



## Carnegie Mellon

- 5 Q&A WITH JANE BERNSTEIN
- 6 HOMECOMING PREVIEW
- 7 ATHLETIC FACILITY RENOVATIONS
- 12 LECTURE SPOTLIGHT

## Carnegie Mellon Team Competes in Solar Decathlon

■ Eric Sloss

Scraps of metal, wood and debris were still visible around Carnegie Mellon's solar house after a long summer of construction in preparation for the Department of Energy's (DOE) Solar Decathlon event this month in the nation's capital.

But on Sept. 17 students scrambled to make the site presentable for their invited dinner guest, President Jared L. Cohon, who cruised to the Point Breeze construction site in a battery-operated Global Electric Motorcar, in keeping with the green theme.

Ben Saks, a fifth-year senior in the

CONTINUED ON PAGE FOUR

## Randy Pausch's "20/20" Vision

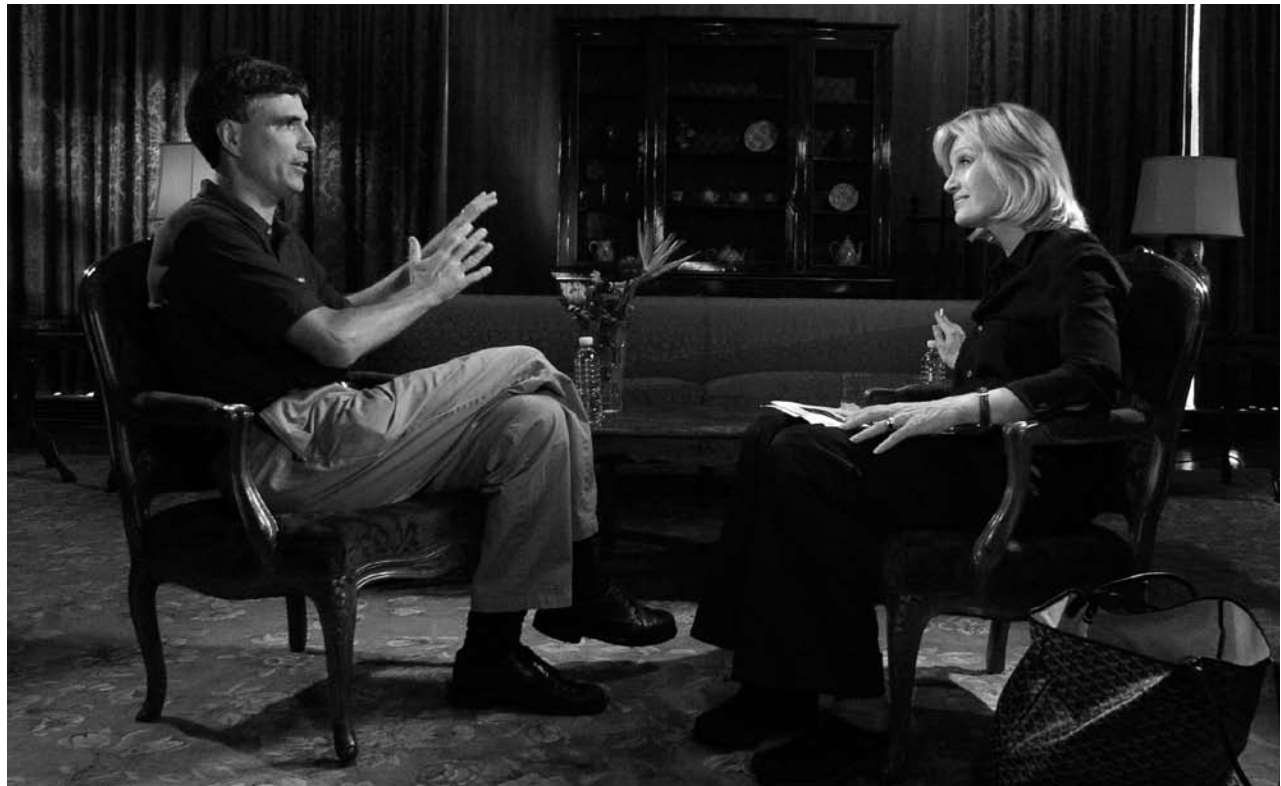


PHOTO BY KEN ANDREYO

PROFESSOR RANDY PAUSCH WAS RECENTLY INTERVIEWED ON CAMPUS BY ABC-TV'S DIANE SAWYER FOR AN UPCOMING FEATURE ON THE NETWORK'S "20/20" NEWS DOCUMENTARY. THE 20/20 PIECE IS PART OF A GROUNDSWELL OF MEDIA COVERAGE PAUSCH HAS RECEIVED AFTER GIVING HIS LAST LECTURE HERE SEPT. 18. IN HIS LECTURE, PAUSCH, WHO HAS TERMINAL PANCREATIC CANCER, SPOKE ABOUT ACHIEVING HIS CHILDHOOD DREAMS AND GAVE ADVICE ON HOW OTHERS CAN MAKE THEIR DREAMS COME TRUE. THE ABC CREW ALSO ARRANGED FOR PAUSCH TO VISIT THE PITTSBURGH STEELERS' TRAINING FACILITY ON THE SOUTH SIDE, WHERE HE GOT TO CATCH A PASS FROM HINES WARD AND MET SEVERAL OF THE STEELERS' PERSONNEL, INCLUDING OWNERS DAN AND ART ROONEY AND COACH MIKE TOMLIN. WHILE THE VISIT DIDN'T REALLY FULFILL HIS DREAM OF PLAYING IN THE NFL, PAUSCH SAID "AT MY AGE, THIS IS SAFER." FOR MORE ON PAUSCH, SEE PAGE EIGHT.

## Lanes Establish Computational Biology Center



PHOTO BY DAVID BACHMAN

■ Amy Pavlak

Computational depth — the best in the world. An interdisciplinary culture. Visionary faculty. These ingredients make up Carnegie Mellon's "secret sauce" and are some of the reasons Carnegie Mellon trustee Raymond J. Lane and his wife Stephanie have donated \$5 million to establish the Ray and Stephanie Lane Center for

Computational Biology. But the Lanes' motivation for supporting this field and Carnegie Mellon is much more personal.

"The real reason is to eliminate the possibility that my father's grandchildren and great-grandchildren will have to go through what he went through," Lane said at the center announcement ceremony. His father died from lung cancer at age 43.

CONTINUED ON PAGE ELEVEN

AFTER THE ANNOUNCEMENT OF A \$5 MILLION GIFT ESTABLISHING THE RAY AND STEPHANIE LANE CENTER FOR COMPUTATIONAL BIOLOGY, RAY AND STEPHANIE LANE (TO THE RIGHT OF THE MICROSCOPE) TOURED A CARNEGIE MELLON LAB WITH GRADUATE STUDENT ELVIRA GARCIA OSUNA AND LANE CENTER DIRECTOR ROBERT MURPHY.



# the PIPER

10/07 Issue

**PUBLISHER**  
Teresa Thomas

**EDITOR**  
Bruce Gerson

**MANAGING EDITOR**  
Kelli McElhinny

**WRITERS**  
Amy Pavlak  
Jonathan Potts  
Byron Spice  
Chriss Swaney  
Ken Walters  
Anne Watzman

**DESIGNER**  
Melissa Stoebe  
Communications Design Group

**PHOTOGRAPHY**  
Ken Andreyo  
Communications Design Group

To contact The Piper staff, call 412-268-2900 or email [kellim@andrew.cmu.edu](mailto:kellim@andrew.cmu.edu).

Carnegie Mellon University does not discriminate and Carnegie Mellon University is required not to discriminate in admission, employment, or administration of its programs or activities on the basis of race, color, national origin, sex or handicap in violation of Title VI of the Civil Rights Act of 1964, Title IX of the Educational Amendments of 1972 and Section 504 of the Rehabilitation Act of 1973 or other federal, state, or local laws or executive orders.

In addition, Carnegie Mellon University does not discriminate in admission, employment or administration of its programs on the basis of religion, creed, ancestry, belief, age, veteran status, sexual orientation or gender identity. Carnegie Mellon does not discriminate in violation of federal, state, or local laws or executive orders. However, in the judgment of the Carnegie Mellon Human Relations Commission, the Presidential Executive Order directing the Department of Defense to follow a policy of, "Don't ask, don't tell, don't pursue," excludes openly gay, lesbian and bisexual students from receiving ROTC scholarships or serving in the military. Nevertheless, all ROTC classes at Carnegie Mellon University are available to all students.

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.

Produced for Media Relations by the Communications Design Group, October 2007, 08-202.

## GigaPan System Enables Digital Cameras To Produce Gigapixel Panoramas



PHOTO BY KEN ANDREYO

THE GIGAPAN CAMERA SYSTEM CREATED BY CARNEGIE MELLON RESEARCHERS ALLOWS ANY DIGITAL CAMERA TO PRODUCE GIGAPIXEL IMAGES THAT CAN BE EXAMINED IN GREAT DETAIL ON THE INTERNET.

### ■ Anne Watzman

If an ordinary picture is worth a thousand words, what's the value of a picture that can produce a thousand images?

The GigaPan Camera System recently introduced by Carnegie Mellon researchers offers some amazing answers to that question.

The GigaPan system is a low-cost robotic device that enables any digital camera to produce gorgeous gigapixel (billions of pixels) panoramas called GigaPans, which can be explored in minute detail on the Internet.

Its creators — Illah Nourbakhsh, associate professor of robotics in the School of Computer Science, and Randy Sargent, senior systems scientist at Carnegie Mellon's West Coast campus — developed the system in a two-year collaboration with scientists at NASA's Ames Research Center. They've also worked with Google to create a GigaPan layer on Google Earth so that anyone using that site can now zoom into the GigaPan panoramas and explore them as they're exploring the Earth.

To promote further sharing of this imagery, Carnegie Mellon has launched a public Web site, [www.gigapan.org](http://www.gigapan.org), where people can upload and interactively explore panoramic images in any format.

