

# JFC budget not ratified in joint session

**LAURA SCHERB**  
*Publisher*  
**BRADEN KELNER**  
*Contributing Editor*

On Thursday, the Undergraduate Student Senate and the Graduate Student Assembly (GSA) met for about four hours with intentions to ratify next year's student organization joint funding committee (JFC) budgets. A contentious issue was the over-allocation of the JFC budget, which funds student organizations, by nearly \$100,000. While the GSA voted overwhelmingly to pass the budget, Senate did not approve it, meaning that the 2016 fiscal year budget remains currently unapproved.

**How does the JFC project the funds they will be able to allocate?**

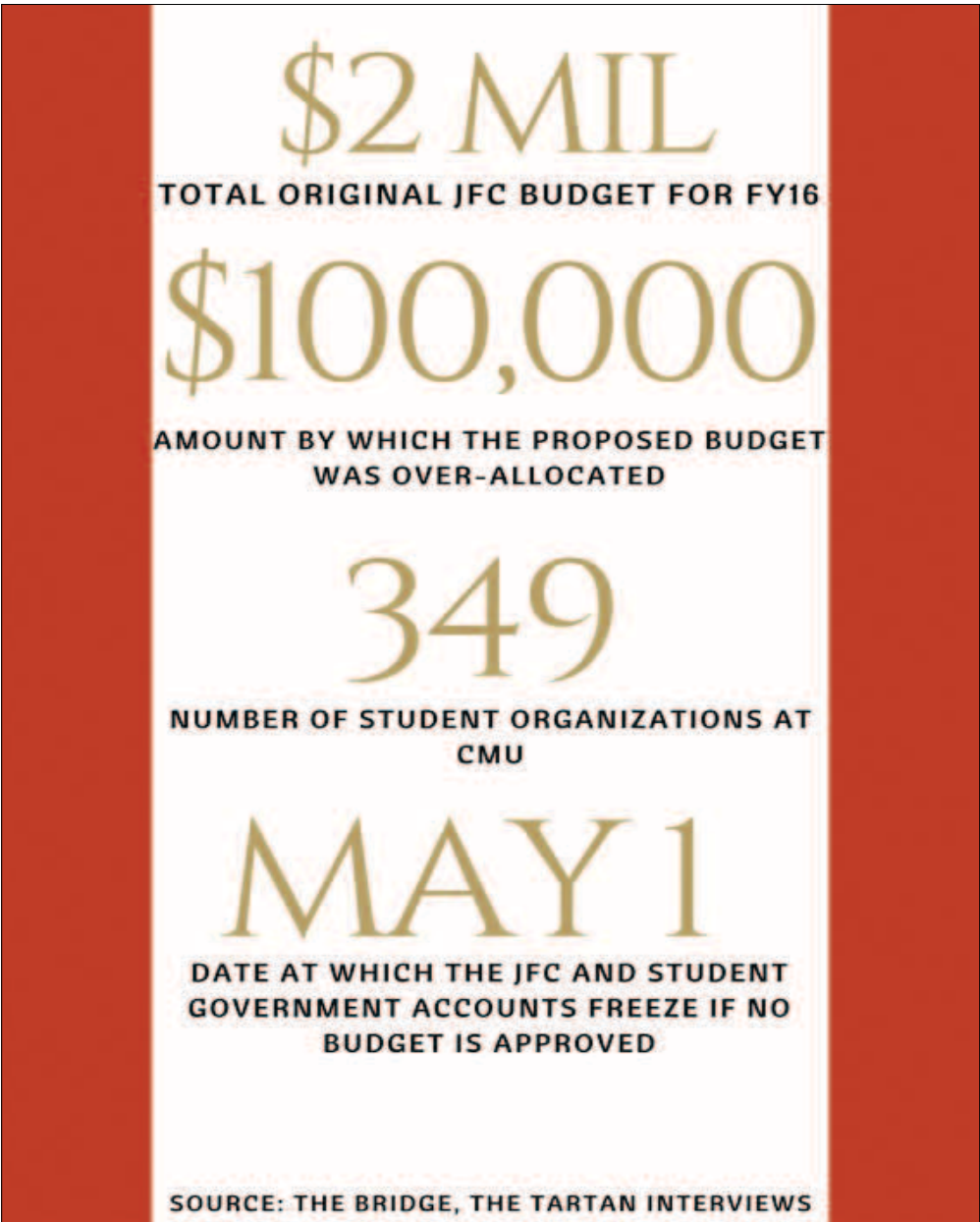
In February of each year, the student activities staff makes projections for anticipated funding for the next fiscal year.

According to Director of Student Activities Elizabeth Vaughan, this projection is based on three things: the rate of change in enrollment for both undergraduates and graduate students, the activities fee for the following year, and the projected number of dollars coming into the activities fee accounts.

"We then use that number to tell the JFC how much we anticipate them being able to allocate.... Those projections guide the JFC in how they're dividing up the money," Vaughan said.

At that point, the JFC and the student body vice president for finance (SBVPF) must determine whether or not they want the final budget to hold to that number or if they are comfortable with over-allocating funds.

According to Vaughan, there is a history of student government approving some amount of over-allocation in



Laura Scherb/Publisher via Canva

anticipation of unused money returning to them at the end of the year.

This money is returned to the JFC in June, after the final financial reports are run for the fiscal year.

"We go through the roll-over and debt forgiveness process to see where their student organization account has landed," Vaughan said. "For the vast majority of organizations, there's a small surplus in their account and, essentially, all of these [organizations'] accounts are put together and it helps us to get a sense of where all of the

accounts end up."

There is typically a surplus, which goes into a holding account, and that money is allocated in the next fiscal year's JFC process.

According to Divya Kothandapani, the current SBVPF and junior electrical and computer engineering major, the amount of rollover money collected in fiscal year (FY) 2014 to distribute in FY'16 is \$73,228.

In FY'13, \$95,783 in roll-over was collected. That amount, according to Kothandapani, was distributed in FY'15.

**What happened in this year's budgeting process?**

This year, at the joint ratification session during which Senate and the GSA vote on the budgets, Senate did not approve the FY'16 budgets for a number of reasons.

"This year, there was a large contingent of Senate that was not confident in the budget and didn't want it to be approved, so they voted it down," Vaughan said. "The senators and JFC reps that were there voiced a variety of

See **FUNDING**, A3

# Secretary of Transportation highlights tech



Courtesy of Wikimedia Commons

United States Secretary of Transportation Anthony Foxx spoke last Thursday at the National Robotics and Engineering Center.

**BRIAN WALSH**  
*News Editor*

With the Secretary of Transportation Anthony Foxx coming to a school like Carnegie Mellon — a school with huge ties to robotics and technology — it was not far-fetched to think that he would talk about autonomous vehicles. He joined students at the university's National Robotics and Engineering Center (NREC) in Lawrenceville last Thursday for a round table.

Self-driving vehicles could be a solution to many of the problems that plague U.S. streets if the dreams that engineers have for the cars can be realized, Foxx said. "I'm trying to get a good read on whether the driverless car is going to benefit us. One of the reasons [the Department of Transportation] takes a neutral stance on driverless cars is because we don't know whether driverless cars or vehicle-to-vehicle communications are viable in the future."

Foxx is in a unique position as Secretary of Transportation for the coming years. "We look at these new technologies that are rising in recent years, and we have to ask certain questions: 'Is it really saving a trip?'" Foxx said. He asked whether, with current technology, autonomous vehicles could increase safety, ease congestion, decrease pollution, and provide other benefits.

Furthermore, he discussed how drones have been a case in which congestion, pollution, and other factors may not be improving from this technological intervention. "Obviously corporations like Amazon are chomping at the bit to make commercial use of [drones]. The technology is there, but the safety isn't," Foxx said.

These products — autonomous aerial vehicles — aren't necessarily beneficial for the issues of congestion, pollution, and safety, he added. "The reality is we have the most complex airspace in the world."

Foxx also addressed safety and the Mayor's Challenge, a program that he implemented during his current tenure as Secretary, aimed at improving safety for pedestrians and bikers. He was inspired to create this program when he was mayor of Charlotte, North Carolina. The Department of Transportation states

about the program, "Secretary Foxx is challenging mayors and local elected officials to take significant action to improve safety for bicyclists and pedestrians of all ages and abilities over the next year."

