Columbia University's Oral History Research Office has partnered with the Apollo Theater Foundation, Inc. to document and preserve the vibrant history of Harlem's Apollo Theater and the surrounding neighborhood. The Apollo Theater Oral History Project will feature interviews with performers, personalities, and staff, as well as local cultural and political leaders in an effort to spotlight and safeguard one of New York's most important cultural institutions.

Planned as part of the legendary theater's upcoming 75th anniversary, the project will include an oral history archive, an online and onsite exhibition based on the interviews, and an educational program for public school students.

"We are thrilled to partner with Columbia University on this project, which is essential to ensuring the legacy of the Apollo for the next 75 years and beyond," said Jonelle Procope, president and CEO of the Apollo Theater Foundation, Inc. to document the theater's upcoming 75th anniversary. "Columbia's Oral History Research Office and its director, Mary Marshall Clark, have a reputation for being the best in the field, and they have shown a remarkable sensitivity to documenting the unique nature of the Apollo, which has been a driving force in America's music and cultural landscape for so many years."

The Oral History Research Office will produce more than 150 hours of interviews with legendary Apollo performers such as Smokey Robinson, Leslie Uggams and Fred Wesley, among many others. Notable figures in the Harlem community such as former Manhattan Borough President and former Apollo owner Percy Sutton, well-known disc jockey Hal Jackson and actor Maurice Hines will also be interviewed.

The initial phase of interviewing will be recorded on digital audio, followed by at least 30 digital video interview sessions. Columbia's... continued on page 12

For Martin Chalfie, the work that won him the 2008 Nobel Prize in chemistry was never his primary research focus. It still isn’t.

But a chance remark by a fellow scientist two decades ago sparked an “aha moment” for Chalfie. Knee deep in research on sensory biology in the late 1980s, Chalfie attended a seminar here on campus given by Paul Brehm, a neurobiologist. Brehm mentioned a green fluorescent protein known as GFP.

Chalfie had never heard of GFP before. Something astronomers were now able to investigate various cellular structures, and the host-parasite interaction work. By using GFP, scientists are now able to investigate various cellular components, and observe cells in his work in sensory biology. "The analogy I like to use is that it’s like trying to follow somebody who is walking around a dark house at night,” said Chalfie. “You can’t see them, but if they carried a flashlight with them, you can see wherever they are.”

Because GFP is fluorescent, scientists need only shine an ultraviolet lamp on the specimen, and wherever the protein travels you see the marker—a green light. It has turned into a tool for basic scientific research and has allowed scientists to study and gain insights on diseases as varied as cancer and Alzheimer’s, and learn how disease processes like infection and the host-parasite interaction work. By using GFP, scientists are now able to investigate various cellular components in a more dynamic way, without having to cut through tissue or kill the cell. Chalfie shares the Nobel Prize in chemistry with two scientists, Roger Tsien at the University of California San Diego and Osamu Shimomura, senior scientist emeritus at the Marine Biological Laboratory in Woods Hole, Mass.

By Melanie A. Farmer, University Professor and himself a... continued on page 6

"Economic Issues in the Presidential Campaign," Austan Goolsbee, a senior economic adviser to Obama-Biden ’08, and Douglas Holtz-Eakin, chief economic adviser for McCain-Palin ’08, highlighted the differences of their respective candidates in areas ranging from education policy, to trade, to veterans affairs.

The debate was one of several major discussions on campus to deal with the upcoming election that day. At an Earth Institute event, financier George Soros, economist Jeffrey Sachs and Nouriel Roubini, a New York University economics professor, participated in a panel titled "Can We Save the World Economy." The Medical Center held an event focusing on the merits of the candidates’ health care plans. And Teachers College hosted another debate among presidential advisers, this one on education.

But the current financial crisis, the recession and each campaign’s solutions for the problems were the central issues of the evening in Loeb Hall.

"In normal times, having a discussion with presidential economic advisers would be important," President Lee Bollinger said in his opening remarks. "But these are not just normal times. We have once or twice to enter a deep and long economic recession. What is to be done?"

Goolsbee delivered the first opening and closing statements of the night. Soros supported a tax credit for businesses that create new jobs, he said. In the past, the Democratic presidential candidate has supported legislation to fund $700 billion to refinance mortgages and $400 billion to refinance mortgages, and supports additional stimulus is needed, beyond the $700 billion bailout package passed by Congress, the adviser said.

"It’s clear we’ve got to allow re-structuring or refinancing [of] debt and mortgage[s] or face a second wave of foreclosures," Goolsbee said. He wasted little time attacking President Bush, the Republican party and John McCain.

"This slowdown is the “very culmination of an eight-year trend... continued on page 12

www.columbia.edu/news
Chris Kelly, right, a student in the “Basic Drawing” course at the School of the Arts, sketches from the steps of Low Library with fellow classmates. Adjunct professor Abby Manson, who teaches the course, asked her students to use the crafts bazaar—held on Low Plaza the week of Oct. 13 and framed by Butler Library and other campus architecture—as a starting point from which to draw their own scenes.

Drawing Inspiration

Who’s Who in Teaching Excellence

Dear Alma:

With a University full of great teachers, how do the winners of the Great Teachers Award get chosen?

—Inquiring Mind

Dear Inquiring Mind,

The Society of Columbia Graduates established the Great Teachers Award in 1949 to honor the great teachers among the faculty at Columbia College and the School of Engineering and Applied Science. Since then, two professors have been chosen each year to receive the award, one from the College and one from the engineering school.

The selection process for great teachers is rigorous. Candidates must stimulate, challenge and inspire students, and make effective oral presentations, according to the criteria set by the society. They must demonstrate interest in students inside and outside the classroom. And, of course, they must have recognized standing in their academic discipline. Each year, the names of about 20 to 30 nominees, vetted by the deans of the College and engineering school and the Alumni Association presidents, are sent to the Society of Columbia Graduates, which then determines who receives the awards.

The society describes its winners as a “Who’s Who in teaching excellence” at Columbia. Indeed, one of the first two winners, in 1949, was Mark Van Doren—professor, novelist, critic and Pulitzer Prize winner for his poetry. His influence here is still felt in the Core Curriculum. Another was Lionel Trilling, who won in 1955. Their renown include Fredinand Freudenstein, known as the father of “kinematics,” or the science of objects in motion, and Mario G. Salvadori, a pioneering structural engineer renowned for his skills teaching students at Columbia and, later in his life, inner-city New York students.

The society was founded nearly a century ago by alumni who wanted “to preserve Columbia’s values as the father of ‘kinematics,’” or the science of objects in motion, and Mario G. Salvadori, a pioneer structural

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The Record

Open Access: Sharing Research on the Net

By Melanie A. Farmer

The issue of how American universities can provide broader access to scholarly work by their faculty members, which started at Harvard University this year, has made its way to Columbia's campus.

On Oct. 8, the University Libraries/Information Services launched the first of a series of six talks on scholarly communication topics. The kickoff speaker was Stuart Shieber, the architect of Harvard's pioneering "open access" policy, which requires faculty members to allow the university to make their scholarly articles available online for free. Shieber is also a professor of computer science and director of Harvard's Office for Scholarly Communication.

The goal behind the move, said Shieber, is to broaden access to the faculty's collective scholarly output. As a result, faculty members must provide an electronic form of each article they write to the Harvard provost's office, which places it in an online repository. Harvard's arts and sciences faculty approved the policy in February, and it was quickly followed by faculty at the law school. Stanford's School of Education instituted such a policy shortly after Harvard did, and the move is being considered by other universities.

"The policy makes a collective statement of principle that we think it's important that there be the broadest possible access to our writings," Shieber said at the Columbia talk, which took place in Lerner Hall. In the past, each faculty member would sign a different contract with different publishers, some of which did not give them the rights to quote their own work, or for the university to use the materials for teaching.

Specifically, faculty members granted the university a nonexclusive license for all articles they write for scholarly journals. The license is transferable, so that the university can allow authors to distribute the articles on their own Web sites, and educators at Harvard or other universities are allowed to provide the articles to students in course packs, as long as they are not sold for a profit. In order to make sure that the policy can not stand in the way of the best interest of the authors, a waiver of the policy will be issued for every article at the sole discretion of the author.

Columbia doesn't have as specific a policy, although in 2005, the University Senate unanimously endorsed an open access resolution, which was introduced by the Senate's Committee on Libraries and Academic Computing. Though it is not yet an official University policy, the University Libraries is working toward one, said James Neale, vice president for information services and the University Librarian.

In addition to the speakers series that featured Shieber as its first guest, Columbia "is providing access to an expanding array of open access electronic journals and other resources," Neal said. "We are supporting our faculty and researchers in their negotiations with publishers, in their posting of papers in institutional, disciplinary, government and personal open access repositories. We will work with the faculty to advance discussion of such a policy at Columbia."

"Columbia is providing access to an expanding array of open access electronic journals and other resources."

ON EXHIBIT:

"ABSTRAC"

A new exhibit at Reality Haus's Gallery Space, entitled "Abstrac," will feature works on paper, canvas and leather by artist Aleathia Brown. Brown, an art educator and a native of both Harlem and The Bronx, has shown her work nationally and internationally in solo and group exhibitions. The absence of "r" in the exhibit's name is no typo. "Abstrac" stands for Aleathia Brown's Soulful Themes Reaching All Creation. It will run from Oct. 6 through Dec. 18 at Reality House at 637 West 125th Street (one block west of Broadway). The exhibit is sponsored by the Office of Government and Community Affairs, is free and open to the public Monday, Tuesday and Fridays from 9:00 a.m. to 4:00 p.m.

--Jennifer Curry

A CENTURY LATER, TWO LAW DEGREES CONFERRED

By Mary Johnson and Erin St. John Kelly

The lives and careers of Theodore and Franklin Delano Roosevelt have been studied, admired, and emulated. Recently, as the crisis in the U.S. economy has deepened and with Election Day near, their names have been evoked countless times on the campaign trail, be invoked the president's famous saying, "Talk softly but carry a big stick" in one of his debates with Barack Obama. For his part, during the recent economic crisis Obama has more than once cited Franklin D. Roosevelt's leadership during the Great Depression.

Theodore Roosevelt attended Columbia Law School in 1880 and left in 1881 to serve in the New York State Assembly. He would have graduated in 1882, as the law school curriculum was two years long at the time.

He received an honorary LL.D. in 1899.

Franklin D. Roosevelt attended Columbia Law School from the fall of 1904 but left several months short of graduation and began practicing law after passing the New York State Bar Exam. He would have received his degree with the Class of 1907.

There were Roosevelts in attendance at the law school ceremony, including great-grandson Theodore Roosevelt IV, and Simon Roosevelt, Theodore's great-grandson, himself a lawyer. "It took me only three years to get a law degree," joked Simon Roosevelt. He added that "Theodore Roosevelt's well-known advocacy for morality and righteousness was no doubt helped by the temperature he received through his legal training." Simon Roosevelt also sits on the board of the Theodore Roosevelt Association, which honors Theodore's life and works and educates the public about him.

Also at the reception was Michael Roosevelt, who as a 1972 graduate of the law school received his degree decades before his grandfather Franklin did. "I assure you that he would be most pleased, proud, and honored by this recognition," Michael Roosevelt said.

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**When Teachers Get the Top Grade**

*By Melanie A. Farmer*

Meet this year’s outstanding teachers at Columbia University, so honored as recipients of the Great Teachers Award by the Society of Columbia Graduates.

Christina Mercer, the gustave M. Berne Provost of Philosophy, and Lorenzo Polvani, professor of applied mathematics and Earth and environmental sciences at the Fu Foundation of School of Engineering and Applied Science, were awarded the honor, bestowed annually since 1949. Mercer and Polvani join a long list of distinguished Columbia educators including Jacques Barzun, Mark Van Doren and Lionel Trilling.

“This is an encouragement and a confirmation,” says Polvani, who has been teaching at Columbia for 18 years. “It tells me that I’m on the right track.”

Mercer, known as a tough grader, says she was surprised to have been chosen. “I think it’s easier to be liked across the board if you’re an easy grader,” she says. “I’ve known that students have enjoyed my courses, but I also know that some are disappointed when they see my name. For Polvani, it has always been a challenge to make it simpler and simpler until it is perfectly clear,” he says. “When the students say they get it, that's the reward for me.”

That reward seems to go both ways. For Polvani, it has always been a challenge to make it simpler and simpler until it is perfectly clear,” he says. “When the students say they get it, that's the reward for me.”

**Columbia University Sustainability Report Card**

- **Administration**
  - The University has instituted a policy to reduce heating and cooling energy consumption. The Cool Columbia campaign conducts energy audits in off-campus housing and provides energy-efficient appliances upgrades.
  - The University requires construction projects to meet LEED Silver standards and currently has registered five LEED projects.
  - The University uses a volunteer Eco-Reps program at the medical campus.

- **Climate Change & Energy**
  - The University has taught here for 16 years.
  - Mercer and Polvani were presented on Oct. 20 with the Great Teachers Award—a citation and miniature statue of the society’s symbol: the teaching lira.

- **Food & Recycling**
  - Mercer is “warm and inviting and really brought me into the heart of the Core Curriculum. Lit Hum [Literature Humanities] is such an intense course and very dense, but she made it relevant and fun,” says Wesley Flamer-Blinton (CC’03), now a first-year M.B.A. student at Columbia.
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- **Green Building**
  - The University was honored with a Green Leadership Award from the National Association of College and University Business Officers.
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- **Student Involvement**
  - The Advisory Committee on Socially Responsible Investing makes its meeting minutes and annual reports available to the public online.
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- **Transportation**
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- **Endowment Transparency**
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- **Investment Priorities**
  - The University was honored with a Green Leadership Award from the National Association of College and University Business Officers.

- **Shareholder Engagement**
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**Overall Grade: A-**
When the Brain Walks Down Memory Lane, Generalizations Seem to Follow

By John H. Tecklenburg

You might not realize it, but each time you're introduced to a friend of a friend, you probably make a subconscious generalization about that person based on memory. Similarly, when you visit a new restaurant owned by a familiar chef, you likely rely on unconscious memory to make a prediction about the experience.

Generalizations and predictions don't always involve rational thought processes; in fact, they may entail automatic judgments made possible by linking existing memories—or what a Columbia researcher calls memory integration.

Using magnetic imaging technology, a Columbia neuroscientist and her colleague from Stanford University found that memory integration is controlled by the hippocampus, a brain region already known to encode and retrieve memories, and the midbrain dopamine region, which is commonly associated with reward and unexpected outcomes. The two have published a study based on their findings that appeared in the Oct. 23 issue of the journal Neuron.

“Memories don’t exist in isolation; they are constantly interacting. As the hippocampus is linked to the midbrain dopamine region, doctors might one day treat neurological diseases associated with one of the brain areas by manipulating the other. Alzheimer’s disease involves neural damage in the hippocampus, and Parkinson’s disease involves neural damage to the dopamine system,” said Daphna Shohamy, an assistant professor of psychology at Columbia who co-authored the study with Stanford neuroscientist Anthony Wagner.

