Best Colleges," its survey of the nation's undergraduate programs in higher education. In addition to its overall rankings, the magazine annually rates undergraduate business and engineering programs and Carnegie Mellon ranked seventh and ninth, respectively.

In specialty business programs, Carnegie Mellon ranked first in management information systems, second in production/operations management and quantitative analysis, sixth in supply chain management, 10<sup>th</sup> in finance, 17<sup>th</sup> in general management and 18<sup>th</sup> in entrepreneurship. In specialty engineering programs, the university ranked second in computer engineering, 10<sup>th</sup> in electrical/electronic, environmental and mechanical engineering, 11<sup>th</sup> in materials/metallurgical engineering, 12<sup>th</sup> in civil engineering and 14<sup>th</sup> in chemical engineering.

Carnegie Mellon was listed 30<sup>th</sup> in the "Great Schools, Great Price" category and continued to be noted as a "program to look for" in undergraduate research and creative projects. The university was also recognized for its percentage of international students (13 percent) and its economic diversity, a category based on the percentage of students receiving Pell Grants (12 percent).

## LECTURE SPOTLIGHT: E.O. WILSON TO HIGHLIGHT RACHEL CARSON LEGACY CONFERENCE

■ Ken Walters

“Dr. Ant” is coming to Carnegie Mellon.

Pulitzer Prize-winning biologist E.O. Wilson will be the keynote speaker at the Rachel Carson Legacy Conference, Saturday, Sept. 29. His talk, “The Ecosystem of Life,” will take place at 9:15 a.m. in McConomy Auditorium in the University Center. Celebrating the life of famed environmentalist Rachel Carson, the inaugural conference is titled “Sustaining the Web of Life in Modern Society.”

The daylong conference is sponsored by the Rachel Carson Homestead Association and will feature panels discussing key environmental issues, including the health of the world’s oceans and environmental leadership. Granger Morgan, head of Carnegie Mellon’s Engineering and Public Policy Department and director of the Climate Decision Making Center, will lead a third panel on global warming. Vice Provost for Education Indira Nair will lead the closing session.

A world-renowned authority on ants and social insects, Wilson has written 20 books, won two Pulitzer Prizes and

discovered hundreds of new species. He is the Pellegrino University Research Professor Emeritus at Harvard, where he has taught for more than four decades.

Born in 1929, Wilson became interested in ants at an early age when an accident cost him the sight in his right eye. As a result, he learned to examine insects closely with his left eye and decided to specialize in ants when he entered the University of Alabama in the mid-1940s.

After earning his degree at Alabama, Wilson enrolled at Harvard for his graduate studies. His graduate work included research in the American tropics, Australia and the South Pacific, where his studies of native ants earned him the reputation as the world’s foremost authority on the subject, and the nickname “Dr. Ant.”

From this work, Wilson developed the foundations for understanding the biological basis for social behavior in insects and other animals, which resulted in a new field of study called sociobiology. In direct contradiction with many social scientists at the time, Wilson believed that all animals, including



E.O. WILSON

**WHO:** Pulitzer-Prize winning biologist E.O. Wilson

**WHEN:** 9:15 a.m., Saturday, Sept. 29

**WHERE:** McConomy Auditorium, UC

humans, should not be excluded from evolutionary analyses.

Today, Wilson remains involved in environmental issues, especially concerning the loss of biodiversity. He is also heavily involved in conservation efforts, serving on the board of direc-

tors of Conservation International, the American Museum of Natural History and The Nature Conservancy.

Admission for the conference is \$25 for adults and \$10 for college students. Seating is limited. For more information, visit [www.rachelcarsonhomestead.org](http://www.rachelcarsonhomestead.org).

Read more about what’s going on at Carnegie Mellon in the Upcoming Events on page seven.

## Q&A With President Cohon CONTINUED FROM PAGE FIVE

They’ll often add that we’re a nicer place, a happier place than we were 10 years ago.

So how do you sustain that when you’ve got far-flung operations, as we do? How do you bring a sense of community to a campus outside of Pittsburgh that’s brand new?

First of all, I think populating it with people from Pittsburgh, at least to start, is important because they bring with them a knowledge of the Carnegie Mellon way and the way this community operates. So that plants the seed — they know what it’s like to be an effective campus community.

But there’s a maintenance issue: keeping the connection between an international location and Pittsburgh. We don’t have a good answer for that now. Qatar is our biggest operation and there’s a lot of going back and forth there, which has helped greatly. We’re also still very much in the start-up phase, so it’s hard to really say that anything we’ve done is the answer. But I think that the free-flow of people back and forth is important.

Frankly I’d be kidding myself and we’d be kidding ourselves if we thought that somehow Doha’s going to be a mini Pittsburgh. It can’t be. It’s Carnegie Mellon in a new environment and that’s going to be a different thing from Carnegie Mellon in Pittsburgh.

But it’s all part of Carnegie Mellon. And how that plays out over time is a really good question. It’s something we have to work at and manage. The key is maintaining connections.

### **What advice do you have for first-year students to be successful here?**

The same advice I and everybody else always give them: take advantage of what’s around you. Be proactive and even aggressive in working the system to your advantage. Go talk to faculty, even if you’re not taking their class but especially if you are — even if you don’t have a problem or a homework question. Just go chat with them. Learn about their research. Get involved. ... Carnegie Mellon is a place just filled with intellectual and creative riches that are there for the taking, there for the experiencing. But it’s not a place that grabs you by the collar and says ‘Do this’ or ‘Do that.’ It gives you these opportunities, but it’s up to you to take advantage of them.

### **You’re a busy guy, but do you have time to do anything outside of work?**

I like to read. My grandson, Nathan, is actually my first hobby. He’s four and he’s a miracle. My wife and I are the luckiest people in the world. We’ve got Carnegie Mellon and Pittsburgh, and my daughter, son-in-law and grandson two miles away.

So grandson, reading, golf. Just hanging out with my wife.

### **What’s the last book you read?**

The last one I finished was “The Johnstown Flood” by David McCullough. But I’m very eclectic. I like fiction and nonfiction, biographies and histories, fantasy. I’m a Tolkien nut.

### **What would people be surprised to know about you?**

I’m just a regular guy; also the fact that I was a rock drummer when I was younger. It’s actually on Wikipedia now. There’s a “Cohon” entry but the only thing of substance other than the fact that I am president of Carnegie Mellon is that I was Clivus Jivus in the New Crusty Nostrils.

### **Nice name.**

There was a folk rock group of the ’60s called the New Christy Minstrels, which was very white bread. So my ultra cool and hip band mates chose this name as a nasty, sort of ’80s sensibilities take-off on what was this banal band: Christy Minstrels, Crusty Nostrils ... Get it?

### **Where do you like to go on vacation?**

Our favorite thing is to take road trips. We call it our “Discover America” tour. Anything that doesn’t involve getting on a plane and that does involve barbeque.

We just completed this year’s road trip. We went to Kansas City. ... It’s up to me every year to choose the destination, but the destination doesn’t matter that much. It’s really the journey. My wife and I just love spending time together in the car, stopping at places we’ve never heard of and discovering things.

But Kansas City was chosen this time because last year I was reading McCullough’s book on Truman, who was from Independence, Missouri — just outside Kansas City. We did all the Truman stuff there, the Truman Museum and Library, which was terrific. We had our share of beef, which is definitely better in Kansas City, and barbeque.

### **Have you been to the other big BBQ capitals so you can accurately compare?**

Yeah. They’re all different. We had a pilgrimage to Memphis and other trips around Tennessee and Kentucky. I would never say one is better.

### **Last question: What’s your take on the bagpipes?**

I love them. I find they get me in the gut — in a good way. They can be uplifting. They can be morose. They can be nostalgic, even for a kid from Cleveland. But whatever they are, they evoke emotion in me. I think they’re terrific.