This hits particularly close to home for the Secretary, as a young family was hit while walking in the street during his time as mayor of Charlotte, an issue that could have been resolved with a proper sidewalk.

Foxx recently fought on Capitol Hill for an increased transportation budget. "What was really a win this year was the budget from the Senate," Foxx said.

The Department has \$70 billion of capital to spend, according to the Department's website. Some of money goes to projects like Carnegie Mellon's driverless Chevrolet SUV, which Foxx gave a speech next to, making a quip that the university probably didn't let him drive it because he would have "driven the vehicle out of the robotics center and on to the road, and wouldn't have stopped."

The majority of transportation funding, though, goes to solving issues of road safety, airspace safety, and infrastructure management like roads, railroads, and airports. The United States remains the most dangerous nation for drivers in the G7. The U.S. saw 10.3 drivers out of 100,000 die in 2013, according to the Insurance Institute for Highway Safety.

The G7's second most deadly nation in terms of traffic was Italy, with a reported 6.2 deaths per 100,000 drivers, just more than half of the United States statistic, according to the World Health Organization. Foxx addressed this issue, saying that the nation's current infrastructural system relies on a state-by-state transportation management system. He said that different transportation groups have blurred responsibility. This system means that there is no federally controlled highway service, making mandates harder for the country's transportation department to enact.

NREC Facilities Coordinator James Montgomery talked about the Secret Service and their interaction with the facilities for Foxx's visit. "Sure

See **TRANSPORTATION**, A3

# President Suresh reflects on tenure



Abhinav Gautam/Photo Editor

Last week, University President Subra Suresh hosted events to give an annual update to university members.

**BRIAN TRIMBOLI**  
*Editor-in-Chief*

University President Subra Suresh summarized the many initiatives born of the first two years of his presidency during his first annual update to the Carnegie Mellon community last Wednesday. Cohon University Center's McConomy

Auditorium was filled almost to capacity with students, faculty, and staff for the event. Vice Provost for Education and Professor of Biological Sciences Amy Burkert introduced Suresh, and reminded audience members before the talk began that it was a closed event meant only for members of the Carnegie Mellon

community.

Suresh marks the end of his second year as Carnegie Mellon's president with the update, hoping for it to become a yearly event. "This is the beginning of an annual event," Suresh said, "where near the end of the academic year I give an update about what happened during the

year and what our challenges are, and what we as a community have done together and what we still have to do in the following year."

Suresh hopes to present to the university during the fall semester as well, allowing community members to ask him questions rather than presenting an update, as he did last week.

Suresh emphasized recruiting talent to Carnegie Mellon while keeping a strong focus on diversity. "For a university like Carnegie Mellon to be a global leader — in research, in education, in artistic theater, in innovation — we have to be able to attract the best and the brightest students from around the world in an increasingly competitive environment for resources of talent," he said.

A diverse community, Suresh said, creates a more innovative university culture. "When we have very different people looking at the same issue from very different vantage points through very different life experiences and through different lenses, they can address the same problem in slightly different ways."

Suresh also mentioned two university initiatives announced last week, including further expansion along Forbes Avenue near Craig Street, and two new endowed

See **PRESIDENT**, A3



FEATURE PHOTO

# Students honor Holocaust victims



Students and faculty named victims of the Holocaust in honor of Carnegie Mellon’s remembrance day on the Cut Tuesday.

Abhinav Gautan/Photo Editor

## Campus Crime & Incident Reports

### Disorderly Conduct/ Public Drunkenness

April 19, 2015

University Police responded to Skibo Café after receiving reports of an intoxicated male. Upon arrival, University Police found the intoxicated man in the basement of the Cohon University Center, where he became verbally combative with police officers. The man was arrested and taken to the Allegheny County Public Jail for disorderly conduct and public drunkenness.

### Underage Drinking

April 19, 2015

A Carnegie Mellon security officer on patrol saw a woman vomiting outside of a house on Roselawn Terrace and requested University Police. The woman, a University of

Pittsburgh student, was given medical aid and cited for underage drinking.

### Harassment/Property Damage

April 19, 2015

University Police were requested to respond to an incident that took place in Fairfax Apartments. Police responded and determined that four Carnegie Mellon students were involved in an incident involving harassment and property damage. The victims are not pursuing criminal charges and this incident is being handled with Carnegie Mellon’s internal disciplinary process.

### Underage Drinking

April 19, 2015

University Police responded to Margaret Morrison Carnegie Hall in response to an intoxicated female. The woman was given medical aid and cited for underage drinking.

### Suspicious Person/ Defiant Trespass

April 20, 2015

University Police responded to the first floor of Posner Hall after receiving a report of a suspicious male who had been following a female Carnegie Mellon student. The man was escorted off campus and issued a defiant trespass letter, preventing him from returning to any Carnegie Mellon owned or leased property.

### Attempted Theft/ Disorderly Conduct

April 22, 2015

A Carnegie Mellon Parking and Transportation employee contacted University Police to report the attempted theft of a sign in the East Campus Garage. University Police arrived and determined the perpetrator was a Carnegie Mellon student, who had since fled the scene. The student was cited internally for disorderly conduct and failure to comply with the reasonable request of a university official.

Compiled by  
BRIAN TRIMBOLI

## NEWS IN BRIEF

### Alan Alda to speak at commencement

On Thursday, a campus-wide email was sent announcing that this year’s speaker for the 118th Carnegie Mellon commencement ceremony will be Alan Alda. Alda, known best for his roles in *M\*A\*S\*H* and *The West Wing*, has also hosted a variety of science-based television shows on both the BBC and PBS networks. According to the email, Alda’s “passion for the arts, science and technology embodies Carnegie Mellon’s

distinctive interdisciplinary spirit.” The email also announced that senior physics major Brooke Kuei would be the student speaker, and that honorary degrees would be given out to Joyce Kozloff (A ’64), Kai-Fu Lee (CS ’88), Judea Pearl, Stephen Schwartz (A ’68), and Carl Wieman. Commencement is on May 17. *Editor’s note: Brooke Kuei is a contributing editor for The Tartan*

### Carnegie Corporation names 32 Fellows

On Wednesday, Alessandro Acquisti, professor of information technology and public policy at the Heinz College, was selected to be one of the 32 of the inaugural class of Andrew Carnegie Fellows. The Fellows program, run by the Carnegie Corporation of New York, received over 300 nominations. The Fellowship program will distribute over \$6.4 million to the 32 recipients so that they can dedicate time to a specific research plan. Acquisti’s research will deal with “the impact of the data economy on

societal welfare and the distribution of wealth, focusing on how the erosion of privacy and the rise of “big data” may affect economic growth, equality and discrimination,” according to a university press release. “The expanding collection, analysis, and use of large amounts of individuals’ data will likely bring about both positive and negative consequences for different stakeholders, and my research will explore those impacts. I thank the Carnegie Corporation for this wonderful honor,” Acquisti said in the press release.






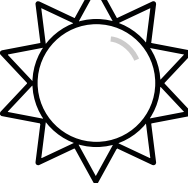
### Computer program challenges poker pros

Claudico, a special computer program designed by Carnegie Mellon students and faculty, is playing four international poker stars in a two-week no limits Texas hold ’em tournament that started on Friday. At Three Rivers Casino, the five will battle it out over the course of 13 games to prove if computers can win over the human poker champions: Doug Polk, Dong Kim, Bjorn Li, and Jason Les. Previously, another computer program, Tartinco7, won a heads up Texas hold ’em tournament, but the poker

and tech worlds are watching with anticipation to see if this more complicated game stumps the computer. After the third day of play, Claudico was down by \$59,766 to the humans, but making up ground. The money is not actual dollars, but simply for score keeping. A live stream of the tournament can be viewed at: <https://www.cs.cmu.edu/brains-vs-ai>.