GigaPan uses a robotic camera mount jointly designed and manufactured with Charmed Labs of Austin, Texas, which is offering beta units for sale for an introductory price of \$279 at the company's Web site ([www.charmed-labs.com](http://www.charmed-labs.com)). The tripod-like mount allows a digital camera to take hundreds of overlapping images of landscapes, buildings or rooms. Then, using software developed by Carnegie Mellon and Ames, the images can be arranged in a grid and digitally stitched together into a single

image that can consist of tens of billions of pixels.

"We have taken imagery and made it a new tool for exploration and for enhancing global understanding," Nourbakhsh said. "An ordinary photo makes it possible to cross language barriers, but a GigaPan provides so much information that it leads to conversations between the person who took the panoramas and the people who are exploring them and discovering new details."

Nourbakhsh and Sargent. With support from the Fine Foundation of Pittsburgh, they plan to foster this effort by making several dozen GigaPans available to leading researchers.

"It's a different way of dealing with imagery," Nourbakhsh said. "We're expecting the GigaPan system to change the current ways of thinking about photography. You learn a lot about the site at which a picture was taken."

Sargent got the idea for GigaPan

**"WE'RE EXPECTING THE GIGAPAN SYSTEM TO CHANGE THE CURRENT WAYS OF THINKING ABOUT PHOTOGRAPHY." — ILLAH NOURBAKHSH, ASSOCIATE PROFESSOR OF ROBOTICS IN THE SCHOOL OF COMPUTER SCIENCE.**

Nourbakhsh hopes to build cross-cultural and global understanding through this new dimension in photography. Earlier this year, the Pennsylvania Department of Tourism adopted the system to make images of the Commonwealth's Civil War sites available on the Web. The technology is also being used for Robot250, an arts-based robotics program in the Pittsburgh area. Robot250 will increase technical literacy by teaching students, artists and other members of the public how to build customized robots. (See [www.robot250.org](http://www.robot250.org).)

Most recently, Nourbakhsh and his colleagues began a project with UNESCO's International Bureau of Education and its Associated Schools Network that will use GigaPan technology to link middle school children in Pittsburgh with their peers in South Africa and Trinidad and Tobago so they can explore each other's neighborhoods, lives and cultures.

In addition to its role in education, the GigaPan system may also be an important tool for ecologists, biologists and other scientists, according to

when he was a technical staff member at Ames Research Center, helping to develop software for combining images from NASA's Mars Exploration Rovers into panoramas. He became convinced that the same technology could open people's eyes to the diversity of their own planet.

"It is increasingly important to give people a broad view of the world, particularly to help us understand different cultures and different environments," he said. "It's too easy to have blinders on and to only see and understand what is local."

The GigaPan Camera System is part of a larger effort known as the Global Connection Project ([www.cs.cmu.edu/~globalconn](http://www.cs.cmu.edu/~globalconn)), which is also led by Nourbakhsh and Sargent. Its purpose is to make people all around the world more aware of their neighbors. Global Connection's earlier accomplishments include the publication of the National Geographic magazine photography and story layer in Google Earth.

To embed a GigaPan on your Web site, visit <http://gc.cs.cmu.edu/gigapan/embed.html>.

## Tepper School Ranked Fifth in WSJ Poll

The Tepper School of Business maintained its top 10 position in the Wall Street Journal's annual survey of the nation's best graduate business programs with a number five overall ranking for 2007. The Tepper School was also second in the "Most Improved" program category; fourth for producing "Innovative Leaders;" and ninth for minority MBA recruitment. In academic disciplines, the Tepper School ranked second in operations research and information technology; fourth in finance; sixth in entrepreneurship and strategy; and ninth in general management. In industry sectors, the school ranked fifth in management consulting; sixth in health care; seventh in energy and industry; and eighth in technology. The Tepper School also ranked eighth in recruiting MBAs with high ethical standards. The rankings are based on surveys of and interviews with recruiters who hire full-time b-school graduates.

# Tartan Racing Gears Up for Urban Challenge

■ Byron Spice

The Urban Challenge robot race will be decided on the roadways of a former U.S. Air Force Base in California, so naturally that's the environment in which Carnegie Mellon's Tartan Racing team is testing its robotic vehicles — just not at the former Georgia Air Force Base in Victorville, Calif., where

their roundhouse to access vacant roads for testing. It's why the team escaped the cold and snow of Pittsburgh last February for two months of testing at General Motors' Desert Proving Ground in Arizona. And it's why half of the team decamped to Merced last month and, in recent days, the other half has joined them.

Tartan Racing has more than a few technical advantages up its collective sleeve, he said, both in terms of analytical tools for evaluating vehicle performance and in the road behaviors programmed into its software.

During the competition, the robots will be sent on several "missions" totaling about 60 miles on urban/suburban roadways where they must obey traffic laws, negotiate intersections and deal with traffic, which will include other robots. In addition to the \$2 million prize earned by whichever team finishes first in less than six hours, DARPA will award \$1 million for second place and \$500,000 for third.

DARPA wants to see a leap in autonomous capabilities, as the Pentagon moves ahead with plans to deploy self-driving military vehicles in the coming decade. But the technology has even greater potential in the civilian world, as evidenced by the presence of such corporations as GM, Caterpillar and automotive component maker Continental AG in the ranks of Tartan Racing's sponsors.

"The outcome is far from foregone," Urmson said, noting that while the Merced testing has gone well, the robots must make a significant technological leap to complete the Urban Challenge successfully. "Anything could happen in the race, which is exciting and terrifying at the same time."

**"THE TEAM THAT TESTS THE BEST IS THE TEAM THAT WINS."**

— TARTAN RACING TEAM LEADER WILLIAM "RED" WHITTAKER

the Nov. 3 race will be held.

The Defense Advanced Research Projects Agency (DARPA) has banned all teams from the site of the \$2 million race until qualifying events begin Oct. 24. Instead of testing in the Mojave Desert, the team has taken up residence further north in the San Joaquin Valley, at the former Castle Air Force Base in Merced, Calif.

Arid Castle provides the team with the most realistic environment possible for testing its two robotic vehicles under race conditions. And testing has been a hallmark of the team from the beginning, according to team leader William "Red" Whittaker.

"The team that tests the best is the team that wins," he said. That's why Tartan Racing has its headquarters on the former LTV site in Hazelwood, where team members merely have to open the doors of

Chris Urmson, the team's director of technology, said the reunited 45-member team will have about 10 days together to make final preparations for the National Qualification Event, where Tartan Racing will join 34 other semifinalists jockeying for one of the race's 20 starting slots.

The team's entry, named Boss, faces tough competition, including a Stanford team that won the 2005 DARPA Grand Challenge, and teams from such military contractors as Honeywell, Oshkosh and Raytheon, as well as academic contenders MIT, Cornell and Caltech.

Testing is but one of Tartan Racing's strong points, Whittaker said. Sponsors not only provide money or technology but in several cases also have been integrated into the team, offering full-time engineers to work side-by-side with other team members. Furthermore,

## MOON SHOT: TARTAN RACING TO ENTER GOOGLE-SPONSORED LUNAR ROVER COMPETITION

■ Byron Spice

The DARPA Urban Challenge may be the most pressing topic on Red Whittaker's mind these days, but it's by no means the only thing. So, Tartan Racing's team leader didn't hesitate last month to commit to an even bigger technical challenge: landing a privately funded robot on the moon.

Whittaker revealed he would form a team to win the Google Lunar X-Prize only an hour after the \$30 million international competition was announced Sept. 13 at WIRED NextFest in Los Angeles.

From his perspective, it only made sense to jump into the fray first.

"We have spent decades building and testing robotic technologies for just this purpose," he said. "We are also veterans of competitive technology challenges. These are the things we do, so combining lunar rovers with a competitive race to the moon is a great opportunity."

The Field Robotics Center, which Whittaker directs, has built a variety of machines for field-testing planetary robotics technology on Earth. They include Nomad, which searched for meteorites in Antarctica using its own vision and intelligence, and Dante II, an eight-legged robot that retrieved gas samples from inside the Mt. Spurr volcano.

Just the day before the Google Lunar X-Prize announcement, NASA made a site visit to campus to see a demonstration of the center's latest creation, a robotic prospector called Scarab. A combination dune buggy and drilling platform, Scarab will test robotic drilling technology that could be used to find ice and other resources that could be mined on the moon.

The Google Lunar X-Prize, which will award \$20 million for driving a robot on the moon and transmitting images to Earth by 2012, will require more than just building a groundbreaking robot. So, Whittaker must recruit partners with the financial and technical wherewithal to launch the robot payload and land it safely on the lunar surface.

"This is a tremendous opportunity to pioneer the endless frontier and I am excited that Carnegie Mellon will be there," said Jay Apt, a former astronaut who is now associate research professor at the Tepper School of Business and a Distinguished Service Professor in Engineering and Public Policy.



PHOTO COURTESY OF TARTAN RACING

SHOWN HERE AT TARTAN RACING'S HAZELWOOD HEADQUARTERS, BOSS WILL COMPETE AGAINST 34 OTHER SEMIFINALISTS BEGINNING OCT. 24 TO EARN ONE OF 20 STARTING POSITIONS IN THE DEFENSE ADVANCED RESEARCH PROJECTS AGENCY'S 2007 URBAN CHALLENGE.

# Solar Decathlon House Will Be Tough To Beat, Says Steve Lee

CONTINUED FROM PAGE ONE

School of Architecture and the Solar Decathlon team's student project manager barked to his teammates to pick up the pace.

"We have one hour left to clean up this mess. Let's move a little faster," he said.

Miraculously, the students wrapped up their cleaning duties and made it to the dinner table with clean clothes and washed faces, eager to talk to President Cohon about the solar house.

The students got a taste of déjà vu Sept. 20 when they repeated the clean-up routine. This time the stakes were a bit higher, as the house's interior needed to be spotless for its unveiling to the media and the public. Irritation and tension built as some team members swept the grounds and discarded the trash, while others were still installing shelves and placing furniture at the last minute.

