

President Suresh elected to Institute of Medicine

CHRIS GALVIN
Junior Staffwriter

The Institute of Medicine honored President Subra Suresh by electing him as a member of the institute in recognition of his research in cell mechanics on Oct. 21.

This honor from the Institute of Medicine, in addition to Suresh's previous honors from the National Academy of Sciences and the National

Academy of Engineering, make Suresh one of 16 Americans to be elected to all three national academies.

"Being in all three academies is a very small group of people, and I am particularly pleased that it happened while I am at CMU, because CMU is very well known for interdisciplinary research and that is what I practiced over the last many years," Suresh said.

Suresh is the only current university president and first Carnegie Mellon faculty member to have earned this recognition.

Including Suresh, there are 41 Carnegie Mellon faculty members who are members of the National Academy of Engineering, 11 in the National Academy of Sciences, and four in the Institute of Medicine.

"It was a pleasant surprise.

I feel very honored, especially being an engineer, to be included in the medical community [because] biomedical work is very satisfying," Suresh continued.

The Institute of Medicine is an independent organization that seeks to "provide expert advice on some of the most pressing challenges facing the nation and the world, helping to shape policies, inform public opinion, and advance the

pursuit of science, engineering and medicine," as stated on the organization's website.

Speaking of the Institute and the National Academies, Suresh said, "They have a unique platform because it's an independent organization with people from academia, industry, policy, et cetera. They are often asked by government to provide advice, and when they provide advice, they get attention, be-

cause it's an honorific society."

"For example, the Institute of Medicine came out with a report on a number of diseases, including topics such as obesity in the country, what policies should be there, things like Alzheimer's, brain diseases," Suresh said.

"As a member, you are likely to be invited more to

See **MEDICINE**, A3

Two university deans to end terms after this year

Courtesy of Randal Bryant

File photo by Aseem Gupta

Bryant to leave SCS dean role

NOËL UM
News Co-Editor

Professor of computer science and dean of the School of Computer Science Randal Bryant announced his plan to step down at the end of his term from his position as dean last Monday.

Bryant's 10-year term as dean of SCS will expire on June 30, 2014. Computer science professor Guy Blelloch will be heading the committee in charge of finding a replacement for Bryant.

Bryant, who first became dean in 2004, wrote in an email to members of SCS, "It's been a wonderful experience for me to serve as dean. I've gotten to work with many creative and capable people on projects ranging from new research initiatives and new educational programs to improved outreach to our alumni

and supporters."

"I've been able to ride in autonomous vehicles, walk around muddy construction sites, and meet with alumni and friends of SCS all around the world. I've especially enjoyed meeting the families of our students at graduation, sharing with them the excitement of our students' achievements. I would like to thank every one of you for having made this such a rewarding experience for me," he continued.

Bryant's previous work included research concerning data intensive, distributed computing techniques, according to Bryant's profile on the School of Computer Science website.

Bryant also co-authored the textbook *Computer Systems: A Programmer's Perspective*, a work that originated from the introductory com-

puter systems course that Bryant and his co-author and professor of computer science Dave O'Hallaron developed in 1998, called Introduction to Computer Systems.

Bryant was awarded the Emanuel R. Piore Award from the Institute of Electronics and Electrical Engineers (IEEE), for his "developing methods of reasoning about digital circuits using ordered binary decision diagrams," according to the IEEE website.

Bryant plans to take a one-year sabbatical following the end of his term, and then return to his duties as a professor of computer science.

As dean, Bryant was instrumental in fostering research in data-intensive computing.

"In the meantime, there's plenty to do between now and June 30, and I look forward to continuing to work with you," he wrote.

DC dean Lehoczky ends term

NOËL UM
News Co-Editor

Professor of statistics and dean of the Dietrich College of Humanities and Social Sciences (DC) John Lehoczky announced the end of his 14-year term as dean on Oct. 18. Lehoczky will continue his duties as professor of statistics in the next academic year.

Professor of applied linguistics Richard Tucker will head the search committee to replace Lehoczky.

Executive Vice President and Provost Mark Kamlet said in an email to the DC community, "John has been a truly extraordinary dean under whose leadership the college has moved forward strongly across its entire range of activities."

"Through his commitment, dedication, and engagement, the college has

enhanced greatly Carnegie Mellon University's reputation as a great university through its research and education programs in the humanities and the social sciences. John has also been a tremendous campus leader far beyond the college per se. His experience and wisdom have helped guide the university for many years," Kamlet continued.

Lehoczky's main research interests involve the theory of stochastic processes, which is the evolution of random phenomena over time, and the use of stochastic processes to model real-world applications, according to his profile on the Carnegie Mellon statistics website.

Joining the Carnegie Mellon statistics faculty in 1969, Lehoczky had a vision for Dietrich College to "develop novel research projects and

education programs in the social sciences and humanities that will enhance Carnegie Mellon's reputation as a great university," according to the Dietrich College website.

After earning his Ph.D. from Stanford University, Lehoczky contributed his knowledge about applications of stochastic modeling to problems in finance, leading to the creation of Carnegie Mellon's unique master's degree program in computational finance.

According to the Dietrich College website, Lehoczky worked to ramp up Carnegie Mellon's humanities program during his tenure as dean.

This effort included overseeing the launch of the Humanities Initiative, which founded the Humanities Scholars Program, the Humanities Center, and the Center for the Arts in Society.

Health survey gathers data on stress

BRIAN TRIMBOLI
News Co-Editor

Carnegie Mellon students were recently asked to take a health survey that requested information on a broad range of topics that included sexual health, stress levels, and physical activity.

Anita Barkin, director of University Health Services, sent out an email to the student body two weeks ago, asking students to complete the online survey about health-related experiences at Carnegie Mellon. The survey was meant to determine "how best to provide resources to support students' physical and emotional well-being."

This year's health survey focused on mental health and student stress levels, accord-

ing to Barkin. In 2007 and 2009, the last two years that

"Students reported high levels of stress, the problem was that we didn't have follow up questions."

Anita Barkin

Director of University Health Services

a campus-wide health survey was administered, Student

Health Services used the National College Health Assessment (NCHA). The NCHA, which is produced by the American College Health Association, focuses on health areas that college students generally struggle with, such as sexual health, alcohol, and drug usage.

While the NCHA has several advantages in that it yields data that can be compared with a national body of university students, Barkin wanted the survey at Carnegie Mellon this year to also focus on other areas.

"We looked at the information and the data being collected [by the NCHA] and said 'you know what? We want to do something that's a little bit different.' We want to make sure they're addressing some

of the issues that have been raised over the past year regarding stress," she said.

Director of the Office of Institutional Research and Analysis Janel Sutkus compared the survey in some ways to the "CMU Says" survey, a similar health survey, administered two years ago.

"We've never really done a measure of stress and stress management," she said. "In the CMU Says survey two years ago we looked at sleep, we looked at physical fitness, we look eating habits. In the past National College Health Assessment, we looked at sexual activity and alcohol and drug use. The stress level, the stress management, those pieces are new."

See **HEALTH**, A3

CMU outlines drug and alcohol policies

NOËL UM
News Co-Editor

"Carnegie Mellon released its annual drug and alcohol brochure, which highlighted the school's policies regarding drug and alcohol use, last Monday.

In a foreword in the brochure, President Subra Suresh wrote, "While the university maintains strict policies regarding the illegal use of alcohol and drugs, we also offer help for any individual who is experiencing substance use difficulties."

According to the Fire and Safety Report released earlier in the semester, 42 liquor law arrests, 17 disciplinary actions

with respect to liquor laws, and 10 drug law arrests occurred at Carnegie Mellon last year.

Dean of Student Affairs Gina Casalegno emphasized that alcohol is allowed for students of legal drinking age in dormitory rooms; however, it is prohibited in all exclusively first-year student dorms. The only upperclassmen alcohol-free residence is Henderson House, which belongs to a wellness community. "If a staff member or police officer is concerned about activity in a private room, they have the right to approach the student's room and address any behavior."

See **BROCHURE**, A3

FEATURE PHOTO

Students celebrate MCS Pride Day



Students gathered on the Mall to celebrate Mellon College of Science Pride Day with activities and food, last Thursday.

Kate Groschner/Photo Editor

Campus Crime & Incident Reports

Theft from Vehicle

Oct. 19, 2013

University Police were summoned to the Dithridge Street Garage just after 3 p.m. for a report of theft from a vehicle. The victim of stated that his black laptop satchel was stolen from a car, and the car's passenger side window was smashed. This investigation is ongoing.

Underage Drinking/Public Intoxication

Oct. 20, 2013

University Police were summoned to Morewood Avenue near the Greek Quad in reference to a person heard screaming. University Police arrived and determined that there had been a physical altercation between two individuals. CMU EMS was dispatched to medically evaluate one of the males; the second declined treatment. University Police cited one intoxicated male for underage drinking

and a second intoxicated male for disorderly conduct, underage drinking, and public drunkenness.

Criminal Mischief

Oct. 20, 2013

University Police were dispatched to the second floor of Stever House in reference to a broken men's room bathroom stall. University Police determined that one of the males involved in the previously mentioned physical altercation on Morewood Avenue was responsible for the broken stall. University Police charged the male with criminal mischief.

Medication Theft

Oct. 21, 2013

University Police took a report of a theft of medication from a student. The victim reported leaving the backpack unattended from 3:05-3:15 p.m. in the common area of the fourth floor of the Gates

Center for Computer Science, near Rashid Auditorium.

The victim stated that during this time, approximately 60-100 mg of Adderall pills were unlawfully taken from the student's backpack.

Bicycle Theft

Oct. 22, 2013

University Police were dispatched to the bike rack on the runway area between the tennis courts and the University Center for a report of a bicycle theft. The victim stated that he secured his BLKMRKT 357 bicycle at the bike rack at 6 p.m. on Oct. 21.

The victim stated that when he returned at 1:35 a.m. on Oct. 22, the bicycle was gone. This investigation is ongoing.

Bicycle Theft (Recovered)

Oct. 23, 2013

A Carnegie Mellon student contacted University Police after he found his previously

stolen bicycle secured to the bike rack at Hunt Library. The owner stated that he had previously parked his bicycle at the University Center bike rack at 8 p.m. on Oct. 21. The owner stated that when he returned at 1 a.m. on Oct. 22, the bicycle was gone. The owner of the bicycle was able to provide University Police proof of purchase and a serial number confirming that the bicycle at Hunt Library was his. University Police returned the bicycle to its rightful owner.

Criminal Solicitation

Oct. 23, 2013

University Police are charging a former student with criminal solicitation after he attempted to buy a Carnegie Mellon ID card from an undercover officer, posing as a Carnegie Mellon student for the purposes of an investigation.

The male was later interviewed by detectives, at which time he admitted to the crime.

NEWS IN BRIEF

Carnegie Mellon Researchers Granted \$7 Million by National Science Foundation

The National Science Foundation has awarded Carnegie Mellon researchers more than \$7 million for various robot projects. The grant money is expected to be used towards projects that build and develop robots that can optimize and assist human tasks.

"The great promise of robots is to extend human skills and enhance human lives," said Matt Mason, director of the Carnegie Mellon Robotics Institute, according to a university press release. "The National Robotics Initiative is helping researchers here at Carnegie Mellon and across the country make that promise a reality."

One of the new projects is expected to be a multiple-university, interdisciplinary scheme using robots to better

assess the status of decrepit bridges.

Various groups will be in charge of the bridge project, including Carnegie Mellon's Robotics Institute and civil and environmental engineering departments, as well as Northeastern University.

Another project will look to develop robots that can aid in low-risk surgeries by using sensory information to guide them.

Researchers hope to have compensated for surgeons not being able to see organs during surgeries.

Other projects include using robots and creating 3-D maps of internal organs to help the visually impaired travel, assist stroke survivors with their mobility, respond to underground mine accidents, and more.

Ilic's Team Awarded \$1.2 Million Grant

Marija D. Ilic, professor of electrical and computer engineering and engineering and public policy, has been chosen to lead a multidisciplinary research team aiming to prove that it is feasible to economically and dependably provide electric power.

According to a university press release, Ilic plans on executing her research project "with careful design of IT-enabled, data-driven protocols and the introduction of more interactive binding protocols between traditional utilities and new technologies."

Using a \$1.2 million grant that is spread over three years, Ilic will test the intelligent Dynamic Monitoring and Decision Systems (iDyMonDS) to prove that a more dependable, cost effective smart grid technology system can be created.

"This hybrid setup has the potential to realistically

mimic a large electric energy system with data collected from real-world instrumentation that would ultimately be able to help determine the value of new technologies and their impact on the quality and cost of electricity services, sustainability and potential for reducing pollution," Ilic said.

Her team has already created a database for electric power grids in two volcanic islands, Flores and San Miguel, and used the data to determine how community members can best utilize cheaper, more eco-friendly energy from wind.

According to a university press release, Ilic has recently been recognized by Carnegie Mellon with a Philip L. Dowd Fellowship Award. She has also established the Electrical Energy Systems Group.

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WEATHER



TUESDAY

High / Low
59 / 44

WEDNESDAY

High / Low
60 / 50

THURSDAY

High / Low
64 / 57



FRIDAY

High / Low
59 / 47

SATURDAY

High / Low
50 / 37

SUNDAY

High / Low
49 / 31

Source: www.weather.com

Corrections & Clarifications

If you would like to submit a correction or clarification, please email The Tartan at news@thetartan.org or editor@thetartan.org with your inquiry, as well as the date of the issue and the name of the article. We will print the correction or clarification in the next print issue and publish it online.



STUDENT SENATE MEETING MINUTES

Senate Vacancies

There are currently several vacancies in Senate, including three in the College of Fine Arts, four in the College of Engineering, and two in the School of Computer Science. Vacancy elections are tentatively scheduled for this week's meeting on Thursday, Oct. 31.