Compiled by  
LAURA SCHERB

## WEATHER

TUESDAY	WEDNESDAY	THURSDAY
		
65° / 43°	70° / 46°	65° / 44°
FRIDAY	SATURDAY	SUNDAY
		
66° / 46°	70° / 50°	74° / 53°

Source: [www.weather.com](http://www.weather.com)

### Corrections & Clarifications

In the article “Campus News in Brief” in last week’s edition of The Tartan, Dr. Roberta Klatzky’s name was misspelled. It’s Klatzky, not Klatzsky.

In the article “UHS proposes changes in Aetna insurance options” in the April 13 issue of The Tartan, University Health Center Business Manager Phyllis Lombardi was misquoted as describing dependent rate parity as “a phenomenon.” Lombardi’s actual quote describes rate parity as “a new movement.”

If you would like to submit a correction or clarification, please email The Tartan at [news@thetartan.org](mailto:news@thetartan.org).

## INTERNATIONAL NEWS IN BRIEF

### Cantania, Italy

With deaths of Libyan migrants totaling over 1,200 in the last few weeks in the Mediterranean, European Union foreign and Interior ministers proposed a change in immigration policy. These suggestions have been met with much opposition, yet garner support from those who wish to combat human trafficking.

Source: *Wall Street Journal*

### Brussels, Belgium

Amid charges against Google Inc., the European Union’s competition commissioner Margrethe Vestager has also filed antitrust charges against Russian oil behemoth Gazprom Tuesday. Gazprom is a government-run organization that has played an overwhelming part in Eastern Europe’s gasoline market, the EU claims.

Source: *The New York Times*

### Astana, Kazakhstan

Kazakhstan approaches a presidential election. Outspoken public opinion is in favor of the current president Nursultan Nazarbayev, who has been president since before the dissolution of the Soviet Union. There are fears on the lack of a successor for Nazarbayev, though.

Source: *Le Monde*

### Istanbul, Turkey

There’s been good news amid several aviation disasters around the world in recent months: A Turkish Airlines plane, afire from technical difficulties, successfully conducted an emergency landing at Istanbul’s Ataturk Airport Saturday afternoon.

Source: *The Daily Mail*

### Kathmandu, Nepal

The Himalayas were struck by a 7.8 magnitude earthquake Saturday. Nepal was hit the hardest, with aftershocks along the highest peak, Everest, occurring. The death toll is currently over 2,500 and many more are still missing. A 6.7-magnitude aftershock hit Sunday morning.

Source: NPR

### Minneapolis, Minnesota

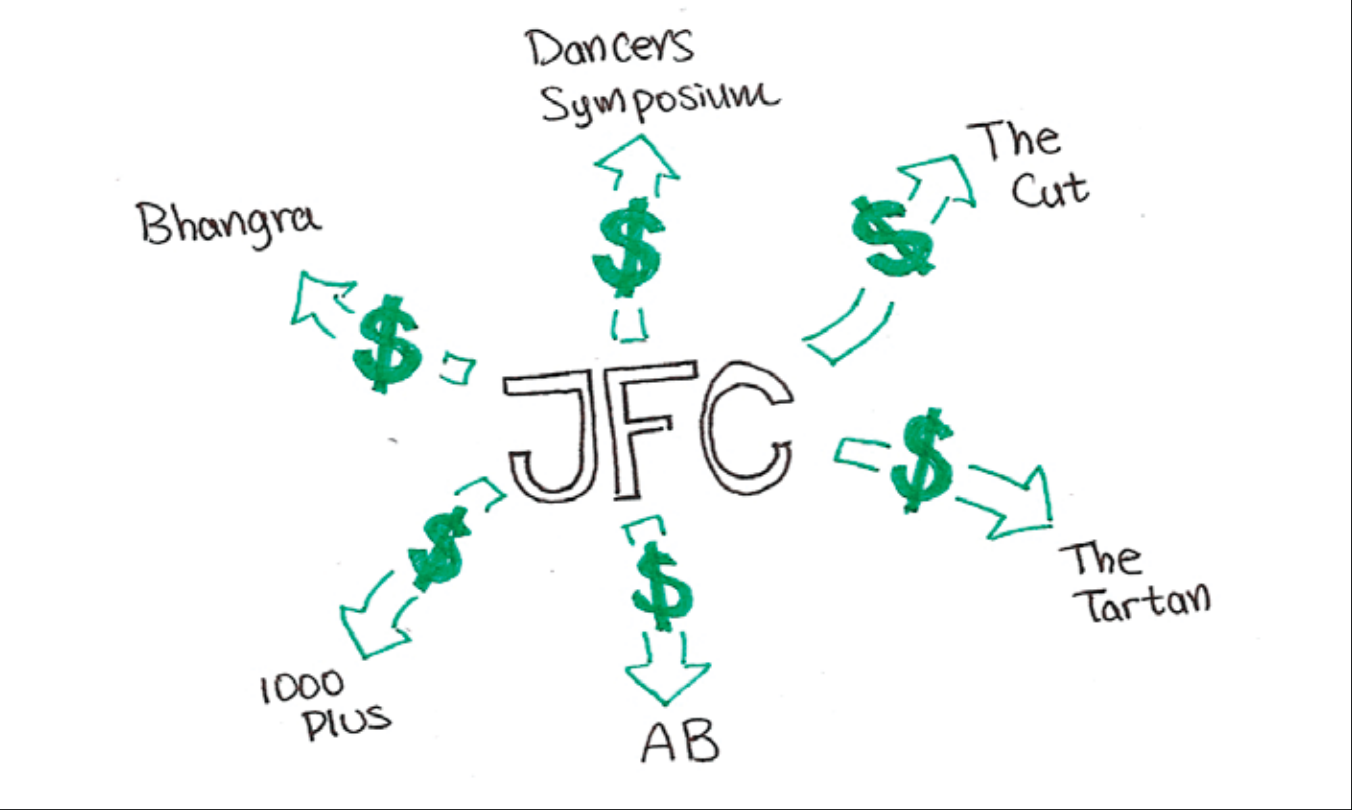
Six men were arrested and detained by FBI agents as they attempted to travel to Syria on Monday. Their plan was to join the Islamic State, which recently pushed toward the Iraqi city of Ramadi.

Source: *Duluth News Tribune*

Compiled by  
BRIAN WALSH



# JFC budget approval fails in joint Senate-GSA session



Kyungmin Lee/Junior Artist

**FUNDING**, from A1

concerns, one being the over-allocations of the amount of money that was budgeted to be spent. Two weeks prior to when the budgets were supposed to be sent out, there was still a sizable dollar amount to be cut, and Senate had concerns about the way that those cuts happened and the speed at which they were made. They also shared concerns about transparency and the way that decisions were made, particularly the revenue decisions,” Vaughan said.

According to Kothandapani, the JFC enforced how organizations spent their revenues in the past. However, the JFC will not be enforcing revenue in FY’16, a change in their policy from previous years. In other words, if an organization brings in \$100 of revenue, they can spend it on what they need to spend it on. Although the JFC is not enforcing how

organizations spend their revenue, organizations are also not being forced to bring in revenue, Kothandapani said. “The JFC is a funding force and not an overseeing group, so we should be giving [organizations] money and not wanting to take it back at the end of the year. So maybe the JFC doesn’t benefit as much from the process, but I feel like [organizations] would benefit more,” Kothandapani said.

In the proposed budgets, \$60,000 in revenue was matched up to expenses, so the JFC only funded the funding gap for each organization. Now, there is no expectation on revenue. At the end of the fiscal year, if an organization only earns some of their expected revenue and only spends some of their JFC subsidy, the money remaining in their account will stay there. This gives them a better chance at retaining their money if the revenue is not met,

unlike in previous years.

The JFC initially allocated approximately \$2 million to organizations in a non-released draft of the budget. Since then, they have cut about \$500,000 from the initial draft, said junior math and economics double major and SBVPF-elect Benjamin Zhang. Those cuts, made in two weeks, were the ones that raised concerns for many senators, according to Vaughan. Though the GSA voted to approve the proposed budgets, Senate did not and now members of student activities, student government, and the JFC are working to prepare a new slate of budgets for approval before the end of the fiscal year, June 30.