The DOE's Richard King, who is the Solar Decathlon event director, and City Councilman Bill Peduto, co-chair of the city's Green Government Task Force, were among the approximately 150 people who came out that day to see the latest Carnegie Mellon creation, an 800 square-foot modular solar house.

A large central linear space houses the structure's mechanical systems, and the core holds removable sections or "pods" that can be swapped with larger or smaller versions.

Although the house's public debut was a success, the team's work was not yet complete. On Oct. 2 the solar house was disassembled by crane and shipped to the National Mall in Washington, D.C., via three tractor-trailers and a box truck. The team then had one week to reconstruct the solar house in Washington to prepare for the Solar Decathlon's Oct. 12 opening ceremonies.

The entries in this year's field, which includes the work of 20 university teams, are judged in 10 categories: architecture, engineering, market viability, communications, comfort zone, appliances, hot water, lighting, energy balance and transportation. The competition's judging process continues through Oct. 20.

Following the Solar Decathlon, the Carnegie Mellon entry will continue to influence environmental research after the competition ends. In fact, the students' legacy will endure well beyond their graduation from Carnegie Mellon. After the house returns to western Pennsylvania, it will become the laboratory for Powdermill Nature Reserve, which is a biological research station for Carnegie Museum of Natural History in Ligonier.

"Every year the houses get better and better, but I'm not quite sure how we can top this entry. The collaborative effort across the college and around the city has made this an exceptional experience," faculty advisor Steve Lee said.

For more information on the team's design visit [www.andrew.cmu.edu/org/SD2007/house/index.html](http://www.andrew.cmu.edu/org/SD2007/house/index.html).



APPROXIMATELY 150 PEOPLE ATTENDED A PUBLIC SHOWING OF THE CARNEGIE MELLON SOLAR HOUSE ON SEPT. 20.



THE U.S. DEPARTMENT OF ENERGY'S SOLAR DECATHLON DIRECTOR RICHARD KING SPOKE TO CARNEGIE MELLON SOLAR DECATHLON TEAM PARTICIPANTS AT THE SOLAR HOUSE'S PUBLIC UNVEILING, AS FACULTY ADVISOR STEVE LEE STANDS BY. THE CARNEGIE MELLON ENTRY IS ONE OF 20 FROM UNIVERSITIES AROUND THE WORLD.

PHOTOS BY GLENN BROOKES

## Antidepressant Black Box Warnings May Do More Harm Than Good

■ Jonathan Potts

The grim news came as no surprise to Statistics Professor Joel Greenhouse.

In 2004 the suicide rate among people ages 10 to 24 climbed 8 percent following a previous decade of decline, according to a recent report by the U.S. Centers for Disease Control. That spike followed on the heels of an order by the Food and Drug Administration that manufacturers place a "black box" warning on the labels of antidepressants advising that they increase the risk of suicidal thoughts and behavior in youths.

Simultaneously, an independent study out of the University of Illinois at Chicago has found that prescriptions for antidepressants plummeted 22 percent following the black box warning.

"The results of these two studies raise the question whether this increase in the number of suicides is due to seriously ill children not getting prescriptions for drugs that would have helped them," Greenhouse said.

Last year, Greenhouse and fellow Statistics Professor Howard Seltman, along with colleagues at Ohio State University, received a five-year, \$1.2 million grant from the National Institute of Mental Health to investigate the link between antidepressants and suicidal thoughts, attempts and suicide deaths. The researchers are analyzing multiple data sources that might shed light on what relationship, if any, antidepressant use has with suicidal behavior.

When issuing the black box warning order, the FDA did not consider the results from large observational studies that have been unable

to find an increased risk of suicide or suicidal behaviors among youths who use antidepressants.

Greenhouse and colleagues have already published a study in which they found an increased risk of suicidal thinking and behaviors only among adolescents who suffered from major depressive disorder, and then only among those who took a specific class of antidepressants — selective serotonin reuptake inhibitors. Antidepressants are prescribed for a variety of other psychological ailments, such as obsessive-compulsive disorder and general anxiety disorder.

"There may be a group of children at risk for increased suicidal thinking," Greenhouse said. "Unfortunately, the controversy about the black box warning has shifted attention away from trying to identify who these children are."

Greenhouse first dove into this contentious issue back in 2004, when a reporter with the Dallas Morning News contacted him to help her make sense of the data the FDA used to reach its decision.

The agency had performed an analysis of 23 clinical trials conducted by pharmaceutical companies to test the efficacy of antidepressants in treating mental illness in children and adolescents. None of the youths who participated in those studies committed suicide, and the number of suicide attempts was too low to be statistically significant. Nonetheless, the FDA found that antidepressants increased the risk of what it termed "suicidality," or suicidal thoughts and behaviors.

Greenhouse pointed to several

possible problems with that conclusion. One is that the clinical trials excluded participants who were deemed to be at a high risk of suicide, so it is difficult to generalize those results to the entire population of adolescents who would be affected by the black box warning. Further, the studies were not designed to measure a relationship between antidepressant use and suicide — their purpose was simply to determine whether the drugs were effective in treating mental illness.

Perhaps most significant, there is no demonstrated connection between expressing suicidal thoughts and suicide itself. Greenhouse said that many psychiatrists report that as their patients' conditions improve, they are more likely to express suicidal thoughts simply because they are better able to articulate their feelings, phenomena known as activation.

As part of his research, Greenhouse is reviewing psychotherapy studies to see whether there is an increase in suicidality among teens who were successfully treated with methods other than antidepressants, which would provide evidence for the activation hypothesis.

"The FDA's decision was only based on a consideration of possible harmful effects. There are children, however, for whom these drugs are effective, and if they are not receiving adequate treatment, their lives are terrible," Greenhouse said. "There really is a need to balance the benefits and the risks."

"One has to wonder, with the reported increase in adolescent suicide, whether the black box warning on balance has done more harm than good."

# Q&A With Jane Bernstein: Her Latest Memoir Explores Mentally Challenged Daughter's Transition to Adulthood

■ Jonathan Potts

English Professor Jane Bernstein's latest book, "Rachel in the World," is a follow-up to her 1988 memoir "Loving Rachel: A Family's Journey from Grief." That recently republished book was a searing portrait of Bernstein's life after the birth of her second daughter, Rachel, who is mentally retarded. Rachel, 24, lives with two other women in a townhouse apartment that is managed by an organization that provides support to people with cognitive and social challenges.

**Q: What is "Rachel in the World" about?**

A: It's about the long process of trying to help my developmentally disabled daughter make a meaningful life and find her place in the world — at this time in this country when social services are really poor.

**Q: You spend a lot of time in the book talking about the challenges you face in getting Rachel services and education. Is it simply a matter of money, or are there other challenges in addition to funding?**

A: There are all kinds of challenges if you take the attitude that a person with any disability deserves the right to be in our community and our society, which I believe. There are lots of issues that have to do with community acceptance, and those range from seeing that she is treated with respect when I'm with her and when I'm not with her, in restaurants and on the street and in community centers. And then, because she can't advocate for herself and could never tell me when she had been harmed, there was also the struggle of trying to make sure the people I entrusted with her care were responsible and were doing the kinds of things that I thought would be best to help her grow up and become educated and be part of the world as much as possible. That was a big struggle, apart from social services.

At some point, parents have to let go of their child's hand and suddenly that child is going to be with bus drivers and teachers and teacher's aides, and caregivers, this world of people who are entrusted with the care of a child. Well, I had that for 23 years. And she didn't get to the point that most children will, where she is going to be able to say to you "Mrs. Green is mean to me" or "Tommy hurt me" or something like that. Rachel could never do that. That was a big piece of helping her make her way into the world — working with this huge group of teachers and aides and caregivers and behavior management therapists and counselors and bus drivers.

**Q: One of the impressions I got is that it's never just one agency you deal with. It's never just one person. You have to navigate this maze of bureaucracies.**

A: It is a maze. It's deadening. It's difficult to navigate because services change and programs change and funding streams change and the people who work for agencies change, and you cannot necessarily guarantee that the people who are helping you understand the system better than you understand the system.

**Q: What are Rachel's disabilities, and how do they manifest themselves?**

A: She has an uncommon condition that was probably an accident of development. It's called optic nerve hypoplasia. What it means is that her optic nerve and some areas of her brain didn't develop fully. The way it manifests itself is that she is brain-damaged, essentially. She has, for instance, terrific auditory skills. She's a very good mimic. She can mimic the way people talk so when you first meet her she seems extremely articulate, with great language skills, but her ability to converse is impaired. ... She's visually impaired. She has some (gross) motor problems. ... She has fine motor problems so that she can't write. She can use the computer and — who knows how — somehow figured out how to use a mouse, which I think is pretty miraculous. She's very ADHD so she's extremely distractible, and she has other cognitive and perceptual problems. For instance, she can't read.

**Q: You've said that you wrote "Loving Rachel" because so many accounts by people with children with disabilities were sanitized and written for an emotional uplift. Did you get any kind of reaction from other parents with children with disabilities?**

A: That book had a very rewarding history for me. It was not promoted at all by Little, Brown when it was first published, but it made its way into the world anyhow.

I wrote "Loving Rachel" just as a book. I didn't write it for something. I didn't know it would find this audience of parents and professionals. I never thought of that book — or any book of mine — as being used. And then over the years, when I saw that it had become a resource, it made me feel that I should write the second book. I wanted the second book to be good to read and to have a sense of life as it was lived, but I also wanted the chapters to circle around issues.



PHOTO COURTESY OF JANE BERNSTEIN

ENGLISH PROFESSOR JANE BERNSTEIN VISITS THE BROOKLYN BRIDGE WITH HER DAUGHTER, RACHEL. BERNSTEIN'S LATEST BOOK, "RACHEL IN THE WORLD," DISCUSSES HER ONGOING JOURNEY OF RAISING HER DEVELOPMENTALLY DISABLED DAUGHTER.

**Q: What are some of the particular challenges of writing a memoir?**

A: The "what-will-people think" challenges are gigantic. That's probably the biggest one. Then there's the challenge of making my small, personal story interesting to readers. Recently I said to Yona Harvey, a poet in our program, that it was very difficult trying to write

a graceful sentence using the words "developmental disabilities." I cared a lot about the writing itself — word by word and sentence by sentence. It's hard to have elegant prose when you are writing about social services. I sweated over things I needed to say that I couldn't express as elegantly as I wanted.

## Just Hop on the Bus, Gus



PHOTO BY BRUCE GERSON

THE PORT AUTHORITY BOARD HAS APPROVED A NEW FIVE-YEAR AGREEMENT THAT ALLOWS CARNEGIE MELLON STUDENTS, FACULTY AND STAFF TO CONTINUE TO RIDE PORT AUTHORITY VEHICLES WITH A VALID UNIVERSITY ID. THE BOARD OF TRUSTEES MUST APPROVE THE NEW DEAL TO MAKE IT OFFICIAL.

THE NEW CONTRACT CALLS FOR PAYMENTS TO PAT TO INCREASE 15 PERCENT EACH YEAR. ACCORDING TO ASSOCIATE VICE PRESIDENT MICHAEL MURPHY, THE RESULTING INCREASE IN STUDENT FEES WOULD BE ON THE ORDER OF 5 TO 10 PERCENT. CURRENTLY, STUDENTS, FACULTY AND STAFF ACCOUNT FOR 1.3 MILLION RIDES PER YEAR. CARNEGIE MELLON WILL PAY \$881,000 IN THE FIRST YEAR OF THE NEW CONTRACT.

"CARNEGIE MELLON PROVIDES BUS PASSES TO ITS COMMUNITY TO ENCOURAGE STUDENTS TO EXPLORE AND ENGAGE THE VITALITY OF THE PITTSBURGH REGION, AS WELL AS TO SUPPORT THE ENVIRONMENTAL BENEFITS OF PUBLIC TRANSPORTATION, INCLUDING DIMINISHING TRAFFIC AND PARKING IN OAKLAND. THE RELATIONSHIP WITH PORT AUTHORITY HAS BEEN A POSITIVE ONE FOR OUR COMMUNITY OF STUDENTS, FACULTY AND STAFF," MURPHY SAID.

# Carnegie Medals of Philanthropy To Be Awarded in Oakland

■ Ken Walters



Carnegie Mellon will co-host the Carnegie Medals of Philanthropy awards presentation at 2 p.m. on Wednesday, Oct. 17 at the Carnegie Music Hall in Oakland. Considered to be the “Nobel Prize for Philanthropy,” the medals are awarded every two years by the Carnegie Corporation to families and individuals who have dedicated their private wealth to the public good and who have sustained impressive careers as philanthropists.

This year’s honorees are the Heinz Family, the Mellon Family, Eli Broad and the Tata Family. The medalists are selected by an international jury comprised of the leaders of seven of the more than 20 Carnegie institutions around the world endowed by Andrew Carnegie during his lifetime.

The master of ceremonies for the event will be former NBC News anchor Tom Brokaw. Presenters include the former president of India, A.P.J. Abdul Kalam; Nobel Laureate

David Baltimore; Agnus Gund, a 2005 Carnegie Medalist and president emerita of The Museum of Modern Art and National Gallery of Art Director Earl Powell III.

There will also be a special Carnegie Symposium, titled News from the Future, beginning at 10 a.m. on Oct. 17 at McConomy Auditorium in the University Center. Experts from a variety of fields, including Baltimore and Powell, will weigh in on the future, with time for audience discussion afterward. The symposium and awards ceremony is open to the university community.

In addition to Carnegie Mellon, the event’s other host institutions include the Carnegie Hero Fund Commission, Carnegie Library of Pittsburgh and Carnegie Museums of Pittsburgh. This year’s event is sponsored by UPMC and United States Steel Corporation.

For more information, please visit [www.carnegiemedals.org](http://www.carnegiemedals.org).

## UNIVERSITY TO AWARD HONORARY DEGREE TO FORMER INDIAN PRESIDENT

While in Pittsburgh to speak at the Carnegie Medal of Philanthropy event, former Indian President Dr. A.P.J. Abdul Kalam will be presented with an honorary Doctor of Science and Technology degree from Carnegie Mellon in a special ceremony at 5 p.m., Wednesday, Oct. 17 in

Rangos Hall, University Center. The event is free but seating is limited. Tickets are required, and they are available on a first-come, first-served basis at the University Center Information Desk beginning at 8:30 a.m., Monday, Oct. 15. Overflow seating will be available in McConomy

Auditorium, where a simulcast of the event will be shown.

Kalam, who completed his five-year presidency in July, focused his efforts on transforming India from its present developing nation status to a developed nation by 2020. One of India’s most distinguished

scientists, Kalam made significant contributions as project director to develop India’s first indigenous Satellite Launch Vehicle, which successfully injected the Rohini Satellite in the near earth orbit in July 1980, marking India’s initial effort in space exploration.

## Schedule Set for Homecoming 2007

■ Abby Houck

Carnegie Mellon’s Homecoming and Reunion Weekend, Oct. 25–28, provides a variety of opportunities for faculty, staff, students and alumni to show their Tartan pride. The following are highlights of events that will take place on campus.

Did you know that Carnegie Mellon is the alma mater for more than 800 faculty and staff members? An invitation-only Staff and Faculty Alumni Reception will be held 11:30 a.m.–1:30 p.m., Thursday, Oct. 25 at Rangos Ballroom, University Center (UC).

All members of the campus community are invited to the 2007 Alumni Awards Ceremony from 6 to 8 p.m., Friday, Oct. 26 in Rangos Ballroom. The following alumni will be honored: Alumni Distinguished Achievement, Ray H. Baughman Jr. (S1964); Alumni Service, Alexander K. Bacas (HS1989) and W. David Mills (TPR1982); Alumni Achievement, Donna M. Auguste (CS1983), Prodipto Ghosh (HNZ1989,1990), David A. Kofke (E1983) and Richard M. Lackner (HS 1979); Recent

Alumni, Terry L. Babcock-Lumish (HS1997), Mia K. Markey (S1998) and Stephanie C. Palmer (A1997); Faculty Service, Lawrence G. Cartwright (E1976,1987); and Student Service, Noor AlAthirah (TPR’08), Piyush Gupta (S’08), Brittany A. McCandless (HS’08), Jinanne Tabra (TPR’08) and Bradford L. Yankiver (HS’07).

President Jared L. Cohon will address the campus community on Carnegie Mellon’s current state and plans for the future at 10 a.m., Saturday, Oct. 27 in McConomy Auditorium, UC. Spice up your weekend with the fourth annual Homecoming Chili Cook-Off and Pep Rally at noon followed by the Parade of Classes at 12:45 p.m. football game vs. Washington University (Mo.) begins at 1 p.m.

Visit <http://alumni.cmu.edu/homecoming/> for an updated schedule of events and online registration. The general registration fee is waived for all Carnegie Mellon faculty and staff, current students and participants under the age of 18. Locations of events are tentative and subject to change.

### AT A GLANCE

Staff and Faculty Alumni Reception (by invitation only)  
11:30 a.m.–1:30 p.m., Thursday, Oct. 25  
Rangos Ballroom, University Center (UC)

Welcome Home Reception  
7:30–10 p.m., Thursday, Oct. 25  
Alumni House

The History of Carnegie Mellon  
11:30 a.m.–1 p.m., Friday, Oct. 26  
UC

2007 Alumni Awards Ceremony  
6–8 p.m., Friday, Oct. 26  
Rangos Ballroom, UC

KidZone and Mini Carnival  
10 a.m.–6 p.m., Saturday, Oct. 27  
Kirk Commons and surrounding area, UC

Homecoming Chili Cook-Off and Pep Rally  
Noon, Saturday, Oct. 27  
East/West Walkway & between the UC/West Wing

Loyal Scot Dinner and Reception  
6–9 p.m., Saturday, Oct. 27  
UC

# Athletic Facility Renovations Taking Shape

■ Mark Fisher



THE COST VARSITY WEIGHT ROOM, NAMED IN HONOR OF CHARLES 'CORKY' COST, WAS BUILT IN SUMMER 2006. WITH MORE THAN 4,500 SQUARE FEET AT ITS DISPOSAL, THE WEIGHT ROOM FEATURES THE LATEST FITNESS EQUIPMENT FROM TOP MANUFACTURERS AS WELL AS A WOOD FLOOR SPACE FOR PLYOMETRIC AND AGILITY TRAINING.

Shortly after Susan Bassett was hired as Carnegie Mellon's Director of Athletics in July 2005, she set out to transform Tartan sports venues and recreation facilities for the benefit of the entire campus community as well as its varsity athletes. That endeavor began with an athletics facility master planning process conducted in spring 2006. The master planning process shaped many changes that are already visible on campus and others that are yet to come.

"Our vision for the future includes a major facility project that we expect to transform student life through the century," Bassett said. "In the meantime,

weight room thanks to contributions from football alumni in conjunction with Charles 'Corky' Cost. The Cost Varsity Weight Room is more than 4,500 square feet and houses the latest fitness equipment from the makers of Hammer Strength, Life Fitness and ProStar. The weight room also features a wood floor space for use in plyometric and agility training.

This past summer, Gesling Stadium's eight-lane track was resurfaced. A new scoreboard featuring a message center and graphics display was installed, allowing for track and field event scores to be viewed during meets.

**"OUR VISION FOR THE FUTURE INCLUDES A MAJOR FACILITY PROJECT THAT WE EXPECT TO TRANSFORM STUDENT LIFE THROUGH THE CENTURY."**

— ATHLETIC DIRECTOR SUSAN BASSETT

we have improved current facilities."

The Gesling Stadium track and field resurfacing, new athletic weight room and renovations to the athletic training facilities and Skibo Gymnasium are the most prominent changes and renovations that have been made.

Of those renovations, the athletic training room updates came first, in January 2006. That project added a new functional floor for athletic training rehabilitation activities, and the tables were reupholstered for student athletes' comfort.

That summer, the playing surface at Gesling Stadium was replaced with FieldTurf, the world's most advanced synthetic surface. With a grass-like surface made of fibers and a soft composite of sand and rubber, FieldTurf is dramatically different from traditional synthetic turf, which has the texture of a dense, abrasive rug.

A new varsity athletic weight room was also built during summer 2006. Thistle Gymnasium became the new Carnegie Mellon varsity athletic

Skibo Gymnasium also received a much-needed facelift this past summer. The floor was sanded and repainted, creating a bright atmosphere inside one of the oldest playing facilities in the NCAA. The playing surface was realigned to allow for more room for crowd traffic between the court and the bleachers. The hoops on the main basketball floor were replaced as well. Before the '06-'07 season, a new scoreboard was installed, allowing updated statistics to be shown during a contest.

While much progress has already been made in updating Carnegie Mellon's athletic facilities, Bassett notes that the best is yet to come. One of the master plan's ultimate goals is the construction of a new athletics and recreation wellness center.

"It has been and will continue to be a priority to upgrade athletic and recreation facilities and equipment to enhance the student experience," she said. "In doing this, we want to provide the tools and staff that students need for

## Upcoming Events

### University Lecture Series

The "Journeys" series continues with Dick Tucker, the Paul Mellon University Professor of Applied Linguistics. "Journey Through Languages" 4:30 p.m., Monday, Oct. 15 Adamson Wing, Baker Hall 136A

### Intel Research Pittsburgh Open House

Explore the full range of research activities and collaborations taking place at Intel Research Pittsburgh. 4-6 p.m., Wednesday, Oct. 24 Collaborative Innovation Center, 4th floor

### University Lecture Series

Ray H. Baughman (S1964) of the Nano-Tech Institute, University of Texas at Dallas Baughman is the recipient of the 2007 Alumni Distinguished Achievement Award. "Nanotechnology for Fun and Profit" 4:30 p.m., Thursday, Oct. 25 Adamson Wing, Baker Hall 136A

### Homecoming

Class reunions, college receptions, intriguing presentations and performances, campus tours, the Alumni Awards and the pageantry of college football are just some of the highlights of this year's annual Homecoming celebration. Thursday Oct. 25-Sunday, Oct. 28 Various campus locations Further information: <http://alumni.cmu.edu/homecoming/index.html>

### Football

The Tartans play host to the Bears of Washington University (Mo.) 12:30 p.m., Saturday, Oct. 27 Gesling Stadium

### "From Flapping Birds to Space Telescopes: The Modern Science of Origami"

Robert J. Lang, one of the foremost origami artists and a pioneer in computational origami and the development of formal design algorithms for folding 4:30 p.m., Monday, Oct. 29 McConomy Auditorium, University Center (UC)

### University Lecture Series

The "Journeys" series continues with Jay Apt, associate research professor at the Tepper School of Business and a Distinguished Service Professor in Engineering & Public Policy. "Science, Exploration and Emotion" 4:30 p.m., Monday, Oct. 29 Adamson Wing, Baker Hall 136A

### Health & Fitness Fair

11 a.m.-4 p.m., Tuesday, Oct. 30 Rangos Ballroom, UC

### School of Art Lecture Series

Public Art Fund Director Rochelle Steiner Previously, Steiner was chief curator at the Serpentine Gallery in London. 5 p.m., Tuesday, Oct. 30 McConomy Auditorium, UC

### Music Concert

Carnegie Mellon Wind Ensemble with Denis Colwell conducting. The Bach Choir of Pittsburgh will also perform. 8 p.m., Tuesday, Oct. 30 Carnegie Music Hall (Tickets at the door.)

### International Festival

"Global Exchange: Trade, Rights & Welfare in a New World Economy" Charles Fishman, author of "The Wal-Mart Effect," will give the keynote address at 12:30 p.m., on Nov. 2 in Rangos Ballroom, UC. Thursday-Saturday, Nov. 1-3 Further information: [www.studentaffairs.cmu.edu/internationalfestival/](http://www.studentaffairs.cmu.edu/internationalfestival/)

### University Lecture Series

Joel Mokyr, professor of economics and history at Northwestern University "Mechanization, the Enlightenment and the Industrial Revolution in Britain" Co-sponsored by The Humanities Center 4:30 p.m., Friday, Nov. 2 Adamson Wing, Baker Hall 136A

### University Lecture Series

Beverly Tatum, president of Spelman College Topic: TBA 4:30 p.m., Monday, Nov. 5 Adamson Wing, Baker Hall 136A

### School of Art Lecture Series

Rachel Whiteread, creator of large-scale sculptures and installations of everyday objects 6 p.m., Tuesday, Nov. 6 Carnegie Lecture Hall, Carnegie Museum of Art

### University Lecture Series

Kevin Bickart, a student in the Anatomy and Neurobiology Department at Boston University's School of Medicine "The Believing Brain" 4:30 p.m., Thursday, Nov. 8 Adamson Wing, Baker Hall 136A

### Football

The Tartans play host to Washington & Lee University. 1 p.m., Saturday, Nov. 10 Gesling Stadium

### School of Art Lecture Series

Ken Rinaldo, an artist and theorist who creates interactive multimedia installations that blur the boundaries between the organic and inorganic 5 p.m., Tuesday, Nov. 13 Kresge Theater, College of Fine Arts

### School of Art Lecture Series

Osman Khan, who uses technology to construct artifacts and experiences for social criticism and aesthetic expression 5 p.m., Tuesday, Nov. 20 Kresge Theater, College of Fine Arts

### Hunt Institute Exhibition

"12th International Exhibition of Botanical Art & Illustration" Features 111 works by 64 artists from 14 countries. Through Dec. 20 Hunt Library, fifth floor

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

# Internet Black Markets On the Rise; Carnegie Mellon Researchers Monitor, Analyze Illegal Web-based Vendors

■ Chriss Swaney

Buyer beware. Con artists lurk behind every click of your computer mouse. Most of their scams are conducted through underground “black markets,” where attackers use well-developed business practices to hawk viruses, stolen data and attack services.

Carnegie Mellon’s Adrian Perrig and Jason Franklin, working in conjunction with Vern Paxson of the International Computer Science Institute and Stefan Savage of the University of California, San Diego, have designed new computer tools to better understand and potentially thwart the growth of Internet black markets.

“These troublesome entrepreneurs even offer tech support and free updates for their malicious creations that run the gamut from denial of service attacks designed to overwhelm Web sites and servers to data-stealing Trojan viruses,” said Perrig, an associate professor of electrical and computer engineering and engineering and public policy.

To understand the millions of lines of data derived from monitoring the underground markets for more than seven months, Carnegie Mellon researchers developed automated techniques to measure and catalogue the activities of the shadowy online crooks who profit from spewed spam, virus-laden PCs and identity theft. The researchers estimate that the total value of the illegal materials available for sale in the seven-month period could total more than \$37 million.

“Our research monitoring found that more than 80,000 potential credit card numbers were available through these illicit underground Web economies,” said Franklin, a doctoral student in computer science. However, the



researchers warned that the cards seen may not have been valid when they were observed, because checking the card numbers’ validity was not possible without credit card company assistance.

A buyer will typically contact the black market vendor privately using e-mail, or in some cases, a private instant message. Money generally changes hands through non-bank payment services such as e-gold, making the criminals difficult to track.

To stem the flow of stolen credit cards and identity data, Carnegie Mellon researchers proposed two technical approaches to reducing the number of successful market transactions, including a slander attack and another technique aimed at undercutting the cyber-crooks verification or reputation system.

“Just like you need to verify that individuals are honest on E-bay, online criminals need to verify that they are

dealing with ‘honest’ criminals,” Franklin said.

In a slander attack, an attacker eliminates the verified status of a buyer or seller through false defamation.

“By eliminating the verified status of the honest individuals, an attacker establishes a lemon market where buyers are unable to distinguish the quality of the goods or services,” Franklin said.

The researchers also propose to undercut the burgeoning black market activity by creating a deceptive sales environment.

“So, when the unwary buyer tries to collect the goods and services promised, the seller fails to provide the goods and services. Such behavior is known as ‘ripping.’ And it is the goal of all black market sites’ verification systems to minimize such behavior,” said Franklin.

There have been successful take-downs against known black market sites, such as the U.S. Secret Service-

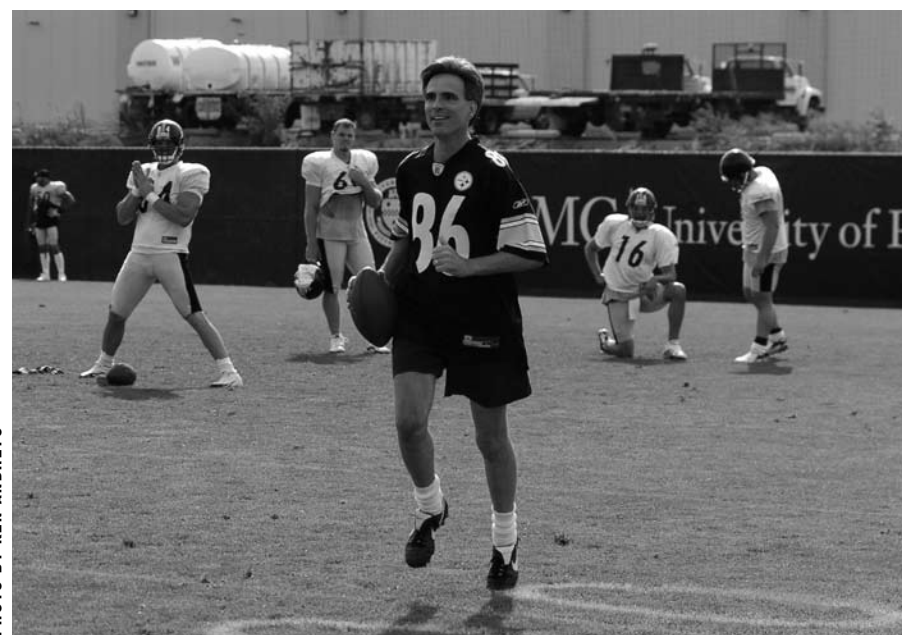
run Operation Firewall three years ago. That operation against the notorious Shadowcrew resulted in 28 arrests globally, according to Carnegie Mellon researchers.

“The scary thing about all this is that you do not have to be in the know to find black markets. They are easy to find, easy to join, and just a mouse click away,” Franklin said.

“We believe these black markets are growing, so we will have even more incidents to monitor and study in the future,” Perrig added.

That growth is reflected in the latest Computer Security Institute (CSI) Computer Crime and Security Survey that shows average cyber-losses more than doubled after a five-year decline. The 2007 CSI survey reported that U.S. companies on average lost more than \$300,000 to cyber crooks compared to \$168,000 last year.

## Fund, Footbridge To Help Keep Pausch’s Legacy Alive



ENTERTAINMENT TECHNOLOGY CENTER CO-FOUNDER RANDY PAUSCH RUNS THE BALL DOWNFIELD AFTER RECEIVING A PASS FROM PITTSBURGH STEELER HINES WARD. PAUSCH WAS ABLE TO ACHIEVE THE LAST OF HIS CHILDHOOD DREAMS DISCUSSED IN HIS SEPT. 18 LECTURE, PLAYING IN THE NFL, WHEN HE ATTENDED AN OCT. 3 STEELERS PRACTICE.

Randy Pausch’s final Carnegie Mellon lecture, “Really Achieving Your Childhood Dreams,” has touched tens of thousands of people around the world. As many as 1,800 people saw the Sept. 18 lecture on campus, according to Carnegie Mellon’s Network Media Group, and the lecture is available on three university Web sites — the Journeys lecture series, Entertainment Technology Center and School of Computer Science (SCS) — which have filled a total of more than 200,000 requests for the video. Further, Pausch has received so many personal messages in response to his talk that plans are in the works to hire a temporary employee to sort through them all.

In recognition of Pausch’s remarkable story and his contributions to the university, Carnegie Mellon has established the Randy Pausch Honorary Fund to help enable the university to continue the professor’s work, including his most

important academic project, the Alice 3D authoring system. Pausch, who is dying of pancreatic cancer, is a professor of computer science, human computer interaction and design; co-founder of Carnegie Mellon’s Entertainment Technology Center (ETC); and the creator of the Alice interactive educational software used to teach computer programming to students worldwide.

In addition to the fund, the university is naming the pedestrian bridge that will link the Purnell Center for the Arts to the new School of Computer Science Complex “The Randy Pausch Memorial Footbridge.” The bridge connects the disciplines of computer science and the arts, which Pausch successfully accomplished in his work at the ETC and with the Alice software.

For further information about the fund, visit [www.cmu.edu/giving/pausch.shtml](http://www.cmu.edu/giving/pausch.shtml).



# New SCS Complex Rising Upward

After months of excavation and site preparation, the new School of Computer Science Complex is going vertical, as construction of the concrete walls for the 150-car underground garage is under way. Once the garage walls and floors are completed, which will take about six months according to Campus Design and Facility Development (CDFD), work will begin on the foundation and retaining walls for the Gates Center, followed by foundation work for the yet-unnamed research building of the complex. Support columns for the Randy Pausch Memorial Footbridge (see story on page eight) linking the Purnell Center for the Arts to the Gates Center will be constructed over the next month, and steel erection is expected to begin in February. The complex will be completed by summer 2009.

This past May, the Board of Trustees approved a \$9 million increase in the budget for the SCS Complex bringing the total project cost to approximately \$97 million. Ralph Horgan, associate vice provost for CDFD, said the increase was needed due to the site's complexity and the rising costs of steel and concrete. He said the additional resources were needed to keep all the proposed building components intact. The SCS Complex will seek Silver Leadership in Energy and Environmental Design (LEED) certification from the U.S. Green Building Council.



PHOTO BY BRUCE GERSON



## INTERNATIONAL DISPATCHES

### Carnegie Mellon in Qatar

#### New IS Degree For Qatar Campus

Carnegie Mellon University in Qatar is adding a third undergraduate degree, Information Systems, to its course offerings.

"The new IS program is an obvious and welcome addition to our two existing programs. It is the natural bridge between Computer Science and Business Administration," said Charles E. Thorpe, dean of Carnegie Mellon Qatar. "Besides the IS majors themselves, our other students will benefit from the new major. The courses offered in IS will be natural electives for CS students wanting to understand the application of computer science in a business setting, or for business administration students wanting to understand how to process information."

The Information Systems program focuses on giving students the knowledge and skills necessary to design systems for the effective use of information. This has now become central for the support of organizations, decision makers, researchers and policy makers. IS majors master the skills needed to bring together people, process and technology in a way that yields results. Graduates of the IS program are ideally situated to take a leading role in shaping our information-based future as technology managers, software developers, technical specialists, Web design specialists, consultants and entrepreneurs.

"We anticipate Information Systems will be a successful and popular addition to the curriculum at Carnegie Mellon Qatar," said Randy Weinberg, IS program director in Pittsburgh. "We look forward to being active members of the Education City community and, in years to come, a major source of information systems graduates trained and ready to serve the diverse and expanding needs for information technology and systems management, IT infrastructure, management support, IT innovation and entrepreneurship of the growing national and regional economy."

Carnegie Mellon Qatar is the first university in Education City to add an additional major to its course offerings. Since August 2004, Carnegie Mellon has been offering bachelor of science degrees in business administration and computer science.

— Nona Al Affi

### Seoul, Korea

#### Dual Degree in Civil and Environmental Engineering with KAIST

Carnegie Mellon and the Korea Advanced Institute of Science and Technology (KAIST) have created a new dual degree program for doctoral students in civil and environmental engineering.

President Jared L. Cohon signed an official agreement for the program Oct. 5 during a gala celebration at KAIST, 90 miles south of Seoul, Korea. The agreement is the result of discussions begun in 2006 at the urging of KAIST President Suh Nam Pyo, who received his doctorate in mechanical engineering from Carnegie Mellon in 1964.

"Carnegie Mellon is well-suited to collaborate with KAIST. We believe this agreement will be a catalyst for future educational and research opportunities. I am especially pleased that this partnership is with an institution of KAIST's stature," Cohon said.

"I am delighted to sign this memorandum of understanding between the two universities for student/faculty exchange programs, joint research, and the dual-degree program in civil and environmental engineering," Suh added. "We hope to expand our scholarly collaboration to other

areas in the future. Our goal is to generate future leaders who are able to lead global enterprises and conduct interdisciplinary research."

KAIST was established in 1971 as Korea's foremost center of science and engineering research and higher education. The agreement with Korea's top technology institute requires all courses to be taught in English with each candidate meeting the admission standards of both institutions. The program also will be structured so that candidates will spend part of their time at both Carnegie Mellon and KAIST.

James H. Garrett Jr., head of Carnegie Mellon's Civil and Environmental Engineering Department, said the new program will take advantage of the breadth of potential intellectual collaborations between the two departments at Carnegie Mellon and KAIST. Garrett and Hoon Sohn, who is a KAIST faculty member and an adjunct faculty member at Carnegie Mellon, will serve as the program's primary contacts.

### Australia

#### Students From China's Shandong Province, Kazakhstan To Study at Carnegie Mellon Australia

Future leaders from Shandong Province in the People's Republic of China will undertake master's degree programs at Carnegie Mellon's Heinz School Australia under a new scholarship program established jointly by the State of South Australia and Shandong Province.

The Carnegie Mellon University Shandong Future Leaders Scholarships program will support up to four students over the next two years. Students can choose either the Master of Science in Public Policy and Management or the Master of Science in Information Technology (MSIT) at the university's Adelaide campus.

"We are absolutely delighted to welcome our first students from China in 2008 to our recently established Heinz School campus in South Australia, especially the Shandong Future Leaders Scholars," said Tim Zak, executive director of the Heinz School in Adelaide.

He noted that the scholars were specifically selected by senior Shandong Provincial government officials for their high academic qualifications, exemplary work experience, and future potential as key decision-makers in the region's public service.

"After visiting Shandong earlier this year to sign the agreement with our colleagues from the South Australian government, I know that we've secured another great, long-term international government partner for our Australian operations," Zak said.

Additionally, two students from Kazakhstan arrived in Adelaide in late September to study at Carnegie Mellon under a deal signed with the government of Kazakhstan, brokered by the Agent-General's office in London. Under the deal students will study in Australia under the Bolashak Award, the government of Kazakhstan's international scholarship program.

Manshuk Sultanova and Anar Assylkhan are the first two students to arrive in Australia under this agreement and will complete the one-year MSIT program. The students will undertake some supplementary English tutoring in Adelaide before starting the MSIT program in January 2008.

The scholarship covers tuition fees, visa fees, accommodation and meals, books and study materials, health insurance and travel expenses.

# Andy Award Winners Cited for Attitude, Dedication, Performance and Innovation

Joseph Sullivan, John Hannon, Dolores Heagy and teams from the Children's School and the Office of International Education were named this year's Andy Award winners. The Andy Awards honor individuals and teams whose outstanding dedication and performance have had a significant impact on the university.

Sullivan, manager of pre-award systems and administration for the Office of Sponsored Programs, received the Andy Award in the Dedication category for being a dedicated, organized, skilled and exceptionally helpful manager. Hannon, director of student development, earned the Andy in the Commitment to Students category for his energy, enthusiasm and willingness to help students reach their full potential. Heagy, a Help Center consultant, was presented with the Andy for Culture for fostering an enjoyable, welcoming and light-hearted working environment.

The Children's School team was honored for its innovation, passion for excellence in early childhood education and commitment to creative work. Team members are: Jean Bird, Erlina Mae Bowers, Alexa Broughton, Linda Hancock, Violet McGillen, Beth McMichael, Donna Perovich, Maggie Rosenblum, Tim Salinetto, Jean Simpson, Estelle Solomon, Charline Tomer and Gina Williams.

The Office of International Education team was recognized in the University Citizenship category for providing international students and faculty with much-needed assistance and for helping to recruit extremely talented students from around the world. Team members are Tricia Dugan, Linda Gentile, Emily Half, Nancy Knezevich, Lisa Krieg, Jennifer McNabb, Eva Mergner, Neslihan Ozdoganlar and Stephanie Pratt.



OFFICE OF INTERNATIONAL EDUCATION



JOSEPH SULLIVAN



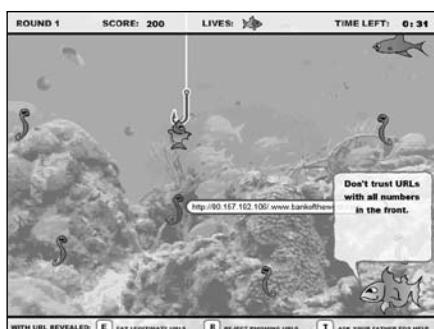
THE CHILDREN'S SCHOOL TEAM

## NEWS BRIEFS

### Phil Says "No Phishing"

Carnegie Mellon computer scientists have developed an interactive, online game featuring a little fish named Phil that can teach people how to better recognize and avoid email "phishing" and other Internet scams. In testing at Carnegie Mellon's Usable Privacy and Security (CUPS) Laboratory, people who spent 15 minutes playing the Anti-Phishing Phil game were better able to identify fraudulent Web sites than people who spent the same amount of time reading anti-phishing tutorials or other online training materials.

Phishing attacks attempt to trick people



into revealing personal information or bank or credit card account information. Often, they involve emails that appear to be from a legitimate business, such as a bank, and direct recipients to visit a Web site that likewise appears to belong to that business. There they are asked to "verify" account information.

### New Rover's a Lunar Drillin' Buggy

If you think the hull of the new four-wheeled robotic prospector that the Robotics Institute built for NASA resembles a Spring Carnival buggy, you're definitely on to something. Student engineer John Thornton, who builds those torpedo-like vessels that race their way around campus every April, headed the team that designed and built the carbon-composite body.

The new autonomous rover can creep over rocky slopes and anchor itself as a stable platform for drilling deep into extraterrestrial soils. Called "Scarab," the rover will never leave the Earth, but it will demonstrate technologies



PHOTO BY DEBRA TORIN

that a lunar rover will need to find concentrations of hydrogen, water and other volatile chemicals on the moon that could be mined to produce the fuel, water and air that are essential for supporting lunar outposts.

### Stilman Wins Scientific Award

Michael Stilman, a doctoral student in the Robotics Institute's humanoid group, recently received 1,000 euros (about \$1,375) as one of three finalists for the first Robotdalen (Robot Valley) Scientific Award established by a

Swedish research initiative to recognize and encourage young, innovative people in the field of robotics and automation. Stilman's research focuses on robots that can move obstacles out of their way. "Traditional planning for robots focuses on avoiding obstacles when going from a start to a goal. However, in the real world, search and rescue, construction, home and nursing home assistance domains contain debris, materials clutter, doors and objects that have to be moved by the robot," Stilman said. His advisors are professors James Kuffner and Chris Atkeson.



COURTESY OF MIKE STILMAN

# Computational Biology Center Aims To Help Conquer Cancer

CONTINUED FROM PAGE ONE



JOHN HANNON

The difference between health and disease can start with one rogue gene or protein whose aberrant behavior may lead to a major illness like cancer. Because a cell houses thousands of genes and tens of thousands of proteins, identifying the miscreant is no easy task. But computational biologists, a new breed of scientist capable of applying computational methods to solve biological problems, are up for the challenge. As is Carnegie Mellon.

“Carnegie Mellon is uniquely positioned to make major contributions and advances in the field of computational biology,” said Carnegie Mellon President Jared L. Cohon, as he announced the establishment of the Lane Center on Sept. 20.

“The Lane Center will allow Carnegie Mellon to apply its unique approach to attacking the challenges in dealing with and eventually conquering diseases like cancer, Alzheimer’s disease, multiple sclerosis and others. At the same time, the center will be absolutely crucial in training the future scientific leadership in this field.”

During the past decade or so, biological and medical researchers have been churning out vast amounts of data. The sequencing of the human genome is complete. Now, work is under way to understand the relationship and coordinated activity of genes (genomics) and to determine the structure, location, function and interaction of the tens of thousands of proteins for which the genome codes (proteomics). Such work generates large amounts of data, and

biologists have begun to tap into the power of computers and computational methods to help make sense of it all.

“The beauty of the Ray and Stephanie Lane Center for Computational Biology is the power of combining this biological data together with machine learning and data mining and using the wonderful strength and power we have here at Carnegie Mellon to solve real problems in biomedicine,”

“Carnegie Mellon, this center and Bob Murphy and his staff will play a critical role in the dawning of preventative medicine by providing the leadership in the development of closed-loop active-learning systems that span and integrate many types of biological research. Other major institutions involved in biomedical research will be attracted to and influenced by Bob’s work and indeed come to Carnegie

**“THE CENTER WILL BE ABSOLUTELY CRUCIAL IN TRAINING THE FUTURE SCIENTIFIC LEADERSHIP IN THIS FIELD.”**

— CARNEGIE MELLON PRESIDENT JARED L. COHON

said Rick McCullough, vice president for research and former dean of the Mellon College of Science.

Specifically, Lane Center scientists aim “to develop the computational tools that automatically create detailed models that enable us to predict how cells work and how tissues work,” said Lane Center Director Robert Murphy, who has also been named the inaugural Ray and Stephanie Lane Professor of Computational Biology. “We anticipate that these efforts will lead not only to deep biological knowledge but also to tools for individualized diagnosis and treatment of disease.”

With their \$5 million gift, Ray and Stephanie Lane also endowed a professorship and provided support for postdoctoral and graduate training to develop future leaders in computational biology.

Mellon because of our unique capability in this area,” Ray Lane said during the center announcement ceremony.

A goal of the Lane Center is to “train students who have firm, solid foundations in biology and computer science. The idea behind that is not just to let them solve problems that somebody else has identified, but to frame and solve new problems. And that’s really what the heart of advancing this field is all about,” said Murphy, who has played a key role in establishing Carnegie Mellon’s computational biology programs at all three levels – bachelor’s, master’s and doctoral.

“One can well appreciate the incredible power of this interdisciplinary collaboration in computer science, machine learning and biology. It truly is exciting and indicates a pathway forward. We expect great things,” Cohon added.



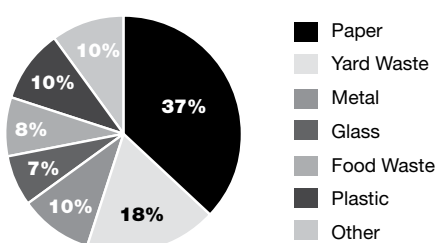
DOLORES HEAGY

## Waste Not, Want Not

The September “Green Scene,” published by the Green Practices Committee, reports that Carnegie Mellon generates 3,000 tons of waste a year, but recycles only 19 percent of it (710 tons). The newsletter says trash inspections have revealed that 40 percent of what is thrown out could have been recycled.

With that in mind, initiatives to increase recycling efforts are being implemented this fall, thanks to ideas generated by the “Design and Social Change” project course last spring. New tactics include new recycling labels and additional recycling containers on campus, including “Share Your Junk” reuse bins for design, art, architecture and drama students. These

### Composition of an Average Landfill



bins will make it easy for students to recycle materials they use to complete assignments, such as wood, cardboard and foam core.

## Media Boot Camp Tackles the Web

Carnegie Mellon’s Steinbrenner Institute for Environmental Education and Research (SEER) and its College of Engineering will host five journalists at a special media panel about harnessing the Web from 11:30 a.m. to 1:15 p.m., Wednesday, Oct. 24 in the Singleton Room of Roberts Hall.

The Media Boot Camp series is designed to help faculty and researchers better understand the needs of reporters and broadcast producers covering science and the environment. The event is open to Carnegie Mellon faculty.

Panel participants include James R. Hager, a Wall Street Journal reporter; John Byrne, Business Week executive editor; Todd Woody, Fortune Magazine senior news editor; Seth Bauer, editorial director of National Geographic Green Guide; and Jennifer Yates, Pittsburgh bureau chief of the Associated Press.

## Stay Alert With “Alert Now”

The university’s Alert Now emergency notification service is available to all students, faculty and staff. The Alert Now service sends voice messages to designated phones in the event of an emergency on campus. All members of the campus community are encouraged to participate in this program by registering online at <https://my.cmu.edu/site/main/page.alert>. (When you click on this link, you will need to login to the Carnegie Mellon Web Portal to access this page). Nearly 6,000 students, faculty and staff have registered to receive the Alert Now messages.

Alert Now will contact you only if there is an incident or event that threatens public safety. If you have any questions or problems registering your information, please contact the Computing Services Help Center at 412-268-HELP (4357) or send email to [advisor@andrew.cmu.edu](mailto:advisor@andrew.cmu.edu).

## Carnegie Mellon Signs Agreement With Caterpillar

Carnegie Mellon and Caterpillar Inc., the world’s leading manufacturer of construction, mining and other heavy equipment, have signed a three-year sponsored research agreement. Initial projects involve work at the National Robotics Engineering Center (NREC) in Lawrenceville, where research will explore applications using advanced outdoor sensors, operator-assist systems and increased autonomous capabilities for enhancing the safety and productivity of Caterpillar products. Caterpillar, based in Peoria, Ill., also plans to establish a Center of Excellence for Field Robotics and Automation in Pittsburgh, a research and development office that will work in close collaboration with Carnegie Mellon researchers as well as pursue independent research projects.

“This working relationship exposes Carnegie Mellon researchers to the rigors of applied science and engineering and to leading-edge automation challenges,” said NREC Director John Bares. “We’re confident that it also will provide Caterpillar with access to some of the best minds in the business.”

## LECTURE SPOTLIGHT: INTERNATIONAL FESTIVAL FEATURES WAL-MART EFFECT AUTHOR

■ Ken Walters

While Wal-Mart is often considered an American institution, the company has far-reaching social and economic impact around the world. The corporate giant's global influences will be explored by author Charles Fishman at Carnegie Mellon's International Festival, Nov. 1-3.

Fishman, who wrote "The Wal-Mart Effect: How the World's Most Powerful Company Really Works — and How It's Transforming the American Economy," will deliver the festival's keynote lecture at 12:30 p.m., Friday, Nov. 2 in Rangos Ballroom, University Center.

Now in its 18th year, the International Festival provides the campus community with the opportunity to explore world cultures, pressing issues and fascinating traditions through a wide range of activities. The theme of this year's festival is "Global Exchange: Trade, Rights and Welfare in a New World Economy."

Fishman is well versed to speak on this theme. An award-winning investigative and magazine journalist, he has spent the last 20 years examining important organizations from NASA to Wal-Mart to try to understand and explain them to his readers. The first reporter

ever permitted inside a Tupperware factory, he was also the first reporter in 30 years to be allowed inside the nation's only bomb factory.

Since 1996, Fishman has been a senior writer at Fast Company magazine. His revelatory Fast Company cover story, "The Wal-Mart You Don't Know," generated the strongest reader response in the magazine's history and won best business magazine story of the year from the New York Press Club in 2004. He received the Gerald Loeb Award for distinguished business journalism in 2005.

The International Festival will feature workshops, lectures, performances, food and films that are intended to bring to light the changing economies of the world. Festival highlights include:

- An interactive art gallery depicting wage inequality across the globe;
- An illustrated lecture on the significance of Chinese tourism and what it means for the country;
- Poverty Simulation, in which participants assume the roles of different families facing poverty to gain a greater understanding of the difficulties poor families face;

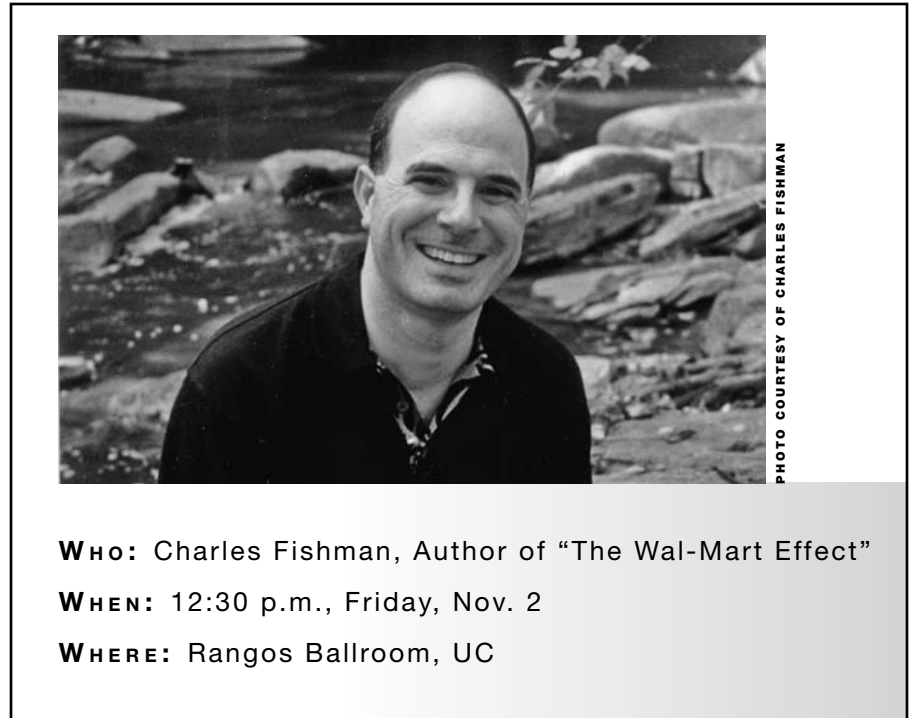


PHOTO COURTESY OF CHARLES FISHMAN

**Who:** Charles Fishman, Author of "The Wal-Mart Effect"

**When:** 12:30 p.m., Friday, Nov. 2

**Where:** Rangos Ballroom, UC

- Presentations on various global topics, including fair trade, the prospect of micro-lending and illegal immigration in the United States;
- Bhangra in the Burgh, a national Bhangra dance competition hosted by the international Chak De Bhangra Team and Carnegie Mellon's Mayur-South Asian Student Alliance.

Bhangra is a lively and energetic folk dance that originated in the East Pakistan and Northwest India regions and has spread in popularity, particularly in the United Kingdom, Canada and the United States.

For more information about the festival, please visit [www.studentaffairs.cmu.edu](http://www.studentaffairs.cmu.edu).

## ORIGAMI ARTIST AND PHYSICIST ROBERT LANG TO SPEAK

■ Kelli McElhinny

At first glance, folded paper cranes seem to have little in common with a football field-sized telescope lens. But over the past few decades, the ancient Japanese art of paper folding known as origami has inspired solutions to a number of engineering conundrums, such as transporting the aforementioned telescope lens into outer space.

Likewise, the practice of origami has been shaped by advanced geometric and computational principles that enable increasingly complex design algorithms to lead to more realistic creations.

Robert Lang will discuss this unique convergence of art and science in his Oct. 29 lecture, "From Flapping Birds to Space Telescopes: The Modern Science of Origami." The talk, which is

presented jointly by the Mellon College of Science's Department of Physics and the College of Fine Arts' School of Art, will be given at 4:30 p.m. at McCoy Auditorium, University Center. It is free and open to the public.

Lang, who holds a doctorate in applied physics from Caltech, is a full-time artist and consultant on origami's applications to engineering problems. He has diagrammed more than 400

unique origami designs. Through his work at NASA's Jet Propulsion Laboratory, Spectra Diode Laboratories and JDS Uniphase, Lang has authored 80 papers and 45 patents in lasers and optoelectronics. He is also the editor-in-chief of IEEE Journal of Quantum Electronics.

More information on Lang and his work can be found at [www.langorigami.com](http://www.langorigami.com).

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

## Students Present Research at State Capitol

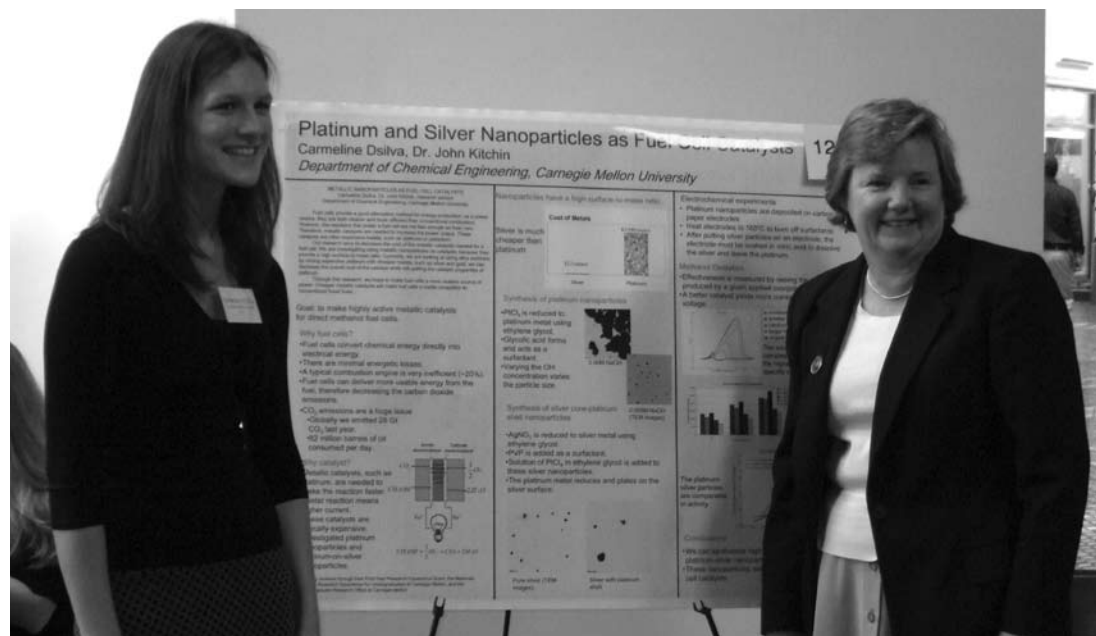


PHOTO BY STEPHANIE WALLACH

Two Carnegie Mellon University students were selected to participate in the Oct. 2 Undergraduate Research at the Capitol of Pennsylvania event at the State Capitol Building in Harrisburg.

This was the first year for the statewide event, which is designed to bring together college students, faculty and Pennsylvania legislators to share the experiences of students engaged in research or scholarship at their colleges and universities.

Carmeline Dsilva, a chemical engineering major, presented research on decreasing the costs of fuel cell catalysts. Biology major Galit Fydman presented research on the effect of human touch on an elephant's heart rate at the Pittsburgh Zoo and PPG Aquarium.

Carnegie Mellon was one of 13 western Pennsylvania colleges and universities participating in the event.

SOPHOMORE CHEMICAL ENGINEERING MAJOR CARMELINE DSILVA (LEFT) AND HER STATE LEGISLATOR KATE HARPER, WHO REPRESENTS MONTGOMERY COUNTY IN THE PENNSYLVANIA HOUSE OF REPRESENTATIVES.