With the newfound knowledge that the hippocampus interacts with the midbrain dopamine region, doctors might one day treat neurological diseases associated with one of the brain areas by manipulating the other. Alzheimer’s disease involves neural damage in the hippocampus, and Parkinson’s disease involves neural damage to the dopamine system.

In addition, psychologists and educators can explore the interaction between the two brain regions to develop strategies for integrating memories. This, in turn, could help people make generalizations in day-to-day situations, which can assist with decision-making.

“People’s ability to generalize is strongly correlated with their level of hippocampal and midbrain-dopamine-region activity during the memory-encoding process,” said Shohamy. “This was never been shown before.”

The study also suggests that the hippocampus and the midbrain dopamine region cooperate with each other as memories are being integrated. If generalization is to take place, the two regions must talk to each other,” said Shohamy.

The researchers studied 24 participants in a Stanford MRI laboratory. The participants viewed a series of images while their brains were monitored by a scanner. Each image portrayed a human face and two outdoor scenes, such as a beach and a mountain. As participants viewed each image, they were asked to guess which scene each face prefers. For example, “Joe” might prefer the beach over the mountain, and “Jane” might prefer the sunshine over the snow. After each guess, participants were told by a computer whether they were right or wrong.

After being repeatedly exposed to the faces, participants began to memorize the preferences of each face. Toward the end of the experiment, most participants made predictions about one face’s unknown preference based on another face’s known preference.

Example: Joe and Sally each prefer the beach over the mountain, and Joe prefers the lake over the forest. Therefore, Sally prefers the lake over the forest, even though the computer never said so.

“We see from the imaging data that the brain has the capability to link separate memories, which gives people the ability to make generalizations,” said Shohamy. “The next step is determining why some people have the ability to use memory integration to generalize and others don’t. Is it genetic? Can it be taught?”

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J-School Students’ Research Makes Front Page

By Record Staff

Six 2008 graduates of the Columbia University Graduate School of Journalism can save their investigative hard work on a front-page article in The New York Times last month that has sparked official inquiries into the report of an epidemic of disability claims among Long Island Railroad retirees.

The six-inch piece that ran Sept. 20 was the result of months of investigative work by the students that was born out of “The Investigative Project,” a seminar course taught last spring by Walt Bogdanich, of The New York Times, the story’s lead reporter.

Nicholas Phillips ’08 and Robert A. McDonald ’08 received plaques; Katia Bachko, Ivan Dominguez, Alex Lang and Elana Margulies, as well as Andrew W. Lehren, the class’s adjunct professor, also contributed to the reporting of the piece. After graduation, Phillips and McDonald began working on the project full time for The New York Times. Two weeks of their investigation was supported by grants from the Stabile investigative reporting fund.

The investigation revealed an alarmingly high rate of LIRR retirees receiving disability compensation in addition to their pensions.

“Virtually every career employee—as many as 97 percent in one recent year—applies for and gets disability payments, even after retirement,” a company analysis of federal records by The New York Times has found. Since 2000, those records show, about a quarter of a billion dollars in federal disability has gone to former LIRR employees, including about 2,000 who retired during that time,” Bogdanich wrote.

“The hardest thing about reporting this story was understanding the acurual information,” said Phillips. “Then once we figured out that, we had to concisely explain it to readers.”

HISTORY PROFESSOR SEeks TO REMEDY STALLED ADOLESCENCE

By Donna Cornachio

Steven Mintz has written 13 books, the last known of which is Jazz’s Aft: A History of American Childhood.

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Chalfie’s accomplishments. “This is a major contribution to science,” said Kandel, who attended the news conference on the day of the announcement. “This is a set of tools that almost everyone who does biology uses today. It’s had an enormous impact on studying how molecules within cells function because you can now visualize them and see them clearly.”

Despite his breakthrough and the subsequent ubiquity of the luminescent protein, GFP was a side line for me,” says Chalfie. “The main focus of my laboratory is to try to understand how nerve cells grow and develop.”

Chalfie’s research continues to be focused on sensory biology and probing the molecules behind the senses like touch, sound or vibrations. He considers this area of sensory biology the next frontier. His lab currently has proof for a molecule that is a touch-sensing protein and is working to fine tune that research.

Chalfie arrived at Columbia in July of 1982, after being educated at Harvard University and completing his post-doctorate at The Medical Research Council Laboratory of Molecular Biology in Cambridge, England. But long before the road to a Nobel, Chalfie, a Chicago native, thrived in math and science at an early age. He attributes his love for math to a teacher who was very inspirational, and he actually considered majoring in the subject as an undergraduate at Harvard.

“I rapidly learned that I wasn’t cut out to be a math major,” he says with a laugh. Given the way things have panned out for Chalfie, it’s a good thing he didn’t.

Obviously, the days since winning the prize on Oct. 8 have been a whirlwind experience and quite exhausting for Chalfie. Yet when asked what it means to have won one of the most prestigious awards in the world, he speaks not of the prestige or the public fanfare, but of a different kind of attention.

“It means that friends and colleagues from the past have been kind enough to notice me,” he says, “and allowing me to connect with people who I haven’t seen or heard from in decades. This is one of those bits of news that is good news. A lot of people genuinely share the happiness.”

Three years after the University Senate resoundingly rejected a resolution to bring ROTC back to campus, the issue surfaced again last month when both presidential candidates criticized that 2005 decision at a special ServiceNation forum on the Columbia campus in Sept. 11.

At the year’s first Senate plenary on Sept. 26, President Lee C. Bollinger summarized a statement that he had released the day before, responding to the candidates’ criticism. It affirmed that the main reason for the Senate vote against ROTC in 2005 was that the military’s “Don’t Ask, Don’t Tell” policy excluding homosexuals from military service violates Columbia’s anti-discrimination principles.

Senate Executive Committee co-chair Paul Duby (Ten., SEAS) said a letter by faculty senators Samuel Silverstein and Robert Pollicic making a similar point had been distributed to faculty and student senators, but the Executive Committee had deferred action on it in anticipation of the president’s statement. Duby also said he was keeping track of efforts since 2005 by the UC/SEAS Division of Student Affairs to enhance conditions for the handful of Columbia students enrolled in off-campus ROTC programs. He referred to campus press coverage of current planning for a new poll of undergraduates on ROTC, and said the Senate is the place to consider any recommendations that might result. Duby followed but disagreed further student discussion of ROTC at the meeting. There was none.

In remarks about the current economic crisis gripping the nation, Bollinger noted that Columbia’s fundraising effort last year topped a record $495 million, behind only Harvard and Stanford among peer institutions, and that the capital campaign is ahead of schedule, with $29 billion in dollars and pledges toward a $44 billion goal. But Bollinger said the endowment return was three to five percent for the year that ended June 30, 2008, compared with returns ranging from 15 to 20 percent during the previous five years. He told Bollinger said Columbia is not likely to see again soon. Current conditions on Wall Street and the economy will have an impact on the University budget for the next year, and perhaps longer, he said.

Sen. Ron Wyden (Ten., A&S/NS) presented the annual report for Physical Development, summarizing capital projects under way throughout the University and including an update on Manhattan plans.

Dan Savin, reporting for Research Officers, said the annual salaries of some Columbia post-doctoral candidates are still below the current minimum set by the National Institutes of Health ($36,996) despite assurances from Medical Center administrators two years ago that all post-doctoral salaries would reach that level by now. Savin also reported on an administration study confirming that raises for research officers at the Medical Center have been two percent lower on average than for their Morningside and Lamont counterparts. Savin also noted the total absence last year of professional research officers (PROs) on the CUMC Faculty Council, despite provisions in that body’s stated rules explicitly counting PROs as faculty and allocating seats to departments accordingly. He expressed appreciation that one upshot department had included two PROs in its Faculty Council delegation this year. That department is the CC/SEAS.

The Senate meets next on Friday, Oct. 24, at 1:15 p.m. in 102 Jerome Greene. Anyone with a CUID is welcome. Most Senate documents are on the Web at www.columbia.edu/cu/senate.
Growing up just outside of London, England, Elizabeth Hillman found it difficult to choose between her favorite subjects, medicine, physics, and mathematics. As an undergraduate at University College London, she found the ideal amalgam: medical physics. “I wanted to build machines that doctors use,” she says. “To me, that was the perfect combination of being involved in medicine...Having the pleasure of building things and using the math and computing that I was good at.”

Hillman, 32, now an assistant professor of biomedical engineering at The Fu Foundation School of Engineering and Applied Science, is building just such systems here. Her optical imaging tools—devices that use light—will make it possible for her to investigate the relationship between blood flow and nerve cell activity on a living brain. Hillman, who earned her PhD in medical physics and biotechnology also from University College London, wants to learn more about the relationship between blood flow and neuronal activity and to do so in real time.

Understanding how these so-called pathways work may provide reams of information about treatment therapies for preventing age-related neurodegeneration, and aid in understanding the brain and how it works. A growing body of literature suggests that whatever couples the blood flow response to the neuronal response, Hillman says, may get broken in diseases like Alzheimer’s and other age-related neurodegenerations. “If we can really identify the cells, the pathways, the chemicals in the brain that control these [responses],” adds Hillman, “and really understand how it should look when it’s normal, then this gives us an important link to understand how the abnormalities could relate to brain diseases.”

Hillman is also the inaugural recipient of The Rodriguez Family Junior Faculty Development Award, created by SEAS alumni Ana Rodriguez (SEAS’98, ‘98) and her brother, Marcus (SEAS’99), to support recruitment, retention and recognition of under-represented junior faculty. Hillman will use the fund toward her lab.

**Q.** What is it about your research that has not been done before?

**A.** We’re investigating the brain as a machine, and then we’re building machines to allow us to do that investigation. It’s unique, because we have both the neuroscience expertise and the engineering skills to design and develop specialized imaging systems for this application. Most researchers tend to use commercial systems which are very limited in terms of what they can actually do. The technology development goes hand in hand with the science and we use the two to stimulate each other. A lot of people have tried to look at neurovascular coupling in vitro, where they look at small pieces of the system, but we’re talking about [investigating] a working brain with all the neuronal connections and blood vessel system that needs to have blood flowing through it. To understand that system in its entirety, you really need to image in an intact brain, but imaging an intact brain is very difficult because you have to actually get to the brain. So it’s a massive technical challenge to build imaging devices that can see all of this in enough detail to really be able to understand how it’s working in real time.

**Q.** What are the engineering-design challenges you face?

**A.** We’re trying to rapidly incorporate new technologies such as faster cameras, faster scanning techniques for laser imaging, better lasers, more sensitive detectors—all these things need to be rapidly adopted and incorporated into the systems to make them able to image faster and image deeper with more sensitivity and contrast. We’re also layering on the complexity, for example a lot of conventional microscopes only have two channels so they can see two colors, e.g. red and green, whereas our system has red, green and blue channels and it has room to incorporate even more. So where most people can look at two types of cell at once, we can look at four or five different components of the system all at once evolving in the same field of view very, very fast. We also mix together different technologies and translate techniques between different applications. For example, one of the methods that we have developed for 3D brain imaging, we are now also applying to image skin cancer. We have to overcome a lot of engineering challenges to extract information from living tissues.

**Q.** Are we still in the early stages of optical imaging?

**A.** It’s difficult to define because optical imaging is so broad. It’s not like MRI (magnetic resonance imaging) where everyone knows what an MRI machine looks like. Optical encompasses all kinds of different things, from a standard microscope to spectroscopy systems that measure samples. If you look, there’s optical everywhere: Endoscopy is an optical technique, laparoscopy, eye exams, lots of things that image skin cancer are optical. The biggest challenge is to be able to see deeper into tissues with optical methods.

**Q.** When did you start focusing on the brain?

**A.** I went from doing brain studies as an undergraduate to my PhD work where we were looking at developing a system to image the premature infant brain, looking for ways to prevent cerebral palsy. It was primarily during my post-doc when I was at Massachusetts General working in the Marrinos Center for Biomedical Imaging that I started to really focus on it. Researchers there were some of the pioneers of functional MRI, and I was immersed in it there for several years and that’s what drew me to this question...I realized that by using these high-resolution imaging technologies we could actually see the interactions, we could actually see the single cells. I came to this idea that if we can do enough engineering, we could capture it in action. I’m a bit fixated on this now.

**Q.** What other projects are you working on?

**A.** In addition to applying our brain imaging tools to skin and cardiac tissues, my lab is also developing optical imaging tools for molecular imaging. Our paper in Nature Photonics last year demonstrated a new technique for imaging small animals that exploits the spatiotemporal evolution of fluorescent signals after a bolus injection of dye. This method has been licensed by a company and is now commercially available for researchers and companies doing drug development and disease research. Overall, the theme of my lab is to use engineering to extract as much information as possible from living tissues.
Jeffrey Sachs, director of the Earth Institute, took the stage along with Latin American presidents and recording artists to discuss the promotion of healthcare and education for impoverished children in Latin America. The Sept. 24 event was geared toward reforming policies and progressive intervention on child poverty. Pictured above left to right: Ellen Aristegui Flores, president of El Salvador; Carmen Aristegui; Alejandro Sanz, singer-songwriter; Cristina Fernandez de Kirchner, president of Argentina; Sachs; who is also professor of sustainable development and health policy and management; Shakira, recording artist; Felida de Jesus Colonio Rupiez, president of Panama; and Alejandro Saie, singer-songwriter.

The Apollo Theater Oral History Project is supported by contributions from the Edward and Leslye Phillips Family Foundation, Rockefeller Foundation, and the New York Community Trust.

WHAT ARE YOU LOOKING AT?

Hint: “Always the laws of light are the same, but the moods and degrees of seeing vary.” Be sure to look up while you’re walking or you might miss the light that illuminates your path. Where is this lamp situated? Send answers to curecord@columbia.edu. First to e-mail the right answer wins a Record mug. (Above quote by Henry David Thoreau)

former Secretary of State Henry Kissinger visited the Frankel, Saltman Institute for War and Peace Studies at Columbia University on Oct. 22th to have lunch with faculty and to guest lecture for Professor Stephanie Neeman’s class on Third-World Security Issues, Kissinger spoke about the likely return of “realism” in U.S. foreign policy regardless of which candidate is elected president in November.

Center for New Media Teaching and Learning, and its Center for Digital Research and Scholarship are contributing video sessions to the project and will develop educational content based upon them. In all, more than 100 interview sessions are planned. This is one of the most historically and culturally important partnerships the Oral History Research has undertaken in recent years,” said Clark. “The Apollo Theater is the living legacy of the Harlem Renaissance—an enduring beacon of hope and vitality in our times.”

The Apollo’s education department is working with elementary school teachers at Harlem’s PS 154 to integrate the history of the theater and the neighborhood, as well as elements of African American art, into the school’s curriculum. Based on the Oral History Research Office’s Telling Lives Curriculum Guide, the program of study engages students in their own communities by empowering them to conduct and analyze videotaped oral histories and to use them as the raw materials to create original theatrical productions.

In the last year, Columbia has developed three other online resources that present African American history unique to New York. MAAP, short for Mapping the African-American Past, utilizes interactive mapping software combined with scholarly commentary, historic maps and photos, and other archival documents. The Amistad Digital Resource is a multimedia Web tool developed for teachers and Columbia’s Black History Month Web site spotlights many initiatives and research projects sponsored and developed by the University in recent years.

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