“Student Government is currently in the process of figuring out what the next steps are to create a new budget slate and we will be in touch with you shortly for further details,” Kothandapani said

in an email sent out to student organization leaders last Friday.

**What steps were taken at Thursday’s meeting to pass the budget?**

When the budget was presented to the joint session body, there was nearly \$100,000 in over-allocated funds that needed to be cut. During second round appeals, any senator or GSA representative can appeal line items from the proposed budget. This year, there were three line items of the overall budget that senators appealed in the discussion: funds for the Carnival committee, the SBVPF, and Scotch ‘n’ Soda. The Carnival committee’s budget for Carnival’s relocation to the College of Fine Arts parking lot was cut by \$50,500, the SBVPF’s budget for event subsidies when AB Tech is not

available to cover events was cut from \$10,000 to \$3,000, and the Scotch’n’Soda budget was cut by \$900 to account for a budgeting error.

Even with these cuts, the budget was still over-allocated by over \$41,000, according to Vaughan. “There has, historically, been several times in the last six years where there have been over allocations between \$41,000 and \$50,000, however those were in the years before the activities fee was raised to accommodate the needs,” Vaughan said.

This year, the over-allocation prompted some senators to question the integrity of the budget and to vote against its approval. Senate voted 3–16–2 to strike it down, and GSA voted 45–0–2 in overwhelming support of the budget.

The GSA reps that were on the JFC didn’t have any issues with the JFC process, according to Kothandapani. “The GSA looked to the people that were on the JFC for their opinion, and I felt like the GSA trusted the JFC reps and they were okay with it,” she said.

**What happens if the budgets aren’t approved by May 1?**

Members of student government, student activities, and the JFC worked over the weekend to formulate a plan for another slate of budgets. “We had conversations all day on Friday to determine a course of action for the budgets,” Vaughan said. “But those conversations led to a lot of questions and a lot of consulting the governing documents.”

The constitution of student government specifies that if the budgets are not approved by May 1, GSA and Senate cannot spend any money from operating accounts until the budget is approved. Essentially,

bodies wouldn’t be able to function after that date.

“We want to move as expeditiously as possible, particularly knowing the time of the year, and the specific constraints that the governing documents laid out,” Vaughan said. “We’re trying to move efficiently as possible, but while being as prudent as possible. We made a well-informed decision on Friday, but we want to make sure it makes sense. As the advisor, I have to help them make the right set of decisions for the budget.”

Members of Senate and GSA met at the end of last week and over the weekend to further discuss the budget and why it didn’t pass. The Senate executive committee is meeting on Tuesday to discuss a consolidated rationale for the budget votes, according to Kothandapani and Zhang.

“There are competing demands: student organizations, student government, etc. It’s a challenging time of year, between the academics and the looming deadlines,” Vaughan said. “There are next steps to be made and there will be a series to bring closure to the budgets and it’s important that [Kothandapani] and [Zhang] communicate it to orgs.”

According to Kothandapani’s email, “In the event that a JFC budget slate is not passed by the end of the current fiscal year (June 30th, 2015), organizations will receive 25 percent of the JFC subsidy received in the current fiscal year.”

She promised that student government was working over the weekend to solve the problem and prevent it from going that far, additionally promising that updates will be announced in a timely manner.

*Editor’s Note: Liz Vaughan is The Tartan’s advisor.*

## Foxx talks tech, transportation

**TRANSPORTATION**, from A1

there was a lot of preparing to do, but there wasn’t much. They basically were set with the Obama cleansing fire,” Montgomery said.

He described the “cleansing fire” as a government sweep of the building prior to President Barack Obama’s visit to the facility in 2011. Walking into the building, visitors must present a valid identification of United States citizenship. The building feels like an airplane hangar. The table discussion included some of Carnegie Mellon’s most decorated graduate and undergraduate students. Heinz College information systems management

graduate student Zoe Levenson led most of the discussion.

The open discussion began with Foxx asking students about autonomous vehicles. The discussion then moved to students’ questions. The room was full of public policy, engineering, and computer science graduate students.

Immediately following this discussion was a presentation of many technologies at the NREC. Particularly noteworthy was Robotics Institute project scientist Robert Tamburo’s “Smart Headlight.”

The headlights are programmed to not flash bright lights in deer’s faces so as not to blind them. Additionally, the headlight is slanted to avoid illuminating snowflakes

or raindrops, increasing visibility for drivers.

Safety and overall public transport were among the several things Secretary Foxx brought up when speaking on the floor of the NREC warehouse, with people seated in front of him, and workers watching on the catwalks above.

At the end, Foxx noted how technology has improved so much since the dawn of the car, and that it was only natural for autonomous cars to be the next step in the new millennium. “I think the users — you — in the future are going to be seeing a lot more seamlessness in the way transportation moves,” Foxx concluded.

## Suresh gives campus update

**PRESIDENT**, from A1

funds of \$1 million each that will support work in the arts and humanities.

“Today, the university will begin seeking developers who want to partner with us on a major, mixed-use development on land the university owns on the south side of Forbes Avenue, near Craig Street,” said Farnam Jahanian, who will soon become Carnegie Mellon’s provost after a year serving as vice president of research, in a university-wide email sent the day before the address about the Forbes Avenue development. “This development could include research space for faculty and students, space for external partners, labs and studios for collaborative industry-academia use, office space, a quality hotel, parking, and some retail space.”

Among the other initiatives that Suresh mentioned were the Simon Initiative, the upcoming Tepper Quadrangle, and the university’s fundraising efforts.

The university, Suresh

said, has raised an unprecedented amount of money in the last two years for the endowment, which has long been much smaller than those of older peer institutions.

“What we are looking at in just the next three years is a half-billion dollars in new construction, more than 750,000 new square feet of space,” Suresh said about the university’s various planned expansions along what he calls the “Forbes Avenue innovation corridor.” According to Suresh, this expansion is the largest since the university’s founding and original gift from founder Andrew Carnegie.

Student Body President-Elect and junior policy and management and Chinese studies double major JR Marshall was galvanized by Suresh’s speech.

“I think we have plans to become more than something that we are right now, which is a world leader in innovation and research, a kind of forefront university — a pioneer university,” Marshall said. “It’s nothing new; I don’t

think this university’s been anything but, but I think it’s time for the university to take on a leadership, a pioneer attitude.”

Jibby Ayo-Ani, junior information systems major and student body vice president-elect, agreed with Marshall, emphasizing that the university’s progress relies on effort from every member of the Carnegie Mellon community.

“It’s everyone’s responsibility. You know it doesn’t always come from the leadership — it comes from every person. So we are taking on that responsibility, as students, as faculty members, as administration, in relation to things that we as a university are focusing on,” she said.

Suresh’s overarching message was one of hope for Carnegie Mellon’s future.

“I knew a lot about CMU [before I became president]. I was very proud of being given the opportunity to come here, to lead this wonderful institution. And what I’ve learned in the past two years is that I’m even prouder now; I’m even more optimistic.”