Presentation of University Health Services

Anita Barkin, director of University Health Services, gave a presentation that covered several changes in Carnegie Mellon's health policies.

According to Barkin, University Health Services is proposing a change in the language of Carnegie Mellon's immunization requirements to make them more adaptable.

Barkin also discussed possible changes in the university's smoking policy and insurance policy.

Committee Updates

The Communications Committee reported that Senate Week was very successful; the Senate Facebook page experienced an almost 100 percent increase in likes. The Campus Life Committee will be handing out free apple cider and cookies this week. The Gallery Crawl has been rescheduled for Nov. 23.

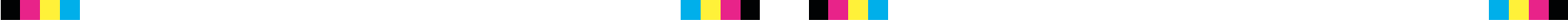
Student Body VP Resignation

Peter Masters, junior international relations and politics major, has resigned as student body vice president. The position is now open; interested candidates should contact student body president and senior biology and psychology double major Lindsay MacGillivray at sbp@andrew.cmu.edu.

Points of Discussion

The New York Times is interested in bringing a speaker to Carnegie Mellon's campus. The topic of the talk is flexible. Senate needs suggestions for faculty or staff members to help choose a speaker; suggestions can be emailed to the Senate Executive Committee. More information is forthcoming.

Compiled by
BRENT HEARD



Institute of Medicine recognizes Suresh



Michelle Wan/Junior Photographer
President Suresh was recently elected to the Institute of Medicine.

MEDICINE, from A1
participate in some of these studies. You can play a role in service to the country ... as a member of these academies.” Suresh was recognized by the Institute of Medicine for

his research in cell mechanics related to blood diseases, malaria, and certain types of cancer. His research explores the ability of cells to deform and how changes in this ability can lead to disease. “The idea behind this is if you look at biological cells, especially human cells like red blood cells, there are physical properties and mechanical properties that are very important for health,” he said. “If something happens, either through environment or genetic defect that causes the cell to compromise its abilities, then it will affect the way the normal functioning of the body will take place.” Suresh explained how this can cause different problems in different diseases. In sickle cell anemia and malaria, the cell’s deformability is compromised; and that compromises the function of the cell. Meanwhile, in certain types of cancer like pancreatic cancer, the easier it is for the cell to deform, the faster the cancer can metastasize and spread. “For different diseases, it’s a different outcome, that’s

the connection. And that’s the connection that’s not being studied at the cell level, because the tools you need to study them are very sophisticated using nanotechnology, computational modeling, and those tools that have been in place only in the last 10–15 years,” Suresh said. Raymond J. Lane, Chairman of the Carnegie Mellon Board of Trustees, called Suresh’s research, “work at the intersection of engineering, the sciences, and medicine,” in an email to the Carnegie Mellon community. “[President Suresh] is truly a scientist and educational leader for our time. He embodies, through his individual scholarship as well as institutional, national, and global leadership, Carnegie Mellon’s commitment to cross boundaries to transform lives,” Lane said. Suresh will elaborate more on his research at his seminar “Crossing Boundaries, Transforming Lives: The Study of Human Diseases at the Crossroads of Engineering, Science, and Medicine” on Nov. 7 at 4:30 p.m. in McConomy Auditorium.

‘Healthy U’ survey evaluates students



Kelsey Scott/Operations Manager

HEALTH, from A1
Barkin hopes that this survey will provide a richer data set for understanding how students deal with stress; “We know that students reported high levels of stress, the problem was that we didn’t have follow up questions,” Barkin said. Sutkus wants the survey to focus on how stress and stress management is affected by key aspects of health like sleep levels and eating habits. “The relationships between all of these things are critically important. I would like to understand the relationship between sleep and stress management and physical fitness so we can report back to the students, ‘look, this is what you told us, these are some of the healthy behaviors and these are some of the less healthy behaviors. Now that we’ve learned this and you’ve told us what services are important to you, we can make decisions about what gets enhanced and what’s not being utilized.” Lucy Havens, a junior information systems major, said she appreciated that the university was trying to address Carnegie Mellon’s stress culture. “I think students know that stress here is a problem, so it’s nice to know that the school is trying to address that. I appreciate the fact that they have the survey in the first place,” she said. The survey itself, Barkin said, was created mostly by Sutkus. According to Sutkus, the survey looked at student health in three major areas: physical health, mental health, and stress levels. The survey asked questions designed to address how these three major health areas interact with other aspects of student health, including sleep, sexual health, physical fitness, alcohol and drug use, nutrition and eating habits, and stress management. Sutkus said that the information from the survey will be used to allocate resources within the university to address student needs. “We can look at the kinds of resources we offer and see if they’re meeting students’ needs,” Sutkus said. While Sutkus will be analyzing the data from the survey herself, she will provide the results to various divisions of the university, including the Athletics Department and Counseling and Psychological Services (CAPS). “We have been working very closely with other areas on campus, so I spent a lot of time with [Interim Director of Athletics] Josh Centor and [Director of CAPS] Kurt Kumler to get some of the language around these areas. They will be the recipients of some of the results, along with folks like [Dean of Student Affairs] Gina Casalegno, [Vice Provost for Education] Amy Burkert, and lots of folks from student affairs and academic advising.” Barkin mentioned that it’s important to look not just at students with unhealthy habits but also students who are managing their health well. “You know, the important thing, too, is not only to understand behaviors that are potentially not healthy, but [also to understand] those students who are doing very well. What does that look like? What does our well student look like? Because there are things we can learn from that as well,” she said. While the 2007 NCHA received a response rate of about 24 percent, Barkin said, she hopes that this year’s survey will be taken by more students. Sutkus said that they are aiming for a response rate of between 40 and 45 percent, and are already halfway to their goal. This total also includes graduate students at Carnegie Mellon, who have never been included in a campus health survey before this year. Student Health Services is incentivizing the survey with coupons for a free frozen yogurt dessert at Skibo Cafe and a chance to win a Healthy U stadium blanket or free meal block at a campus dining location. The survey, which began on Oct. 17, will end between Nov. 1 and Nov. 6. Students can take the survey online via the link in Barkin’s campus-wide email.

Brochure highlights substance rules



Anne-Sophie Kim/Layout Staff

BROCHURE, from A1
Casalegno said, “Any allegation that university policy is violated is taken seriously and thoughtfully handled through our community standards process. Illicit drug use introduces an element of risk to the safety and welfare of the university community, and will be dealt with accordingly. In all our efforts to respond to reports of drug or alcohol use, education about the individual ... are of paramount importance in our process.” The amnesty policy allowing students with intoxicated peers to seek help will continue to be in effect. The amnesty policy was first implemented at Carnegie Mellon in the late 1990s when incidents of intoxication requiring medical attention became more prevalent. “It is not the university’s

prerogative to assert the amnesty procedure off campus in jurisdictions where we do not have police authority. I think high-risk drinking poses a risk to students, and urge students, regardless of where they are, to seek help for themselves or their peers whenever someone exhibits signs of alcohol intoxication that warrants medical attention,” Casalegno said.



FEATURE PHOTO KGB’s Capture the Flag with Stuff



Kate Groschner/Photo Editor

KGB held a game of Capture the Flag last Friday at 7 p.m. in Doherty Hall.

Science & Technology

Research allows for improvement of motion-tracking

BROOKE KUEI
Assistant SciTech Editor

Have you ever played your friend in *Wii Sports* and blamed a missed serve or a bad shot on the lag of the video game? Robert Xiao, a Ph.D. student in Carnegie Mellon's Human-Computer Interaction Institute (HCII), Chris Harrison, a recent Ph.D. graduate from the HCII who will be joining the Carnegie Mellon faculty next year, Scott Hudson, a professor in the HCII, and Ivan Poupyrev and Karl Willis of Disney Research Pittsburgh, have developed a motion tracking technology called Lumitrack, which will not only significantly decrease the lag that is common in many motion tracking technologies today but also offer more precision and lower cost.

According to Xiao, the project began when he and his research group discovered that mathematical problems could be encoded in a way such that a very small portion of them would be unique across the entire pattern, known as the m-sequence. "We got the notion that this could be used for tracking somehow," Xiao said. "You could display this pattern in some way and then identify where you are on it."

Lumitrack consists of two main components: projectors and sensors. The system projects a unique m-sequence, which is essentially a big barcode, onto a linear optical sensor somewhere in the field of

view. The sensor then picks up individual pixels of this barcode pattern and decodes it into the position within the pattern. For motion tracking in three dimensions, an additional projector and sensor pair are added to the system.

"So basically we set up an image from the projector that is this barcode, in two directions — one barcode in one direction and a different barcode in a different direction — and the sensors are sitting in this field with x and y sensors that can just pick up that barcode," Xiao said. The system is also extremely precise: "We can track the position of the sensor down to 1.3 millimeters, at the worst," Xiao said.

The design of this system allows the sensors to pick up locations in a short amount of time because light can be tracked quickly. Existing motion tracking technologies, such as Nintendo's Wii Remote or Microsoft's Kinect, use full cameras on their sensors, which result in a lot of extra processing time.

"Lumitrack, by comparison, is quite simple. Because of the use of the barcode, we can just look up the position in the barcode. It's basically just a simple table look-up," Xiao said.

The fact that Lumitrack uses one-dimensional sensors means that it does not have a lot of data to deal with.

"We process the data using a very fast, very efficient algorithm, and then ship it off. The



Courtesy of Robert Xiao; photo by Chris Harrison

Researchers have utilized a barcode technique that has been able to successfully improve the precision and affordability of motion-tracking devices.

simplicity of the system ends up being its greatest strength," Xiao said. This simplicity also results in a lower cost overall, since Lumitrack requires only a few sensors and projectors.

Other applications of this system include gesture control and computer-generated imagery (CGI) for films. In the case of gesture control, Lumi-

track has the potential to perform even better than other current technologies, such as the Leap Motion Controller.

As for CGI, very expensive and large systems are usually required. However, using Lumitrack, CGI would be achieved using much less equipment and at a lower cost, making it more accessible to

ordinary people.

Xiao and his team recently attended the 2013 Association for Computing Machinery Symposium on User Interface Software and Technology in Scotland. "I got an opportunity to present my research there to the wider community and get them excited about the possibilities that we could have,"

Xiao said. While Lumitrack is still a research prototype at the moment, commercial vendors interested in creating a product have reached out to the Carnegie Mellon group. Xiao predicts that in three years, Lumitrack could be commercialized, transforming motion tracking systems into real-time experiences.

HOW THINGS WORK

Echolocation allows dolphins, bats to navigate without sight

BROOKE KUEI
Assistant SciTech Editor

How do bats maneuver in the dark? How do dolphins make their way through the ocean? Echolocation is a biological sonar used by microchiropteran bats, odontocetes (toothed whales and dolphins), and some cave-dwelling bird species as a means of navigation in environments where vision is not very useful.

The basic concept behind echolocation is that the animal emits calls then listens to the echoes of its calls bouncing off nearby objects, the same way you might hear your own voice echo back in a cave or canyon. When the animal calls out, it causes vibrations in the air. These changes in the air affect surrounding particles and cause them to vibrate as well, resulting in a chain reaction, known as a sound wave, that can travel very long distances. When this sound wave hits another object, the particles are deflected in the opposite direction and the wave returns to the caller.

HowStuffWorks.com explains how bats use this ability to find prey in the dark. Most bats make calls higher in pitch than humans can hear. When the echo returns to the bat, the time delay helps it process how far away the object is. Even more amazing, however, is the way bats can determine which direction the object is moving and how big it is. The bat can tell the direction the object is moving by compar-

ing whether the sound reaches its right or left ear first — if the sound reaches the right ear first, for example, the object must be on the right side of the bat. In addition to the object's horizontal position, the bat can determine if the object is above or below it by using special folds on its outer ear. These sensitive folds allow the bat to feel if the sound wave hits the lower or upper part of its ear.

The bat can also determine the size of the object by the intensity of the echo. Because a smaller object will reflect the sound wave less, the returning echo will be softer. If the echo is louder, the object is obviously larger. The bat can even use the Doppler effect to conclude if the object is moving away from or toward it. If the object is moving toward the bat, the peaks and troughs of the sound wave will seem closer together, causing the echo to have a higher pitch.

Similarly, if the object is moving away from the bat, the wave will appear to be more spread out, and the corresponding frequency will cause the echo's pitch to be lower.

Echolocation is a very important skill for whales and dolphins as well. According to the Australian government's Department of the Environment, toothed whales — such as killer whales and dolphins — use echolocation for hunting and navigating. However, baleen whales, such as humpbacks and blue whales, use it as a form of communication.

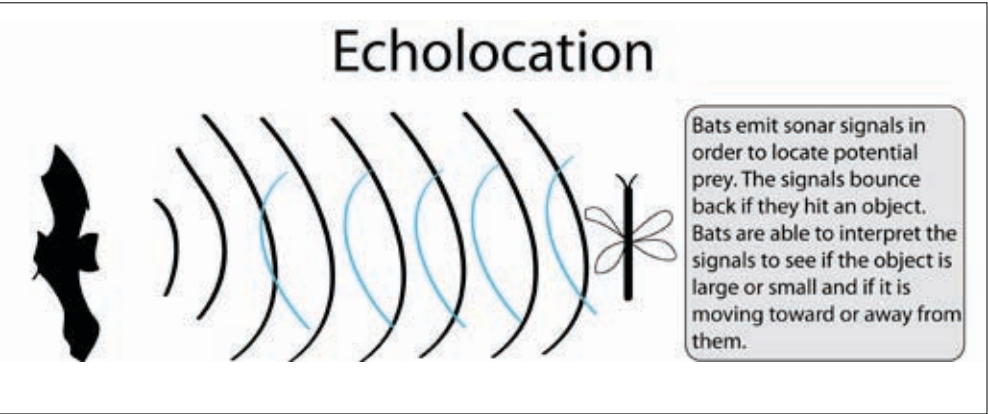
According to the National

Oceanic and Atmospheric Administration, sound is emitted in the head region of these sea mammals and is focused by the melon, a mass of adipose (fatty) tissue found in the forehead. The echo is then received through special tissue in the lower jawbone that is able to conduct sound. In both bats and odontocetes, characteristics of echolocation calls differ depending on the environment, hunting behavior, and type of prey.

While this kind of echolocation is not innate to humans, *Smithsonian* magazine confirmed that humans are also capable of echolocation and many vision-impaired individuals have actually developed the ability over time.

While humans lack the specialized anatomical structures that bats and odontocetes use to analyze echoes, the overall concept of echolocation is theoretically still possible. For example, humans are capable of making small click noises that echo back, have a left and right ear to distinguish the direction of the object, and are able to differentiate between volumes to determine the distance of the object.

Humans could potentially replicate echolocation — but they would need to determine the speed of sound in air, have a timer to measure how long it takes for the echo to return, and use physics equations to determine how an object is moving. Naturally echolocating animals can do all of these calculations purely by instinct.



Michael Setzer/SciTech Editor

Researchers integrate social science in cybersecurity project

DESIREE XU
Business Manager

Researchers at Carnegie Mellon University have collaborated with scientists from the Army Research Laboratory; Pennsylvania State University; the University of California, Davis; the University of California, Riverside; and Indiana University to develop methods for computers to make security relevant decisions in cyberspace. The project, called Models for Enabling Continuous Reconfigurability of Secure Missions, strives to increase security in cyberspace.

The five-year funding for the program is \$23.2 million, with an additional \$25 million for an optional five-year extension. The Carnegie Mellon branch of the project is funded through CyLab, the world's largest university-based research and education center for computer and network security, information security, and software assurance.

The collaborative research focuses on detecting attacks in cyberspace, measuring and managing risk, and altering the environment to optimize results, all while minimizing cost. The previous three objectives will be reached with help of human

behavior models that allow computers to predict the motivations of users, defenders, and attackers.

The lead researcher from Carnegie Mellon, Lorrie Cranor, is an associate professor of computer science and engineering and public policy. Cranor became involved with this project through her previous work, which also dealt with human factors related to security and privacy. She was recruited for the project team by Patrick McDaniel, a professor of computer science and engineering at Penn State and the principal investigator on this project.

Cranor's main role is to lead the psychosocial team, which will be contributing to the project by investigating psychological and human factor issues. One of her teams developed techniques that allowed computers to distinguish between real and false cyberattacks, which may aid the performances of overwhelmed human analysts. Results from this research will enable future computing systems to take action derived from human decision making in response to attacks without physical human intervention. For example, a server observing unusual network traffic from an unknown entity might decide it is under attack

and filter that traffic.

Despite the project's seemingly technical nature, it requires a variety of expertise, most importantly that of people who understand risk, game theory, and human factor issues, according to Cranor. This is because an important approach to combating cyberattacks involves understanding the motivations and behaviors of attackers.

Cleotilde Gonzalez, an associate research professor of social and decision sciences and director of the Dynamic Decision Making Laboratory is responsible for many of the decision-making aspects of the project. Other Carnegie Mellon contributors include Lujo Bauer and Nicolas Christin, both assistant research professors of electrical and computer engineering and associated with the CyLab.

Finally, Cranor stresses the role of researchers who specialize in the social sciences. "One of the salient aspects of our proposed research is in the realization that humans are integral to maintaining cybersecurity and to breaches of security," Cranor said via email. "Their behavior and cognitive and psychological biases have to be integrated as much as any other component of the system that one is trying to secure."



Courtesy of Lorrie Cranor

Lorrie Cranor, center, leads the psychosocial team of a collaborative cybersecurity project. She is shown with Penn State professor Patrick McDaniel, front left, and the members of the Army Research Laboratory.

Students share tales of science and life at Story Collider

MICHAEL SETZER
SciTech Editor

On a chilly evening last Monday, Carnegie Mellon students, faculty, and staff and members of the Pittsburgh community huddled in the Rex Theatre in Pittsburgh’s South Side to listen to five individuals share personal stories about science. The event was co-hosted by Story Collider, a traveling podcast that records people’s stories about science, and Public Communication for Researchers (PCR), a group of graduate students at Carnegie Mellon that focuses on communicating science to the public.

The stories themselves came from five Carnegie Mellon students — four graduate students and one undergraduate — covering a range of emotions and describing trips to rural Pennsylvania, Rwanda, Italy, Massachusetts, and Pittsburgh.

Story Collider producer Erin Barker and co-founder/director Ben Lillie, who hosted the event, squelched any fears of a humdrum lecture. “There will be no learning tonight,” Barker exclaimed. “That is the Story Collider promise.”



Courtesy of Carmon Rinehart
Miranda Munoz shared her personal experiences with the brain.

Victor Hwang

Victor Hwang, a graduate student at Carnegie Mellon’s Robotics Institute, was a college senior when he began preparing for a job at the Jet Propulsion Laboratory in Pasadena, Calif., where had interned the previous summer.

According to Hwang, working at the JPL was an intense change from college life: “I went from playing video games for five hours a day in my underwear to working on a \$330 million spacecraft for my first job as a 22-year-old,” he said.

One of his assignments involved working on an extremely complex sequence of code for a spacecraft 20 million miles away. When it was finally time to implement the code, he went to the command room to “beam it up.” But after a countdown, the spacecraft failed to appear on his screen. After failing to initially determine the issue, Hwang began to panic. “I imagined a newspaper headline, ‘22-year-old blows up spacecraft, publicly shamed by Jean-Luc Picard.’”

Eventually, Hwang determined that his only error was in simple arithmetic; the spacecraft was late to show up on the screen, but with no damage or repercussions. After finally settling down, Hwang realized the benefits of having a high-stakes job. “If it gets my blood pumping, I can tell I’m doing the right thing.”

Miranda Munoz

Miranda Munoz, a sophomore biological sciences major — and the lone undergrad — was next to take the stage. When she was in the eighth grade, she woke up with a headache and received an initial diagnosis of vertigo; how-

father was in a wheelchair and had to relearn simple tasks such as signing his name and taking a few steps.

Ultimately, these experiences led to her passion for understanding the brain. “I’ve loved the brain and I’ve hated the brain. But greater than this, I’ve loved the challenges of unlocking its mysteries each day,” she said.

Avner Maiberg

Avner Maiberg, a graduate student in computer science, began his tale by introducing millennium problems — a group of mathematical problems that have never been solved — and as a new and excited graduate student, the idea of taking one on. A huge fan of *Jeopardy!*, Maiberg was excited to work with his adviser, who had helped build IBM’s Watson and was a “vanguard of the robot uprising,” but sad to leave his girlfriend. As school moved forward, his relationship slowly deteriorated. Eventually, via Google Hangout, Maiberg’s girlfriend broke it off.

His living situation didn’t help. Finding an apartment through Craigslist, Maiberg’s roommates included “a 17-year-old girl, a Pitt student, and two men who told us they were uncle and nephew that insisted on living in the attic.” One day, police broke in to their home “NYPD style,” looking for the nephew-uncle duo. Amid a broken relationship, a police break-in, and impending finals, an impromptu trip to see a friend in Cambridge, Mass. helped clear his mind.

“I felt like I had some sort of crazed epiphany,” he said. Thinking back on the impossible millennium problems, Maiberg stated, “We are deterministic machines ourselves.” By being pushed to the brink, Maiberg realized there “were not shortcuts” in life. He returned to Carnegie Mellon, performed well on his finals, and moved on with a new perspective.

Craig Lehocky

Craig Lehocky is a candidate in the joint Carnegie Mellon and University of Pittsburgh M.D./Ph.D. program. Lehocky’s father worked construction, and growing up in the Pittsburgh area, Lehocky spent summers removing asbestos and septic tanks. Eventually, he learned to “get the hell out [of construction] and go into science.”

One day while presenting data to his research group, Lehocky noticed “people giggling and smirking during his presentation.” He was later asked by a colleague, “Do you

always speak like that?” It was then that Lehocky began to realize that he “didn’t sound like the people he admired.” After that, he became self-conscious about his native Pittsburgh accent.

Lehocky planned to take a year off before continuing

versation with his potential adviser. Lehocky had concerns about the call: “On the one hand, we had an extensive conversation for two hours. On the other hand, I sounded like a complete jagoff.” He was accepted to Cambridge, boost-



Courtesy of Carmon Rinehart
Avner Maiberg shared his revelation that there are no shortcuts in life.

his education and applied to a fellowship at the University of Cambridge. Senior year, he decided to travel down south with a friend over Thanksgiving. On Thanksgiving morning — hung over from the previous night — he received a call from an unknown number. On the other end was “the most beautiful and eloquent English accent” he had ever heard. He then realized, “This is my professor, this is my interview, and the British do not observe Thanksgiving.”

In a state between being still drunk and not yet hungover, he had a two-hour con-

ing his confidence in himself, idiosyncrasies and all, but ended up not attending. He never did leave Pittsburgh (or the Pittsburgh accent, for that matter).

Michelle Ntampaka

The last story of the evening was told by Michelle Ntampaka, a Ph.D. student in the physics department. Ntampaka spoke about her tales in Rwanda, astrophysics, and (re)discovering the two loves of her life. Her story began in rural Pennsylvania, where Ntampaka remembers

a feeling of enchantment looking into the dark sky.

After graduating college, Ntampaka held a bachelor’s degree in physics and a sense of restlessness. She traveled abroad to work as a volunteer with her church. The expedition was led by her minister, known as Pastor Bruce, who had three rules: one, follow his leadership; two, don’t complain; and three, don’t get romantically involved.

The first two rules were no-brainers, and “the only person with a Y chromosome was Pastor Bruce,” so she didn’t think it would be a problem.

According to Ntampaka, upon landing in Rwanda she had been through two straight red-eye flights “and smelled like it.” But she suddenly stopped dead in her tracks at the Rwandan airport. “I saw the most handsome man I had ever seen,” she said. “From the neck up, he was National Geographic. From the neck down, he was Wall Street.” His name was Burton, he was the group’s guide, and Ntampaka had a feeling she was going to break one of Pastor Bruce’s rules.

During the trip, she and Burton spent time together, but Ntampaka remained obedient to Pastor Bruce’s no-relationship rule. Once the expedition was over, however, Ntampaka began regularly communicating with Burton on Skype, and even traveled to Rwanda twice.

During one conversation, Burton finally said, “Michelle, I think you need to marry me.” She agreed.

“I crammed my wedding dress into a Tupperware container, wrapped it in duct tape, and used it as my personal item for my last transatlantic flight as a single woman,” she told the audience. The duo married and moved back to America, both starting new chapters in their lives.



Courtesy of Carmon Rinehart
Michelle Ntampaka shared her story finding her love of stars — and the love of her life — in Africa.

SCITECH BRIEFS

Temperatures reach new high in eastern Arctic

Gifford Miller, a geological sciences professor at the University of Colorado Boulder, and his team have determined that average temperatures over the last century in the Eastern Canadian Arctic are higher than they have been any century in at least the past 44,000 years.

Miller and his team looked at dead moss samples from receding ice caps on Baffin Island. Radiocarbon dating determined that the mosses have been covered by ice for at least 44,000–51,000 years. Radiocarbon dating is only precise up to about 50,000 years, so it is possible that the moss had not been exposed to the elements since before the last glaciation stage, which was approximately 120,000 years ago.

Miller’s team predicts that all of the ice caps on Baffin Island will eventually melt.

Source: Science Daily

Carnivorous mouse aids research on pain signals

Researchers at Sam Houston State University in Huntsville, Texas have discovered that the southern grasshopper mouse, the only carnivorous mouse in North America, could help in the production of painkillers due to mutations that make the mouse resistant to pain.

Arizona bark scorpions are among the most poisonous scorpions in the world, but grasshopper mice are impervious to their poison. Normally, scorpion venom interacts with the Nav1.7 protein. Grasshopper mice, however, have mutated genes that encode a different protein, called Nav1.8, that blocks pain signals from reaching the brain. Researchers are looking into the special Nav1.8 protein in order to determine if it could help develop human painkillers.

Source: NewScientist

New focus on improving deep brain stimulation

The Federal Defense Advanced Research Projects Agency has declared that over the next five years they intend to invest over \$70 million in brain implants to improve existing technology and create new technology.

The new program — called Systems-Based Neurotechnology and Understanding for the Treatment of Neuropsychological Illnesses — is part of the Obama administration’s BRAIN Initiative. Current deep-brain stimulation can treat disorders, but cannot track its own effectiveness. Researchers involved with the program hope to develop deep-brain devices able to monitor symptoms themselves and treat situations appropriately.

