



Carnegie Mellon University

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Professors Help Brighten City Streets

■ Heidi Opdyke

The School of Architecture's Remaking Cities Institute (RCI) is helping Pittsburgh with a bright idea.

City Councilmember Bill Peduto wants to replace all 40,000 of the city's streetlights with light emitting diodes, also known as LEDs.

What's enlightening about this plan is that the goal of the project is not only to save energy and money, but also to improve the quality of life in neighborhoods and business districts.

"The Pittsburgh model of LED street lighting is really going to be the brand of 21st century urban lighting," Peduto said.

Peduto said the idea goes back to the city's Climate Action Plan from several years ago when one of the major issues identified to reduce the city's green footprint was lighting. Around the same time, the Clinton Climate Initiative made outdoor lighting, which can account for a significant percentage of a municipal government's electricity usage, a priority.

With innovative new technologies, cities can raise the efficiency standard for outdoor lighting while quickly reducing greenhouse gas emissions and saving on energy costs.

"CMU's role was to think beyond the box and to create the model that has not yet been created for lighting for the 21st century, and beyond the parameters of what is currently available," Peduto said. "Pittsburgh electrified its streets in 1910. There hasn't been a great leap in urban lighting since then. This would be the next big stage."

Don Carter, director of the RCI, and a team of researchers will report to city council their findings later in June. Some of their proposed changes could revolutionize street lighting.

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Loyal Scot



ARON RALSTON (E'97) SHARED HIS LOVE FOR CARNEGIE MELLON, WHICH HE CALLED "ONE OF THE WORLD'S GREATEST UNIVERSITIES," AND ONE OF HIS LIFE-DEFINING MOMENTS WITH THE CROWD IN GESLING STADIUM DURING THIS YEAR'S COMMENCEMENT. SEE MORE ABOUT THE GRADUATION ACTIVITIES ON PAGES 4 AND 5.

Barbara Smith Worked To Make CMU a Better Place For Employees

■ Bruce Gerson

Listen to what people have to say, be a team player and keep a sense of humor.

Those three working tips from Barbara Smith have served her well, and in turn have benefitted all Carnegie Mellon employees for more than two decades.

As associate vice president and chief Human Resources (HR) officer, Smith, who will retire from CMU July 1 after 22 years on the job, leaves an unrivaled legacy of employee advocacy.

Her list of accomplishments on behalf of CMU faculty and staff reads like the HR website.

She introduced the university's comprehensive flexible benefits program, online open enrollment, paid time off and short-term disability. She launched the Learning and Development curriculum, including Interactive Theater, and the Women Supporting Women mentoring program, which is being renamed the Barbara Smith Women's Mentoring Program in her honor.

She played an integral role in leading the development of the Andy Awards,

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Booklovers Have a FABulous Time at Libraries

■ Cindy Carroll

Booklovers can find something for everyone in Carnegie Mellon's libraries.

Fifty-eight members of the Fellowship of American Bibliophilic Societies (FABS) visited Pittsburgh in May during FABS' annual book tour and symposium, which highlights special book collections in a different city each year.

John Block, publisher of the Post-Gazette and a noted bibliophile, offered to host a tour in Pittsburgh.

"Many attending had no idea that Pittsburgh has become such a wonderful place to visit," said FABS President David Culbert.

FABS members are lobbyists for old books, said John Schulman, co-owner

of Caliban Books in Oakland in a recent Pittsburgh Post-Gazette article. "They are interested in advancing the idea of the book, its aesthetics, its history, and the fact that it is still the ideal way to read anything," the newspaper quoted him as saying.

The group spent most of one day enjoying some of the treasures to be seen in the Posner Center, Hunt Library's Fine and Rare Book Room, and Hunt Institute for Botanical Documentation.

At the Posner Center, dean of

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Aamir Anwar Helps Alumni Around the World Stay Connected

■ Heidi Opdyke

Aamir Anwar is charting new territory as CMU's first director of international alumni relations. His task is to build and grow communities of Carnegie Mellon alumni who reside outside of the U.S. Since starting nearly three years ago, the number of international alumni chapters has risen from 9 to 14.

Anwar also teaches a mini-course at the Heinz College on cross-cultural management.

The Piper caught up with Anwar recently to learn more about his roles at the university.

What types of changes has your position helped to create?

When I started we established alumni chapters in Qatar, Thailand, Malaysia, Indonesia and Shanghai. We now have 14 international chapters of Carnegie Mellon alumni and some upcoming communities. We see that more alumni are engaging, and there is more interaction.

We will soon announce chapters in Portugal, Turkey and Mexico, and we are starting a European Union of Carnegie Mellon alumni. I believe for a while, that's where we are going to stay. We have alumni in more than 120 differ-



AAMIR ANWAR VISITS CARNEGIE MELLON ALUMNI AROUND THE WORLD INCLUDING CHINA, WHERE HE IS SEEN HERE IN FRONT OF THE MAIN ENTRANCE OF THE FORBIDDEN CITY.

PHOTO BY KATE SHEN (CS'08)

ent countries, but certain countries have larger pockets of alumni so that's where the communities build chapters.

I am also trying to connect our current students who come from countries with chapters with the chapter leadership, so they remain in sustained connection and communication with each other.

Do you visit all of the chapters?

I try to visit them once a year to connect with them, hold events and reestablish my relationship with them to reassure them that we are here to support them.

We like to work very closely with them, which is how we operate with all the domestic and international chapters.

How does the Alumni Association board reflect the international nature of alumni?

The Alumni Association Board is a working board as opposed to the traditional model of an advisory board.

For the first time, we have two Alumni Association board members who reside outside the U.S. The Hong Kong Chapter leader is on the board and so is the chapter leader of Mumbai.

When we hold our chapter leader conference calls, the time difference for all the participants can be as much as 10 or 11 hours. So, it may be at 4 o'clock in the morning for them, when some international chapter leaders call to connect with us to share their experience and to learn from others.

What are some of the programs that take place with alumni chapters?

There are some cultural differences, but Carnegie Mellon alumni identify themselves as a unique group no matter what culture they belong to. They have a commonly shared experience that they celebrate.

But, of course, the larger societal culture that they live in has an impact on

who they are, and programs reflect that as well.

To give you an idea, wine tasting is a rather popular small social event, but may not be an appropriate one in Qatar. There are other examples of what works in one place not working in another.

Some usual events we see happening are networking events, social gatherings and happy hours. Last year some chapters started holiday parties during winter break. Many international chapters now are holding welcome events for new students in the summer, when alumni welcome students and their parents to the community and answer their questions and provide them useful tips on practical and cultural aspects.

We recommend the chapters have three or four major events that will bring most of the people and incorporate educational activities, social events and networking.

Tell us a little bit about your graduate class "Cross-Cultural Management."

Because of my travel commitments I am unable to teach a semester long course, so it is the same content squeezed into a mini-session.

It focuses on business and management in a setting where people from various backgrounds are working with each other, especially in today's world, where the social, political, cultural and technological paradigms have shifted and impacted our worldview and our interactions with our fellow global citizens.

There are many classic examples from corporations and other settings, where people have made a mistake that has caused them to lose face. That's why it is important to learn the culture and the skills to be culturally competent and sensitive.

The makeup of the students in the class is a reflection of Carnegie Mellon. Out of 20 students, 11 are international

students and the class has representation from Tepper, the Heinz College, CIT and SCS.

Using my role in Alumni Relations I bring in international alumni as virtual guest speakers so students can learn from their experience.

One was a U.S. alumna living in Paris. She connected with us through video conference from France, where she is a corporate and coaching consultant and a mentor for international business and cross-cultural conflict resolution.

The students had wonderful questions to ask and it was a great learning experience for us all. The rich perspective that students also gave with their reflections and the kind of questions they asked showed in volumes how prepared and willing our students are to learn and share their experience.

Can you tell me a little about the Loyal Scots Program?

One thing that we do emphasize in alumni relations is that we want to foster a culture of alma mater, in which alumni are fully engaged. It is essentially a comprehensive citizenship that we are talking about.

The Loyal Scots Program is a new initiative of meaningful engagement with the university. Every school has a culture of some kind in which alumni are engaged through that bond. The Loyal Scots Program goes back to the spirit of our founder, Andrew Carnegie, and is an annual and lifelong commitment.

First of all you must keep your contact information updated with the university so in exchange we can keep you informed and updated with what's happening at the university, what's happening at your community and how to take advantage of all the wonderful resources. We call it, 'to stay informed.'

The second is to participate and engage with the university. It can be as simple as coming to an event that is held

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the PIPER

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PUBLISHER
Teresa Thomas

EDITOR
Bruce Gerson

MANAGING EDITOR
Heidi Opdyke

WRITERS

Cindy Carroll	Dennis Schebetta
Bruce Gerson	Byron Spice
Abby Houck	Ken Walters
Heidi Opdyke	
Shilo Raube	

DESIGNER
Melissa Stoebe
Communications Design Group

PHOTOGRAPHY
Ken Andreyo
Stephen Baden
Tim Kaulen
The Communications Design and Photography Group

To contact The Piper staff, call 412-268-2900 or email bg02@andrew.cmu.edu.

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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 Campus Affairs, Carnegie Mellon University, 5000 Forbes Avenue, Pittsburgh, PA 15213, telephone 412-268-2057.

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/.

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

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Entrepreneurs Wanted:

Alumnus Creates Fund To Jumpstart Innovation by Recent Grads

■ Ken Walters

Carnegie Mellon is the go-to place for budding entrepreneurs.

Jonathan Kaplan, known for revolutionizing consumer electronics with his Flip video camera, and his wife, Marci Glazer, are hoping to spark that belief with a substantial financial gift the couple recently gave to create the Open Field Entrepreneurs Fund (OFEF) at Carnegie Mellon. The fund will provide early-stage business financing to alumni who have graduated from CMU within the past five years.

President Jared L. Cohon announced the gift at commencement.

“We believe it will make a mark for Carnegie Mellon and say to the world, ‘If you want to be an entrepreneur, this will be the place to come,’” Cohon said. “Jonathan cares about this university, and he’s joining with us to help spark entrepreneurship here, to make Carnegie Mellon the destination for entrepreneurs.”

Since making the announcement, Kaplan has moved on to his next business venture, a chain of restaurants in San Francisco called The Melt, which specializes in grilled cheese sandwiches. Once opened in August, restaurant patrons may place their order via smartphones and receive a scannable code that allows them to pick up the order and pay in one quick move.

An independent advisory committee including Kaplan and his classmate Peter Stern will be appointed annually to approve and mentor applicants for the OFEF. Stern is founder of Datek Online and another successful serial entrepreneur who also will be providing financial and advisory support for the OFEF.

“My colleagues and former classmates are very interested in joining me in our effort to fund young entrepreneurs and help them to create exciting new businesses in all areas and disciplines,” Kaplan said.

Applicants must present a business plan to the committee for review, outline how they will use Open Field funding and agree to become part of the Open Field Entrepreneurs incubation environment. The OFEF will provide \$50,000 in matching funds to recipients.

In addition to receiving financial support, OFEF recipients will gain access to other funding sources, receive personalized mentoring and attend an annual OFEF business workshop. The university will provide legal and accounting support for OFEF recipients.

“It is just wonderful that the advisory council isn’t going to pass judgment solely on business ideas,” Kaplan said. “We are going to judge if entrepreneurs are passionate about what they want to do, if they have a plan to execute against, and if they are able to raise money externally from people who

believe in them. Then we’ll give them the tools and technology to help them achieve their goals.”

Cohon said the funds will provide benefits far into the future and told the graduating students that he hoped the gift would spur future opportunities.

“When you’re successful like Jonathan, we expect you to contribute back to the fund to replenish it, to build the fund back up, so we can keep supporting future alumni,” he said.

Kaplan created a self-defined major at Carnegie Mellon that included business administration, engineering and design. His training prepared him for being an entrepreneur.

“Our goal with this effort is to provide Carnegie Mellon graduates with



JONATHAN KAPLAN

the opportunity to realize their innovative spirit and start new businesses,” said Kaplan, former CEO of Pure Digital and five-time entrepreneur. “We’d like to make Carnegie Mellon the destination of

choice for young entrepreneurs.”

While not disclosing the value of his gift, Kaplan said he anticipates the fund to eventually reach \$25 million within the first five years.

“One of Carnegie Mellon’s greatest strengths is its ‘innovation ecosystem’ — turning ideas and innovations into next generation businesses that spur economic growth and development,” said Rick McCullough, vice president of research and founder of Plextronics, a CMU startup company that is now the world leader in developing active layer technology for printed electronic devices.

Later this year, CMU will create and launch an online application for alumni to submit their proposals. To learn more about the OFEF, visit www.cmu.edu/openfield.

CMU GIVES ENTREPRENEURS A HEAD START

● Carnegie Mellon University ● Greenlighting StartupsSM

Carnegie Mellon is getting behind startup companies with one big push.

CMU recently introduced “Greenlighting Startups,” a new initiative aimed at accelerating CMU’s impressive record of turning campus innovations into sustainable new businesses.

This initiative creates a single portal through which the university can help turn research from award-winning professors and world-class students into thriving companies that provide new jobs and solve real-world problems.

Five new and existing campus incubators are included: the Center for Technology Transfer and Enterprise Creation (CTTEC); the Donald H. Jones Center for Entrepreneurship; Project Olympus; Quality of Life Technology Foundry; and the Open Field Entrepreneurs Fund (OFEF).

For more information, visit www.cmu.edu/startups.

Big Ideas Start Here

- CMU ranks first among all U.S. universities without a medical school in the number of startup companies created per research dollar spent since 2007, according to the Association of University Technology Managers.
- Home to 118 research institutes and centers, CMU’s award-winning professors and students produce an average of 15-20 new companies annually.
- CMU spin-offs represent 34 percent of the total companies created in Pennsylvania based on university technologies in the past five years.
- CMU’s resources helped to greenlight more than 200 companies and 9,000 jobs in the past 15 years.
- Companies such as Google, Apple, Disney, Intel and Lockheed Martin have taken notice of CMU’s history of success in research, innovation and entrepreneurship and have opened space on or near campus.
- CMU startup success stories include reCAPTCHA, inventors of the swirling letters computer users retype to validate websites; Plextronics, the world leader in active layer technology for printed electronic devices; and First Person Vision, which develops wearable visual devices.

\$1 BILLION

6/1/2011
\$714.1M

we
inspire
innovation.
THE CAMPAIGN FOR CARNEGIE MELLON UNIVERSITY

WE CAN MAKE A DIFFERENCE. CARNEGIE MELLON UNIVERSITY IS ON TRACK TO REACH THE \$1 BILLION GOAL OF THE INSPIRE INNOVATION CAMPAIGN. THANKS IN PART TO THE SUPPORT OF THE CMU COMMUNITY, THE UNIVERSITY IS IN THE HOME-STRETCH TO ACHIEVE THIS HISTORIC MILESTONE. VISIT CMU.EDU/CAMPAIGN FOR THE LATEST CAMPAIGN NEWS AND PROGRESS, OR TO MAKE A GIFT TODAY. PROGRESS SINCE APRIL 7, 2011: \$12,921,507.

Ralston to Graduates: “May Your Boulders Be Blessings”

■ Heidi Opdyke

Aron Ralston dared this year’s graduating students to be bold in life.

“Whatever you can do — or dream you can do — begin it,” Ralston (E’97) said during his keynote address at Carnegie Mellon’s 114th Commencement. “Boldness has genius, magic and power in it.”

Beneath a gloomy sky, he shared his love for Carnegie Mellon, which he called “one of the world’s greatest universities,” and one of his life-defining moments with the crowd in Gesling Stadium.

Ralston majored in mechanical engineering and French, and minored in piano performance. He was a member of seven honor societies, including Phi Beta Kappa, and active in numerous intramural sports. As a resident assistant, he served as a role model for students and earned the respect of his peers for his work ethic, sense of adventure and great humor.

His comedic side showed at commencement when he stripped away his graduation gown early in his speech to uncover the full Scottish regalia he wore. The act drew a standing ovation.

Ralston left his job as an Intel engineer to pursue his passion for outdoor adventures in Colorado. He said his parents, who flew in from Colorado to hear him speak, were reluctantly supportive. His first piece of advice that he offered to the graduates was what his parents told him: make sure you have health insurance.

It was on a solo hike in 2003, when he dislodged a half-ton boulder in a canyon in Utah. Alone and trapped for six days, he amputated his own arm. His Memoir, “Between a Rock and Hard Place,” became the subject of the movie



ARON RALSTON (E’97) SHARES HIS STORY OF SURVIVAL WITH GRADUATING STUDENTS AND THEIR FAMILIES.

“127 Hours,” which received six Oscar nominations.

He went on to be the first person to solo climb all of Colorado’s “fourteeners,” or peaks more than 14,000 feet high, during the winter. He also was the first amputee to ski the summit of Denali and row a raft through the Grand Canyon.

He told the students to be grateful for adversities in their lives.

“That adversity will show you that there is something absolutely extraordinary in each and every one of you,” he said. “May your boulders be your blessings as well.”

Ralston described the steps that led up to his life-saving decision. He said

he used the analytical problem-solving skills he learned while at Carnegie Mellon to survive.

To stave off hypothermia, he wrapped himself in his climbing rope. He used a video camera to record messages to family and friends. Rationing his food and water until they ran out, he then drank his own urine. He recounted that moment as his second point of advice.

“When you think things have gotten bad, just remember: If you didn’t have to drink your own urine today, it’s not that bad.”

When he concluded that his choice of life or death was in his own hands, he resorted to using his pocket knife, only

to find it ineffective against bone.

Which led to his third piece of wisdom: if you’re going to carry a knife, make sure it’s sharp.

“In a crisis, we have all sorts of resources, a collection of knives,” he said. “Chief among them are our wits and our relationships. Keep your wits sharp, and your discipline honed (and) your loved ones close.”

In the end, he escaped after rappelling 65 feet out of the canyon and hiking seven miles to rescue.

“In that final moment I stepped out of my grave and into my life,” he said. “Yes, it hurt, yes I left something behind, but I did not lose anything that day. I only gained from that experience a sense of what’s important to me, of what’s possible for me, of what’s extraordinary in me.”



ABOVE: COMPUTER SCIENCE GRADUATES KEGHANI KRISTELLE KOUZOUJIAN AND KHALED ZIYAEEN, TWO STUDENTS FROM THE QATAR CAMPUS WHO WERE STUDYING IN PITTSBURGH THIS SEMESTER, WERE RECOGNIZED DURING THE CEREMONY.

LEFT: CMU ALUMNUS STEVEN BOCHCO LISTENS TO PETER COOKE, HEAD OF THE SCHOOL OF DRAMA, DURING A PANEL DISCUSSION, WHICH WAS PART OF THE COLLEGE OF FINE ARTS’ GRADUATION ACTIVITIES. COOKE MODERATED THE EVENT, WHICH ALSO INCLUDED RICK NICITA AND DOUG STEINER AND ALUMNI DAVID STEINER AND PAULA WAGNER.



PHOTO BY KEN ANDREYO

ABOVE: STUDENTS CELEBRATE DURING COMMENCEMENT CEREMONIES.



PHOTO BY KEN ANDREYO

LEFT: CRAIG BARRETT (FROM LEFT), RETIRED CHIEF EXECUTIVE OFFICER AND CHAIRMAN OF THE BOARD OF THE INTEL CORPORATION; HOLLYWOOD PRODUCER STEVEN BOCHCO (A'66); CHIP GANASSI, OWNER OF CHIP GANASSI RACING TEAMS INC.; AND RICHARD (RICK) RASHID, SENIOR VICE PRESIDENT FOR MICROSOFT RESEARCH, WERE AMONG THE EIGHT HONORARY DEGREE RECIPIENTS AT THIS YEAR'S COMMENCEMENT. NOT PICTURED ARE RAFAEL RANGEL SOSTMANN, PRESIDENT OF THE TECNOLÓGICO DE MONTERREY SYSTEM; REAL ESTATE DEVELOPER DAVID S. STEINER (E'51); OLIVER WILLIAMSON (TPR'63), THE EDGAR F. KAISER PROFESSOR EMERITUS OF BUSINESS, ECONOMICS AND LAW AT THE UNIVERSITY OF CALIFORNIA, BERKELEY; AND DR. DAVID SERVAN-SCHREIBER (CS'89, '90), CLINICAL PROFESSOR OF PSYCHIATRY AT THE UNIVERSITY OF PITTSBURGH SCHOOL OF MEDICINE. SERVAN-SCHREIBER'S SON ACCEPTED THE AWARD ON BEHALF OF HIS FATHER.

Disaster Management Workshop Focuses on Emergency Communications

Carnegie Mellon's Disaster Management Initiative (DMI) recently hosted its second annual disaster management workshop in Silicon Valley. The two-day event, held in late May moved from talk to action with keynotes, panels and hands-on demonstrations as well as testing interoperability with some 20 emergency communications vehicles to discuss what works and doesn't work in disasters. The event was coordinated with the 2011 California Mobile Command Center Rally sponsored by the California Fire Chiefs Association and the California Emergency Management Agency.



THE DMI WORKSHOP INCLUDED A RALLY OF EMERGENCY COMMUNICATIONS VEHICLES.



CARNEGIE MELLON SILICON VALLEY STAFF, LOCAL EXPERTS AND OFFICIALS AT THE WORKSHOP INCLUDED (FROM LEFT) CHARLES DUFF, DEPUTY DIRECTOR OF NASA AMES RESEARCH CENTER; STEVEN ROSENBERG, ASSOCIATE DIRECTOR, DMI; MARTIN GRISS, DIRECTOR OF CMU'S SILICON VALLEY PROGRAM AND DMI DIRECTOR; JEANNIE STAMBERGER, DMI ASSOCIATE DIRECTOR; STEVE RICE, VICE MAYOR OF LOS GATOS, CALIF.; SANDRA SOTO, CHIEF OF STAFF FOR CONGRESSWOMAN ZOE LOFGREN; STEVE JORDAN, PRESIDENT/CEO OF THE NATIONAL DISASTER RESILIENCY CENTER; JAC SIEGEL, MAYOR OF MOUNTAIN VIEW, CALIF.; MAJOR GENERAL SCOTT JOHNSON, COMMANDER OF THE 40TH INFANTRY DIVISION CALIFORNIA ARMY NATIONAL GUARD; PAUL FONG, ASSEMBLYMEMBER FOR THE 22ND DISTRICT OF CALIFORNIA; LAURA MACIAS, COUNCILMEMBER FOR MOUNTAIN VIEW, CALIF.; DAN HOLLEY OF THE NATIONAL DISASTER RESILIENCY CENTER; AND STEVE RAY, DMI ASSOCIATE DIRECTOR.

GigaPan Time Machine

Tool Pushes Big Data Limits To Explore Hi-Res Video, Time-lapse Photography

■ Byron Spice

Scientists ask big questions, but tend to answer them by making a series of narrow observations or by performing carefully controlled experiments. Illah Nourbakhsh, associate professor of robotics, suggests a different strategy for answering those questions: gathering lots and lots of data.

He calls the approach “exhaustive science” and his CREATE Lab has developed a tool, GigaPan Time Machine, that makes it possible. It’s a system that enables viewers to explore gigapixel-scale, high-resolution videos and image sequences. The user can pan or zoom in and out of the images and simultaneously move back and forth through time.

Created by Nourbakhsh and Randy Sargent, a Robotics Institute systems scientist, Time Machine is an extension of the GigaPan technology they developed earlier with NASA. GigaPan enables users to capture a mosaic of hundreds or thousands of digital pictures and then stitch those frames into a panorama that can be explored via computer. With the new time-lapse GigaPan technology, those image mosaics are repeatedly captured at set intervals. Software then stitches those mosaics across space and time to create a video in which each frame can contain hundreds of millions, even billions, of pixels.

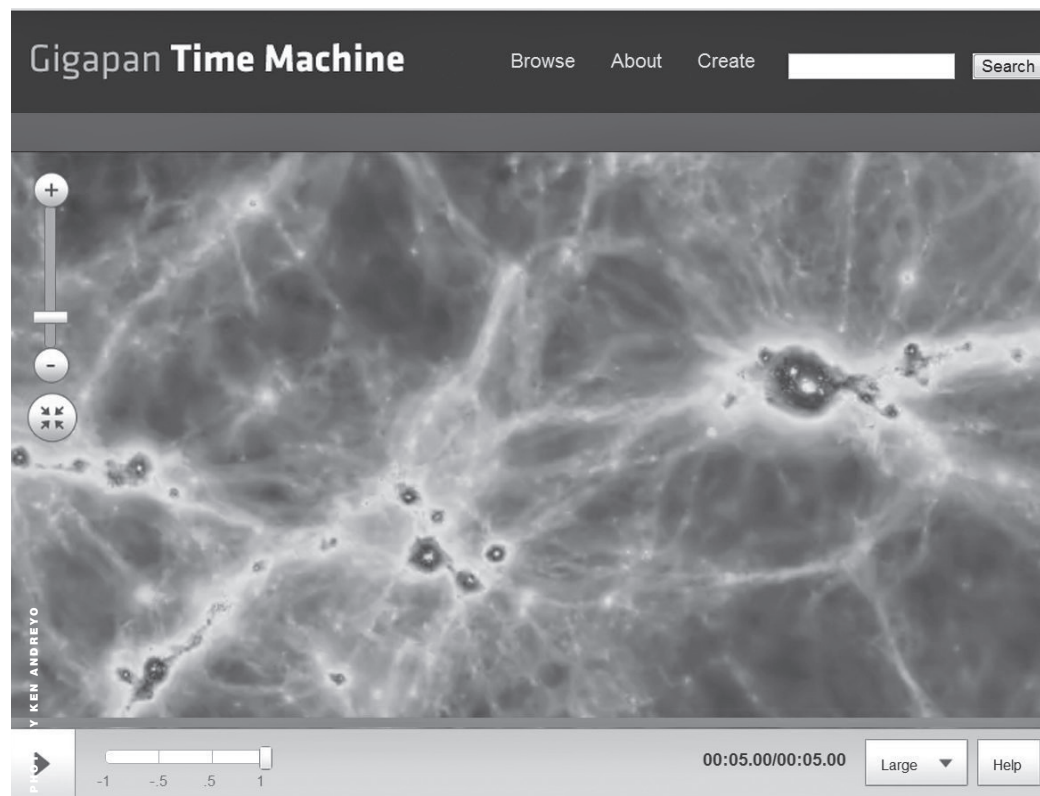
“It changes science because you’re capturing data in a different way,” Nourbakhsh said. With such high-resolution images, scientists need not be concerned about narrowing their scope before an observation or experiment. They have the luxury to first survey the big picture and then focus on areas of interest.

“With GigaPan Time Machine, you can go back after the fact and ask, ‘What’s going on?’” Sargent added.

Global climate change, for instance, has increased interest among biologists in phenology, the study of seasonal change in plants and ecosystems. Janet Steven, an assistant professor of biology at Sweet Briar College in Virginia, said GigaPan Time Machine is uniquely suited for such studies because it can collect data on every species over an entire landscape.

Time-lapse photography has long been used by biologists to study plant growth in minute detail, Steven noted, but GigaPan Time Machine offers new options.

“It gives you the advantage of observing individual plants, groups of plants and parts of plants, all at once,” she said. Her GigaPan Time Machine imagery of rapid-growing brassicas, for instance, enables the viewer to watch dozens of plants grow from seed to flower, zooming in to see how some plants move wildly, or how insects devour others.



A SCREENSHOT FROM A TIME-LAPSE VIDEO MAKES IT EASIER TO VISUALIZE MASSIVE DATA FILES.

The time-lapse GigaPan technology already has been applied to other visualization techniques, such as supercomputer simulations.

Rupert Croft, associate professor of physics, said cosmological simulations are unwieldy to visualize because the data files are so massive. Today’s simulations result in images measured in terapixels – trillions of pixels – and the largest would cover two football fields at full resolution. Just reading the data files into the computer can take three or four hours, he said.

“Simulations are a huge bunch of numbers, ugly numbers,” said Tiziana Di Matteo, associate professor of

physics. Di Matteo was the first to incorporate black hole physics into simulations of galaxy formation. The complex and numerous calculations used by Di Matteo have resulted in some of the largest – and most data-intensive – simulations of the early universe ever completed. “Visualizing even a portion of a simulation requires a huge amount of computing itself.” Visualization of these large data sets is crucial to the science, however. “Discoveries often come from just looking at it,” she explained.

With usual techniques, only a segment of a cosmological simulation can be visualized at a time. Yet whatever is happening within that segment is

being affected by forces elsewhere in the simulation that cannot be readily accessed. By converting the entire simulation into a time-lapse GigaPan, however, Croft and his Ph.D. student, Yu Feng, have been able to create imagery that provides both the big picture of what happened in the early universe and the ability to look in detail at any region of interest.

In May, the CREATE Lab was awarded the 2011 Data Hero Award for Media, an award created this year by EMC Corp. to honor innovative uses of Big Data.

An enabling technology for time-lapse GigaPans is a feature of the HTML5

language that has been incorporated into such browsers as Google Chrome and Apple Safari. Using HTML5, Sargent and fellow CREATE Lab scientists Chris Bartley and Paul Dille developed algorithms and software architecture that make it possible to shift seamlessly from one video portion to another as viewers zoom in and out of Time Machine imagery. To keep bandwidth manageable, the GigaPan site streams only those video fragments that pertain to the segment and/or time frame being viewed.

“We’re really pushing browser technology to the limits,” Nourbakhsh said. “A year ago, we couldn’t have done this.”

Aamir Anwar Helps Alumni CONTINUED FROM PAGE TWO

regionally, locally or at the university. Going beyond that you can become a volunteer or even an alumni leader for your local alumni community.

Engagement is multifaceted. It’s not just one thing you can do. There are many, many different things that you can do that fall under the umbrella of engagement. Examples are to interview a prospective student, or be a mentor or a coach to current students and recent alumni.

The third criteria is give back to the university in any amount every year. It’s not the amount that counts, but the participation.

We let our alumni know how important giving back to the university is. Not only does it benefit so many different aspects of the university and help much-needed funding, but when more alumni give back to the university it has an impact on the rankings of the institution.

In giving back to the university, they can potentially increase the value of their degree.

The last criteria is showing your pride or doing advocacy on behalf of the university, letting people know that you went to Carnegie Mellon and how it impacted your life and contributed to your great successes. That’s very important.

How can faculty and staff help the international effort?

What has made Carnegie Mellon so amazing is its openness to the world – from China’s Mao Yisheng, who was our first Ph.D. recipient, to where we are today. We have the highest percentage of international students among major research universities, and that is really commendable. But we need to almost have an affirmation reminding ourselves who we are as a larger community and take it to the next level, whatever that

may be.

As they say in some illustrations, it takes a village; it takes a community effort to build programs and to sustain programs. Our faculty and staff can also be instrumental in promoting the Loyal Scots Program to our current students and alumni. After all, it is all about engagement with the university.

Also, I would like to ask our colleagues, faculty and staff to connect with our alumni at large, both in the U.S. and outside the U.S., especially whenever they travel.

This is one very important thing for alumni also. They always long to connect with their faculty and other administrators to learn about the university and if anything else to jog their memory and have a cup of tea.

Whenever faculty and administrators travel, they should let us, the Alumni Association, know so that we can connect them with our alumni.

Residence on Fifth Tops Summer Construction Projects

■ Bruce Gerson

At Carnegie Mellon, the sights and sounds of summer aren't all sunshine, blue sky, flowers and songbirds. On the Pittsburgh campus it always includes construction workers, heavy-duty equipment, pounding hammers, buzzing power tools and ... lately rain.

More than a dozen renovation projects are on the docket this summer with phase II of the Residence on Fifth at 4700 Fifth Ave. — at the corner of Neville Street and Fifth — leading the way.

"That's our major project this summer," said Ralph Horgan, associate vice provost for Campus Design and Facility Development (CDFD), who noted that some of the scheduled exterior jobs may be affected by the amount of rain in the summer forecast.

CMU purchased the property in May 2010 and last summer quickly converted the senior housing facility into 31 apartments for 93 students last fall. Each apartment houses three students and is equipped with its own kitchen and bathroom.

Horgan said since the initial

renovation, the university's application to re-zone the property was successful. Reclassifying the facility from a high-density district to a very-high density district allows Carnegie Mellon to create 20 more apartments to house an additional 60 students in the residence hall. Phase II of the project is estimated at \$1.4 million.

Horgan said students loved the new living space and Housing Director Kim Abel agreed.

"The response from students was overwhelmingly positive. It proved to be a dynamic and engaging environment for students. They loved living there and were great neighbors to the nearby residents," Abel said.

Minor work also will be completed at the Roselawn Terrace residence halls. Last summer, the dozen row houses were renovated with new kitchens, bathrooms and heating systems. Each row house, which includes laundry facilities, houses five students.

In addition to the residence hall projects, CDFD will be collaborating with Facilities Management Services to

replace the steam line from Warner Hall to residence halls north of Forbes Avenue. Work is expected to be completed Aug. 2. Hot water will not be affected in these buildings due to back-up gas-fired hot water heaters.

Several renovations to classrooms, labs, computer clusters and office spaces will take place. Here's a quick rundown:

- Materials science and engineering graduate student lounge and project space on the fourth floor of Wean Hall;
- Mechanical engineering offices on the fourth floor of Scaife Hall;
- Mechanical engineering computer cluster on the C-level in Hamerschlag Hall;
- The Heinz College dean's conference room and a distance learning classroom on the second floor of Hamburg Hall;
- Physics Professor Sara Majetich's lab in Wean Hall 3712;
- Electrical and computer engineering offices in the 1100 and 1300 corridor of Hamerschlag Hall;
- Computing Services' computer clus-

ter in 5202 and 5204 Wean Hall;

- New bleachers in Skibo Gym;
- Classrooms in Doherty Hall 1112 and 2210;
- A new community gathering area, meeting spaces and computer lab renovations for the Human-Computer Interaction Institute on the third-floor of Newell-Simon Hall;
- A new room containing a sophisticated "3-D Immersive Visualization Cave" (a large three-sided video display) for the Civil and Environmental Engineering Department on the Porter Hall A Level.

Horgan noted that CDFD is planning to start an 18-month, \$3 million project to restore the façade of Margaret Morrison Carnegie Hall (MMCH) facing the tennis courts.

"The building's 100 years old. There's water damage, rusting steel and broken terra cotta," he said.

Horgan said while work is in progress, the Children's School playground will be temporarily relocated to a portion of the green space east of MMCH.

Barbara Smith Worked To Make CMU a Better Place for Employees

CONTINUED FROM PAGE ONE

now in its 17th year. And she created a complete HR framework and employee recruiting system to support the campus in Qatar.

In the 1990s, Smith led efforts to improve the Cyert Center for Early Childhood Education, the childcare and education center for young children of employees. Under her leadership the center expanded to include infants and young toddlers; adopted the child-centered, child-directed, highly interactive Reggio Emilia approach to learning; instituted a sliding scale for tuition; and underwent major facility improvements.

"We've developed and grown from a personnel department into an integrated Human Resources department," said Smith, who was recognized for her efforts with the first Pittsburgh Business Times' Human Resource Leadership Award in 2009.

"We had just a couple health care options in the early '90s and no choices for long-term disability and life insurance. Today our flexible benefits program gives faculty and staff better choices and better options for meeting their needs. I'm proud of the changes we've made," she said.

Under Smith, CMU Human Resources has earned local and national awards for its new employee orientation program, its Learning and Development Program and its Interactive Theater Program, which helps participants to understand complex issues and



BARBARA SMITH (CENTER) IS SURROUNDED BY PARTICIPANTS OF THE WOMEN SUPPORTING WOMEN MENTORING PROGRAM, WHICH IS BEING RENAMED THE BARBARA SMITH WOMEN'S MENTORING PROGRAM IN HER HONOR.

relationships in the workplace through interactive skits.

While Smith will be remembered for her many tangible contributions, her colleagues may remember her most for her intangible qualities.

"There is a genuineness about her that inspires trust, confidence and respect," said Ron Placone, assistant vice president for Human Resources and director of Learning and Development. "She has been one of the rocks upon which the university is built.

"Barbara cares about people and she gets things done. She has impacted the university and the human resources profession in countless ways. Barbara

will always be a role model for all of us hoping to become stronger managers and more compassionate leaders," he said.

Everett Tademy, assistant vice president for diversity and Equal Opportunity Services, has worked under Smith since 1990.

"She's a consummate professional who gives selflessly of her time and expertise — she's a mentor, a leader and a co-conspirator," Tademy said.

"I really do believe that Carnegie Mellon is not just 'better off' and a more productive place because of her contributions ... but because of the compassion, empathy and care she brought to her work for 22 years.

She pushed each of us to keep reaching to improve our service to the campus community," he said.

As she prepares for a new chapter in her life living in Cape Cod, Mass., Smith said CMU has lived up to her expectations and more since coming to Pittsburgh in 1989 from Princeton University.

"Carnegie Mellon gave me the opportunity to participate in exciting new endeavors, like building a HR function in Qatar, and to work with such wonderful people," she said.

"All of us feel we have an opportunity to contribute to the mission of the university — to help solve problems through collaboration and innovation. It's a pleasure to work with people like that."

Assistant Vice President for Total Compensation Dianne Kenney, a veteran Human Resources officer who joined CMU from Dartmouth College in May 2010, will succeed Smith as associate vice president and chief Human Resources officer.

To Kenney, Smith leaves three tips. "Listen to what people have to say, be a team player and keep a sense of humor."

Students Use Competition To Impact Villages in Sierra Leone, India

■ Abby Houck

Two Carnegie Mellon student teams working to improve the quality of life for rural communities in Sierra Leone and India successfully pitched their ideas to the Dell Social Innovation Competition, which received more than 1,400 entries from college students in 85 countries.

Project Yele

Project Yele, led by engineering and public policy doctoral student Paul van der Boor and sophomore economics and statistics major Tori Baggio, was one of five project teams that competed in the final round of the competition for \$100,000 in seed funding.

Van der Boor and Baggio's fellow Project Yele leaders hail from Delft University in The Netherlands and Massachusetts Institute of Technology.

Van der Boor and three friends founded Project Yele in 2007 as undergraduate students at Delft University.

"We teamed up with the Lion Heart Foundation, a Dutch NGO, that needed a sustainability plan for its work in Yele, Sierra Leone," van der Boor said. "They needed some solutions that were more technical, and we could provide that with our engineering backgrounds."

One of their goals was to refurbish a hydropower plant, which is scheduled for completion this summer.

Last year, Project Yele was a semifinalist in the competition and used that experience to improve this year's Dell Social Innovation Competition entry, which focused on opening a community bazaar that utilizes the power plant and



PROJECT YELE AIMS TO OPEN A COMMUNITY BAZAAR IN YELE, SIERRA LEONE.

provides space for 16 shop owners who will receive entrepreneurial coaching. Van der Boor said they hope to have the bazaar 100 percent owned by the community in two years.

"The bazaar also will include places for cooling vaccines and perishable foods," Baggio said. "We've planned an area to buy and charge LED lights, access clean drinking water and log on to the Internet."

Baggio joined the team after meeting van der Boor at a Students in Free Enterprise (SIFE) meeting in January. SIFE hosted a benefit concert for the project during Spring Carnival, which raised \$600.

Baggio's involvement with Project Yele has provided her a broader view of her education.

"When you are sitting at a table in the UC deciding how people are going to use electricity for the first time, you realize that you really can make a difference," Baggio said.

Project H2U

Project H2U, led by senior civil engineering majors Whitney Ladzick and Amanda Low, was among 100 semifinalists in the Dell Social Innovation Competition. Their proposal began as a final project for Privilege, Responsibility and Community, an elective course taught by Joanna Dickert, coordinator of Student Affairs.

"I introduced the competition to my class after attending an English Department symposium about incorporating authentic projects into the curriculum," Dickert said.

The goal of Project H2U is to provide rural Indian villages with clean drinking water and employment opportunities. Ladzick and Low proposed installation of peristaltic pumps onto bicycles so power from pedaling would pump water through filters.

"I did not require my students to enter the competition," Dickert said. "In

the case with Whitney and Amanda's team, I strongly encouraged them to enter because they had put a lot of thought and time into the proposal and made sure it was culturally specific to the community they were looking to serve."

As civil engineering majors, Ladzick and Low already had an interest in green practices and water resources.

"I was in India this past summer, and I noticed there were a lot of bicycles being used in rural areas and cities. It's a technology that is already there," Low said.

Ladzick and Low received notification that Project H2U had been named a semifinalist over spring break and estimate they invested nearly 40 hours over three weeks to create a venture plan and five-minute pitch video for the next round of the competition.

"Once we became semifinalists, we were paired with a mentor from Dell named Tracy Watson," Ladzick said. "Her advice helped us to develop a plan that was financially sustainable."

Although Project H2U was not selected for the final round, the seniors agree the experience helped them synthesize lessons they learned inside the classroom and through involvement in Greek Life, study abroad and social justice organizations.

"I'm putting all these things that I worked so hard to learn to use for something that is real and meaningful," Ladzick said.

Professors Help Brighten City Streets

CONTINUED FROM PAGE ONE

The city is looking at improving energy efficiency, reducing costs and improving the quality of life for drivers, pedestrians and bicyclists. Carter said other concerns were safer streets, less light pollution to allow for darker skies at night, and an emphasis on urbanism.

As part of their recommendations, the lampposts will remain, but LEDs will be retrofitted into the fixtures, and how lights are used in general may change.

Cindy Limauro, a professor of lighting design at CMU, and her partner at C&C Lighting Chris Popowich are part of the RCI team researching possibilities for the city. C&C Lighting also created the Pausch Bridge and Hunt Library LED displays.

A groundbreaking idea is having all of the lighting controlled from a central location so that lights in individual neighborhoods, or even streets, could be adjusted for color or intensity. Currently street lights come in a single color temperature. Dual color temperature allows for complete flexibility of preference in residential and commercial areas.

For example, business districts might want a warmer color temperature while a

commercial district might want a cooler color temperature. Or, Limauro said, psychologically, the city might want to have warmer lighting in the winter and cooler lighting in the summer.

"We are excited," Carter said. "No one else in the world is doing this in terms of manufacturing design of street lights. People are the center of our study."

This is the first lighting project that the RCI has undertaken. It covers all aspects of the institute's mission of research and urbanism, education and regional impact.

"It will have international impact on lighting, and the prototype of the study is the city of Pittsburgh," Carter said.

The RCI team also is recommending color-changing tubes that would attach to the lampposts. Lights could be programmed for different festivals, celebrations and even emergency situations. For instance, during football season they could be gold or during festivals, they could direct people to different venues with blue or green pathways.

"Pittsburgh has branded itself as a city of art," Popowich said. "You could have many different strategies for using lights."

While manufacturers do not currently have this technology available for street lights, Limauro said they are excited by the possibilities and are willing to experiment. Orfield Laboratories in Minneapolis is also involved in testing the research.

"We're pushing the envelope of the industry itself," Limauro said. "Manufacturers are willing to work with us and are excited that cities are considering the quality of lighting and the aesthetics."

The first phase of the project is to install 3,000 LED lights in all the business districts of the city, which Carter said is expected to be completed by late February 2012. Pittsburgh received a grant of \$816,000 from the Commonwealth of Pennsylvania to aid in the design and

installation of the LEDs in the business districts.

The RCI team studied three business districts of varying size and character to develop technical criteria for the project: Fifth and Forbes avenues in downtown Pittsburgh; Carson Street on the South Side; and California Avenue in Brighton Heights. Peduto said that the new lighting will be equitable throughout the city business districts and neighborhoods.

The 37,000 remaining lights in the residential neighborhoods will be replaced over the next five to 10 years. Carter said the city anticipates a payback in savings in energy, maintenance and repairs five to seven years after each phase of installation.


piper TRIVIA

Congratulations to Rebecca Krall, Carolyn Revello and Marc Wisnosky for correctly answering the May Piper Trivia question.

Go online to the Piper+ at <http://bit.ly/CMUpiper> for this month's question. Previous winners are ineligible. Winners will receive a prize from the Carnegie Mellon Bookstore.

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Promising Futures

CMU Partners To Give High School Students Tips for College Search Process

■ Abby Houck

More than 200 sophomores and juniors from Pittsburgh-area high schools got a head start on selecting the college that's right for them at College Success 101 this past May at Carnegie Mellon.

The one-day conference, sponsored by the Office of Undergraduate Admission and the Urban League of Greater Pittsburgh, covered topics such as the college search process, admission criteria, financial aid and scholarships and major courses of study. The conference also served as a refresher course for 26 area high school guidance counselors.

"We started hosting College Success 101 after discussions at the 1998 Pennsylvania Association for College Admission Counseling Conference," said Kathryn Bethea, assistant director of undergraduate admission at CMU. "Our targeted population comprises students who are qualified to go to college but lack the information, support and/or money to ensure college access and success."

The organizing committee, which includes co-chair Wahab Owolabi, assistant director for employer development at CMU's Career and Professional Development Center, will soon launch College Success 102, a trip to The Pennsylvania State University main campus in State College.

"We hope to secure additional funding so that we can continue to be sustainable and expand our efforts," Bethea said. "One of our committee's goals is to develop programs and services that benefit schools, students and families throughout the year."

Amy Alexander, a Penn Hills High School guidance counselor, brought a group of students to College Success 101 for the first time.

"I am going to advocate for Penn Hills students to attend yearly," Alexander said. "I believe it opens up possibilities that some would not otherwise consider for themselves."

Alex Johnson, president of the Community College of Allegheny County

(CCAC), delivered this year's keynote address. Linwood Harris, associate director of masters admissions at the Tepper School of Business, also spoke and encouraged students to take advantage of the day's events as opportunities to explore and define their future plans. The conference concluded with a college fair that offered access to representatives from more than 30 area colleges and universities.

Brittani Uberti, an undergraduate admissions counselor at Chatham University, said that students asked good questions about class sizes and her university's nursing program.

Penn Hills High School juniors Kennan Hill and Tychelle Law spoke with admissions representatives about their respective interests in music education and accounting. They also reflected on their top take-aways from the College Success 101 workshops.

"Today, I learned that you really have to focus on customizing your application essay and not send the same one

to every school," Hill said.

Jhordan Stoutmire, a sophomore at Propel Andrew Street High School, started to research colleges and universities online and decided to attend the conference to meet admissions representatives in person.

"I'm interested in schools that offer programs in computer animation, science and technology," Stoutmire said.

College Success 101 is planned by a 22-person committee with members from California University of Pennsylvania, Carlow University, Carnegie Mellon, Chatham University, CCAC, Investing Now, Penn State, University of Pittsburgh, The Pittsburgh Promise, Point Park University and the Urban League of Greater Pittsburgh.

In addition to Bethea and Owolabi, committee members from CMU included Damian Dourado of the Carnegie Mellon Advising Resource Center and Cornell LeSane, Andrew McMillen, Jackie Sizemore and Allison Weingart of the Office of Undergraduate Admission.

Booklovers Have a FABulous Time at CMU CONTINUED FROM PAGE ONE

University Libraries Gloriana St. Clair spoke about the lifetime collecting interests of Henry Posner Sr. (1888-1976), who created the Posner family collection, as well as the unique contributions of his son, Henry Posner Jr. (1918-2011).

The younger Posner conveyed the collection on long-term loan to Carnegie Mellon, built the Posner Center to insure its preservation, digitized the works for universal access, and funded a student internship program to research and mount biannual exhibits. Ongoing stewardship and the internship program are coordinated by the libraries with the Posner Fine Arts Foundation, created by him.

Assisted by special collections librarian Mary Kay Johnsen and arts library associate Maranda Reilly, St. Clair discussed and displayed favorite items from the collection, which included a 1792 copy of the U.S. Bill of Rights; a Latin translation of Columbus' 1493 letter to Ferdinand and Isabella of Spain published in 1494; and Copernicus' "De Revolutionibus Orbium Coelestium, Libri VI," published in 1543.

Johnsen entertained the FABulous group with a hands-on tour of the Fine and Rare Book Room in Hunt Library, which included a folio of the Kelmscott Chaucer published by William Morris in 1896, "Passion" with color woodcuts by Georges Rouault published in 1939, and a charming collection of nearly 200 miniature books.

Culbert said that being able to turn the pages of very valuable books without wearing gloves was a thrill for the attendees.

Concluding the Carnegie Mellon portion of the tour, archivist Angela Todd and librarian Charlotte Tancin displayed items from the Hunt Institute for Botanical Documentation in the Hunt Library penthouse.

"The Hunt Botanical Collection is truly the finest in the world," Culbert said. "We were delighted with what we were able to see, and the kindness with which we were treated."

Todd talked about Rachel McMasters Miller Hunt, whose extraordinary personal library of books, prints, and documents on botany and horticulture seeded the institute in 1961. Showing photos of Hunt and displaying her heavily annotated 1895 copy of "How to Know the Wild Flowers" by Frances T. Parsons, Todd also recounted Hunt's particular research into the work of Maria Sibylla Merian (1647-1717).

Tancin exhibited 30 rare historic herbals, books and folios from the collection, including the 1485 German herbal "Gart der Gesundheit" and Pierre Joseph Redouté's masterpiece, "Les Roses," published 1817-1824. She related how Hunt's collection came to be at Carnegie Mellon, and also displayed more than a dozen books elegantly bound by her.

"We really loved what we saw and the enthusiasm and love with which library personnel showed us materials, answered our questions fully, and acted as though they were delighted to see us, no matter how many other things they have to do at this time of year," Culbert said.

Additional stops on the tour included the home of CMU Distinguished Career Professor Michael Shamos, a billiards expert who has a diverse collection of pool

memorabilia; the University of Pittsburgh's Center for American Music; and Block's Shadyside home for a reception and tour of his climate-controlled rare book library.

TREASURES ON DISPLAY

Among other items shown to the Fellowship of American Bibliophilic Societies were:

Posner Center

- A set of 21 volumes of Shakespeare, with fore-edge paintings (visible only when the leaves of the book are fanned)
- One of 125 numbered copies of the Haggadah illustrated by Arthur Szyk and printed on vellum (1938)
- Bejeweled and gilded bindings by Francis Sangorski (late 19th to early 20th century)
- Alhazen's "Opticae Thesaurus" (1572)
- Ptolemy's "Almagest" (1538)
- "Declaration des Droits de l'Homme" (1789)

Fine and Rare Book Room

- Student work from the Carnegie Tech's Laboratory Press, taught by Porter Garnett in the 1920s and 1930s
- A modern illuminated manuscript version of Elizabeth Barrett Browning's "Sonnets from the Portuguese," painted and embellished with gold by Leoni Nestori (1930)

Hunt Institute for Botanical Documentation

- Aemilius Macer, pseud. [Odo de Meung]. "Macer Floridus de Viribus Herbarum" (1477)
- "The Grete Herball" (1526)
- Fuchs, Leonhard. "De Historia Stirpium Commentarii Insignes" (1542)
- Hill, Thomas. "The Gardeners Labyrinth" (1594)
- Passe, Crispijn van de. "Hortus Floridus" (1614-1616)
- Grew, Nehemiah. "The Anatomy of Plants" (1682)
- Besler, Basilius. "Hortus Eystettensis" (1613, 1713 reprint)
- Merian, Maria Sibylla. "Dissertatio de Generatione et Metamorphosis Insectorum Surinamensium" (1726)

To search the Posner Collection, visit posner.library.cmu.edu/Posner/. For more information about articles in the Fine and Rare Book Room, contact Mary Kay Johnsen at mj0g@andrew.cmu.edu or 412-268-6622. For the Hunt Institute for Botanical Documentation, contact Charlotte Tancin at ctancin@cmu.edu or 412-268-7301.

2011-2012 Drama Season Features Tony Award-Winning Play

■ Dennis Schebetta

The maniacally brilliant Tony Award-winning musical “Sweeney Todd: The Demon Barber of Fleet Street,” and six thought-provoking and highly entertaining stage productions will be performed by CMU drama students in this coming season’s Subscriber Series.

The new season also includes a seven-play Directors Series and a New Works Series of six plays, which will be directed by students in The John Wells Directing Program, recently named for the legendary Hollywood producer who graduated from the School of Drama in 1979.

“The School of Drama season offers wonderful opportunities and challenges to participants across all courses,” said Peter Cooke, head of the School of Drama. “We’re delighted to welcome the acclaimed Peter Kleinert from Germany, who will direct ‘Good Person of Setzuan’ along with guest music director Jürgen Beyer.”

Joining Kleinert as a guest director this year will be Joe Calarco, an established New York and regional director, known for his work in “In Transit” and “Shakespeare’s R&J.” Calarco will serve as guest director for “Sweeney Todd.”

Students in the Dramaturgy Program will hold regular post-performance talk-backs with the audience, casts and crews following Tuesday evening performances. The dramaturgs are also available to discuss the plays with classes, student groups and public organizations. Contact Michael Chemers, dramaturgy option coordinator, at chemers@andrew.cmu.edu or

412-268-2399 to schedule a session with a dramaturg.

All Subscription Series performances take place at 8 p.m., Tuesday through Friday, and 2 and 8 p.m. on Saturday in CMU’s Purnell Center for the Arts. Performances will be held in the Philip

Chosky Theater, the Helen Wayne Rauh Studio Theater and the John Wells Video Studio. More information about each production is listed below.

Subscriptions to the 2011-2012 season are available. For package options or to place a subscription order, call the

box office at 412-268-2407 between noon and 5 p.m., Monday through Friday. Special discounts are available to all Carnegie Mellon alumni.

For more information on the 2011-2012 season of plays visit www.drama.cmu.edu.

SUBSCRIBER SERIES

“Good Person of Setzuan,” directed by Peter Kleinert

Preview: Oct. 6; Opening: Oct. 7; Closing: Oct. 15. Philip Chosky Theater

“Good Person of Setzuan” explores the notion of good and evil when three gods arrive on earth in search of one “good” person. Bertolt Brecht asks if an individual’s capacity for good still exists in a world riddled with iniquity, avarice and envy. Directed by German guest artist Peter Kleinert, “Good Person...” is epic theater that will provoke and entertain in equal measure.

“Mad Forest,” directed by Jed Harris

Preview: Dec. 1; Opening: Dec. 2; Closing: Dec. 10. Philip Chosky Theater

The 1989 Romanian revolution left a country in chaos. Caryl Churchill uses a blend of theatrical journalism and magical realism to provide an account of this wrenching moment in European history. Part documentary, part bold imagining, “Mad Forest” challenges our expectations about the nature of civic revolution, and the people left to pick up the pieces.

“Sweeney Todd: The Demon Barber of Fleet Street,” directed by Joe Calarco

Preview: Feb. 23; Opening: Feb. 24; Closing: March 3. Philip Chosky Theater

“Sweeney Todd” is a Tony Award-winning masterpiece by composer Stephen Sondheim. Directed by guest artist Joe Calarco, this hauntingly chilling story explores love, loss and blood-soaked revenge. Sweeney and Mrs. Lovett systematically kill and bake people into pies, which is set to a magical score and breathtaking book and lyrics.

“Bus Stop,” directed by Gregory Lehane

Preview: April 26; Opening: April 27; Closing: May 5. Philip Chosky Theater

William Inge’s 1955 play “Bus Stop,” nominated for four Tony Awards, features eight idiosyncratically fascinating characters in search of personal fulfillment. Stranded by a fierce snowstorm in a rural Kansas diner, passengers on an interstate bus engage, commiserate, challenge and romance a group of locals unused to the company of strangers.

“Suddenly Last Summer,” directed by Katherine Brook

Opening: Dec. 7-10, Helen Wayne Rauh Studio Theater

“Suddenly Last Summer” is an elegantly grotesque one-act play, in which the traumatized family of an eccentric gay poet struggles to repress, dismember and reconstruct the story of his death. Approaching the production through innovative performance styles will shine new light on Tennessee Williams’ poetic and darkly somber masterpiece.

“Les Enfants Terribles,” directed by Joshua William Gelb

Opening: May 2-5, Helen Wayne Rauh Studio Theater

In 1929 Jean Cocteau penned the acclaimed “Les Enfants Terribles” over three weeks while recovering from an opium addiction. A tragic thriller, Cocteau’s work tells of two sibling adolescents, Paul and Elisabeth, who escape the mundane adult world through an increasingly sinister series of fantastical twists they call “The Game.”

NEWS BRIEFS

Three Students Earn Goldwater Scholarships

Three Carnegie Mellon students have received Barry M. Goldwater Scholarships to encourage their pursuit of careers in the sciences. Benjamin Cowley, Robert Tisherman and Stephanie Guerra were among 278 sophomores and juniors nationwide chosen from more than 1,000 nominations to receive scholarships this year. Carnegie Mellon students have earned 13 Goldwater Scholarships since 2007.

Cowley, a junior majoring in electrical and computer engineering, is working with Byron Yu, professor of electrical and computer engineering and biomedical engineering, to develop interactive tools that enable visualization of high-dimensional neural data. He wants to further his studies in neural computation.

A junior majoring in materials science and engineering and biomedical engineering, Tisherman is studying MechanoBiology, a discipline that links the mechanical and biological functions of cells. His ultimate goal is to do orthopedics research.

Guerra, a junior majoring in biological sciences and Hispanic studies, plans to pursue a doctoral degree in cell or developmental biology. Under the direction of Biological Sciences Professor Charles Etensohn, she conducts research in the field, studying cellular differentiation in sea urchins.

Faculty, Students Help Repurpose Toyota Gear

Carnegie Mellon faculty and students helped Toyota turn five ideas for repurposing Toyota automotive technologies into reality during a rapid prototyping session in Newell-Simon Hall and the Electric Garage June 3-5.

Improved bike helmets, a solar-powered device for clearing smoke from huts, a system for converting the energy of “gym rats” into electricity, technology to help firefighters position their ladders, and a device that combines a computer mouse, keyboard and numerical pad were the five winning ideas submitted for Toyota’s “Ideas for Good” campaign. The people who submitted the ideas were flown to Pittsburgh for the weekend workshop and were paired with experts from CMU, Toyota and Pittsburgh “post-digital shop” Deeplocal, who worked to bring the ideas to fruition. Each winner also received a Toyota vehicle.

Illah Nourbakhsh, associate professor of robotics, served as faculty coordinator for the workshop. About a half dozen students and faculty members took part.

Deeplocal, headed by CMU alum Nathan Martin, worked with Toyota throughout the Ideas for Good campaign and organized the “build weekend” at Carnegie Mellon. The shop also built and videotaped its own versions of a roller coaster using Toyota’s Hybrid Synergy Drive and a disaster-relief tent using the Solar-Powered Ventilation System.

Virtual Possessions Have Hold on Teens, Study Says

Digital imagery, Facebook updates, online music collections, email threads and other immaterial artifacts of today’s online world may be more precious to teenagers than a favorite book that a parent once read to them or a T-shirt worn at a music festival, Carnegie Mellon researchers say.

“A digital photo is valuable because it is a photo but also because it can be shared and people can comment on it,” said John Zimmerman, associate professor of human-computer interaction and design. “For the young people in the CMU study, a digital photo that friends have tagged, linked and annotated is more meaningful than a photo in a frame or a drawer.”

Zimmerman, Jodi Forlizzi, associate professor of design and human-computer interaction, and William Odom, a Ph.D. student in HCI, presented their study of 21 teenagers in early May at CHI 2011, the Association for Computing Machinery’s Conference on Human Factors in Computing Systems in Vancouver. CHI conference leaders awarded the study Best Paper recognition.

Andy Awards Nominations Requested

Nominations for the 2011 Andy Awards are being accepted through July 6. This year includes a new category for Outstanding Community Contributions, which will honor

those individuals who tirelessly devote themselves to enhancing the living, learning and working experience of the campus community. Awards also will be given for outstanding dedication, commitment to students, innovation, culture and university citizenship. For more information, including nomination forms, please visit www.cmu.edu/andy-awards or contact University Events at 412-268-5052 or events@andrew.cmu.edu.

Statistics Professor Receives Math Fellowship

Jiashun Jin, associate professor of statistics, has received a fellowship with the Institute of Mathematical Statistics (IMS). IMS selects fellows to honor outstanding research and personal contributions that keep IMS in a leading role in the field of statistics and probability. Jin’s current research is in large-scale inference and massive-data analysis, which are frequently found in many scientific areas, such as genomics, astronomy, functional magnetic resonance imaging and image processing.

Tepper Students Win Case Competition

A team of MBA students from the Tepper School of Business — team captain Felix Amoruwa, Jesse Alleyne, Ian Buggs, Richard Van Burgess III and Jacob Garcia — won an annual business case competition sponsored by Exxon Mobil Corporation. The business case, “Seizing New Energy Opportunities

OBITUARY: CMU's Lester Lave Was a Leading Environmental Economist

■ Staff Reports

Carnegie Mellon Professor Lester B. Lave, one of the nation's leading environmental economists, died at his home in Pittsburgh on May 9, 2011, after a four-month struggle with cancer. He was 71.

Lave was a University Professor — the highest distinction a faculty member can achieve at CMU — the Harry B. and James H. Higgins Professor of Economics at the Tepper School of Business, professor of engineering and public policy, director of the Green Design Institute and co-director of the Carnegie Mellon Electricity Industry Center.

"Lester Lave was an icon at Carnegie Mellon, where he had achieved the highest plateaus in scholarship and friendship," said Mark S. Kamlet, provost and executive vice president at Carnegie Mellon.



LESTER B. LAVE

admired by his students, academic peers and policy-makers. He created a body of meaningful research, placing him among the world's most respected thought-leaders on global energy issues and public policy."

Lave had an outstanding ability to perform careful analysis, and present results that questioned conventional wisdom. Much of Lave's research focused on the problems of balancing

"Lester was a remarkable professor, researcher and colleague," said Tepper Dean Robert M. Dammon. "He was a beloved teacher and a prolific scholar,

environmental and other risks with economic and other social objectives. Global climate change, dam safety, truck drivers who have diabetes, and the environmental effects of fuel additives were but a few of the topics addressed in research by Lave and his students.

"Throughout his career, Professor Lave has made substantial contributions to advancing environmental science, policy and regulator approaches in the United States and worldwide," said David A. Dzombak, the Walter J. Blenko Sr. Professor of Civil and Environmental Engineering and faculty director of Carnegie Mellon's Steinbrenner Institute of Environmental Education and Research.

For the past 15 years, Lave has devoted much of his attention to green design and restructuring and improving the electricity system. He helped to

found and served as director of Carnegie Mellon's Green Design Institute that has focused on finding environmentally acceptable ways of manufacturing, using, disposing of, and recycling products. He published or contributed to 28 books and more than 400 professional and other publications.

He served for eight years as the head of CMU's Department of Economics. His academic appointments spanned the Tepper School of Business, the Department of Engineering and Public Policy in the College of Engineering, and the H. John Heinz III College's School of Public Policy and Management.

Lave is survived by his wife, Judith, their two children, Jonathan M. Lave of Washington, D.C., and Tamara R. Lave of Miami, Fla., and two grandchildren.

OBITUARY: Joel Stiles Combined Medicine and Advanced Computing

Joel Stiles, director of the National Resource for Biomedical Supercomputing (NRBSC) at the Pittsburgh Supercomputing Center (PSC), passed away on Friday, May 20, after a long struggle with a brain tumor.

Stiles joined PSC in 1999 and became director of NRBSC in 2005.

"Joel was one of those rare scientists who understood both medicine and advanced computing," said Ralph Roskies, PSC co-scientific director. "He had a very broad vision of how powerful computing could advance personalized medicine. For his perspective and wisdom, NIH's National Center for Research Resources named him to their strategic Advisory Council. He also had a unique gift for presenting scientific ideas in a visually engaging way which conveyed new

understanding to both high school students and to practicing scientists."

Along with his leadership role at PSC, Stiles was an associate professor in CMU's Mellon College of Science and Lane Center of Computational Biology, and was a visiting adjunct professor in the University of Pittsburgh departments of Neuroscience and Computational Biology.

Stiles is survived by his wife, Helen, and three children, Laura, Michelle and Kevin. A memorial service "to celebrate life" will be held at a future date.



JOEL STILES

While Reducing Greenhouse Gas Emissions," challenged teams to develop a comprehensive national plan for America to transition to a lower greenhouse gas profile by the year 2030 in the most cost-effective way.

The students will be honored at The Executive Leadership Council's 25th Anniversary Recognition Gala Oct. 20 at the Gaylord National Harbor near Washington, D.C. The team also will participate in leadership development activities in Washington and New York that week.

Take a Spin with Heinz Graduates

Heinz College turned its YouTube channel over to graduating students. The result was Grad Roulette.

The website, www.gradroulette.com, features a virtual roulette wheel visitors can spin to randomly land on a 2011 graduate. A video player is then launched and the graduate proceeds to draw, as well as answer, a random question submitted by Heinz College students, faculty and staff. Some questions relate specifically to areas of study at Heinz College while others are humorous and of general interest.

Brad Stephenson, a 2005 Heinz College alumnus and senior Web media and marketing manager for Heinz College, said Grad Roulette was a creative attempt to shine the spotlight on graduating students.

"Our alumni have helped shape Heinz College's outstanding reputation for educational excellence, and we just wanted to

acknowledge the newest members of that community with a fun and original concept," he said.

Cárdenes To Serve as Tchaikovsky Judge

He's been there before as a competitor, and now Andrés Cárdenes returns to the world's most prestigious violin competition as a judge.

On June 16, Cárdenes will be at The Tchaikovsky Competition in St. Petersburg, Russia.

"I'm very excited, very honored," said Cárdenes, who came in second at the competition in 1982. "It's an affirmation of a lifetime of work. It's also a great thing to represent Carnegie Mellon on the jury and I'm going to carry the flag very prominently."

Cárdenes, an internationally acclaimed musician, joined the music program 21 years ago, eager to help CMU achieve its present status as a first-rate School of Music.

Cárdenes maintained his CMU position while serving as concertmaster of the Pittsburgh Symphony Orchestra, an appointment he also held for 21 years until his resignation in 2010 to pursue other interests.

He noted, "One of the School of Music's greatest assets is that the Pittsburgh Symphony is right there with the greatest symphonic players in the world."

An instructor since the age of 19, Cárdenes believes in devoting time to each of his students.

"Teaching is a monumental commitment and you must dedicate yourself to

every single student," said the Dorothy Richard Starling & Alexander Speyer Jr. University Professor of Violin.

He added, "I'm very fortunate to come from an incredible lineage of great violin players and teachers all the way back to Corelli in the 17th century.

"I have always felt a huge responsibility and obligation to share my knowledge and pass it on — not only the technical and musical aspects, but also the oral history of violin playing," Cárdenes said. "It's a very important part of my life to keep this lineage alive."

CMU Nationally Recognized for Community Service

For the fourth consecutive year, Carnegie Mellon has been named to the President's Higher Education Community Service Honor Roll for supporting exemplary community service programs and raising the visibility of best practices in campus-community partnerships. In the past year, CMU's Leonard Gelfand Center for Service Learning and Outreach documented at least 110,000 hours of service by students in service learning courses, student organizations and programs.

"Congratulations to Carnegie Mellon and its students for their dedication to service and commitment to improving their local communities," said Patrick A. Covington, CEO of The Corporation for National and Community Service, which has administered the honor roll since 2006. "We salute all the honor roll awardees for embracing their civic

mission and providing opportunities for their students to tackle tough national challenges through service."

The Gelfand Center, under the direction of Assistant Vice Provost for Educational Outreach Judith Hallinen, supports many outreach initiatives in which CMU students work to improve local communities through tutoring, mentoring and other service activities. The center works to connect university students to volunteer and paid positions that allow them to develop expertise while meeting the needs of local agencies and individuals.

For more information on the Gelfand Center, visit <http://gelfand.web.cmu.edu/sections/general/index.php#>

N.Y. Theater To Perform 'A MAZE'

"A MAZE," a play written by Rob Handel, head of the Dramatic Writing Program, will be produced this summer (July 20-31) at the Powerhouse Theater at Vassar College in Poughkeepsie, N.Y. Tony Award nominee Sam Buntrock will direct the performance. This past fall, Handel received the Whitfield Cook Award from New Dramatists for "A MAZE," which tells three interconnected stories: a teenage girl recreates her identity after being held captive in a suburban basement for eight years; a band remakes itself after a hit-song; and a self-taught artist gains a cult following for his 15,000-page comic book.

Circulo Juvenil Teaches Kids About Greening the Earth — In Spanish

■ Shilo Raube

In a special program by the Department of Modern Languages, children learned about ecology and plants — and grew a little themselves.

“The Earth is sick. People made it sick with pollution,” explained 9-year-old Sophia Llovet-Nava as she was getting ready to play a star in El Circulo Juvenil de Cultura’s play “Greening the Earth.”

Llovet-Nava was one of 18 children between the ages of 6 and 12 who participated in the spring semester’s Circulo Juvenil workshop that uses arts and technology to keep Latino children speaking Spanish.

“The Latino population is the only ethnic population in Pittsburgh that is growing,” said Kenya Dworkin, associate professor of Hispanic studies, who runs the program with Mariana Achugar and Felipe Gomez. “Our goal is to help children from multi-lingual households understand that Spanish is a valid part of their identity.”

Gomez, associate teaching professor of Spanish, said that Circulo Juvenil, which began in 2007, also helps with socialization.

“It provides a fun, supportive environment for kids to use Spanish in creative ways,” he said. “It also gives the kids and parents a way to meet other people in similar situations.”

Previous workshops focused on blogs, photography, dancing and poetry, and all of the sessions and activities are done in Spanish.

This year’s program concentrated on an ecology project proposed and directed by Martha Chapa, who recently moved to Pittsburgh. The children learned about classifying trash and recycling, different animal habitats, the effects of polluted river water and taking care of plants.

“The activities were designed to help the children know how important it is to care for the Earth to help make it a better place to live,” Chapa said. “And, they were able to practice Spanish. Some of the youngest children were just learning to read in English, and now they can read a little in Spanish — and it wasn’t a chore for them.”

During the semester’s last session on May 1, the children performed a play about what they learned for their families and friends. In the play, Mother



MAISHA MAKANAKY, ONE OF THE STARS IN “GREENING THE EARTH,” IS READY TO PERFORM. VOLUNTEER ASSISTANT MONICA JACOBO IS STANDING NEXT TO HER.

Earth, played by Chapa, was sick and the kids tried to help her by talking to the sun, moon, stars and rain. Eventually, they found out that the only way to help the Earth was through their own actions.

Harrison Apple, a sophomore humanities and arts student, was one of the CMU student volunteers who helped make the workshop a success.

“The kids gave a lot of input into

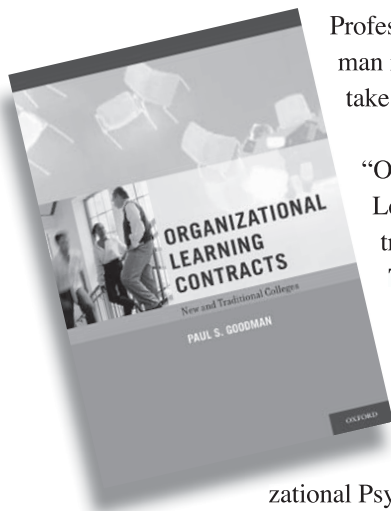
the play, and it was interesting to see how they wanted the costumes to look and which parts they wanted to play,” he said. “Not only did they learn about ecological systems, but the program is keeping bilingualism alive in education.”

For more information about El Circulo Juvenil de Cultura, including how you can get involved, visit <http://circulocmu.blogspot.com/>.

On The Shelf

GOODMAN OFFERS INNOVATIVE APPROACH TO HIGHER EDUCATION

■ Mark Burd



Professor Paul Goodman is offering a new take on education.

In his book, “Organizational Learning Contracts: New and Traditional Colleges,” the Richard M. Cyert Professor of Organizational Psychology at the Tepper School of Business, offers a new and innovative solution.

“I’ve been involved in the university’s global issues for around 20 years,” Goodman said. “During that time I had the opportunity to be involved in designing new universities. The fundamental question is: if you had to design a new university and had no constraints how would you do it? That’s a very stimulating intellectual question. The experiences about answering that question and then helping in the implementation of change stimulated the writing of this book.”

Change is inevitable, Goodman said, be it in economies, educational institutions, or both. In regions of the world experiencing rapid economic expansion, such as India, Southeast Asia

and South America, the demand for high quality technical professionals and managers is quickly outstripping the supply. This gap represents a major roadblock to continued or systematic economic development within these regions.

In other parts of the world such as the United States and Europe, rapid changes in technology, the financial environment, increased competition, and greater pressure for accountability challenge the status quo and accelerate the need for change in higher education.

Goodman, director of the Institute for Strategic Development, offers an innovative solution to this problem in redesigning the model for higher education.

Organizational learning contracts are shared understandings by faculty, students and staff about what to learn, how to learn, when and where. Contracts can be weak or strong. In institutions with strong learning contracts, faculty, students and staff have explicit understandings about what is to be learned and how. There are strong socialization, feedback and redesign mechanisms to enact this learning contract.

The book provides empirical results about strong and weak contracts. In institutions with strong contracts, students said they have a much better idea of what they are to learn, have clearer models of how to learn, are more passionate about their learning environment, and

develop strong long-term commitments to their institution.

The book also bridges theory and practice. In the practice section, readers will learn from the experience of people who have created new institutions with strong contracts, as well as practical advice about design and changing edu-

cational institutions.

“The research findings and practical advice have clear implications for successfully expanding higher educational opportunities and could revolutionize how we think about existing institutions of higher education,” Goodman said.

CRIME BOOK FEATURES STORIES BY HAYES, MASTERS

■ Shilo Raube

Pittsburgh may be “the most livable city in America,” but the new crime book “Pittsburgh Noir” shows the city in a different light through 14 stories from the city’s most famous writers, including Carnegie Mellon English professors Terrance Hayes and Hilary Masters.

The collection is the latest in the Akashic Noir Series. Each book in the series is comprised of new fictional stories, each set in a distinct neighborhood within the city of the book. “Pittsburgh Noir” was edited by Kathleen George, the Edgar Award-nominated author of the Richard Christie novels set in Pittsburgh and professor of theater arts at the University of Pittsburgh.

Hayes, who recently won a National Book Award, contributed “Still Air,” which takes place in the city’s East Liberty neighborhood.

Masters, an esteemed fiction writer who will publish his 10th novel this year, wrote “At the Buena Vista,” set in the Mexican War Streets.

Additional authors include K.C. Constantine, Carlos Delgado, Rebecca Drake, Aubrey Hirsch, Paul Lee, Tom Lipinski, Nancy Martin, Reginald McKnight, Katherine Miller Haines, Stewart O’Nan and Lila Shaara.