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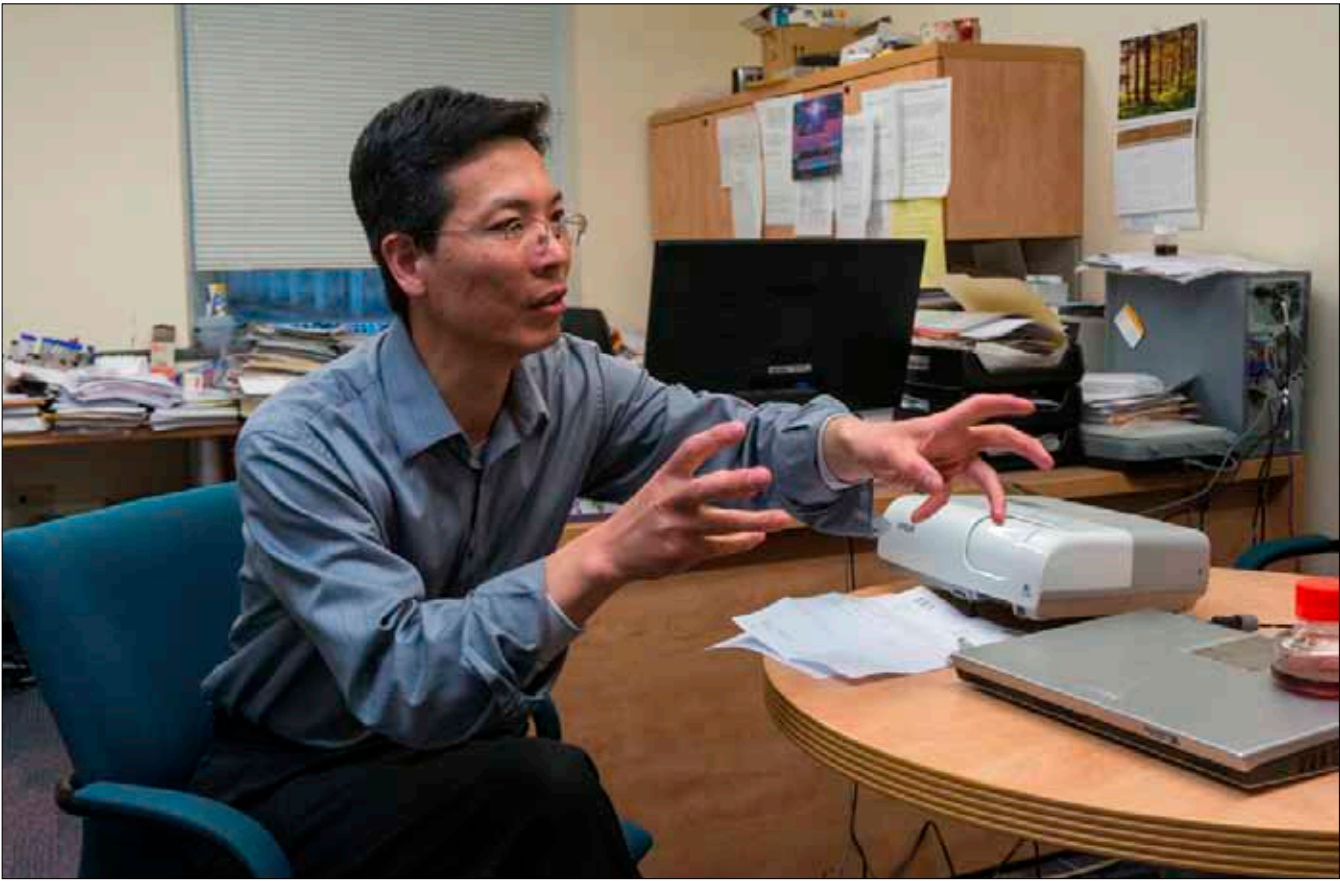
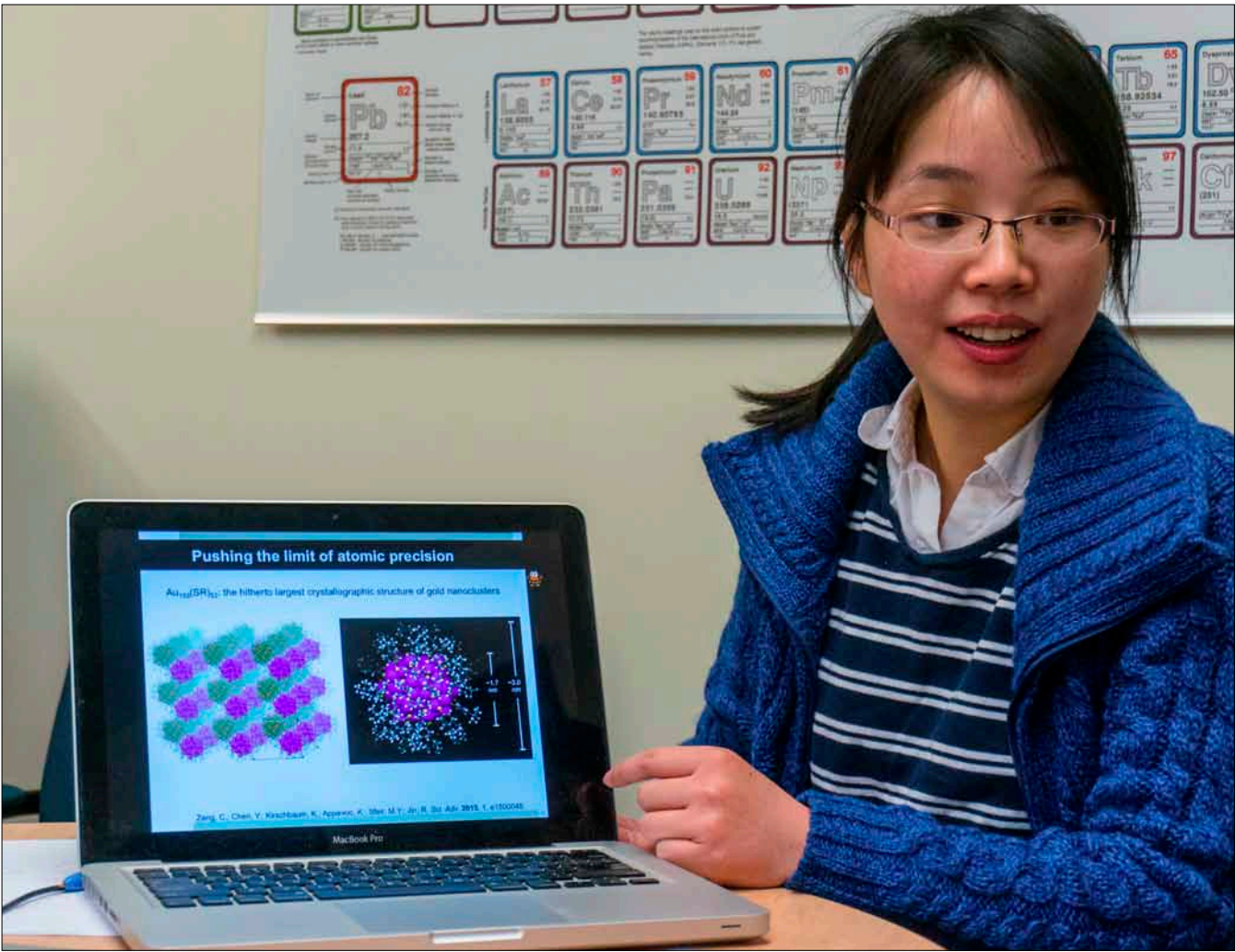


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# Science & Technology

## Gold nanoparticles have unique form



Carnegie Mellon researchers have studied the structure of gold nanoparticles and found a variety of patterns that correlate with other phenomena.

**BROOKE KUEI**  
*Contributing Editor*

Nature’s beautiful patterns can be found anywhere you look: in the shape of a

snowflake, the symmetry of a honeycomb, the Fibonacci spiral of a nautilus shell, and even in the structure of a tiny gold nanoparticle. Rongchao Jin, associate professor of

chemistry at Carnegie Mellon, and chemistry graduate students Chenjie Zeng and Yuxiang Chen have successfully crystallized a Au<sub>133</sub> nanoparticle and determined its entire

structure, which consists of a series of beautiful patterns. Nanoparticles are clusters of atoms that are between

See **GOLD**, A6

## Lewis K. Waldman discusses creation of heart simulation

**RAGHUNANDAN AVULA**  
*Staffwriter*

Lewis K. Waldman, CEO of Insilicomed Inc., spoke last Tuesday at Carnegie Mellon as part of a seminar series hosted by the biomedical engineering department of the Carnegie Institute of Technology. He began his talk with the last slide of his presentation, which showed a 3-D simulation of the human heart. The animation of the beating heart wowed the audience as each aspect of the heart elongated and contracted in a carefully controlled manner, truly showing the complexity of one of the body’s most important organs. The simulation is the result of many years of research and collaboration between Waldman and researchers at the University of California, San Diego (UCSD), who hope their work will have clinical applications in treating patients.

The heart is a complex and vital muscular organ that pumps oxygen- and nutrient-carrying blood throughout the body. Humans and other

death. Specifically, Waldman believes that with the emergence of computing applications in medicine, we will be able to develop accurate models of the heart that will have strong clinical benefits.

Waldman spent much of his early career measuring regional and global cardiac function in animals to develop simulations of the heart. This gave him the knowledge and expertise to team up with Andrew McCulloch and Jeff Omens, professors of biomedical engineering at the University of California, San Diego, to venture into modeling the human heart. At first, the researchers were working through funded grants from the National Institutes of Health (NIH) and other sources that spanned multiple years. After seeing the potential of their work, companies began approaching them to develop the tools in a shorter time frame and speed up the process of development. This motivated the three to start their own consulting firm, which evolved into today’s Insilicomed, Inc.

**Waldman believes that with the emergence of computing applications in medicine, we will be able to develop accurate models of the heart that will have strong clinical benefits.**

mammals have a similar heart structure with four chambers connected by heart valves, which prevent the back flow of blood. Fundamentally, de-oxygenated blood enters the right side of the heart, gets redirected to the lungs where oxygen diffuses into the blood, and then enters the left side of the heart to be pumped around the body.

The Center for Disease Control and Prevention reports that, in the United States, cardiovascular disease is to blame for approximately one in every four deaths. Cardiologists and researchers such as Waldman want to improve the ability to treat cardiovascular diseases to reduce the threat of one of America’s most pernicious causes of

McCulloch and Omens remained at UCSD and began a project in 2009 involving heart failure patients who were indicated for cardiac resynchronization therapy (CRT). CRT involves implanting a half-dollar sized pacemaker below the collarbone with wires that measure the beating of the heart and emit tiny electrical impulses to correct irregular heart rhythms, also known as arrhythmias. They collected extra measurements in addition to the ones required, hoping to turn the data into accurate simulations of the irregular heart structure and function.

Soon after, in 2010, Waldman, along with researchers

See **SIMULATION**, A5

### SCITECH BRIEFS

#### Town in Indiana experiences growth in HIV outbreak

According to the Centers for Disease Control and Prevention (CDC), there has been a severe increase in the rate of outbreak of HIV (human immunodeficiency virus) infections within a rural county in Indiana.

The increased rates have been occurring since mid-December. In March, the outbreak was declared a public emergency within that county. As of Friday, 142 people were shown to test positive for HIV, a significant amount for an area with a population of a few thousand people.

The CDC and state health officials believe that IV drug use, which is common in the rural area, is the culprit behind the outbreak. Drug users often share needles, which increases the risk of spreading new HIV infections.

In order to combat the problem, the Indiana governor has signed a mandate to make sterile needle syringes more available to the public. In addition, health volunteers from Indiana University are being deployed to test and treat HIV cases, as well as to educate the public about the danger of sharing needles.

Source: CNN



#### Scientists debate ethics of genetically modifying embryos

For the first time, human embryos have been genetically modified by a team of Chinese scientists.

In order to alleviate ethical concerns, the researchers worked with nonviable embryos, which are incapable of producing live births. The embryos were obtained from nearby fertility clinics.

Using a gene editing method, the CRISPR/Cas9 system, the team altered the gene associated with Thalassemia, a fatal blood disorder.

During experimentation, only a fraction of the genetically tested embryos were successfully modified. Furthermore, the researchers found that there were many “off target” mutations that are believed to be caused by the gene editing technique acting upon other parts of the embryo genome. In turn, these results have brought up doubts about the safety of germ line manipulation, which could affect the welfare of future generations if it becomes a more prominent practice.

Currently, germ line manipulation has not been approved in the U.S., among other countries.

Source: ScienceDaily



#### Large cosmic tsunami revives comatose galaxies

An international team of astronomers has discovered that dormant galaxies, which have ceased to form stars in the distant past, are, at times, capable of revival. In a recent publication of the Monthly Notices of the Royal Astronomical Society, the scientists reported their observations of the merging galaxy cluster J2242.8+5301. Nicknamed the “Sausage,” the merging galaxy cluster is 2.3 billion light years away in the direction of a constellation situated in the northern hemisphere of the sky. Watching from various large telescopes in La Palma and Hawaii, the scientists were able to observe the creation of a shock wave from the merging galaxies. The scientists then discovered that the shock wave formed dense, cold gas clouds that triggered the birth of new stars. However, once those galaxies run out of fuel, the cluster mergers will eventually make the galaxies dormant again, with an even lower chance of a second resurrection. In the future, the scientists hope to study a larger sample of galaxies in order to further understand how stars are formed.

Source: ScienceDaily



#### Pocket shark seen for the second time in the Gulf of Mexico

Scientists from the National Oceanic and Atmospheric Administration (NOAA) had recently identified a rare, juvenile male pocket shark.

The small shark, although only recently identified, was found dead in an assortment of catch obtained from the Gulf of Mexico in 2010. The Gulf shark is 14 centimeters in length and 14.6 grams in weight.

The scientists also compared the Gulf shark to the only other specimen of pocket shark that was reported to be found, *Mollisquama parini*.

Results from the genetic analysis of tissue sample allow scientists to categorize the pocket shark as belonging to the *Mollisquama* genus. However, the scientists found a cluster of light-emitting organs on the belly of the Gulf shark, a physical feature that was not seen in the *Mollisquama parini*. Such differences have made the scientists uncertain about the species of the Gulf shark.

The shark is now part of the Royal D. Suttkus Fish Collection at Tulane University’s Biodiversity Research Institute in Louisiana.

Source: Live Science



#### Electromaterials scientists create a 4-D printer

At the University of Wollongong, Australian scientists have engineered a 4-D printer. The 4-D printer is a machine that allows for 3-D printed materials to morph into new structures in response to external stimuli, such as pressure or heat.

During one continuous process, the printers build objects using layers of filaments that are sensitive to heat and pressure. The filaments can also have the ability to move over time. These printers are able to print the customary plastic, but they can also work with substances such as sugar or cellular material.

The 4-D printer was designed for ease of use. The printer outputs devices that can be immediately picked up and require no assembly.

The Australian scientists believe that the printers will lead to a new age of “soft” robotics, a field that aims to develop robots that mimic the movements found in biological systems.

It is thought that these 4-D printers will also have an impact on other fields such as medicine, construction, and automation.

Source: TechCrunch



#### Near-death experiences caused by lack of oxygen

Recently, researchers at the University of Michigan Medical School have studied the phenomenon of near-death experiences (NDEs), which have led to claims of out-of-body or spiritual experiences. Scientists believe NDEs to be a result of anoxia, or a lack of oxygen delivery to the brain. This research supports previous work on this topic published in 2013.

In the study, researchers looked at the effects of inducing anoxia on the brain and heart activity within rats. Results showed that anoxia triggered greater brain activity during the dying process than in the waking state, creating visions that are similar to those experienced by survivors of cardiac arrest.

In addition, a release of neurotransmitter chemicals is thought to be the cause of the hallucinations that have been reported from near-death experiences.

The findings of the study were published in the Proceedings of the National Academy of Sciences.

Source: Discovery News



Compiled By  
**SHARON WU**



HOW THINGS WORK

Multiple forms of crying provide emotional, health benefits

JOSH BROWN  
Staffwriter

Whether you’re a baby, an actress, an onion-dicer, or just a normal, emotional human being, you’ve probably cried more often than you care to recall.

There’s a certain stigma that surrounds crying, that it makes one seem weak or that it’s only acceptable following devastating tragedies. But beyond the fact that nearly each and every one of us is “crying” at all times, crying is an amazing and relieving bodily process that should be anything but shameful.

There are three types of tears: basal, reflex, and psychic/emotional, each with a distinct chemical make-up. Basal tears act as lubricant for the eye, keeping the cornea — the outermost part of the eye — moist and friction free. Basal tears are composed of water, oil, and mucus, allowing them to create a protective film across the eye.

Reflex tears are secreted in order to rid the eye of contaminants, and are about 98 percent water. An example of a reflex tear reaction is the standard onion-chopping scenario, in which case the fumes from the onion are toxic to the eye, and the reflex tears flush the toxins out.

Psychic tears exhibit a completely different composition from the other types. Psychic tears contain leucine enkephalin, a painkiller and mood-enhancer; prolactin, a hormone which affects breast milk production; and various stress hormones.

Psychic tears also appear to have different structures from each other, depending on the emotion that brought them on. In her series *The Topography of Tears*, photographer Rose-Lynn Fisher took pictures of samples of dried tears under a microscope, using reflex tears from an onion-cutting session, and psychic tears brought on by grief, joy, and loss, among others. The microscope images revealed different structures for all three.

The actual mechanism

behind crying is rather simple. For basal and reflex tears, the process of their release into the eye is called lacrimation. The lacrimal glands — located just above the eye opposite the nose — are responsible for tear production and secretion. Once secreted, the tears can either be spread across the eye by blinking, thereby moisturizing the eye, or run through the lacrimal sac, located between the eye and nose, and drain into the nose. This draining is the reason that one can expect a runny nose when crying.

For psychic tears, the process of their release is what is most commonly known as crying. Psychic tear production is mediated by the limbic system, the neural basis for emotion. In response to intense emotion, the hypothalamus — a brain region responsible for many autonomous processes — releases a neurotransmitter called acetylcholine, which signals the lacrimal glands to open the proverbial flood gates.

When we are born, our first cry follows our first breath. Crying stays with us all throughout our lives, and develops a level of sophistication as time goes on. In the early stages of infancy, crying is the method by which babies meet their most basic needs. As they develop, so do their cries.

Babies aged about 10 months have been known to display three distinct cries, which differ from each other in pitch, frequency, and duration. They cry if they’re in pain, if they’re angry, or if a need is unmet. It is commonly believed that with this practical sophistication, babies also develop manipulative crying at this stage.

When individuals hit puberty, males and females tend to develop different crying habits. Females, due to increased estrogen, which in turn causes increased endocrine activity, are estimated to cry about five times as often as men, and there are a number of reasons why. Women are more likely to cry when frustrated, while men



Eunice Oh/Art Editor

are most likely to cry when exposed to intense emotion, and respond to frustration with anger more often than sadness.

As they get older, men and women tend to trade places, with men crying more often

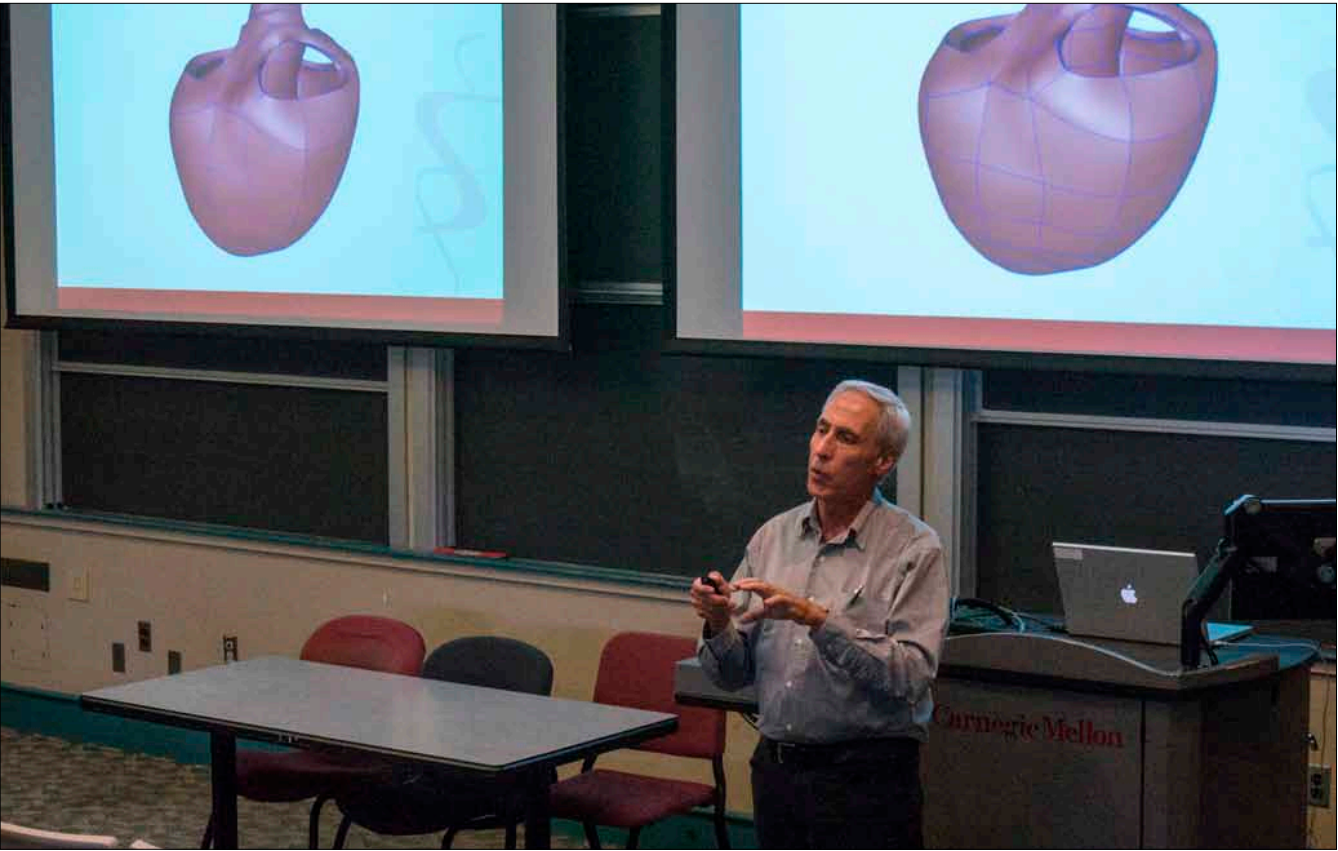
than they get angry, and women experiencing the opposite, due to decreasing amounts of testosterone and estrogen, respectively.

Crying, along with other positive emotional expressions, has been correlated

with decreased risk of hypertension, heart disease, and perhaps even colitis and ulcers. Crying cleanses the body of toxins such as stress hormones, allowing the body to feel more relaxed. So next time you’re caught in a deluge

of sadness with no umbrella, cuddle up in your Snuggie with a nice pint of Chubby Hubby and take pride in knowing that you are not only exhibiting a fantastic chemical process, but you are also doing your body a favor.

Researchers develop heart simulation



Abhinav Gautam/Photo Editor

Lewis Waldman, CEO of Insilicomed Inc., spoke last week at Carnegie Mellon about his work involving the development of a 3-D simulation of the heart.

**SIMULATION**, from A4

at Insilicomed, Inc., began their own study, attempting to see if they could get away without making extra measurements, but simply using the standard collection of clinical data to make accurate models. In the past few years a convergence of both methods has allowed the scientists to find that all the extra measurements are not needed to build the most accurate models. It allowed them to pinpoint exactly which data points would need to be collected. These computational simulations not only allow a model of the heart problem but also enable the testing of

CPT treatments. According to Waldman, currently 30 to 40 percent of CPT treatments do not work because there is a lack of understanding of the underlying problem in a specific patient. By collecting the necessary data from a patient, the simulation then allows a doctor to create a personalized model of the heart and thus implement a personalized treatment. Their studies have examined the impact of this approach and found that their simulations have a very strong clinical response.

Waldman explained in his seminar in dense technical detail that their simulations reach a high level of accuracy because each node

that models the heart carries an immense amount of information. To generate a 3-D animation, each node contains seven derivatives in each direction, leading to thousands of elements that achieve a highly precise biomechanics modeling.

In addition to a direct clinical applications, the modeling of the heart enables other researchers to visualize the heart and the impact of the devices they create. Dennis Trumble, a professor of biomedical engineering at Carnegie Mellon and the individual who invited Waldman to give the lecture, works on developing implantable medical devices meant

to prevent cardiac arrest. He mentioned that using the simulation allows his team to directly test their devices structurally in the models, saving them the time and money of conducting experiments directly in animals and drastically speeding up the research and development process.

Enabling this level of precision in cardiovascular medicine will enable a new age of personalized medicine. With advances in computing power and the emergence of machine learning, these models will only become more accurate and may become a commonplace in the clinical realm.

CMU and Disney researchers create acoustruments

JULIA NAPOLITANO  
Staffwriter

Researchers at Carnegie Mellon University and Disney Research have developed physical additions to smart phones, such as knobs, buttons, sliders, wheels and switches, that can control the touch screens using the phone’s own ultrasound.

Dubbed “acoustruments,” these add-ons were inspired by the different ways that wind instruments, such as whistles and flutes, utilize different sized holes to produce different sounds. With acoustruments, plastic tubes and other structures connect the phone’s speaker, which emits a continuous stream of ultrasound frequencies, to its microphone. The physical shape of the acoustrument provides different ways to stop or alter the frequency, for example by blocking and opening holes or changing the length of the tubing. These interactions effectively transform the sound before it reaches the phone’s microphone. No electrical circuitry is involved, so acoustruments are inexpensive to make and can be produced with 3-D printers, injection molds, or even by hand.

Gierad Laput, a Ph.D student in Carnegie Mellon’s Human-Computer Interaction Institute (HCII), is the lead author of the study, which was presented last Wednesday at the 2015 Conference on Human Factors

in Computing Systems, in Seoul, South Korea. The paper has been named a Best Paper by the conference organizers.

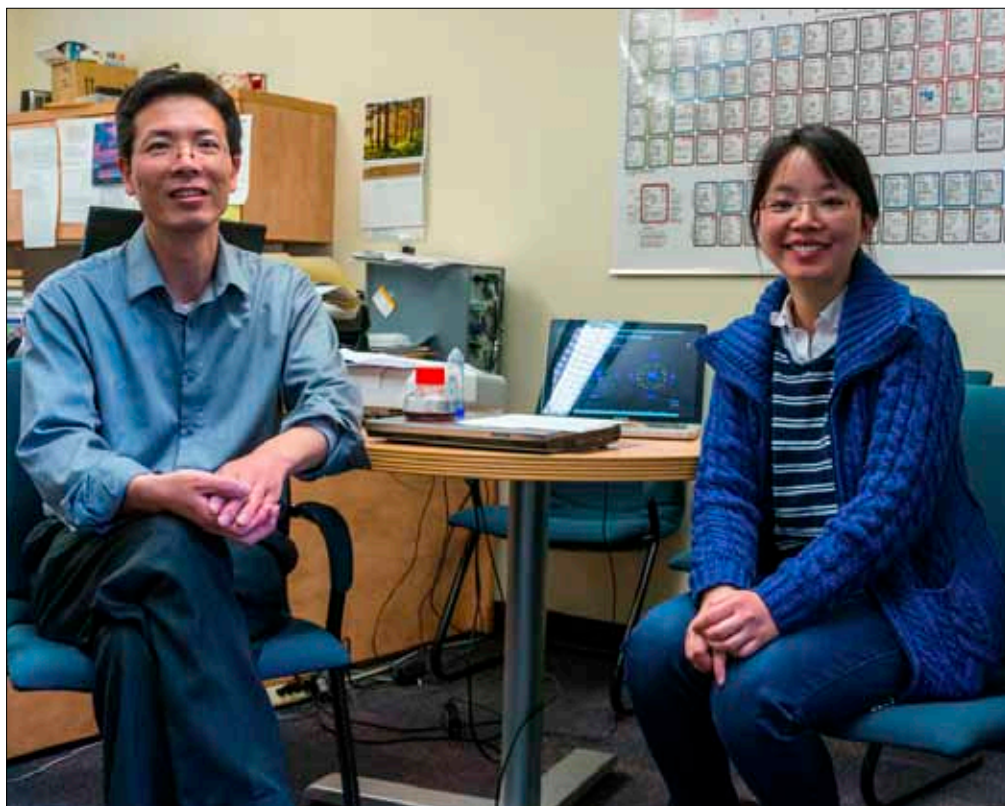
“We’re providing people with tangible interactivity at basically no cost,” said Laput in a Carnegie Mellon press release. “Using smartphones as computers to control toys, appliances, and robots already is a growing trend, particularly in the maker community. Acoustruments can make the interactivity of these new ‘pluggable’ applications even richer.”

As an example of the wide range of possibilities of acoustruments, the researchers created an add-on that acts as a physical alarm clock with an on/off button and a snooze button. The add-on utilizes a pressure sensor to disrupt sound and tell the phone what to do. Researchers have also developed an acoustrument that is a part of the phone case and acts as a camera shutter, one that turns the phone into a toy car, and one that transforms the phone into an interactive doll.

Carnegie Mellon and Disney researchers have determined in their experiments that acoustruments can control a smart phone with 99 percent accuracy. In addition to Laput, the research team included two HCII faculty members, Scott Hudson and Chris Harrison, and Eric Brockmeyer of Disney Research Pittsburgh.



# Researchers determine structure of gold nanoparticles



Rongchao Jin (left), an associate professor of chemistry at Carnegie Mellon, along with chemistry graduate students Chenjie Zeng (right) and Yuxiang Chen, has successfully determined the structure of gold nanoparticles.

**GOLD.** *from A4*

one and 100 nanometers in size and consist of a core of atoms surrounded by surface-protecting molecules. In the case of Au<sub>133</sub>,<sup>2</sup> the core is made up of 133 gold atoms and the surface molecules are known as thiolate ligands. These thiolate ligands are extremely important for the nanoparticle because they consist of sulfur atoms that bond tightly with the gold core, holding each nanoparticle together and preventing them from aggregating with one another.

"The most important part is the surface, because it stabilizes the nanoparticle," Zeng said. "But we know the least about it." Although nanoparticles can be imaged through electron microscopy, these images only show the cores of nanoparticles. This occurs because heavy atoms like gold can scatter electrons very well, while the thiolate ligands on

the surface cannot. Because of this, the researchers must turn to a technique known as X-ray diffraction (XRD), a method in which the way a crystal diffracts X-rays reveals the crystal's structure.

This is where the team faced its greatest obstacle, because to do XRD, a single crystal of nanoparticles is needed. Jin explained this idea using the analogy of ice cubes, which are single crystals of water. “So that’s easy, you put your solution in the freezer and the next morning you will have single crystals and if you take a small piece and take it to the XRD, you will be able to see the oxygen and the hydrogen,” Jin said. “So we are doing the same thing, but instead of water molecules, we are trying to crystallize nanoparticles — and obviously it is much more difficult.”

Although the chemists crystallized smaller nanoclusters in the past, crystallizing

larger nanoparticles such as Au<sub>133</sub> was much more daunting. After tackling the problem for two years, the recipe they perfected had two main factors. The first is that a very high-purity batch of Au<sub>133</sub> nanoparticles is needed. In other words, a solution containing only Au<sub>133</sub> nanoparticles is more likely to be

4-*tert*-butylbenzenethiol, better known as TBBT, which consists of a rigid benzene ring—a ring of six carbon atoms with a hydrogen atom attached to each carbon. The rigidity of these surface molecules allows the Au<sub>133</sub> nanoparticles to pack together very snugly, with each nanoparticle in the same orientation. It is this con-

nanoparticles, the researchers were able to analyze its structure. They found that several of the gold shells were constructed in an octahedron structure. The most beautiful part, though, was the surface of the nanoparticle: the surface molecules attached to the core atoms in sulfur-gold-sulfur links that resembled little staples on the outside of the nanoparticle. “We think the most amazing thing is how these staples protect the gold core,” Zeng said. “We found that the staples aren’t random. They actually form these very beautiful helical-like patterns that we call stripes.”

Besides these stripes, the chemists found that there was yet another pattern. The carbon tails of the surface molecules formed elegant swirls around the nanoparticle. "You can see a lot of these same patterns in nature," Jin emphasized. "For example, the octahedron structure is the

same shape as a mosaic virus, the helical structures look just like DNA, and the swirls are just like our galaxy. We see all the same patterns in the tiny world of a nanoparticle." Despite how vast our galaxy is and how minuscule a nanoparticle is, both share the same patterns.

Besides being a beautiful attestation of nature's universality, these Au<sub>133</sub> nanoparticles have applications in catalysis, electronics, and healthcare. For example, