



## Carnegie Mellon University

# PHENOMENAL

## Trustee's \$265M Pledge Largest Ever At CMU

■ Piper Staff

Businessman, scholar, philanthropist and longtime Carnegie Mellon trustee William S. Dietrich II thinks CMU is a "special place."

So much so that he and other CMU officials announced his plans to provide a record-breaking gift of a \$265 million fund to support CMU — the largest gift in CMU's history and one of the 10 largest by an individual to a private higher education institution in the United States. It is believed to be the 14th largest gift to higher education worldwide.

"I have always valued education, and have never stopped learning,

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PHOTO BY KEN ANDREYO

CMU TRUSTEE WILLIAM S. DIETRICH II RECEIVES A STANDING OVATION AFTER ANNOUNCING A \$265 MILLION GIFT.

## H&SS Named After Dietrich's Inspirational Mother

■ Piper Staff

In recognition of William S. Dietrich II's gift, the university's College of Humanities and Social Sciences has been named the Marianna Brown Dietrich College of Humanities and Social Sciences after Dietrich's late mother, a homemaker who inspired and supported Dietrich throughout his life.

"My mother would be thrilled to have her name associated with this wonderful school, and it is my hope that in naming this college for her you will remember some of the values that made her life so meaningful," Dietrich said during the ceremonial announcement.

Marianna Brown Dietrich was born on July 5, 1910, in Cherry Tree, Pa. Mrs. Dietrich is remembered for her lifelong pursuit of learning and her unconditional

love and devotion to her family. She inspired her son, William Dietrich II, to explore the world and diverse new ideas — both through his extensive travels and his great enjoyment of reading and writing — and to apply that knowledge to a life dedicated to scholarship, entrepreneurship, collaboration and a deep commitment to the community.

The naming follows in the tradition set by Andrew Carnegie, who named a college for women after his mother, Margaret Morrison Carnegie.

"I find it especially fitting that we honor the memory of another remarkable woman in our new name," wrote Dean John Lehoczy in an email to alumni.

To commemorate this new name, a plaque with an image of Marianna

**Carnegie Mellon University**  
**Dietrich College**  
Humanities and  
Social Sciences

Brown Dietrich will be hung in Baker Hall along with plaques of Andrew Carnegie and Carnegie Mellon's first president Arthur Hamerschlag.

"The naming of a college is a momentous occasion at any university," said Carnegie Mellon President Jared

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# Q&A: Astria Suparak Brings National Attention to Miller Gallery

■ Heidi Opdyke

Since 2008, Astria Suparak has been curating cutting-edge, interdisciplinary exhibitions and events at Carnegie Mellon's Miller Gallery. There, installations, paintings, sculpture, electronic arts, and other works that defy category bring the three-story art space alive.

This fall, Suparak is a co-curator of the Pittsburgh Biennial, premiering five new installations at the Miller Gallery. Setting a new precedent for city-wide collaboration among major art institutions, the Pittsburgh Biennial is co-organized by the Carnegie Museum of Art, the Miller Gallery, The Andy Warhol Museum, and Biennial founders Pittsburgh Filmmakers and the Pittsburgh Center for the Arts.

Amidst her busy schedule, the Piper caught up with the Miller Gallery director to discuss her role and the exciting new exhibit.

## Who curates the exhibitions?

I curate about half of the exhibitions and select guest curators for others. Creating most of the exhibitions in-house has helped us achieve one of my goals since arriving at CMU: To create a strong identity for the gallery through relevant and unique programming. I see the role

of the gallery as advancing the university's mission and vision, focusing on innovation, interdisciplinarity and problem solving.

## Tell me more about the gallery programming.

We present about four to eight exhibitions annually, often touring our exhibits to other institutions internationally. We also host the annual Carnegie Mellon MFA and Senior Art exhibitions in the spring, which are organized by the School of Art.

We program various lectures, symposia, workshops, screenings, and other events throughout the year, and recently we have collaborated with the STUDIO for Creative Inquiry on a series of residencies for artists, writers and our Andy Warhol Foundation Curatorial Research Fellow, Andrea Grover. Andrea will be guest curating our winter exhibition, "Intimate Science."

Often we look for partners across campus for related programming to our exhibitions.

## How are you and the Miller Gallery involved in this year's biennial?

Each of the five partner institutions will present a distinct exhibition of work by artists connected to the Pittsburgh region, reflecting each organization's curatorial focus. I am curating the Miller Gallery's contribution, featuring artists who work collaboratively. This collaborative approach echoes the long labor and union histories of the area, as well as the Biennial's new partnership among local art organizations.

## What are some of the Miller Gallery's Biennial installations?

Our exhibition includes sculpture, printmaking, painting, video, publications and workshops. They are:

### subRosa

subRosa, a collective including CMU alumna Hyla Willis of Pittsburgh and Faith Wilding of Providence (a former CMU professor), speculates about how feminism could affect the scientific world, as it has with art and other areas of culture. In their new installation they invoke writers, scientists, experimenters, inventors, designers and processes that could be antecedents of this new way of thinking and working.

### Global Cities, Model Worlds

Sarah Ross, Ryan Griffis (Chicago) and Lize Mogel (New York, CMU alumna) will debut an installation that explores the spatial and social impacts of mega events, such as the Olympics and World's Fairs. The host cities of these spectacles seek to transform themselves into "global cities" through planning, architecture and ideology. Locally, these events pave the way for redevelopment projects that can create new public re-



MILLER GALLERY DIRECTOR ASTRIA SUPARAK STANDS IN FRONT OF A PITTSBURGH BIENNIAL EXHIBIT, THE "SELF-RELIANCE LIBRARY."

sources such as parks, stadiums, or transportation infrastructure, but often result in displacement of residents or industry, reinforcing existing inequalities.

### Justseed

Justseed is a cooperative of printmakers in the U.S., Canada, and Mexico, with members and a distribution center in Pittsburgh (including CMU alumna Mary Tremonte). For the Biennial they built a landscape packed with billboards. Instead of peddling products, the handmade billboards advocate for borderless nations and immigrant rights.

### Self-Reliance Library

Temporary Services, composed of CMU alumnus Marc Fischer in Chicago, Salem Collo-Julin in Philadelphia, and Brett Bloom in Copenhagen, present the "Self-Reliance Library," a collection of recently published and out-of-print books and reference materials that the artists have found inspiring and hope will "provoke the reader, solve creative problems, or suggest imaginative directions for a range of creative practices." Topics represented in the library include everyday repair solutions, designs for alternate realities, survivalism, self-publishing, and skill-sharing.

### Transformazium

The fifth installation, by Transformazium, comprised of Ruthie Stringer, Dana Bishop-Root, Leslie Stem and Caledonia Curry, will be an evolving installation with bricks from a condemned building they deconstructed near their home in North Braddock, a suburb of Pittsburgh. During the course of the exhibition, collective members and gallery visitors will clean the bricks, visibly transforming waste to useable resources and underlining the economic viability and environmental sustainability of deconstruction, or "green demolition." In neighborhoods that face high levels of property abandonment as well as persistent under-employment, deconstruction "makes room for the possibility to discover wealth in places of blight and energy in places of stagnation."

If anyone would like a class or group tour of the gallery, just email us.

## How has the Miller Gallery evolved?

Because the gallery is based within a university, we've selected programming that touches upon many different subjects. In the last few years our programming has explored: Urban planning, architecture, science, technology, environmental studies, cultural studies, popular culture, performance, social justice, print design, geography, economics, labor, fan culture and sports such as last year's blockbuster "Whatever It Takes: Steelers Fan Collections, Rituals, and Obsessions."

We've increased our collaborations with departments across campus and organizations nationally to present these exhibitions and public programming. Our exhibitions "Keep It Slick: Infiltrating Capitalism with the Yes Men" and "Your Town, Inc.: Big Box Reuse with Julia Christensen" toured across five states and two countries.

## What other types of CMU partnerships is the Miller Gallery planning?

This fall we'll be releasing a publication titled "New Art/Science Affinities," which we're very excited about. It is the result of a "book sprint," an intensive co-authoring process over a short period of time.

Right now we're looking for partners across campus, including science and engineering, to help us present events related to the Pittsburgh Biennial exhibition and our upcoming winter show, "Intimate Science."

## Upcoming Events

**5 p.m., Wednesday, Nov. 16**  
"From Waste to Reuse: Dialogue + Brick Cleaning Workshop with Transformazium"  
Second floor, Miller Gallery

Admission to the Miller Gallery is free and open to the public. Hours are noon - 6 p.m., Tuesday - Sunday.

For more information visit [www.cmu.edu/millergallery/exhibitions/pittsburghbiennial2011](http://www.cmu.edu/millergallery/exhibitions/pittsburghbiennial2011)



## the PIPER

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**PUBLISHER**  
Teresa Thomas

<b>EDITOR</b> Bruce Gerson	<b>MANAGING EDITOR</b> Heidi Opdyke
-------------------------------	--

**WRITERS**

Karen Beaudway	Abby Simmons
Jocelyn Duffy	Byron Spice
Bruce Gerson	Chriss Swaney
Heidi Opdyke	Heather Wainer
Shilo Raube	Ken Walters
Kristen Sabol	

**DESIGNER**  
Melissa Stoebe  
Communications Design and Photography Group

**PHOTOGRAPHY**  
Ken Andreyo  
Tim Kaulen  
Communications Design and Photography Group

To contact The Piper staff, call 412-268-2900 or email [bg02@andrew.cmu.edu](mailto:bg02@andrew.cmu.edu).

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# Trustee's Pledge Largest Ever

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and it is hard not to be in awe of what happens on this campus," he said during a Sept. 7 announcement.

The historic bequest will support the entire university and names the College of Humanities and Social Sciences the Marianna Brown Dietrich College of Humanities and Social Sciences after Dietrich's late mother, a homemaker who inspired and supported Dietrich throughout his life.

Carnegie Mellon President Jared L. Cohon called the gift "phenomenal" among several superlatives — taking inflation into account, it's larger than the Andrew Carnegie gift that founded the university in 1900 — and said it will benefit the entire university allowing CMU to extend its global impact.

"Bill understands the special character of Carnegie Mellon with the unique ability of our faculty to work collaboratively at the intersections of science, technology, art, humanities, business and policy," Cohon said. "This remarkable gift will give us the resources to enhance and extend those collaborations, expand the university's impact in the world and enrich the education of our students."

## "A Special Place"

Dietrich said he is making this landmark gift to the university because of its global approach and the quality of its faculty and students, who bring interdisciplinary thinking and complex problem-solving strategies to real-world problems.

"A gift that enhances educational opportunities creates a multiplier effect for our communities and our country — in other words, it is a mode of giving that leverages a gift to achieve its maximum effectiveness," Dietrich said.

"Serving as a trustee of Carnegie Mellon convinced me that Carnegie Mellon is not only a great university, but that it is an important driver of the future success of this region and its citizens. I have seen first-hand how Carnegie Mellon has maintained the same 'can-do' spirit and multi-disciplinary approach to problem-solving that was part of its founding, and that it is one of a handful



DIETRICH COLLEGE DEAN JOHN LEHOCZKY POSES WITH WILLIAM S. DIETRICH II.

of universities in the world that has the potential to become a truly global institution. All of this makes Carnegie Mellon a great investment.

"This university puts Pittsburgh on anybody's world map of great research cities," Dietrich added. "Brilliant people come here as students and faculty, and their presence in our community adds something extraordinary. They attract firms like Google and Intel, they create new companies and new ideas. They add to the city's vibrant artistic and cultural life. They win Tonys and Oscars and Nobel prizes. They never stop exploring. They never stop looking for a better way to do something, and they never stop working to make things better tomorrow than they are today."

Ray Lane, chairman of CMU's Board of Trustees and general partner of Kleiner, Perkins, Caufield and Byers, equated Dietrich with the likes of famous Pittsburgh entrepreneurs.

"Imagine a period of time when Andrew Carnegie, the Mellons, George Westinghouse, Henry Frick and Henry Heinz all walked the streets of Pittsburgh. Had it not been for the generosity of those successful entrepreneurs, Pittsburgh today would be a mere shadow of itself," said Lane, who noted that he recently received a copy of Dietrich's book "Eminent

Pittsburghers," which discusses Pittsburgh's Golden Age (1870-1910) when the city was a "seething cauldron of entrepreneurial activities."

"Today we're witnessing history repeated as we are the ones that can claim to know Bill Dietrich, another great entrepreneur who walked the streets of Pittsburgh," Lane said.

## Inspire Innovation

Dietrich's gift brings the Inspire Innovation: The Campaign for Carnegie Mellon University total to approximately \$950 million, which is 95 percent of the campaign's \$1 billion goal.

Ed Frank, a Silicon Valley executive, CMU trustee and alumnus, and chairman of the capital campaign, added his thanks for the gift.

"The top research universities in the United States play a vital role in addressing the challenges facing our country and the world. As such, I believe they are one of the best philanthropic investments an individual can make, especially Carnegie Mellon, which is a uniquely creative institution," Frank said. "I'm certain that Bill's magnificent gift will inspire all who work at Carnegie Mellon to even greater achievement and all who contribute to Carnegie Mellon to even greater support."

## Dietrich: "Luck and Pluck" Key to Success

Dietrich, who said he earned his success through "luck and pluck," is the former chairman of Dietrich Industries, Inc., a subsidiary of Worthington Industries, Inc., and a trustee of the Dietrich Charitable Trusts. Dietrich transformed Dietrich Industries into the nation's largest manufacturer of light metal framing — commonly known as steel studs — for the construction industry before selling the company to Worthington Industries, Inc., in 1996. He remained a director at Worthington Industries until 2008.

A former U.S. Marine, Dietrich holds a bachelor's degree from Princeton University and master's and doctoral degrees from the University of Pittsburgh. In terms of civic service,

# H&SS Named Dietrich College

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L. Cohon. "Let me underscore now that for Carnegie Mellon, the naming of its humanities and social sciences college is especially significant. It represents a statement of the progress that H&SS has made over the last several years, especially under the leadership of Dean John Lehoczky. It's also a statement about Carnegie Mellon's commitment to the future of humanities and social sciences at this university."

Lehoczky said Dietrich's generosity and desire to name the college was a reflection of students, faculty, staff and alumni who are doing pioneering work.

"In the last year alone, our students have won many scholarships, including coveted Fulbright, Luce and German Chancellor awards. And, H&SS faculty members won a National Book Award, a Global Award for Entrepreneurship Research, often referred to as the 'Nobel Prize for Entrepreneurship' and a Benjamin Franklin Medal in Cognitive and Computer Science," he said. "This rich combination of faculty and student talent guarantees that the Dietrich College will be a major contributor to the important research accomplishments with huge societal impact being produced by Carnegie Mellon faculty."



IN PITTSBURGH, STUDENTS CELEBRATED WITH THE ACTIVITIES FAIR, A CONCERT AND FIREWORKS.

Dietrich's commitment to Western Pennsylvania is remarkable. He has served actively on the boards of many regional institutions, including Carnegie Mellon, the Carnegie Museum of Art, the Allegheny Conference on Community Development, the Greater Pittsburgh Council of the Boy Scouts of America, Chatham University, the Pittsburgh Ballet Theatre, the Pittsburgh Symphony Society, the Southwestern Pennsylvania Growth Alliance, UPMC Health System and the University of Pittsburgh.

Along with "Eminent Pittsburghers," he is the author of "In the Shadow of the Rising Sun: The Political Roots of an American Economic Decline."



MOHAMMED JANAH, STUDENT BODY PRESIDENT OF CARNEGIE MELLON QATAR, CUTS A CAKE AT A CELEBRATION ACKNOWLEDGING DIETRICH'S GIFT.

PHOTO COURTESY OF CARNEGIE MELLON QATAR

PHOTO BY KEN ANDREYO

PHOTO BY KEN ANDREYO

# Four Professors Earn Highest Faculty Distinction

■ Piper Staff

Four Carnegie Mellon professors, Lorenz (Larry) T. Biegler, John P. Lehoczky, George Loewenstein and Mary Shaw, have been awarded the elite distinction of University Professor, the highest academic accolade CMU faculty members can attain.

“Professors Biegler, Lehoczky, Loewenstein and Shaw are pre-eminent researchers and educators who are highly regarded leaders in their respective fields.

## Lorenz (Larry) T. Biegler, the Bayer Professor of Chemical Engineering

Internationally renowned for his research in computer-aided process engineering and his projects in design research



and systems analysis, Biegler has authored or co-authored more than 250 archival publications, authored or edited nine books and given numer-

ous invited presentations at conferences around the world.

“This is a great honor for Professor Biegler. He is an innovative researcher and a pioneer in the development of tools for process design and optimization. Methods developed by Professor Biegler and his students are used worldwide,” said Andy Gellman, head of Carnegie Mellon’s Department of Chemical Engineering. “Being named a University Professor is the culmination of many years of academic and research excellence.”

In addition to teaching at Carnegie Mellon, Biegler has been a visiting scholar at Northwestern University, a scientist-in-residence at Argonne National Lab, a distinguished faculty visitor at the University of Alberta, a Gambrinus Fellow at the University of Dortmund, a Fulbright Fellow at the University of Heidelberg and a Distinguished Jubilee Lecturer at IIT Bombay. He has taught courses on dynamic optimization in China, Finland, Colombia and Germany, and started new research activities with colleagues in all of these countries.

Among his many awards for his outstanding achievements, Biegler has received the Warren K. Lewis Award for Chemical Engineering Education and the Computing in Chemical Engineering Award from the American Institute of Chemical Engineers, the INFORMS Computing Society Prize, the CACHE Computing in Chemical Engineering Award from the American Society for Engineering Education, and several best paper awards. He earned the Steven Fenves Award in Systems Engineering from Carnegie Mellon’s Institute for Complex Engineered Systems in 2005.

Biegler joined the faculty at CMU after receiving his Ph.D. from the University of Wisconsin in 1981. He was appointed the Bayer Professor of Chemical Engineering in 1996.

## John P. Lehoczky, the Thomas Lord Professor of Statistics and Mathematical Sciences and H&SS Dean

Lehoczky studies stochastic processes and how they can be used to model real



applications. His investigation into the evolution of random processes over time is focused on developing methods that combine system

scheduling with performance evaluation and can be applied to manufacturing systems in which products have delivery deadlines.

His theories can be applied to real-time computer or communication systems that require certain tasks to be completed within stringent timing requirements. National projects like NASA’s Space Station, Mars Rover and the GPS Satellite System have adopted his theories, and several IEEE computer standards incorporate Lehoczky’s work.

Lehoczky earned his Ph.D. at Stanford University and joined the CMU faculty in 1969. He served as head of the Department of Statistics from 1984 to 1995 and has led the Dietrich College of Humanities and Social Sciences (H&SS) since 2000. As H&SS dean, Lehoczky has overseen the launch of the college’s ambitious Humanities Initiative, which created the Humanities Scholars Program, the Humanities Center and the Center for the Arts in Society. He is responsible for fostering research in the brain sciences and has been a strong advocate for international programs, such as the Center for International Relations and Politics.

Lehoczky is a fellow of the American Statistical Association, the Institute of Mathematical Sciences, INFORMS and the American Association for the Advancement of Science, and he is an elected member of the International Statistics Institute.

“John is certainly deserving of this honor based on his accomplishments and impact in both research and academic program development that connect several related fields in innovative ways, most notably, perhaps, computational finance,” said Joseph E. Devine, associate dean for undergraduate studies in H&SS. “But what I find truly remarkable is that he’s been able to do all of this while also, for the last decade, leading the college as dean with a steadiness, vision, and highly energetic engagement that has allowed H&SS to flourish across all of its departments and programs.”

They join a most distinguished group of peers who represent much of the intellectual leadership at Carnegie Mellon. They are very deserving of this honor and we are very fortunate to have them as part of our university community,” said CMU Provost and Executive Vice President Mark Kamlet.

## George Loewenstein, the Herbert A. Simon Professor of Economics and Psychology

A trained economist, Loewenstein studies the border between economics and



psychology and is a leader in the fields of behavioral economics and neuroeconomics, which he helped establish. His research ex-

plores a wide range of subjects, including decision making over time, bargaining and negotiations, psychology and health, law and economics, the psychology of adaptation, the role of emotion in decision making, the psychology of curiosity, conflict of interest, and “out of control” behaviors such as impulsive violent crime and drug addiction.

“George is the catalyst for CMU’s frontier work, and eminent position, in behavioral economics,” said John Miller, head of the Department of Social and Decision Sciences. “He is an amazing exemplar of the Carnegie Mellon approach to science, seamlessly crossing the relevant research boundaries in the collaborative pursuit of key questions that will define future knowledge and real-world application.”

Loewenstein earned his Ph.D. from Yale University in 1985 and has been a faculty member in the Department of Social and Decision Sciences since 1990. He has authored or co-authored more than 100 journal articles, numerous book chapters and six books on topics ranging from intemporal choice to behavioral economics to emotions. He frequently serves as a consultant to organizations in the public and private sector and is a fellow of the American Academy of Arts and Sciences and the American Psychological Association.

Loewenstein co-directs the university’s Center for Behavioral Decision Research (CBDR) and has been a pioneer in the use of new data sources. One way he has worked to bring experiments to subjects is with CMU’s Data Truck, a 36-foot mobile social science laboratory.

Additionally, Loewenstein is currently head of behavioral economics at the University of Pennsylvania’s Center for Health Initiatives and on the advisory board of the University of Minnesota Law School’s Institute for Law and Rationality.

## Mary Shaw, the Alan J. Perlis Professor of Computer Science

Shaw, a computer science faculty member at Carnegie Mellon since 1972, is a leader in software engineering research whose



work on software architecture — the large-scale structure of software systems — helped establish it as a recognized discipline. Selecting an appropriate

architecture is now recognized as a critical step in the engineering of complex software systems for everything from the anti-lock braking systems in cars to the international banking system.

She also is an educational innovator who has developed computer science curricula from the introductory to the doctoral level, including graduate programs targeted at software professionals.

“Mary Shaw has played many important and unique roles at Carnegie Mellon,” said Randal E. Bryant, dean of the School of Computer Science. “As one of the first Ph.D. graduates in computer science at CMU, and as one of our longest-serving faculty members, she has made important contributions to our educational and research mission. Especially significant are her efforts to create a strong foundation for software engineering education and in identifying the overall organization of a software system — its ‘architecture’ — as a key element in its design.”

Shaw, who earned her Ph.D. in 1972, is a faculty member in the Institute for Software Research, the Computer Science Department and the Human-Computer Interaction Institute. During her tenure, she has served as chief scientist of Carnegie Mellon’s Software Engineering Institute and as associate dean for professional education.

Last year, she was the first recipient of the Distinguished Educator Award presented by the IEEE Computer Society’s Technical Council on Software Engineering, and the first recipient of the Conference on Software Engineering Education and Training’s Nancy Mead Award for Excellence in Software Engineering Education. She is a fellow of the ACM, the IEEE and the American Association for the Advancement of Science. She is a past member of the National Research Council’s Computer Science and Telecommunications Board and the Defense Advanced Research Project Agency’s Information Science and Technology Board.

# Preparing Tomorrow's Leaders Today

## LEADERSHIP ACADEMY GRADUATES SECOND CLASS

■ Karen Beaudway and Heather Wainer

Some of tomorrow's leaders at Carnegie Mellon are taking action today, thanks in part to the Leadership Academy, a program that trains and prepares high-performing staff for higher-level leadership positions within the university.

Several graduates already are using their new training and tools in new roles and in new positions.

Twenty-three staff members in job grades 58-60 completed the rigorous program of classroom sessions, self-assessments and an intensive team project, learning the skills needed to become successful leaders. This year's group was the second class of the Leadership Academy, which was launched in 2009 by Human Resources' Learning & Development and the Tepper School's Executive Education Center.

Each participant also completed the 360° Feedback Process, including a one-on-one assessment to create a personalized development plan. Many participants commented that this aspect of the program was particularly beneficial.

"One of the many highlights for me was the guided introspection that the program provided," said Philip Bottonari, manager of Leadership and Gift Analysis for Individual Giving in University Advancement. "From obtaining 360° feedback from my supervisor and co-workers, to discovering how one's strengths can lead to derailment, I learned a tremendous amount about how to optimize my work and even personal life."

The class members formed four groups to work on projects sponsored

by departments that address challenges facing the university. Group projects allow participants to apply their skills and knowledge while working with others from different areas of the university. The projects included:

### **Extreme Makeover—Procurement Services Edition**

The group project sought to assess the relationship between Procurement Services and university business managers, and to make recommendations that will redefine and enhance that relationship.

### **HR/Payroll Change Communication Plan**

The team's goal was to develop communication recommendations for the new HR/Payroll system, considering the audience, content, frequency and vehicles.

### **Succession Planning**

The group took on an enterprise risk management initiative addressing CMU's lack of comprehensive succession planning strategies for administrative units. It recommended best practices for replacement and succession planning.

### **Office of Sponsored Programs: Web Design Analysis and Recommendations**

The team analyzed the current state of the Sponsored Programs website via user interviews, benchmarking, user profiles and subject experts, and then made recommendations to improve information management, navigation, and user communication.

The class found the experience to be extremely valuable.

"The Leadership Academy gave me a broader perspective on how the different parts of Carnegie Mellon function together. The group projects had us interacting with people at CMU that we wouldn't talk to in our day-to-day lives at work, which was great," said Connie Deighan Eaton, associate director of Academic Technology Services in the Computing Services Division.

The Carnegie Mellon Leadership Academy is in the process of evaluating its curriculum and impact. The short- and long-term outcomes for participants are being tracked, and student input is being gathered. Program adjustments will be made to ensure that the academy continues to provide the most useful skills and knowledge to benefit future participants and the university.

Information about the third session of the academy will be announced this fall. For more information, go to <http://www.cmu.edu/leadership-academy/>

### **Congratulations to the 23 graduates of the 2010-11 class:**

- **Philip Bottonari**, manager of Leadership & Principal Gift Strategy, Analysis and Support
- **Melissa Carrozza**, assistant business manager of Human-Computer Interaction Institute and Machine Learning Department
- **Nancy Doyle**, manager of the Director's Office and Administration in the Information Networking Institute
- **Connie Deighan Eaton**, associate director of Academic Technology Services for Computing Services
- **Colleen Everett**, business manager for the Computer Science Department
- **James Frick**, director of admissions, operating and recruiting for Tepper's master's programs
- **Heather Johnson**, assistant director of the Tepper Executive Education Center
- **Chris Kamerling**, Financial Systems manager
- **Shushan Klein**, assistant manager for Desktop Support Program
- **David Koltas**, assistant head of the School of Architecture
- **Justina Marino**, a senior development associate, University Advancement
- **Jennifer McNabb**, assistant director for the Office of International Education
- **Nancy Monda**, business manager for Modern Languages
- **Monique Moreland**, assistant director of Student Services for Tepper
- **Kevin Nowicki**, business manager for Biological Sciences
- **Stephen Pajewski**, director of the Tepper Undergraduate Business Program
- **Katie Price**, International Cash Management accountant
- **Yvette Raymond**, a division manager for Legal/HR/Risk
- **Judy Schieck**, director of Gift Analysis and Reporting
- **George Skoptsov**, senior software engineer for the Robotics Institute/NREC
- **Eric Spaulding**, communications manager for Corporate Relations
- **Teresa Violi Trombetta**, assistant director for Development Events
- **Katherine Walter**, assistant director of University Events

## By the Numbers — Class of 2015



PHOTO BY GLENN BROOKES

FIRST-YEAR STUDENTS HEATHER THOMPSON AND JEAN FLORADIN MOVE IN TO THE DORMS ON SUNDAY, AUG. 21.



ORIENTATION AT CARNEGIE MELLON QATAR EMPHASIZES THE IMPORTANCE OF COMMUNITY SERVICE. STUDENTS, SUCH AS FLAVIO AUGUSTO FENLEY OF BRAZIL, CREATED AND PASSED OUT CARE PACKAGES TO WORKERS.

### **Pittsburgh Campus**

Preliminary enrollment: 1436  
Gender distribution: 40 percent female/60 percent male  
Countries represented: 24  
States represented: 42  
Pennsylvania: 14 percent  
International: 9 percent  
Regions  
Middle Atlantic: 46 percent  
West: 13 percent  
South: 11 percent  
New England: 9 percent  
Midwest: 6 percent  
Southwest: 4 percent

### **Average SAT Scores**

Critical Reading: 678  
Math: 723  
Legacy students [parent(s) are CMU alumni]: 12 percent

### **Qatar Campus**

Preliminary enrollment: 102  
Gender distribution: 53 percent female / 47 percent male  
Citizenship distribution: 41 percent Qatari / 59 percent non-Qatari  
Programs: 59 percent business / 21 percent computer science / 21 percent information systems

# Body-Mounted Cameras Turn Motion Capture Inside Out

■ Byron Spice

Movie audiences have grown accustomed to seeing actors digitally transformed on screen such as Bill Nighy sprouting a beard of octopus-like tentacles as Davy Jones in “Pirates of the Caribbean: Dead Man’s Chest,” Andy Serkis’s body shriveling into the wizened Gollum in the “Lord of the Rings” trilogy and Sam Worthington riding a mountain banshee as a 10-foot-tall, blue Na’vi warrior in “Avatar.”

All are possible thanks to motion capture, which uses cameras to record an actor’s movements so they can be translated into those of an animated character. Now, technology developed by Disney Research, Pittsburgh, and Carnegie Mellon’s Robotics Institute is opening up new possibilities for motion capture, in part by freeing it from the confines of the studio.

Whereas traditional “mocap” focuses stationary cameras on the actors as they move about a studio, the new technique mounts almost two dozen outward-facing cameras on the actors themselves. This enables motion capture to take place almost anywhere — on a large set or even outdoors. And it can capture motions, such as running or swinging on monkeybars that would be difficult, if not impossible, to record by traditional means.

“Cameras will soon be small enough to directly embed into clothing,” said Yaser Sheikh, an assistant research professor of robotics who collaborated on the project. “The ability to measure people’s activity using cameras they’re

wearing will literally and figuratively let motion capture out of labs and studios.”

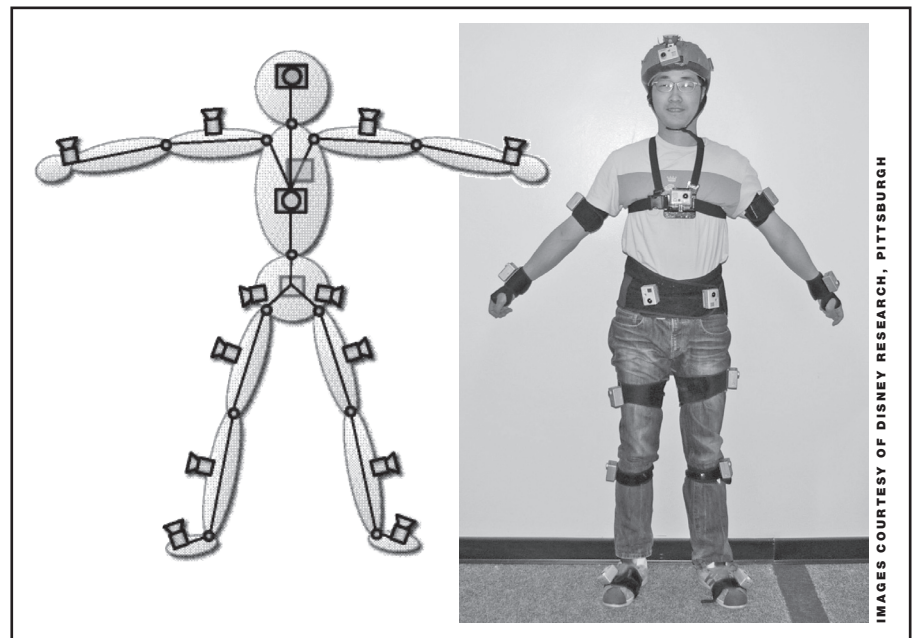
People undergoing rehabilitation for a stroke, or being outfitted with leg prostheses, for instance, might no longer have to go to a clinic to have their movements evaluated, he explained. Rather, they could be assessed in their natural everyday environment.

“This could be the future of motion capture,” said lead researcher Takaaki Shiratori, a post-doctoral associate at Disney Research, Pittsburgh, a lab now located in the Collaborative Innovation Center. Not only will professional filmmakers have new options available, but amateurs will be able to produce much more sophisticated animations.

As video cameras become ever smaller and cheaper, Shiratori said, “I think anyone will be able to do motion capture in the not-so-distant future.”

The wearable camera system makes it possible to reconstruct the motions of an actor thanks to a process called structure from motion (SfM). Takeo Kanade, a CMU professor of computer science and robotics and a pioneer in computer vision, developed SfM 20 years ago as a means of determining the three-dimensional structure of an object by analyzing the images from a camera as it moves around the object, or as the object moves past the camera.

Just as the body-mounted camera technique turns traditional motion capture inside out, this new use also stands SfM on its head. Rather than analyzing objects in the person’s surroundings, SfM here is used primarily to estimate



A SYSTEM DEVELOPED BY DISNEY RESEARCH, PITTSBURGH, AND CMU’S ROBOTICS INSTITUTE USES BODY-MOUNTED CAMERAS TO CAPTURE MOTION FOR USE IN ANIMATION.

the pose of the cameras on the person. This turnabout proved to be a difficult problem to solve, Sheikh said, and initial results were unacceptably jittery.

A key insight, noted Sheikh, who focused on the motion reconstruction problem with his Ph.D. student Hyun Soo Park, was recognizing that though the actor might be able to move freely in space, the cameras were constrained by the ranges of motion of the human body. In other words, a camera mounted on the left shin can move only in certain ways in relation to a camera mounted on the left thigh. This simplified the process of inferring human motion from what the cameras see.

Other members of the project team were Jessica Hodgins, professor of

robotics and computer science and director of the Disney lab, and Leonid Sigal, a Disney researcher.

The quality of motion capture from body-mounted cameras does not yet match the fidelity of traditional motion capture, Shiratori said, but will improve as the resolution of small video cameras continues to improve.

The technique requires a significant amount of computational power; a minute of motion capture now can require an entire day to process. So researchers are looking for computational shortcuts, such as performing many of the steps simultaneously through parallel processing.

For more information and to see a video, visit the project website at <http://drp.disneyresearch.com/projects/mocap/>.

## Graduation Celebration



PHOTO BY SYLVIA LEONG

EIGHTY-NINE STUDENTS GRADUATED FROM CMU’S SILICON VALLEY CAMPUS ON AUG. 7. FORTY-EIGHT EARNED MASTER’S DEGREES IN SOFTWARE ENGINEERING AND 41 EARNED MASTER’S DEGREES IN SOFTWARE MANAGEMENT. IN THE LAST NINE YEARS, 597 STUDENTS HAVE GRADUATED FROM THE SILICON VALLEY CAMPUS. THIS YEAR’S KEYNOTE SPEAKER WAS ADRIAN OTT, CEO AND FOUNDER OF EXPONENTIAL EDGE INC. CONSULTING.

## Where’s the Bus?

Transit riders in Pittsburgh can now communicate with each other to answer public transportation related questions and share arrival times. Supported in part by CMU’s Traffic21 initiative, Tiramisu — literally, Italian for “pick me up” — makes it easy for riders to use their iPhones to signal the location and occupancy level of the Port Authority of Allegheny County bus they are riding, in real-time. Anyone waiting at a bus or T stop with an iPhone can see which buses or light rail vehicles are due to arrive next and, thanks to the signals from riders already aboard, get an idea of how long they have to wait and if there will be a seat available. An Android version will be available for smartphones soon.



PHOTO BY KEN ANDREVO

TIRAMISU IS A FREE IPHONE APP FOR PUBLIC TRANSPORTATION RIDERS.

# Snowy Days, Dark Knight(s)

## STAFF, STUDENTS EXPERIENCE HOLLYWOOD IN PITTSBURGH

■ Abby Simmons

When Pittsburgh became Gotham City and summer turned to winter, Carnegie Mellon staff and students were part of the once-in-a-lifetime transformation.

For the final film in Christopher Nolan's Batman trilogy, "The Dark Knight Rises," several scenes filmed on campus at the Mellon Institute and near the Software Engineering Institute (SEI) were covered with fake snow.

George Papuga, a maintenance manager for Facilities Management Services, worked with Nolan, Special Effects Supervisor Chris Corbould and the production crew for scenes shot at Mellon Institute and the SEI.

"I can't say enough about how gracious, understanding and accommodating they were," Papuga said. "They had demands, but they weren't demanding. They had about 100 requests and I only had to say no to about two of them. They understood the history of Mellon Institute and how important the building is to us."

Papuga, who also worked with production crews for scenes shot at CMU for "Hoffa" and "Mothman Prophecies," said it was a thrill meeting Christian Bale and Anne Hathaway. "It was really something to be a part of," he said.

John Mark (A'13) was one of about a dozen CMU students who served as

production assistants. He started as a street ambassador in July and ensured fans did not walk on the set. When Location Manager Ilt Jones asked workers to remove "no parking" notices, Mark was the only person who had a pocketknife.

"I told him that if you show up to a crew call at the School of Drama without your utility knife, you're in trouble," Mark said.

Jones was so impressed he offered Mark a position for the duration of filming in Pittsburgh.

Among other duties, Mark worked with Mary Stein (A'13) to direct parking and shuttles for 10,000 extras at Heinz Field.

"The work was rigorous," Stein said. "I met some great people in the film industry, and the opportunity helped me make contacts for the future."

Jeff Balmert, a document production specialist at the SEI, was a paid extra in the film through the Nancy Mosser Agency. Balmert played a Gotham Rogues football fan for two 16-hour days at Heinz Field.

"It was awesome sitting in the front row at Heinz Field and interacting with Director Christopher Nolan and Cinematographer Wally Pfister, and seeing them operate the IMAX camera to catch fan reaction," said Balmert, who also

was excited to see many of the scenes shot at the SEI and Mellon Institute.

Balmert, a graduate of the Entertainment Technology Center, has been in several movies shot in Pittsburgh and credits the city's film tax credit and its unique landscape of rivers, bridges and hills for attracting the film industry. In addition to "Dark Knight Rises," Balmert was in "The Next Three Days" with Russell Crowe, "Abduction" with Taylor Lautner, "She's Out of My League" and "My Bloody Valentine."

Ling Qu (E'12) was one of 10 CMU students who worked as extras. He played a newspaper reporter.

"Although the shooting process is slow — I spent 14 hours on set for about one minute of film time — it was something that I never experienced before," Qu said.

Pre-College Program students attended an exclusive panel discussion with Jones, Extras Casting Director Tammy Smith, Assistant Location Manager Kent Jackson and Corbould,



LOCATION MANAGER ILT JONES, SPECIAL EFFECTS SUPERVISOR CHRIS CORBOULD AND EXTRAS CASTING DIRECTOR TAMMY SMITH TOLD STORIES ABOUT MAKING MOVIES FOR PRE-COLLEGE PROGRAM STUDENTS IN AUGUST.

PHOTO BY TIM KAULEN

who won an Oscar for his work on "Inception." In addition, their resumes include work on "Transformers," "Men in Black" and 12 James Bond films.

Panelists spoke about how they entered the field, whether it was straight out of college or previously working as a stock market analyst. They also shared some of the not-so-glamorous, but necessary, tasks they complete on location.

## Alumnae Make Commitment To Teach for America

■ Abby Simmons

Ten alumnae are going back to school this fall. They'll be at the head of the class as part of Teach for America (TFA).

These women are passionate about TFA's mission to bridge educational achievement gaps in low-income communities, and they represent majors spanning the arts, business, humanities and sciences.

Ariel Rosenburg (CMU'11) is teaching physics and physical science at McLain High School in Tulsa, Okla.

"I want to fundamentally change the path that my students are on," Rosenburg said. "I want them to walk out of my classroom with the belief that they can and will go to college, that they are smart, important members of society."

TFA hired a record-breaking 5,200 new teachers for the 2011-2012 academic year, increasing its total corps to 9,300 teachers working in 43 regions across 34 states and the District of Columbia. According to CollegeGrad.com's June 2011 list of Top Entry-Level Employers, TFA reported the second highest number of hires from this year's pool of college graduates. Enterprise Rent-A-Car ranked first among the 931 organizations participating in the survey.

Jeremy Corbett, a former TFA teacher, spent the 2010-2011 academic year recruiting students from Carnegie Mellon and Penn State.

"Students are recognizing TFA as a premier opportunity," Corbett said. This year, just 11 percent of approximately 48,000 applicants were selected for the program.

Corbett said TFA looks for service-oriented student leaders to serve two-year terms. The students he recruited from Carnegie Mellon were involved in activities such as Student Government, Greek Life, tutoring programs with Pittsburgh Public Schools and Strong Women, Strong Girls.

Debra Ignelzi, a Career and Professional Development Center (CPDC) assistant director and career consultant, said her office has seen an increase in undergraduate interest in short-term, or "gap year," experiences.

"There are a multitude of reasons for this trend," Ignelzi said. "I often hear students say that they want to have a unique experience and a break before returning to graduate school or settling into a full-time job. It has also been a good way for students to keep learning and building marketable skills while the job market improves from the recent economic downturn. The CPDC is an excellent first stop for students who want more information on options such as TFA, Americorps, or the Peace Corps."

While taking a break from her five-week TFA Summer Institute in Philadel-

phia, Jordan Valley (HS'11) said, "I'm thankful that I went to a school as rigorous as Carnegie Mellon. The institute is intense. We're working 5 a.m. to 11 p.m., co-teaching and learning about topics like behavior management."

Valley will be an early childhood education instructor at a Washington, D.C.-based charter school, her first choice for location and grade level.

Carnegie Mellon's recruits will join the ranks of more than 24,000 TFA alumni who have entered the workforce since the organization's founding in 1989.

Valley and Rosenburg are approaching the experience as an opportunity to serve while acquiring skills that will be attractive to employers within and beyond the field of education.

"I expect that the next two years will dramatically change any plans I might put into place," Rosenburg said. "I could see myself staying in the classroom, or perhaps going onto a higher administrative role. If this is the case, I will get my master's degree in education. I might also decide to do something completely different. But only time will really tell. I know that my TFA experience will change my life path."

For more information about TFA or to make a student referral, contact Danae Abood, Carnegie Mellon TFA recruiter, at Danae.Abood@teachforamerica.org.

### TFA RECRUITS

Here's a look at the 10 alumnae teaching for (and across) America.

Adeola Adegboyega-Panox, HS'10  
Memphis

Elyse Carr, A'11  
Greater New Orleans

Tiffany Cheng, MCS'11  
Chicago

Victoria Docherty, TPR'11  
Mississippi Delta

Lauren Gumbel, HS'11  
Chicago

Maria Mauro, HS'10  
Delaware

Ariel Rosenburg, CMU'11  
Oklahoma

Mallika Sahay, HS'11  
Bay Area

Kate Smith, HS'11  
Connecticut

Jordan Valley, HS'11  
Washington, D.C.

# Silicon Valley Hosts “TechWomen,” a Secretary of State Initiative

■ Sylvia Leong

A mentor can make a difference.

Carnegie Mellon’s Silicon Valley campus participated in TechWomen, an initiative of Secretary of State Hillary Rodham Clinton that uses technology and international exchanges to empower women and girls worldwide.

The program brought 37 women from Algeria, Egypt, Jordan, Lebanon, Morocco and the Palestinian Territories to the United States for five weeks at two dozen technology companies including Cisco Systems, Ericsson, Facebook, Google, Yahoo! and Intel Corp. Carnegie Mellon was the sole academic institution to participate as a technical mentor in 2011.

“I was extremely excited to be selected to visit the U.S. and Carnegie Mellon University’s Silicon Valley Campus,” said Lamia Ben Hiba, a Ph.D. student from Morocco. “The CMU professors are so helpful as I begin the long road of publishing my own research results.”

Later this year, U.S. mentors will

travel to the Middle East and North Africa to conduct workshops for women in the technology sector and young girls who have expressed an interest in pursuing a tech-based career.

During the program, Ben Hiba and her peers met business and technical leaders in Silicon Valley and worked on projects ranging from the use of social media in national disasters to entrepreneurial-based themes.

Ben Hiba said her trip to the United States will help her promote a “Girls In Technology” program that she supports in Morocco.

“I was amazed at both the diversity and friendliness of the people in Silicon Valley,” she said. She said her goal is to be a researcher and a problem solver. “I received a lot of great encouragement from Carnegie Mellon professors.”

The Silicon Valley campus hosted a reception for the mentees to meet faculty and other students, discuss their research interests and explore possible future collaborations.



U.S. SECRETARY OF STATE HILLARY RODHAM CLINTON DELIVERS REMARKS AT A CLOSING LUNCHEON FOR THE TECHWOMEN INITIATIVE IN WASHINGTON, D.C.

PHOTO COURTESY OF THE STATE DEPARTMENT

“This is a wonderful program because it gives a chance for technical women in the United States to build relationships and advance and empower rising technical women leaders in Muslim countries,” said Jeannie A. Stamberger, associate director of the Disaster Management Initiative at Carnegie Mellon Silicon Valley.

The mentees completed their U.S. tour with a trip to Washington, D.C., a front row seat to the city’s traditional July 4 holiday celebration, a White House tour and a full day of meetings at the U.S. State Department. Secretary Clinton delivered remarks at a closing luncheon for the program.

## Cool Technologies: QoLT Foundry Speeds Commercialization

■ Kristen Sabol

A Virtual Valet that parks and retrieves your car remotely via phone or other mobile device sounds like science fiction, but it may be the next new technology to hit the marketplace from The Quality of Life Technology (QoLT) Foundry.

“I often tell people that I have one of the coolest jobs possible,” said Curt Stone, executive in residence for Carnegie Mellon’s Office of the Vice President for Research and director of the QoLT Foundry. “Our objective is to encourage and develop spin-off companies that can serve to establish the Quality of Life Technology Center as the hub of an emerging industry sector in intelligent health care devices and personal robotics.”

The QoLT Foundry is the industry arm of the QoLT Center, a National Science Foundation Engineering Research Center jointly run by CMU and the University of Pittsburgh. While the QoLT Center focuses on developing intelligent systems that enable older adults and people with disabilities to live more independently, the QoLT Foundry commercializes quality of life technologies for everyone.