Source: The New York Times

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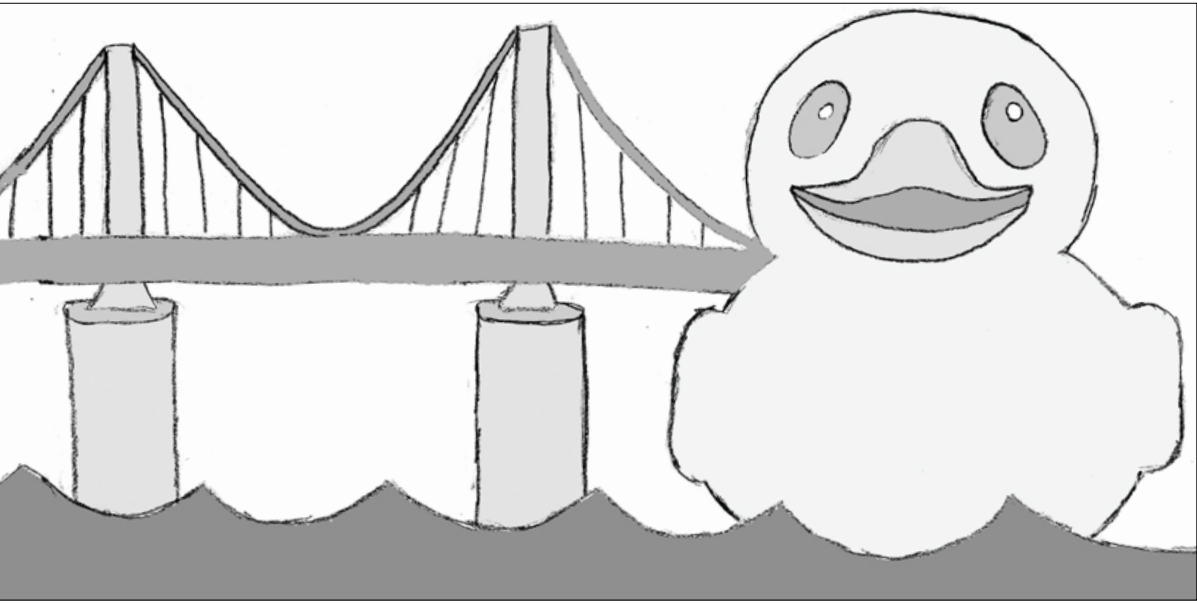
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Braden Kelner/Forum Editor

Spectacles like Rubber Duck reinvigorate city energy

After flooding the profile pictures of Pittsburgh’s Facebook users, the famed 40-foot rubber duck deflated on Oct. 20.

It was put in storage in South Side without much ceremony and with no concrete plans for future appearances. But in the three weeks that it made Pittsburgh its nest, the Rubber Duck Project was exactly what the city needed: a unifying object for people to rally around. The city can only benefit from creating more city-wide events and spectacles.

The duck’s popularity far exceeded the Pittsburgh Cultural Trust’s expectations. When applying for a permit to dock the duck, the Cultural Trust estimated about 200 visitors per day. More than one million people ended up making the trek to check out the duck, according to esti-

mates by local hotels and Point State Park. While about 95 percent were Pittsburgh-area residents, some came from all across the country, and even as far away as Canada.

The people of Pittsburgh need their sense of community to be reinforced periodically. Sure, there are the Steelers, colleges, the symphony, and other things that give Pittsburgh an identity, but many people settle in a city for good because of the spectacles, events, and culture that scream their names across the United States. Bigger cities like Chicago and Austin have larger land masses and expanses of city life, so their draws are built into their structure — but Pittsburgh can go from skyscraper to scrubland quickly. It needs spectacles to draw in a newer population.

Despite people leaving after the

collapse of the steel industry, Pittsburgh is still the 20th-largest city in America, according to the U.S. Census Bureau, and has been named “Most Livable City” by multiple publications. Still, many people see the city as the steel town it once was. Events and spectacles like the duck are helping to reinvent this image.

It’s a good thing the duck didn’t stick around much longer, though. The Pittsburgh Cultural Trust quit while it was ahead, despite the public’s calls to prolong the duck’s stay in Pittsburgh. If it had stayed more than a month, the duck would have gone from phenomenon to installation; having lost its initial appeal, it would have become boring and tired.

Now that the duck is gone, though, the city should start brainstorming its next big attraction.

Students should not sacrifice sleep for their grades

As startling as it may seem to Carnegie Mellon students, recent research proves that sleep is good.

Researchers at the University of Rochester discovered that, when a mammal sleeps, the process that the brain uses to remove accumulated natural toxic byproducts kicks into overdrive. Some toxins flushed from the system are responsible for plaque buildup found in the brains of people afflicted with Alzheimer’s disease.

The finding shows that the buildup of these byproducts causes most of the negative effects of lack of sleep. Grogginess, irritability, and trouble forming and accessing memories can be traced to this cleansing process. Even though the study reveals some

of the causes of sleep deprivation’s symptoms, a so-called cure — a pill or other necessary medication — is unlikely to develop in the near future since, during sleep, the neurons contract to facilitate cleaning. Medication would have to cause or mimic this function.

This new information helps underscore what we already know: Sleep is one of the most important parts of being a healthy individual. Pulling all-nighters may have ramifications for not only the next day, but for years to come. While the study also indicated that excessive sleep is not good, the dangers of sleep deprivation are even more pronounced.

At Carnegie Mellon, students are

not strangers to the phrase “sleep is for the weak,” especially as they push themselves to study harder and longer or squeeze in extra time for recreational activity. Unfortunately, this mindset often puts students’ grades before their health. Students ignore the fact that deteriorating health might lead to poor grades or worse.

If the ill effects of a lack of sleep don’t motivate students to get at least eight hours each night, the research also indicates that sleep helps people study. During sleep, the brain catalogs memories and makes sure that the most important ones are accessible. A good night’s sleep can be more effective than a night of cramming, and it’s certainly more appealing.

High school students must be taught basic finances

America’s youth is financially illiterate.

An April 2013 study conducted by EverFi, Inc., a technology company focused on educating children, revealed that more than 25 percent of 13–18-year-old high school students may not have the skills to manage basic personal finances upon graduation.

Unfortunately, many students graduate high school without knowing how to file their taxes, balance a check book, or properly manage a credit card.

According to the study, students believed that a good credit score was over 500, and one-third of respondents answered that a good credit score was 300 or less. More shockingly, 41 percent of students believed that they are either entitled to receive their paid taxes back after filing federal income tax returns, or that they simply do not need to pay income taxes at all.

It is critical that American high school students receive instruction

on basic personal finances, especially in a difficult economic climate, and following a recession caused in part by people accepting loans they could not afford or understand. High schools should implement a basic personal finances course, which would teach these skills to high school students.

There appears to be demand from students to receive this kind of instruction. According to the same EverFi, Inc. study, 83 percent of surveyed students believed that personal finance causes should be mandatory in schools.

A recent article published by PBS NewsHour suggests that teaching financial values to young children may be effective in combating the problem of financially illiterate students, detailing how parents should have their children earn and manage allowances. Additionally, children’s television programs such as Sesame Street are beginning to incorporate the value of saving and properly managing money into its education-

al content. Instilling these financial values at a young age forms critical building blocks for high school financial programs and other efforts to be successful. It is never too early to learn the value of financial responsibility.

Through Carnegie Mellon’s chapter of MoneyThink, a national organization devoted to teaching youth financial skills, university students are engaging high school students to educate them. The chapter mentors high schools students in an attempt to restore economic health in the community. The Carnegie Mellon MoneyThink chapter’s initiatives are an admirable first step to the goal of educating high school students to be financially literate.

All high school students must graduate with basic financial skills. High schools, as well as other community organizations, should make strides to ensure that students graduate with at least the ability to balance a personal checkbook and file taxes.

Marriage equality in N.J. deserves attention

Ariel Hoffmaier
Junior Staffwriter

New Jersey became the 14th state to recognize same-sex marriage on Oct. 21. Hundreds of couples, many of whom had been committed to each other for years, lined the streets outside of Newark’s city hall in the early hours of the day, eager to finally be granted equal benefits under both state and federal law. For these couples, certainly, it was a day of joy a long time coming.

Strangely, though, this latest victory has been met with comparatively little celebration by the larger community. Past legalizations have warranted parties and parades, not to mention a storm of coverage by the media. So why is the Garden State any different?

It cannot be said that New Jersey is an insignificant state, since its population is sizable — it is the third largest state to legalize same-sex marriage after New York and California. Also, the state has a strong conservative minority and even a popular Republican governor Chris Christie (R-N.J.), who is poised to lead the red ticket in 2016. Christie’s stubborn opposition to same-sex marriage, his attempts to appeal the state court decision to legalize same-sex marriage, and his eventual withdrawal of that appeal were packed with potential for news coverage. However, besides the predictable conservative dissent, this conflict has passed with minimal notice.

Even less recognized — and more important — is the fact that New Jersey is the first state to be pushed off the fence by the overturning of the Defense of Marriage Act (DOMA) earlier this year. Since 2006, New Jersey has offered civil unions — rather than marriage — to same-sex couples. The explanation for this choice has been that under New Jersey state law, civil unions and heterosexual marriages were virtually identical; as such, no one could claim that New Jersey was denying equal benefits to same-sex couples.

However, DOMA’s repeal invalidated this excuse. Several government agencies began to extend federal benefits to legally married same-sex couples, and consequent-

ly New Jersey marriages and civil unions were no longer equivalent. The court decision in New Jersey grew out of a promise to ensure all citizens equal protection by law.

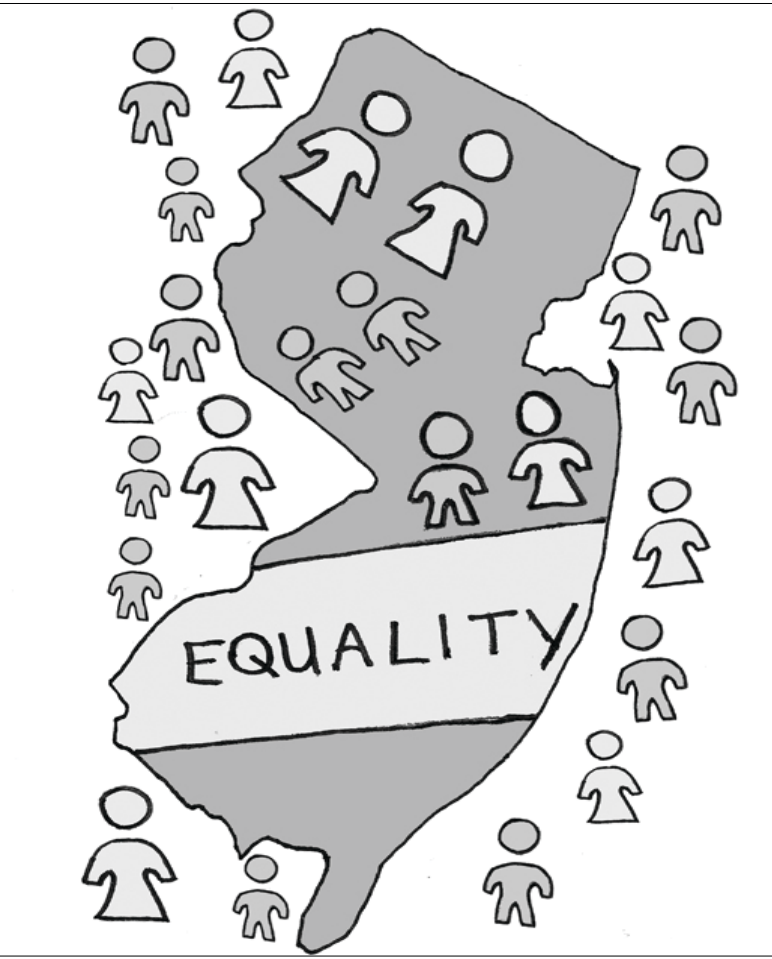
The legalization of same-sex marriage in New Jersey should have been a significant milestone, and not just because of the powerful influence that the repeal of DOMA had over it. New Jersey serves as an example that — beyond religion, politics, and prejudice — the battle for marriage equality should be defined by equal treatment under the law. Indeed, the war must be about equal treatment if we can ever hope to erode the iron chains guarding the same-sex marriage bans in some of America’s most stubbornly conservative states.

Then why is it that — even more than a week after New Jersey legalized same-sex marriage — equality within the state has received relatively little national attention?

The anomaly can be interpreted in two ways. First, the lack of sensation could be a sign that same-sex marriage is no longer a cause for sensation. Perhaps marriage equality is now becoming the new normal, and for the majority of Americans in support of it, New Jersey is just another state to check off on a domino chain that is bound to continue accelerating nationwide. There is undeniable optimism in this view. If Christie was able to somehow recognize that he was on the wrong side of history, might not other politicians start to realize the same?

It is the greatest hope of supporters everywhere that one day same-sex marriage — and LGBTQ equality in general — will be no cause for controversy. However, that day has not yet arrived.

A second, more realistic interpretation of the anomaly says that normality is dangerous if it leads to dormancy in the movement. This interpretation promises that it is more important now than ever to celebrate each victory at least as enthusiastically as the one before — keep a lookout for New Mexico and Hawaii in upcoming months. By moving forward without fail in an always growing wave of ardent support, we will eventually move opposition to the side of change.