The Virtual Valet was one of several technologies presented by the foundry’s Innovation Internship Program at its ninth bi-annual Opportunity Meeting this past summer. The event brings seasoned business advisers, investors, entrepreneurs and regional economic development leaders together with students, faculty and researchers to evaluate research-initiated business opportunities.

Also presented at the meeting were business plans for the Personalized Social Coach, a smartphone app designed to

supplement user interactions with their smart home using learned preferences and collected data; and the Embedded Assessment of Wellness, a suite of everyday household appliances equipped with embedded sensors for monitoring and measuring subtle changes in cognitive, physical and functional well-being.

### Innovative Interns

The QoLT Foundry’s eight-week Innovation Internship Program includes students from diverse disciplines such as business and management, engineering and technology, health care, and policy and law. They collaborate with industry stakeholders and entrepreneurs on strategies for bringing viable QoLT products into mainstream markets.

To date, 24 students have served as Innovation Interns. Sam Yoosuk Kim, an MBA student at the Tepper School of Business, and Jen Sung, a rising CMU senior who is a double major in economics and decision sciences, are current participants — along with David King, a law degree candidate at Duquesne University.

“I have learned what it takes to transform an idea into a viable company,” King said. “So many people have great ideas, but only a few are able to impact the world with their work.”

The Opportunity Meetings feature lively debates on the market challenges for each presented opportunity and provide students — who may go on to lead QoLT companies — with suggested areas for further investigation. Thirty-five unique business opportunities have been presented and more than 250 people have participated in the meetings since their introduction in 2008.

Following the Opportunity Meetings, a team of highly skilled and experienced executives-in-residence facilitate follow-up efforts to leverage the input of attendees toward formal company creation. Current executives include: Derek Minno, an experienced entrepreneur with more than two decades of experience in the world of venture capital, notably as CEO and president of Point Capital; Carl Nerup, an active business strategist who has served as an adviser to WeFi, Montagu Newhall of Martini Media Networks and the Kellogg School of Management’s Kellogg Innovation Network, among others; and Gary Miller, a successful entrepreneur and executive with extensive management, operational and investment experience in the Internet and technology arenas.

“The QoLT Foundry firmly believes that everyone can benefit from these

research-based innovations,” Stone said. “But our focus on commercialization in broader markets is also strategic: as general consumers begin to recognize the appeal inherent in these emerging assistive technologies, we can bring about better economies of scale for those assistive devices that are used by more specific populations. This shift, in turn, should help reduce the reliance on reimbursement models for payment of some health care devices.”

The QoLT Foundry complements CMU’s Greenlighting Startups, a new initiative aimed at accelerating CMU’s already impressive record of turning campus innovations into sustainable new businesses. One of the fastest-growing entrepreneurial universities, CMU has helped to create more than 300 companies and 9,000 jobs in the past 15 years.

### NEXT OPPORTUNITY

The QoLT Foundry’s next Opportunity Meeting will be Oct. 5 and will feature a Virtual Seating Coach, an Intelligent Coach for knee osteoarthritis and more. The campus community is welcome to attend; a virtual session may be offered for remote participants. Contact Kristen Sabol (ksabol+@cs.cmu.edu) for event details or visit [www.qolt.org/Events](http://www.qolt.org/Events) for more information.

### SPINNING OFF:

7 companies and one sole proprietorship have resulted from the QoLT Foundry’s efforts to date, among them are Lean&Zoom LLC, which launched the QoLT Foundry’s first commercialized product in January 2011 — software that makes your computer screen appear larger as you lean closer toward it; First Person Vision, a company developing wearable human assist devices with visual and motion sensing capabilities; and NavPrescience, the foundry’s first spin-off which seeks to improve the experiences of drivers using personalized and predictive navigation solutions.



# GlueX Experiment

## CMU BUILDING PARTICLE DETECTOR TO SHED LIGHT ON WHAT HOLDS MATTER TOGETHER

■ Jocelyn Duffy

You can find some out-of-the-ordinary items hidden behind the doors of the hundreds of Carnegie Mellon laboratories. Such is the case in the lab of Physics Professor Curtis Meyer, where you'll find something extraordinary and rarely seen on a university campus.

On the eighth floor of Wean Hall is a Class 2000 clean room. The room is specially designed to prevent airborne pollutants from entering its protective plastic-walled chamber. Hanging from the ceiling is a particle detector. At any given time of the day, students and technicians clothed in protective jumpsuits and caps hover on ladders above or sit below the detector, painstakingly installing delicate pieces.

Building such a detector is a precise process that is usually only done at large national laboratory facilities such as Chicago's Fermilab, or California's SLAC National Accelerator Laboratory.

"Very few places have the infrastructure necessary to build a detector," Meyer said. "We're very fortunate to have the expertise and resources to build this here."

The expertise comes through Meyer, lead scientist Naomi Jarvis, and technicians Gary Wilkin, Amy Woodhall and Kaitlin Mueller, who combined have decades of experience in detector construction and research. Two students, Maddison Brumbaugh and Rahul Kurl, are assisting. Meyer estimates that around 20 students have worked on the project since construction began in 2009.

The detector consists of a reaction chamber surrounded by 3,522 5-foot-long aluminum and plastic tubes. Secured between two plates, the tubes are being layered in 28 concentric circles. Gold-plated tungsten wire five times thinner than a human hair will be threaded down each tube. In all, it will take 3 miles of wire and countless hours to assemble.

When it's finished in 2013 the detector will travel to the Jefferson Lab National Accelerator Facility (JLab) in Newport News, Va. There it will be installed as part of the Department of Energy-funded GlueX experiment, which seeks to find a new type of subatomic particle called a hybrid meson. The particle should reveal pertinent information about gluons — the stuff that holds everyday matter together.



TEAM MEMBERS, CLOCKWISE FROM TOP, MADDISON BRUMBAUGH, A JUNIOR IN APPLIED PHYSICS AND INTERNATIONAL RELATIONS AND POLITICS, AND GARY WILKIN AND AMY WOODHALL, PHYSICS TECHNICIANS, WORK ON THREADING WIRE THROUGH EACH TUBE IN A REACTION CHAMBER ON A PARTICLE DETECTOR BEING BUILT AT CARNEGIE MELLON.

**"IT'S GOING TO GIVE US A BETTER IDEA OF HOW THE FUNDAMENTAL PIECES OF THE UNIVERSE WORK. AND THAT'S EXCITING."**

— PHYSICS PROFESSOR CURTIS MEYER

Gluons bind together the component parts of protons and neutrons called quarks. Mesons are particles made up of a pair of quarks held together by gluons with no charge. The gluons in hybrid mesons — which have been theorized and hinted at in experiments, but never before seen — are thought to be in an excited state. This gives the mesons unusual, or "exotic," quantum numbers that are a signature of the hybrid particles. Meyer and his collaborators hope that by detecting these hybrid mesons they will be able to derive pertinent information about gluons.

To find exotic mesons, researchers will employ the JLab Continuous Electron Beam Accelerator. Accelerated by 12 billion volts, electrons will be hurled around a 7/8 mile circular track. The electrons will be extracted from the track and passed through a thin diamond crystal, causing them to emit high-energy photons — the elementary particles of light. The photons will be aimed at a liquid hydrogen target at the center of the detector. When they hit the target, they will produce a variety of subatomic particles that will soar out from the central target and pass

through the tubes of the detector. The tubes will be filled with a mixture of argon and carbon dioxide gas that will ionize when the particles fly through it, sending an electrical current through the wires at the center of the tubes.

"Each of the tubes will be an individual Geiger counter," Meyer said. "We'll have 3,522 Geiger counters generating information about the particles created by the collision."

The researchers will analyze the trajectory of each particle. Based on the trajectory, they'll be able to calculate the mass and other characteristics of the particles.

The detector will be delivered to the Virginia lab in 2013, and Meyer expects that the experiment will be fully operational in 2015. It will represent the first time large amounts of data have been taken from photons.

"Previous experiments using photon beams were only able to collect small amounts of data. In GlueX, we will increase the world's statistical data from photon beams by several orders of magnitude," Meyer said. "This will make the detailed study of the physics behind the reactions possible and allow us to see the exotic hybrid mesons — if they exist."

Meyer expects the data set to be in petabytes — 1,015 bytes. While this much data could be daunting, the multi-institutional group working on the JLab experiment has come up with a relatively low-tech way to analyze the information using standard computer video processors. These processors are so small that they can fit 1,024 of them in the space of one hard drive.

"It turns out that graphical processor units can do the types of calculations we need faster than most other processors," Meyer said. "It only works on specific types of problems; luckily ours was one of them."

When the Glue-X team begins collecting and analyzing data, they hope to piece together how gluons and quarks interact. They will compare what they learn to current theories, like the theory of quantum chromodynamics.

"We hope to reach a fundamental understanding of how these particles behave. It's going to give us a better idea of how the fundamental pieces of the universe work," said Meyer. "And that's exciting."

## GOOD CITIZEN

# Kalbaugh's Silver Anniversary Turns Up Copper for Local Police

■ Bruce Gerson

Dave Kalbaugh says he's no hero. He was just trying doing the right thing.

And he certainly did.

By turning a GPS unit over to police that he and his daughter found in a parking lot in Monroeville, the facilities coordinator and computer maintenance lead for the Computing Services Division helped crack 35 copper thefts at area Home Depot stores.

On his 25th wedding anniversary this past July 19, the Kalbaughs of nearby Plum Boro were heading out for a celebration dinner and stopped at a local Kohl's Department Store. After dropping off his wife at the door, Kalbaugh's daughter, Brandi, spotted a GPS unit and car keys on a lamppost ledge in the parking lot.

Searching the unit and set of keys for identification, Brandi, 22, noticed that directions to many area Home Depots were stored in the GPS unit. They thought it might have belonged to a sales person.

"I didn't want to turn them into Kohl's or the nearby GFS store, because

I wasn't sure they would get into the right hands," said Kalbaugh, who is in his 29th year at Carnegie Mellon. "I thought someone might take the GPS.

"At dinner, my brother-in-law suggested that I take them to the police department. So we stopped at the police station on the way home."

Police told Kalbaugh that there had been some arrests at Kohl's earlier that day and a car had been towed from the scene.

"They took my contact information and told me that they would call me if they needed to get back to me," Kalbaugh said.

Two days later Lt. Lawrence Lyons of the Monroeville Police Department left voicemail on his home phone saying the found GPS enabled them to solve 35 of 41 copper theft cases at area Home Depots as far as 500 miles away.

"Sometimes by doing the right thing, you can help a lot of people," Lt. Lyons said.

"He said they really appreciated me turning it in," Kalbaugh said. "My daughter was pretty excited. We call her 'Eagle Eye Brandi' now."

## Cyber Scout

■ Chriss Swaney

Cub Scouts from Pack 445 in Allegheny Valley learned how to cope with cyber bullies and earned a merit badge in the process during a recent Scouting for Engineers program sponsored by the College of Engineering and the Information Networking Institute.

The scouts participated in Carnegie Cadets, the MySecureCyberspace Game and received a special badge while working on merit badge requirements. They also conducted hands-on experiments with chemical engineering professors to learn about the importance of chemistry and chemical engineering in the design and manufacture of consumer goods, such as fake snow used in movies.

Faculty who assisted in the workshop included Dena Tsamitis, director of the Information Networking Institute and director of education, training and outreach for Carnegie Mellon CyLab, and Chemical Engineering's Annette Jacobson and Rosemary Frollini.



PHOTO BY LARRY RIPPEL

DENA HARITOS TSAMITIS WATCHES CUB SCOUT HUNTER SHEEHAN COMPLETE A MISSION IN THE MYSECURECYBERSPACE GAME.

## piper TRIVIA

Congratulations to Joshua Howell, Joan Lawrence, Skip Reusch and Brian W. Johanson for answering the June 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.

### Connect with Internal Communications



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## NEWS BRIEFS

### Internal Communications Has a New Look

We love to publish your news, and now we'd like to share some of our own: Internal Communications has a new look and website.

The site, [www.cmu.edu/piper](http://www.cmu.edu/piper), is CMU's news source for faculty & staff, where you'll find out about many exciting and interesting things happening at the university.

From important announcements to feature stories and events, you'll find information there to help you stay informed. Want up-to-the-minute information? Follow us on Twitter @CMUpiper.

In coming weeks the 8.5x11 News also will have some changes. The email newsletter, which is published every Thursday, will have a slightly new look based on feedback from a recent subscriber survey.

If you have news of interest please pass it on to Internal Communications. Stay Posted!

### CMU Hosts RoboBowl Competition

The Robotics Technology Consortium, Carnegie Mellon and the Innovation Accelerator will host the first RoboBowl competition, titled "Innovation Accelerator @ Carnegie Mellon," at CMU on Oct. 13.

The competition is the first of what is expected to be a series of new venture competitions intended to find and foster start-up and early-stage companies seeking to develop "big idea" products and services in health care, manufacturing, national defense, education, and other domains based on next-generation robotics technology.

RoboBowl (<http://www.qolt.org/robobowl>) is open to any U.S.-based start-up or early-stage business with an idea or concept for using next-generation robotics technology to develop and bring to market a compelling product or service.

Entrants will submit business summaries that judges will review to select semi-finalists who will make online presentations. Judges will then select five finalists, each of whom will

win \$5,000 in cash prizes, to compete in a live final round on Oct. 13 for a chance to win an additional \$20,000.

### Research Team Wins Most Creative App

Le T. Nguyen, a research assistant at Carnegie Mellon's Silicon Valley campus, and his team won the Most Creative Idea/Approach Award sponsored by HP webOS and second place in the category Best Use of AppMobi at The Muther! of all Hackathons, June 24-25 at the Computer History Museum in Mountain View, Calif.

Nguyen and his team spent 24 hours working on the Disaster Radio application. Disaster Radio is a mobile app for people who are affected by natural disasters like wildfires, floods, earthquakes, hurricanes and tsunamis. The application delivers updated wildfire maps to mobile devices and encourages social networking. Civilians can contribute to the firefighting effort by tweeting, since the consolidated crowd-sourced data can be brought back to Incident Command.

### Professor Receives Two Intel MeeGo Grants

Joy Zhang, assistant research professor at Carnegie Mellon's Silicon Valley campus, received two Intel MeeGo grants of 40 Lenovo S10-3t Ideapads and \$12,500.

The Atom-based Ideapads will support mobility research including user behavior modeling, mobile security, robotics and open source technologies. The cash grant will support educational programs of developing mobile applications on MeeGO, a Linux-based open source mobile OS.

### Raj Reddy Named to AI Hall of Fame

The IEEE Computer Society's IEEE Intelligent Systems magazine has chosen Raj Reddy, the Mozah Bint Nasser Professor of Computer Science and Robotics, and Edward Feigenbaum, Stanford University professor emeritus and Ph.D. alum of Carnegie Mellon, as inductees into the inaugural IEEE Intelligent Systems Hall of Fame for their pioneering work in the artificial intelligence.

# “An Uncommon Field”

## CMU PRESS BOOK CELEBRATES FLIGHT 93 TEMPORARY MEMORIAL

■ Shilo Raube

Following the Sept. 11, 2001, crash of United Airlines Flight 93 into a field near Shanksville, Pa., local residents and visitors began leaving personal items behind, creating an unplanned memorial.

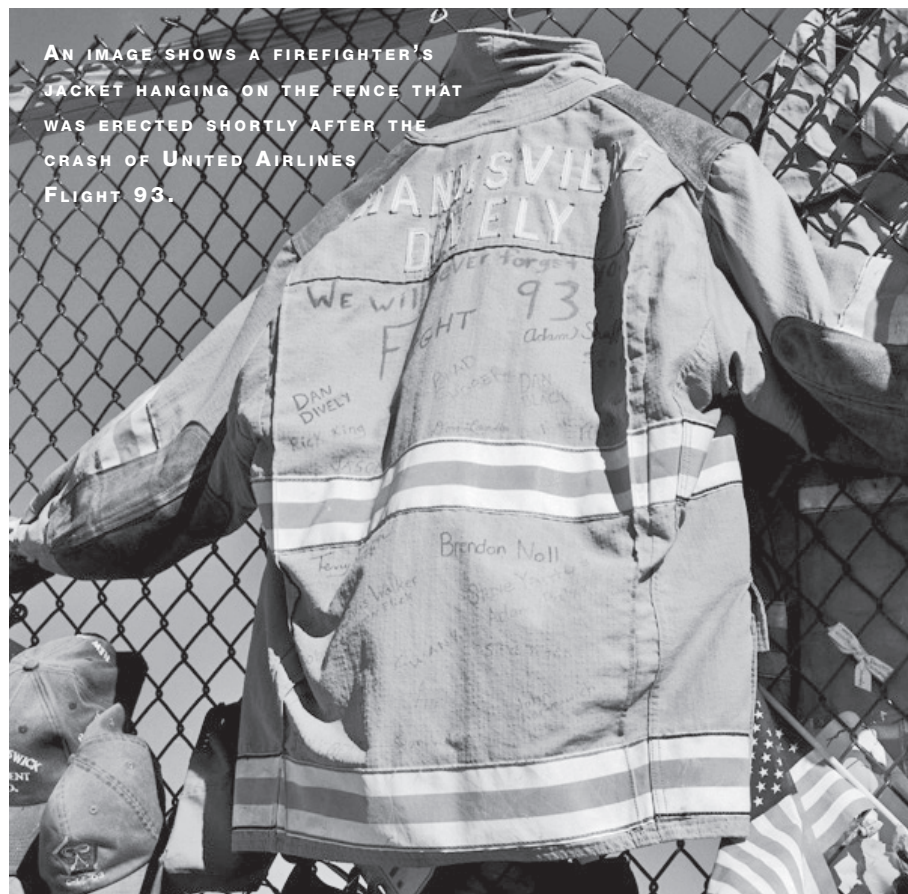
“An Uncommon Field,” a new book of photography and prose published by Carnegie Mellon University Press, celebrates what came to be known as the Flight 93 Temporary Memorial through the eyes of Richard Snodgrass, a Pittsburgh-based photographer and author.

The first and only book on the Tem-

porary Memorial, which was dismantled in 2009, “An Uncommon Field” is a testament and tribute to the heroes of Flight 93 and the vast support and American spirit of those who visited the crash site.

The book consists of 92 black and white photos and 25 sections of text describing the events of Flight 93, the development of the Temporary Memorial and Snodgrass’ experiences at the site.

For more information on “An Uncommon Field,” including how to place an order, visit [www.cmu.edu/university-press/newtitles/snodgrass.html](http://www.cmu.edu/university-press/newtitles/snodgrass.html).



PHOTOGRAPH COURTESY OF RICHARD SNODGRASS



**ONLINE: WATCH A SHORT VIDEO OF SNODGRASS TALKING ABOUT HIS BOOK AT [WWW.YOUTUBE.COM/WATCH?V=6KqOosPQfKY](http://WWW.YOUTUBE.COM/WATCH?V=6KqOosPQfKY).**

## Bettinger Named a Top Innovator

■ Chriss Swaney



Christopher Bettinger, an assistant professor of materials science and biomedical engineering, is developing new materials to advance the medical device industry.

He has been selected by Technology Review magazine as one of the world’s 35 top innovators under the age of 35.

Bettinger was selected as a member of the TR35 class of 2011 by a panel of expert judges and the editorial staff of Technology Review, which evaluated more than 300 nominations. He will join other TR35 honorees in discussing their achievements at the emtechMIT2011

conference Oct. 18-19 at the MIT Media Lab in Cambridge, Mass. All TR35 winners will be featured in the September/October issues of Technology Review and online at [www.technologyreview.com/tr35](http://www.technologyreview.com/tr35).

Bettinger has worked at the interface of materials science and biomedical engineering for more than 10 years. He has conceived and produced a number of innovations that aim to better integrate medical devices with the human body. These technologies include new synthetic materials that mimic the natural properties of soft tissue and biodegradable electronics that could usher in a new era of electronically active implants. His work is designed to lead to broader advances in the field of medical devices to reduce the burden of human disease and improve quality of life.

### Changes Made To Shuttle/Escort Service

Major changes have been implemented to improve the CMU Shuttle/Escort Service. These changes include extended and new shuttle routes, new stops, updated route schedules and revised operating policies.

The Shuttle/Escort website ([www.cmu.edu/police/shuttleandescort](http://www.cmu.edu/police/shuttleandescort)) reflects all of the changes. The website explains the shuttle and escort’s functions and policies, provides detailed route maps, stops and schedules for each shuttle and escort route, and all other pertinent shuttle/escort information.

If you have any questions or concerns regarding the Shuttle/Escort service, contact Lt. Joseph Meyers at 412-268-4202.

### “Trigger Man” Shares Motor City Tales

Jim Ray Daniels, a writer well known for capturing the gritty spirit of urban America, has more tales to tell of city life.

In his latest collection of short stories, “Trigger Man,” Daniels, the Thomas Stockham

Baker Professor of English, infuses humor into grim circumstances that his characters face because of dire industrial and economic situations. Grounded on the bleak streets of Detroit, he also explores the mythical “Up North,” the idealized country of many Detroit workers’ fantasies — an escape from the concrete and metal reality of their daily lives.

Trigger Man is Daniels’ fourth book of short stories, and he has published 12 books of poetry, written three films and edited or co-edited four anthologies.

### Carnegie Mellon Credit Union Offers Computer Loan Special

The Carnegie Mellon Credit Union is offering a special 4.75 percent annual percentage rate for computer loans through Sept. 30. The maximum loan amount is \$5,000 and the maximum term is 30 months. Pre-approved loans are good for 30 days from the date of application. Stop by the Credit Union office or apply online at [www.cmufcu.org](http://www.cmufcu.org)

## Libraries Add Digital Readers

■ Cindy Carroll

If you’ve always wanted to “check out” a Kindle, now’s your chance.

Carnegie Mellon’s Universal Digital Library donated six new Kindle readers to the University Libraries over the summer, asking that they be loaded with reading and made available for checkout to the CMU community. The library loaded the readers with a selection of free books as well as some popular fiction and non-fiction from best-seller lists.

On the library home page, search [library.cmu.edu](http://library.cmu.edu), a simple search for “kindle” in CAMEO will list the devices, their contents, and whether Kindles are available.

Kindles may be checked out by showing CMU ID at the Hunt Library,

Engineering and Science Library or Mellon Institute Library circulation desks. Watch the library home page for a new research guide for Kindle that will answer your most pressing questions about the circulating digital, including information about loading free books, an easy way to request books be purchased for Kindle and using the read-aloud function.

This summer’s gift brings the libraries’ circulating Kindles to a total of eight.

The Universal Digital Library Project has digitized more than two million volumes with its partners. The project includes libraries and computer scientists in the United States, India, Egypt and China.

## Focus on Education

ON SEPT. 7, UNDERSECRETARY OF EDUCATION MARTHA KANTER ADDRESSED ADMINISTRATORS AND TEACHERS FROM LOCAL SCHOOL DISTRICTS AND UNIVERSITIES TO HIGHLIGHT EDUCATION ISSUES AND REFORMS AIMED AT DEVELOPING A WELL-EDUCATED WORKFORCE. KANTER’S KEYNOTE WAS FOLLOWED BY TWO PANEL DISCUSSIONS FOCUSED ON COGNITIVE AND LEARNING SCIENCES AND OPEN LEARNING INITIATIVES. THE PANELISTS, INCLUDING CMU’S KEN KOEDINGER, WHO CO-DIRECTS THE PITTSBURGH SCIENCE OF LEARNING CENTER, AND CANDACE THILLE, EXECUTIVE DIRECTOR OF CMU’S OPEN LEARNING INITIATIVE, DISCUSSED RESOURCES THAT GIVE STUDENTS FROM ACROSS THE COUNTRY ACCESS TO QUALITY HIGHER EDUCATION.



PHOTO BY GLENN BROOKES

# President Obama Visits NREC To Tout New Manufacturing Initiative

## GARY FEDDER TO LEAD CMU'S INVOLVEMENT

■ Piper Staff

In his third visit to Carnegie Mellon, and second as U.S. president, Barack Obama launched a major manufacturing initiative in June from the National Robotics Engineering Center in the Lawrenceville neighborhood of Pittsburgh.

The initiative — the Advanced Manufacturing Partnership (AMP) — brings together industry, universities and the federal government to invest in the emerging technologies that will create high quality manufacturing jobs and enhance U.S. global competitiveness.

The partnership will be led by Andrew Liveris, chairman, president, and CEO of Dow Chemical, and Susan Hockfield, president of the Massachusetts Institute of Technology. Gary K. Fedder, director of the Institute for Complex Engineered Systems, is Carnegie Mellon's technical lead on a committee of university faculty who will be working with the AMP.

The AMP was developed based on the recommendation of the President's Council of Advisors on Science and Technology (PCAST), which released a report entitled "Ensuring Leadership in Advanced Manufacturing." The PCAST report calls for a partnership between government, industry and academia to identify the most pressing challenges and transformative opportunities to improve the technologies, processes and products across multiple manufacturing industries.

The AMP is made up of what the President called some of the "most advanced engineering universities, like Carnegie Mellon, Georgia Tech, Stanford, Berkeley, Michigan and innovative manufacturers, from Johnson & Johnson to Honeywell, Stryker to Allegheny Technologies."

Prior to his speech, Obama was shown several projects include RedZone Robotic's sewer patrolling robot. He was accompanied by College of Engineering Dean Pradeep Khosla and Erica Fuchs, an assistant professor in the Department of Engineering.

This was Obama's third trip to Carnegie Mellon, all of which have occurred in June. He visited in 2010 for an address in Wiegand Gymnasium on the economy. In 2008, then Sen. Obama spoke and hosted a summit at CMU on ensuring United States' competitiveness in the global economy. The summit brought together economic, educational, community-based and industry leaders to discuss the challenges facing the workforce and to craft solutions for the 21st century.



PRESIDENT BARACK OBAMA HIGHLIGHTED THE IMPORTANCE OF MANUFACTURING IN THE U.S. ECONOMY AT THE NREC IN JUNE.



PRESIDENT OBAMA WAS ACCOMPANIED BY PRADEEP KHOSLA DURING A TOUR OF SEVERAL ROBOTIC PROJECTS.



PRESIDENT OBAMA SHAKES HANDS WITH DESIGN STUDENT RACHEL INMAN AS HOLLY HIPPENSTEEL, ASSISTANT DEAN OF STUDENT AFFAIRS, LOOKS ON.

## PRESIDENTIAL SEAL OF APPROVAL

During President Barack Obama's speech at the National Robotics Engineering Center he lauded Carnegie Mellon as an example of what it means to move forward.

- "And it seems like every time I'm here I learn something. So, for those of you who are thinking about Carnegie Mellon, it's a terrific place, and you guys are doing just great work."
- "We've created more than 2 million new jobs in the private sector over the past 15 months alone, including almost 250,000 in manufacturing. But we still have to confront those underlying problems. They weren't caused overnight, and we won't solve them overnight. But we will solve them. And we're starting to solve them right here in Pittsburgh, and right here at Carnegie Mellon."
- "Carnegie Mellon is a great example of what it means to move forward. At its founding, no one would have imagined that a trade school for the sons and daughters of steelworkers would one day become the region's largest — one of the region's largest employers and a global research university. And yet, innovations led by your professors and your students have created more than 300 companies and 9,000 jobs over the past 15 years — companies like Carnegie Robotics."
- "American innovation has always been sparked by individual scientists and entrepreneurs, often at universities like Carnegie Mellon or Georgia Tech or Berkeley or Stanford."



WATCH OBAMA'S FULL  
SPEECH ONLINE AT

[WWW.CMU.EDU/HOMEPAGE/  
SOCIETY/2011/SUMMER/  
PRESIDENTS-VISIT.SHTML](http://WWW.CMU.EDU/HOMEPAGE/SOCIETY/2011/SUMMER/PRESIDENTS-VISIT.SHTML)

PHOTO BY TIM KAULEN

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