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Healthcare site needed delayed launch



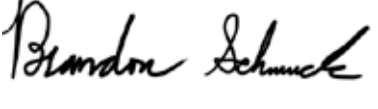
BRADEN KELNER

Since its launch on Oct. 1, the Affordable Care Act website, *healthcare.gov*, has been plagued with privacy and functionality issues. Users have found it frustrating or impossible to log in. Ben Simo, former president of the Association for Software Testing, found that the website sometimes sends sensitive information without encryption, and its email verification system can be bypassed, he said in an interview with *TIME* magazine. The contractors hired to build the website testified to the House Energy and Commerce Committee on Thursday that the Federal government did not give them enough time to test the site. It is important for citizens to have ample time to sign up for health insurance; under the Affordable Care Act, American citizens are required to be insured by the start of 2014. However, the Federal government should have allotted extra time and put forth more effort to work out these issues, even if it meant delaying the website’s launch. According to a Gallup poll con-

ducted Oct. 18–20, 50 percent of the general public disapproves of the Affordable Care Act while 45 percent approves of it. Meanwhile, a staggering 86 percent of Republicans disapprove of the act. With a relatively large amount of money being poured into the website from taxpayers, many of whom may not support the Affordable Care Act, the government should have been cautious not to roll out the website too quickly. The United States Government Accountability Office estimates that the Federal government spent \$394 million to set up the website and establish tools through which people can complete health insurance exchanges prior to the website’s launch. That’s a generous budget to create a website, especially for a law largely opposed by public opinion. With such a large budget, those responsible for the website’s launch have no excuse for its poor debut. The agencies contracted to the website were chosen to develop a convenient tool for U.S. citizens to use to purchase insurance at affordable rates. The Affordable Care Act is meant to be a groundbreaking move by the government, and the website is a key component, but the website is anything but groundbreaking. Surely those in charge of the website knew that staunch Republicans

and other critics would jump at the opportunity to discredit the Affordable Care Act given the chance. After all, they have opposed it vehemently since it was signed into law by President Barack Obama in 2010. With this knowledge, those charged with creating the website should have made it a high priority in the overall implementation of the act. Instead, they placed it on the back burner to be tested and supported inadequately. Rather than hire a technology company to oversee the project, they allowed the Center for Medicare and Medicaid services to act as the system integrator for the website. Now Jeffrey Zients, a White House official working on the website, claims that services will run smoothly for most Americans by the end of November. This lengthy repair time is a clear indication of the extent of the website’s launch flaws. Of course, the Obama administration would have still received backlash from skeptics if it delayed the launch of the website, but a delay may have been the administration’s best move. An administration that announces its reasons for delays is better than an administration that launches flawed products. Braden Kelner (bik@) is Forum editor for *The Tartan*.

Apple’s new method: Revolution by evolution



BRANDON SCHMUCK

Shareholders and critics alike have claimed that Apple has lost its innovative spirit since the death of Steve Jobs. However, based on this month’s product keynote — where many products, most notably the iPad Air, were revealed — these claims are anything but true. While Apple has failed to release a new product category since the iPad in 2010, it has done an excellent job at improving both the feel and user experience of its current products — the things that matter most to the user. Apple’s keynote opened with a short clip, featuring a question that Apple adheres to closely as it develops products: “What do we want people to feel?” The clip continued with the statement “design requires focus” on core emotions, such as “delight, surprise, love, [and] connection.” Throughout the keynote, Apple speakers like CEO Tim Cook made it clear that the statement made during the clip embodied all that the company represents. Those who prematurely predict the death of Apple are quick to point out that Apple has failed to revolutionize any category of consumer

as thin as a razor, yet as powerful as a full-scale desktop, into the hands of everyday people. The result of this discipline is the iPad Air. While the iPad Air will not revolutionize or create an entirely new industry like the original iPad, Apple continues to embrace the vision of perfection that Jobs and the team sought when they released the first iPad. By any means, Apple did not incorporate new technology that is out of this world into the iPad Air, but it put technology together in a way that has a similar effect. Apple stressed that the iPad Air is not given justice when people watch its informational videos, and that to get the complete experience, people must have it in their hands.

Apple has created a line of products with feeling — something that few other technology companies have the ability to do.

While the original iPad Mini did not have parts that broke industry standards, it had a different feel than any other handheld device. It felt as light as a feather, yet was more powerful than tablets many times its size — I expect the iPad Air experience to be similar. Apple has succeeded where so many tech companies have failed: connecting with users. Apple spent more time at its conference showing how the iPad has changed people’s lives through simplicity rather than describing every detail of its A7 processor. By all

Wearable devices raise privacy issues

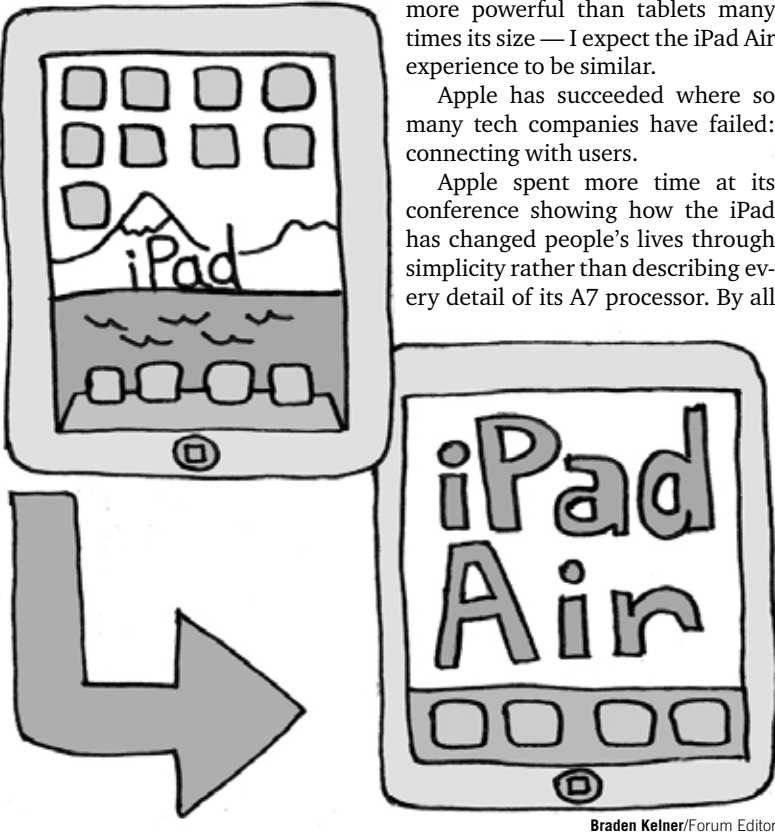


JUSTIN YAN

In Steven Spielberg’s *Minority Report*, technology in the year 2054 is everywhere. Every inch of glass is an LCD screen, watches have been replaced with sensors, and screens can be maneuvered by a flick of the wrist. In the movie, not only is technology on the body, but technology is a large part of a person’s self-definition. Although society has not reached this level of technological sophistication, we have breached the bubble of wearable technology. Google Glass, the Samsung Galaxy Gear smartwatch, and the Pebble smartwatch are the most prominent gadgets that belong to the first generation of wearable technologies. There are numerous perks that come with the integration of new technologies in our daily lives and movements. Cloud computing operator Rackspace found in a recent study that 82 percent of the Americans who have tried wearable technologies believe that the technologies would enhance their lives. There is one big downside: the many privacy issues that spring out of the widespread use of wearable technology. A person could cyberstalk someone across a café by looking up people who have checked into Starbucks recently. Facebook could then take a note that the stalker is looking at that person. Google could know what the stalker is looking at and where the stalker is going because the stalker is wearing Google Glass; yet the person across the café would not see a thing. Rackspace reports that 53 percent of Americans who don’t wear technology feel that wearable devices raise some sort of privacy issue. Only 8

percent said wearing Google Glass would be okay in any situation. The scary thing is, we can’t see anything that occurs on the other side of the computer chip. It’s easy to see if that person across the café took a picture, but it’s not so simple to see where that information is going. Google could be taking all of the data stored within a phone or web browser. And this blindness with which people have been using technology isn’t recent. Certainly, iPhones and Google Glass were not the initial steps into the unknown, where the data of consumers could be logged and categorized for various uses by technology firms. The everyday consumer has been blind for a long time. Blindness hasn’t exactly hurt consumers, but it has helped some technology giants fill buckets of revenue through the study of information. How do they use information to increase revenue? Google presents a prime example. Steven Levy of *Wired Magazine* wrote an article on Google’s system of advertisements, using the term “Googlenomics.” This term refers to Google’s algorithms that auction off advertisements for individual users based on previous searches. The advertisements become customized for users, which is useful for Google and users. Google gets a ton of money from advertisers while users get more relevant ads. Levy writes, “Selling ads doesn’t just generate profits, it also generates torrents of data about users’ tastes and habits, data that Google then sifts and processes in order to predict future consumer behavior ... and sell more ads.” The more traffic Google receives, the more data it analyzes and the more advertisements it displays. In a way, Google dehumanizes people by monetizing them. More than ever, data is up for grabs for technology companies. After the rise of Googlenomics in 2002,

Facebook became a huge social network that now connects billions of people. Facebook doesn’t really need an algorithm to sort through user information because the information is already available on each person’s profile. Facebook could do so much more than Google, and with the rise of wearable technology, Facebook could develop programs that literally shadow people in their daily lives. Google’s rather aged brand of revenue generation then points toward a concept that has gathered public attention relatively recently: big data, or data amounts so large that they cannot be processed simply. This is where the new concept of wearable technologies blends with the old concept of Googlenomics. Big data is made possible by the sheer volume of people using the Internet and the relative cheapness of hardware and software where people can store data. A recent article in *Foreign Affairs* magazine points to uses of big data, such as reducing the need for random sampling in statistics — sample sizes effectively become everyone who is plugged into a device. Big data is the child of technological advances, the rise of social networking, and general Internet use. Where does that leave us? For starters, the general idea of privacy has changed. We no longer live in a world where we can’t be part of the system. We can’t see who’s looking at our information because it’s not confined to our own devices. That information is in the cloud or other storage services; it is somewhere else — probably on one of Google’s many servers. It is up to us, the users and the used, whether the advantages of using wearable technology and big data outweigh the baggage that comes along. Justin Yan (jky@) is a staffwriter for *The Tartan*.



products lately. While the company has remained centralized on its main product line and has not strayed into uncharted device territories, critics cry that they want iWatches, iTelevisions, or anything that can somehow change their iLives. Despite its lack of recent innovation, Apple has taken part in a different method of change — revolution through evolution. Apple does this by taking an existing product, such as the iPad, and evolving it until it approaches the limit of perfection. The engineers and designers at Apple have been successful because they strive for perfection. They are not happy until they place a device

means, the A7 processor is a great feat of technology, but nonetheless, the user does not care. Users only care that the device flows from application to application, providing a simple, seamless, and powerful experience. Because Apple is increasing its aptitude of connecting with customers, the claims that the company has lost its innovative spirit are simply ludicrous. Apple has created a line of products with feeling — something that few other technology companies have the ability to do. Brandon Schmuck (bschmuck@) is a staffwriter for *The Tartan*.

A PERSON’S OPINION

Compiled by Justin McGown

The Tartan is figuring out it’s last-minute costumes. So we asked,
What is the best Halloween costume you have ever seen?



Laine Herron
Computer Science Senior

“Finn from *Adventure Time*.”



Nathalie Kent
Linguistics First-year

“*Alien abduction*.”



Andy Christman
Materials Science & Engineering Sophomore

“*Deviled eggs*.”



Christina Lee
Art Senior

“*Traffic cone*.”



Vikram Cherupally
ChemE First-year

“*Frankenstein*.”



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Sports

Volleyball team takes two of three at Wid Guisler Invitational

WILLIAM PARK
Sports Editor

With the University Athletic Association (UAA) Championships coming up on Nov. 8, the Wid Guisler Invitational presented a barometer check for the women’s volleyball team.

At the weekend tournament held at Juniata College, the Tartans won two of their three games.

Last Friday, they defeated DeSales University 3–1 and won Saturday’s 1 p.m. game against Johns Hopkins University 3–2. Their one loss over the weekend came when they played host school Juniata College, ranked No. 11 in the nation.

“I think they were definitely beatable, if we had played our best,” said first-year middle blocker Jackie Gibbons.

Gibbons said that the team made too many errors, while Juniata played a much cleaner game. “They’re a very good team, so it was still a good chance to play them,” she added.

The Tartans dropped the first two sets 19–25 and 15–25, before rebounding to take the third set 25–23. They were unable to carry their momentum into the fourth set, however, losing the decisive set 15–25.

Junior right-side hitter Ali Celentano and senior outside hitter Senna Parsa led the Tartan attack with 11 and 10 kills, respectively, against

Juniata. Senior defensive specialist and libero Ali Nichols led the team with 14 digs. Celentano also celebrated her 1,000th career kill over the weekend.

“It’s really exciting because she’s only a junior and she’ll have next year too,” Gibbons said. “She’s really smart about her hits. She sees an opportunity and she goes everywhere on the court.”

The Tartans hope that Celentano’s success will continue through important games, including the UAA Championships.

Over the next two weeks, the Tartans will focus on improving the finer details of their game.

“We need to improve our

passing a little bit,” Gibbons said. “We need to work on keeping a faster game because when we play at a faster pace, that’s when we do our best.”

Johns Hopkins (9–11) was successful in slowing down the pace and drew out the game to five sets, though the Tartans could have put them away earlier.

They have a chance to show their improvements before the UAA Championships this Wednesday at home against Mount Aloysius College at 7 p.m.

After the weekend tournament, the Tartans are now 21–8 for the season. Nichols and Celentano were also named to the all-tournament team.



File photo by **Jason Chen**/Staff Photographer

First-year Jackie Gibbons (background) finished the weekend with 17 kills, and sophomore Mary Stadelman (foreground) had 14.

Swimming and diving teams take first meet against Case

WILLIAM PARK
Sports Editor

Both the men’s and women’s swimming and diving teams opened their seasons with big wins against conference rival Case Western Reserve University.

“It was definitely the best first swim meet I’ve been in,” said junior Cole Um.

Of the 32 events held at home on Saturday, Carnegie Mellon finished first in 22. The men’s team won 178–108, while the women’s team won by an even greater margin with a final score of 191–101.

After finishing second in

the University Athletic Association (UAA) Conference last year, the men’s side looks to be bolstered by several first-years this season.

First-years Evan Li and Sivan Mehta teamed up with stalwarts Um and masters student Eddie Sears to win the 200-yard medley. Li also finished first in the 200-yard freestyle and 200-yard backstroke.

“Evan is really versatile. He can swim in a bunch of events,” Sears said. “That [versatility] was something we didn’t have the last couple of years.... To have a couple of guys you can put in anywhere really helps us out.”

Another first-year, Brian Walsh, found success in the butterfly, beating sophomore teammate Alexander Dintino by just 0.06 seconds in the 100-yard butterfly and finishing second in the 200-yard butterfly.

Dintino found better fortune later, finishing first in the 100-yard backstroke.

Sears and Um, the top performers of the past two seasons, started their seasons on strong notes. Sears finished first in the 50-yard freestyle, while Um finished second in both the 100-yard and 200-yard breaststrokes.

On the women’s side, first-

year Kimberly Klausing finished first in both the 1,000-yard and 500-yard freestyle.

“In general, [the first-years] really stepped up and performed their best,” said senior Soleil Phan.

First-year Lauren Zemerling finished first in the 50-yard freestyle and participated in Carnegie Mellon’s winning 200-yard medley relay team.

Carnegie Mellon’s top finisher in the 100-yard butterfly, Gillian Crews, also swam on the Tartans’ second place 200-yard medley team.

Phan, a standout on the women’s swimming team for the past three years, started

off her season strong, finishing second in the 200-yard butterfly and first in the 100-yard freestyle.

“I know that we’ve had a couple of illnesses so far, but overall, the whole team seems to be setting their pain aside and really focusing on what we want to accomplish this season,” Phan said.

The women’s diving squad also impressed. First-year Barclay Kaku finished first in the 1-meter diving board, totaling 226.80 points, while junior Winona Li finished second with 210.08 points.

In the 3-meter dive, Li finished first with 240.90 points

and Kaku second with 211.35 points.

For the men’s diving, sophomore Yannos Michailidis finished second in both the 1-meter and 3-meter dive.

With the addition of several impressive first-years, both the men’s and women’s swimming and diving teams look to make deep runs this season.

“Our culture of our team this year is amazing. We push each other every day, and that’s what makes us all get better,” Sears said.

Their next challenge comes this Saturday at home at 11 a.m. against Clarion University.



Top left: Masters student Eddie Sears finished first in the 50-yard freestyle. The men’s team won defeated Case Western Reserve University 178–108. **Bottom left:** Junior Cole Um placed second in both the 100-yard and 200-yard breaststrokes. Um and Sears also swam together in the 200-yard medley with first-years Evan Li and Sivan Mehta, finishing first. **Top right:** Sophomore Kira Singhaus finished first in the women’s 100-yard backstroke and second in the 200-yard backstroke. The women’s team won 191–101. **Bottom right:** Sophomore Winona Li finished first in the women’s 3-meter dive and second in the 1-meter. Both teams will hit the pool on Saturday at home against Clarion University.

Bat Boy Lives!

B4

Bat Boy: The Musical

Scotch'n'Soda's latest production
features blood and laughs • B4

Need Costume Ideas?

Assemble killer last-minute costumes
right out of your closet • B6

10.28.13 Volume 108, Issue 9



6

3 Ian Frazier lecture

New Yorker columnist and author Ian Frazier shares stories from his world travels.

4 Scotch'n'Soda

Scotch'n'Soda presents an enthusiastic production of *Bat Boy: The Musical*.

5 Album reviews

Reviews of Best Coast's *Fade Away* and Diplo's *Revolution*.

6 Costumes

Don't be the only one who's not dressed up this Halloween.



4



5

regulars...

...diversions

3 Advice

Help for all those scary situations like classroom love and missing roommates.

5 Dollar movie

Get your scare on with a few Halloween favorites from AB Films.

7 Comics

The comics this week will have you screaming — with laughter.

9 Puzzles

If you don't do this week's puzzles, the puzzles ghost will be very upset.

10 Horoscopes

Don't read this week's horoscopes alone... BOO!

11 Calendar

Beware...there's a lot going on this week.

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Frazier shares witty readings

The *New Yorker* columnist transports listeners to Siberia

When an evening with a writer begins with a short piece on the perils of campfire cooking and has the audience in stitches within minutes, it's sure to be a good lecture.

Author, humorist, and traveler Ian Frazier came to the Carnegie Lecture Hall in Oakland on Monday as a part of the Ten Literary Evenings series. As the name suggests, the series — funded in part by the Heinz Foundation — brings 10 prominent writers to lecture on their works and their worlds.

Frazier, a contributor to *The New Yorker*, has penned several books in addition to many years' worth of columns for the magazine. His most recent book is titled *The Cursing Mommy's Book of Days* and gives an unorthodox look at modern motherhood.

Despite being "technically on tour" for the book, Frazier declined to read aloud from it for the audience, charmingly saying the profanity was "too uncomfortable to read aloud." Instead, he read short excerpts from his essays, talked about his upbringing and travels, and lamented about parenthood.

Frazier grew up in Hudson, a small town in Ohio, where he says the eternal boredom of childhood in a

tiny American suburb was the best way to grow up. He poetically described the small town as a center of centrifugal force, spinning kids around the nucleus until they gained enough inspiration to spin off and do something great with their lives. He also talked extensively about his amorous relationship with — of all places — Siberia and how that love resulted in a book called *Travels in Siberia*.

Frazier's whimsical attitude and witty interjections provided the perfect occasion for his anecdotes about traveling in Russia. Calling Russia "the greatest horrible place in the world," Frazier described the differences between its society and ours, told stories of the people he met, and painted beautiful scenic pictures for the audience.

He described his attachment to the country, saying, "Everyone belongs to one country, but there's always another country that is yours. For me, it's Russia." Frazier will be returning to Siberia in a week — though he never expected to — to participate in a cultural conference.

Frazier wrapped up the evening by switching gears and focusing on parenthood, making a connection to the themes of *The Cursing Mommy*. He read a piece called "Laws Regarding Food and Drink; Household Principles: Lamentations of a Father," a parody on the Book of Lamentations found in Jewish and Christian scripture. The piece described the rules of the dinner table and general standards of kid behavior, and its cheeky yet exhausted tone was recognizable to anyone who had ever yelled at children or been yelled at themselves.

Hilarious and entertaining, Frazier's lecture made for an enjoyable evening. Though his stories had little rhyme or reason, the audience was no less engaged.

Laura Scherb | Personnel Manager

Author Ian Frazier is currently on tour for his most recent book, *The Cursing Mommy's Book of Days*, which describes parenthood in profane detail.

Advice for awkward people

About matchmaking and missing friends

Dear Matt & Ryan,

I'm an adjunct professor with an odd impulse to play matchmaker with two seniors. I'm pretty certain they don't know each other — so we are talking a blind set-up.

Is this urge to meddle trouble? Is this about them or me? Have I watched too many John Hughes movies? I'd like to stay within the perimeters of my teaching role, but I also have a really good feeling about these two kids...

**Yours Sincerely,
Senior-Helping Adviser,
Decides Couple Hopeful,
Arrangement Necessary**

Dear SHADCHAN,

The number-one thing to remember when playing matchmaker is to not back down. Teachers have something like a sixth sense for this. Meddling can be tricky, but if you feel your relationship with both of these students is friendly enough that they won't mind, and might even be excited at the opportunity, go for it. We're in college, and teacher-student relationships tend to be less constricted than in high school. And this is Carnegie Mellon, after all; sometimes an extra push at the right time is helpful. Go for it, and hope they go for it too.

**We don't think we'll be able to sleep if we don't feel this little talk has helped you. So would you be a sport and lie to us?
Ryan & Matt**

Dear Ryan & Matt,

My best friend, whom I am lucky enough to have as a roommate, recently broke his wrist. A couple kids made fun of him by giving him fruit and otherwise messing with him. Until recently, he had shrugged it off, but I woke up one morning and realized he wasn't at home! I never bothered to ask for his phone number since we live together, and spend all day, every day, doing the same thing, but if you or any of your readers know where Franklin is, could you send him home?

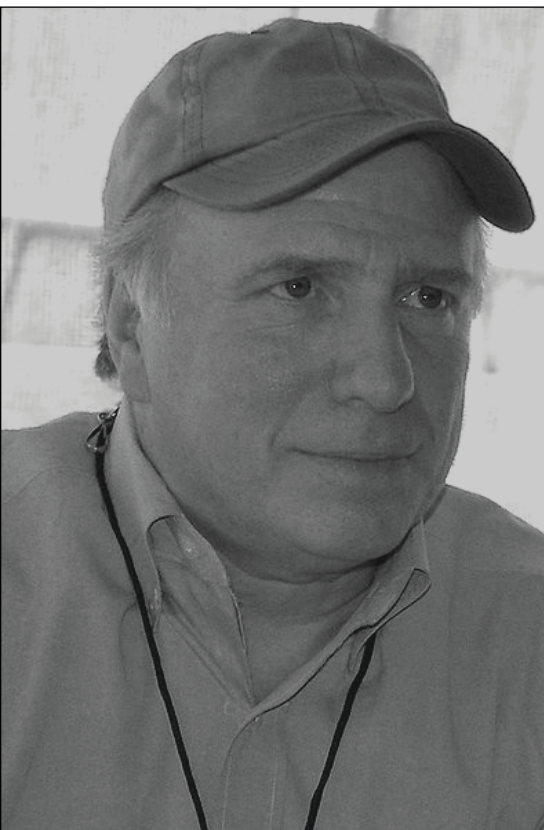
**Thanks,
Strongly a-Tizzy About
This Uncertain Experience**

Dear STATUE,

We here at Advice for Awkward People know the worry these circumstances can cause, but we can't file a missing persons report until 72 hours after the individual has gone missing. It's possible he just got tired of the living arrangement. Ask yourself if there was something in the roommate relationship that wasn't working out. Did you want to be close to campus, when Franklin wanted to live closer to the nightlife? Was there a big life decision in either or both of your lives? Many college students aren't ready for a marriage proposal.

**Don't fret,
Matt & Ryan**

Need advice? Send queries to advice@thetartan.org.



Courtesy of Wikimedia Commons

Scotch'n'Soda goes wild with *Bat Boy*

Student musical production is gruesome, bizarre, and endlessly entertaining

Bat Boy: The Musical can be summed up in one word: insane.

That's not to say it isn't a great musical. Scotch'n'Soda's newest production is insane in all the right ways. It's a show that combines death, twisted love, and existential suffering with a cheerful, dimple-on-the-cheek kind of humor. The dialogue is hilarious, the story dances in logical leaps, and the body count is high: Six characters and several animals are killed on stage by the end of the show.

Bat Boy is the story of the titular Bat Boy, a strange, deformed boy discovered in a West Virginian mine. Bat Boy is taken in by a veterinarian's wife, christened "Edgar," and taught to be a part of civilization. However, the town blames him for the deaths of several cows and hates him for his strageness and hideous appearance. Bat Boy longs for acceptance, but he has a dark secret he feels he cannot reconcile with the civilized world.

Though the premise for *Bat Boy* sounds absolutely ridiculous, Scotch'n'Soda does a fantastic job of giving it a sense of depth and realism. The student directors, senior psychology and decision science double major Corinne Rockoff and senior math major William Veer, left a note in the program: "In this production, we took the dark, heavy, and gory portions of the script and brought them to the forefront. What we hoped to achieve was a clearer and more poignant picture of the oppression and suppression of an outsider; accented, but not pervaded, by funny dialogue."

The musical has a penchant for taking a darker turn at the flip of a switch. A perfectly happy musical number could be in mid-swing when a Gothic timbre suddenly rolls in: The lighting turns a deep red, and all goes to hell. The audience is kept in intense anticipation, especially in the latter part of the show when the plot takes unexpected turns.

The cast members of *Bat Boy* are highly enthusiastic in their roles and bring out much of the show's humor and energy.

The lead performances were especially strong: Throughout the insane action of the story, they managed to ground their characters as real, sympathetic people. Senior decision science major John Oravec, who

The cast of Scotch'n'Soda's *Bat Boy: The Musical* sings to a horrified yet fascinated audience.

portrayed Bat Boy/Edgar, brings out the character's desperate suffering. Undeclared senior CFA student James Alexander excels in his role as Dr. Parker — a pathetic, unloved man who ultimately turns to villainy. Also stellar is sophomore vocal performance major Sophia Emanuel as Dr. Parker's wife, Meredith, who is very troubled as the only person trying to do the right thing in a cruel, unforgiving world.

As for the music, *Bat Boy* has a number of highly enjoyable songs. The musical makes distinctive use of electric guitar, which gives the show a darker edge. "Dance With Me Darling" is at first a soft, romantic tango that becomes more sinister as the song progresses. "Show You a Thing or Two" is a clever little song that serves as a bright and cheery segue into the darker portions of the show. "A Joyful Noise," a blast of gospel music, was one of the most energetic songs in the show and had the audience clapping to the rhythm. In "Children, Children," the pagan god Pan shows up to deliver a rowdy serenade on love and sensuality.

However, the show shines brightest at its most macabre. In "Apology to a Cow," Edgar, previously established as educated and well dressed, comes onto the scene with his chest and face smeared in blood, and eulogizes his lost humanity over a decapitated cow's head. It is raw, uncompromising, and unforgettable.

After the Saturday night show, many audience members gave highly positive reviews of the production.

"I think the directors' choices in casting were perfect,

especially James and Sophia," said senior chemical engineering major Deanna Bucci. Bucci also praised the excellent music direction of the production.

"The show was great. The special effects and blood were great. *Bat Boy* is very different from most musicals. I hadn't known about the show before and haven't seen anything like this ... but I really enjoyed it. I thought the performances for Bat Boy and Meredith were spot on," remarked senior economics and statistics major Emily Wright.

"There was a lot of social commentary. The Bat Boy was really great himself, and the mother. The music direction was particularly fantastic," said sophomore cognitive science major Sam Cheyette.

As for the message of *Bat Boy*, it focuses on the conflict between man's dual natures, human versus beast, and the difficulty of being a social outsider. The remaining social commentary plays second fiddle to the bizarre spectacle of the show. The first few bars of the introduction say there is a lesson to be learned, but what lesson is that exactly? Society is cruel? Love blinds? Don't raise cows on mountains?

The unclear message aside, *Bat Boy* is endlessly entertaining. It's a ridiculous story mixed with gruesome tragedy, which makes a perfect combination for Halloween.

Xiyu Wang | Staffwriter



Briana Williams | Junior Photographer



Short albums give musical food for thought

Best Coast steps outside the box, while Diplo produces uninspiring new release

When it comes to papers, English teachers like to say it's not the length, but the content, that matters.

The same can be said of a music album. Most artists sweat it out in the studio to produce a full-length LP of at least 10 songs, but sometimes they call it a day at five or six. While these shorter albums don't often make the same splash as the longer ones, they hold together just as well. Here are two recent examples.

Best Coast — *Fade Away*

Released last Monday, the latest mini-album by '50s and '60s surf rock-inspired alternative duo Best Coast shows a band that has grown tremendously in the three years since its debut album, *Crazy For You*. That being said, *Fade Away* is also hindered by songwriter Bethany Cosentino's tendency to fall back on old formulas and influences.

Fade Away contains Best Coast's most sophisticated and ambitious songwriting yet. Instead of the usual simple songs about unrequited boy love and unconditional affection for California, Cosentino is writing and singing from a much deeper and more bitter place. While Cosentino has definitely matured as a writer, she occasionally tries to make her old tricks work harder than they can. Most of the songs are around four minutes long, but because of her simple, poppy themes, not all Cosentino's songs can support the extended length. "Who Have I Become?" takes what could be a tight three minutes and extends it to nearly five.

For *Fade Away*, Best Coast found the comfortable middle ground between the lo-fi, fuzzy-pink feel of *Crazy For You* and the studio shine of the band's second album,

The Only Place. The production is atmospheric, opening up the songs and allowing them to breathe. This kind of studio trickery is best evidenced by "Baby I'm Crying," whose vocals float gently over soft acoustic and pedal-steel guitars.

The album's highlights occur at perfect blends of all the band's previous work. The closer, "I Don't Know How," begins as a slow, sad waltz before exploding into what can only be described as Stevie Nicks singing for the Ramones. Meanwhile, "This Lonely Morning" sounds like the mature older sister of the title track on *Crazy For You*.

Fade Away may have its missteps, but these missteps prove that Best Coast is finally stepping outside its comfort zone. Besides, there's no doubt that after a listen, the melodies will bounce around your head and slip out of your mouth all day long. If this album signifies anything, it's that we should all hotly anticipate what the band cooks up in the studio for next spring.

Diplo — *Revolution*

Superstar DJ and music producer Diplo is nothing if not a workaholic. This year alone he racked up a list of collaborations, remixes, and releases that would make the average performer feel like a couch potato. That being said, Diplo doesn't match this quantity with consistent quality. His latest solo EP, *Revolution*, seems it was released just to be released. Diplo put little thought and effort into the album's four songs; the last two are remixes of album tracks by outside producers TWRK and Boaz van de Beatz.

Right off the bat, it's clear that Diplo's recent fascination with booty hasn't waned. Album opener "Biggie Bounce" picks up where last year's "Express Yourself" and this year's "Bubble Butt" left off, with Travis Porter stringing together words that rhyme without much attention paid to coherent thoughts. While Diplo's work

usually matches this standard in terms of substance, he makes up for it with dynamite production. "Express Yourself" is a song about twerking, but has enough twists and turns to make up for it. On that track, Diplo clearly put time and effort into crafting something that sounded new and interesting. This time around, it seems he's perfectly content to put just enough into the song that it plays for three minutes and includes a command for all the ladies to bend over.

The big problem with the album is just how formulaic and forgettable much of it feels; the long list of collaborators seems to exist only to fill space. Mike Posner's vocals on "Crown" seem to only bide time until the mediocre drop. "Rock Steady" features rappers Action Bronson, Mr. MFN eXquire, and RiFF RAFF, and is the album's standout track for all the wrong reasons. Uninspired sirens and whistles blare over a beat that ferries its unskilled passengers over the song's three-and-a-half minutes. Why Diplo ever decided to sign RiFF RAFF to his label, Mad Decent, is beyond all comprehension. He must owe someone money.

While *Revolution* probably won't go down as Diplo's highest creative peak, the man shouldn't be written off. He is, after all, the mind behind the Clash-sampling "Paper Planes" by M.I.A, a nearly undisputed modern classic. Following the 2011 departure of DJ Switch, he is also now the main creative force behind Major Lazer, a project that has birthed great tunes such as "Pon de Floor" (later sampled by Beyonce for "Run the World (Girls)"), "Original Don," and the mellow "Get Free."

Diplo remains one of the most sought-after producers in music today, mainly because of his reputation for catching on to the next big thing. Let's just hope the next big thing he finds is a bit less gluteal.

Joey Peiser | Assistant Pillbox Editor

Andie Park | Staffwriter



The Conjuring

Thursday, Oct. 31 7, 9:30, 11:59
Friday, Nov. 1 11:59

For those who want an old-school scare on Halloween, *The Conjuring* is the perfect film, adept in style and suspense. The film works off the "true story" of real-life paranormal investigators Ed and Lorraine Warren (played by Carnegie Mellon alumnus Patrick Wilson and Vera Farmiga, respectively). One of the best horror movies in recent years, *The Conjuring* uses the playbook for traditional scares from classic horror films, but creates moments of fear that are entirely original. Fun fact: These investigators' famous hauntings were so horrific that they reportedly inspired *The Amityville Horror*. Now that's a scary Halloween story.

Scary Movie

Friday, Nov. 1 8, 10

While it's no *Paranormal Activity*, *Scary Movie* is the first of a hilarious horror comedy franchise that provides goofs and laughs during a spooky season. Starting out jokingly like most horror films, *Scary Movie* follows a group of dumb teenagers who clumsily try to escape a serial killer called Ghostface after receiving a threatening phone call. *Scary Movie* parodies the heck out of classic slasher films such as *Scream* and *I Know What You Did Last Summer*. Meanwhile, it is inventively funny and enjoyable for those who would rather just laugh and skip out on the scares this Halloween.

World War Z

Saturday, Nov. 2 7, 9:30, 11:59

You know what's a great combination? Brad Pitt playing a guy named Gerry — if you can believe it — and zombies. In this heart-stopping action film, Gerry is a retired UN officer recruited to save the world in the midst of a zombie apocalypse. Gerry must travel around the world to investigate the apocalypse's origins, and single-handedly find a cure. *World War Z* provides a fresh and thrilling rush of action and has enough brains to keep the momentum going throughout the globetrotting plot. Brad Pitt also looks especially good when saving a world of less-than-lovely-looking zombies.

Find last-minute Halloween inspiration

Dr. House, Bat-Fleck, and Walken to the Sky are among this year's costume possibilities

Digging through your closet for last-minute Halloween garb can be a daunting process. What kind of costume can you make out of totally mundane items? Check out this list for a few inventive, punny, and very last-minute ideas.

1. Dr. House

Dig through your closet and find your favorite graphic tee and blazer combination. Then grab a cane, an empty pill bottle, and some tic-tacs (using real Vicodin is not recommended). The key to this costume is to periodically consume the Tic Tacs and wager on other people's lives — or simply stand around and scowl severely.

2. Superman

This simple option just requires stenciling an "S" and finding your best impromptu cape. Underwear outside clothing is optional.

3. Little Red Riding Hood

For this quick costume, grab a red-hooded robe, black

clothing, and a basket full of cookies. A wolf mask begs the question, "Did the wolf eat Little Red? Or did Little Red kill the wolf?"

4. Bat-Fleck

You can be the hero Halloween deserves by donning a cowl and black cape as Batman. Embrace the newest portrayal of the Dark Knight by adding a dash of Boston pride to the mix.

5. Walken to the Sky

Combine one of Hollywood's most distinctive actors with campus's most unique art installation in one terrible, terrible pun. All you need is a blue shirt, cotton pads from Entropy+ to make your clouds, paper and markers for the sun, a picture of Christopher Walken from your printing queue, and some tape.

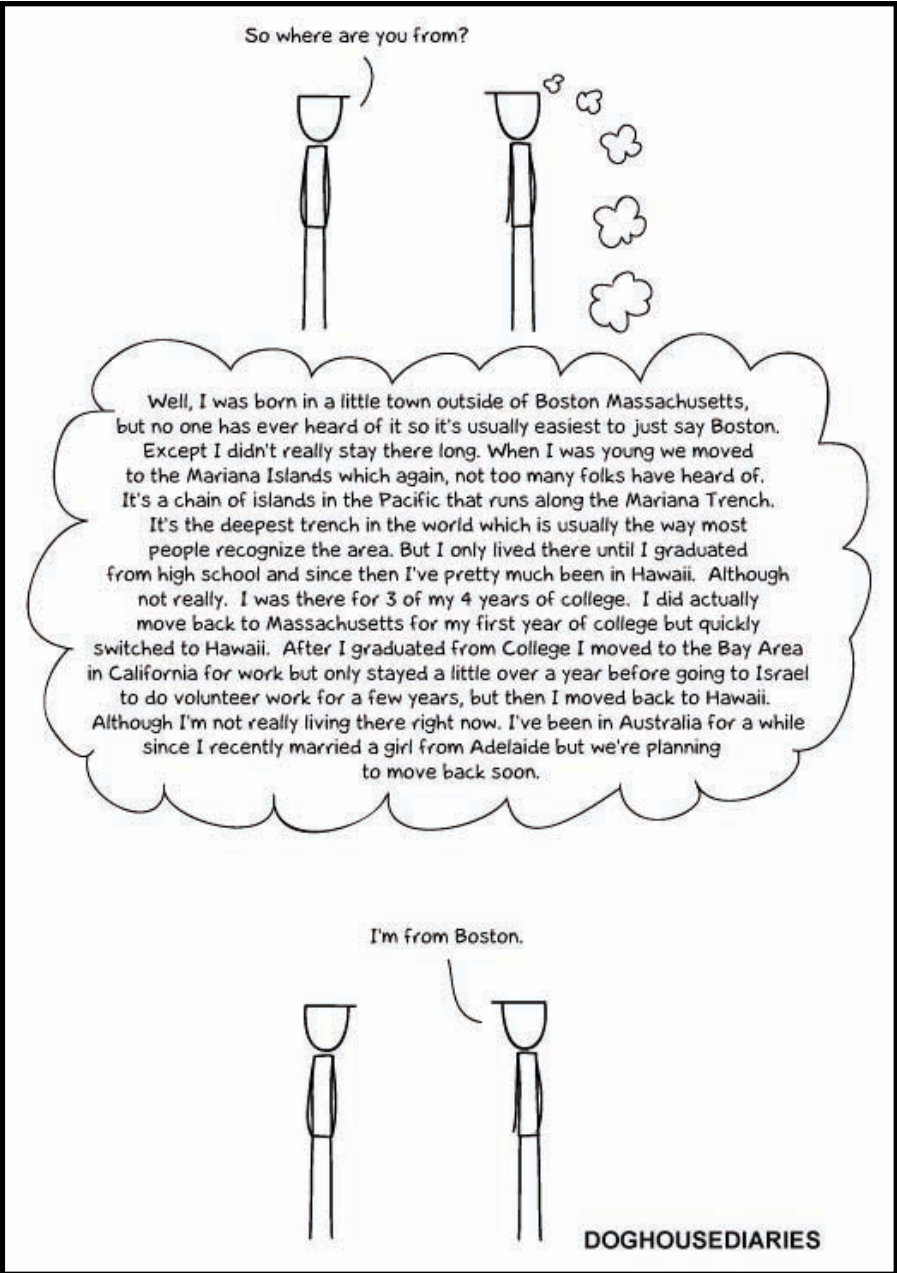
Brent Heard | Staffwriter



Kate Groschner | Photo Editor



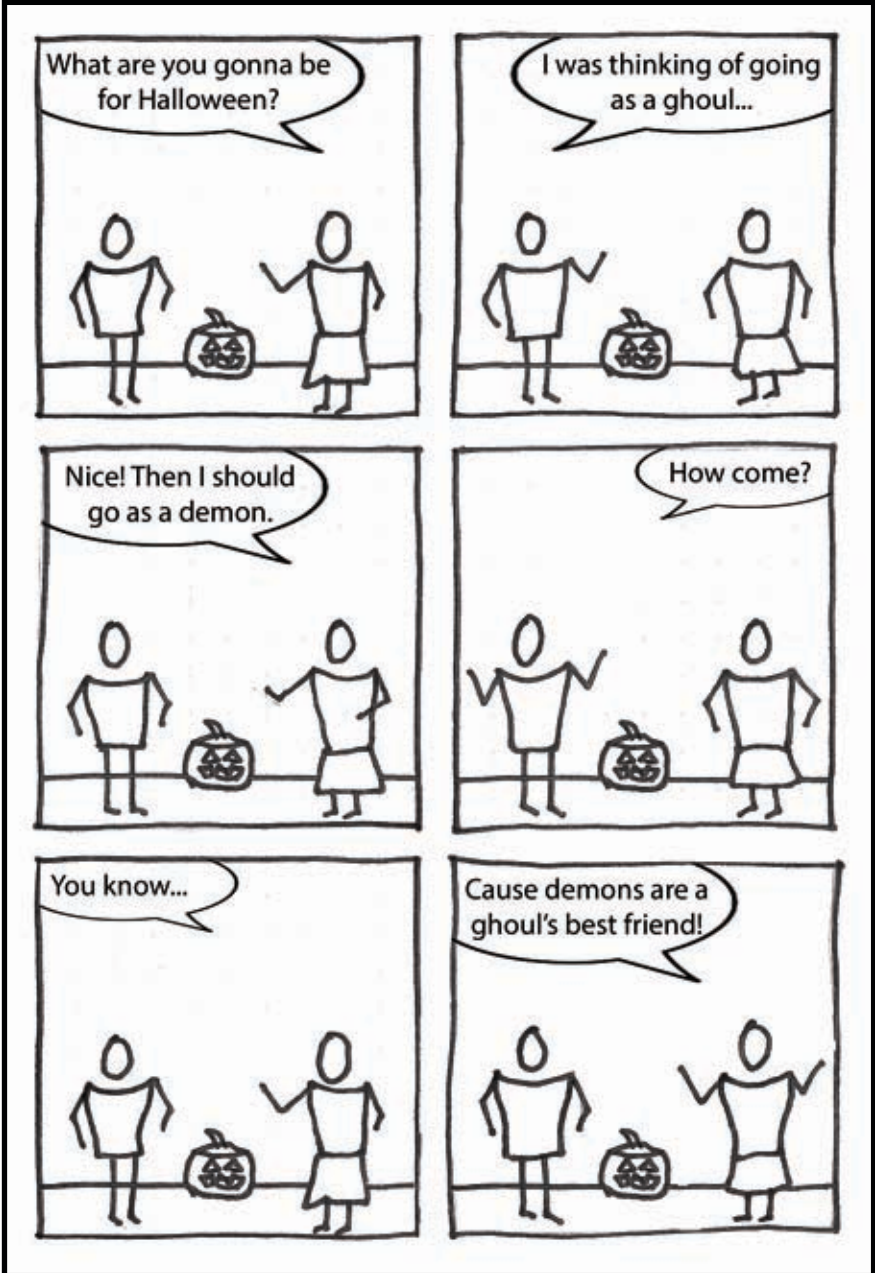
Where Are You From? by Doghouse Diaries



doghousediaries@gmail.com

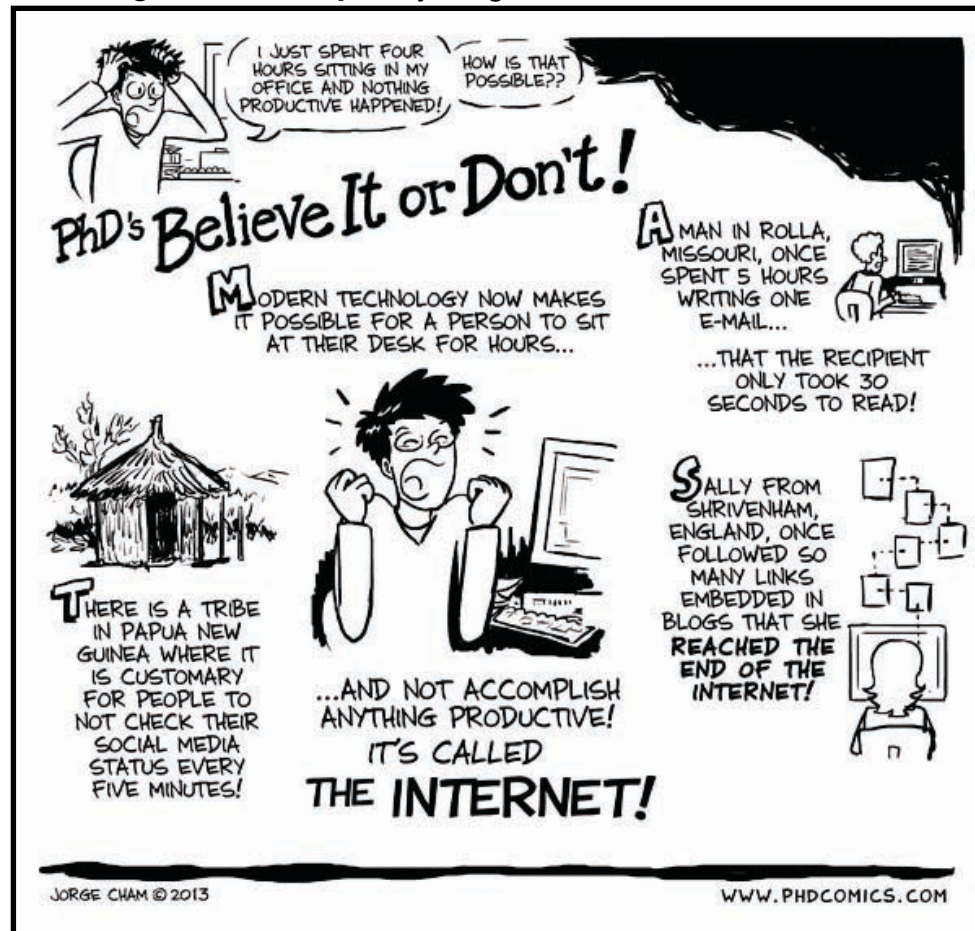
thedoghousediaries.com

Kiltie As Charged by Charlie Shulman and Kairavi Chahal



cshulman@andrew.cmu.edu

Piled Higher and Deeper by Jorge Cham



jorge@phdcomics.com

phdcomics.com

Hark, A Vagrant by Kate Beaton



kathrynmoira@gmail.com

harkavagrant.com

Horror-scopes

aries

march 21–april 19

You have been going through this semester like a zombie — it's time to snap out of it and start living again.

taurus

april 20–may 20

There may be a demonic presence in your life. Go see your local pastor for a speedy exorcism.

gemini

may 21–june 21

Stay away from deserted hotels and axes.

cancer

june 22–july 22

Nothing can quench your thirst except for the blood of your enemies.

leo

july 23–aug. 22

Don't forget to cover up your warts and hide your broom — people aren't as accepting of witches as they used to be.

virgo

aug. 23–sept. 22

Make sure your bandages aren't trailing behind you; someone might step on one.

libra

sept. 23–oct. 22

Remember to drink your wolfsbane potion or things might get out of control.

scorpio

oct. 23–nov. 21

Ogres are like onions — you leave 'em out in the sun, they get all brown, start sproutin' little white hairs...

sagittarius

nov. 22–dec. 21

Don't walk through the park alone or you might get chased by a headless ghost on a horse.

capricorn

dec. 22–jan. 19

You don't remember taking those pictures on your phone, but they seem familiar...

aquarius

jan. 20–feb. 18

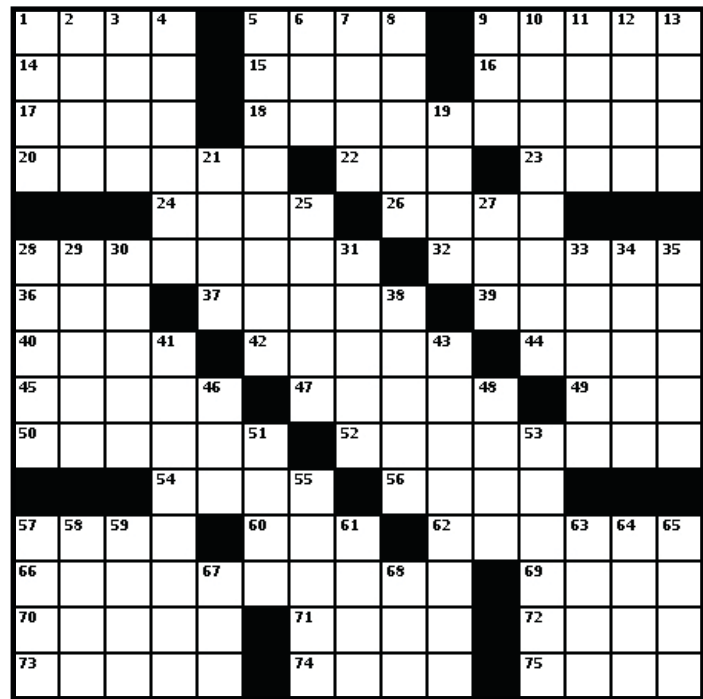
The mastermind behind the crime never gets his hands dirty.

pisces

feb. 19–march 20

Your friends may seem to be ghosts, but what if you're the ghost?

Kairavi Chahal | Comics Editor



Crossword courtesy of *BestCrosswords.com*

ACROSS

- Thick slice
- ___ about (approximately)
- Grassy plain
- Porous limestone
- Cause of ruin
- Former Houston footballer
- Baseball family name
- Composer who writes symphonies
- Babble
- Extra-wide shoe size
- Skedaddles
- Catalog
- Like some excuses
- Used in courts of law
- Seldom
- Poetically ajar
- Mortise insert
- Home movie medium
- RR stops
- Postpone
- "Return of the Jedi" critter
- Located
- Gillette razors
- Having four sharps
- Former French colony of North America
- Lookout
- Annapolis inst.
- Pelt
- Ship stabilizer
- Tango need
- Builds
- Capable of being negotiated
- Chimney residue
- Bicker
- It's over your head
- Hook's helper
- Fowl pole
- Hard to hold
- Compass direction

DOWN

- Wild guess
- Corker
- Get an ___ effort
- Trinket
- Preoccupied with
- Negative vote
- Treater's words
- Drive away
- Elton's john
- Underwear
- Et ____ (and other men)
- Resting place
- Scraps
- Get wind of
- Bits of thread
- Fungal infection
- Dallas player, briefly
- Anatomical cavity
- Eye-related
- Gauche's rope
- Young male horses
- Newsman Newman
- Sierra ____
- Country bumpkin
- Nostrils
- Persevering
- Cause to abandon the Mets
- Put down, in slang
- Agitate
- Opposed
- Actually existing
- Alert
- Knot in wood
- Architect Saarinen
- Breakfast brand
- It's blown among the reeds
- Prolonged unconsciousness
- Some digits
- Keep it, to an editor
- Vietnamese New Year
- Chat room chuckle



MONDAY 10.28.13

Lecture: Food and Justice for All. Porter Hall 100. 4:30 p.m.

LaDonna Redmond, food justice activist and founder of the Campaign for Food Justice Now, will speak as part of the Carnegie Mellon Distinguished Lecture Series in Environmental Science, Technology, and Policy.

School of Architecture Lecture Series.

Kresge Theatre. 6:30 p.m.

The School of Architecture presents Vishaan Chakrabarti, a partner at major international architecture and urban development firm SHoP Architects. Chakrabarti also teaches urban real estate at Columbia University and directs the Center for Urban Real Estate.

TUESDAY 10.29.13

Heinz Negotiation Academy for Women Public Preview. Posner Hall 322, 324. 8 a.m.

Program leaders will preview the Heinz Negotiation Academy for Women, a semester-long program to teach rising women leaders critical negotiation skills.

Stephen Catanzarite and Night of the Living Dead — The Opera. Baker Hall 260. 4:30 p.m.

Carnegie Mellon creative writing graduate Stephen Catanzarite (DC '90) will discuss good writing in connection with *Night of the Living Dead — The Opera*, which will premiere this weekend at Pittsburgh's Kelly Strayhorn Theater. Catanzarite wrote the libretto, and the production involves many other Carnegie Mellon graduates.

WEDNESDAY 10.30.13

CAS Lecture: Performance Art and Censorship.

Porter Hall 100. 4:30 p.m.

Lisa Freeman, associate professor of English at the University of Illinois at Chicago, will give a talk entitled "Adjudicating Bodies in Public in *NEA v. Finley*," detailing a 1990 controversy concerning four performance artists

whose National Endowment for the Arts (NEA) grants were revoked.

Lucius feat. Alpenglow. The Underground. 4 p.m.

The Brooklyn-based indie-pop quintet will perform in the Underground. Named a band to watch by *Rolling Stone* magazine, Lucius has appeared at South by Southwest and the Three Rivers Festival in Pittsburgh. The group's most recent album, *Wildewoman*, was released on Oct. 15.

FRIDAY 11.1.13

The Chalk Line. Attack Theatre! (2425 Liberty Ave.). 8 p.m.

This performance event sponsored by the Arts Pass Program merges chalk with dance and tests the boundaries between audience and performer. For tickets and more information, visit attacktheatre.com. The event will also take place Saturday at 8 p.m.

SATURDAY 11.2.13

First Annual Hip-Hop Night. UC Kirr Commons. 9 p.m. Student rappers Mars Johnson, Kai Roberts, DCEption, and Chris Mitchell, and beatboxers Mihir Yerande, Luigi Connatti, Tim Brooks, and Ethan Crystal will perform as part of this Late Night event. The night will also feature student DJs, graffiti artists, and student dance group Soulstylz.

ONGOING

14th International Exhibition of Botanical Art & Illustration. Hunt Institute for Botanical Documentation (Hunt Library, Fifth Floor).

Through Dec. 19.

The exhibition will include 41 pieces of artwork by 41 artists from 10 countries. The Institute established the International series in 1964 with the hope of supporting and encouraging contemporary botanical artists. Every three years, the International series features the works of talented botanical artists from around the world.

Yasumasa Morimura: Theater of the Self. The Andy Warhol Museum. Through Jan. 12.

In this retrospective exhibit presented by the Andy Warhol Museum, Japanese artist Yasumasa Morimura plays with images of well-known cultural icons, placing his own face over portraits of figures like Marilyn Monroe and Mao Zedong. For more information, visit warhol.org.

Alien She. Miller Gallery (Purnell Center for the Arts). Through Feb. 16.

This exhibit examines the influence of Riot Grrrl, an underground feminist punk rock movement that surfaced in the '90s, on artists and cultural producers today. For more information, visit millergallery.cfa.cmu.edu.

Compiled by **Rachel Cohen** | Pillbox Editor

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concert.



Jason Chen | Staff Photographer

AB Coffeehouse presented its annual Halloween show with English electronic music duo Mount Kimbie on Friday in Rangos Hall. Also featured were members of Pittsburgh music collective DETOUR, DJs Gusto and Naeem. The show was open to the public and free for Carnegie Mellon students and faculty.

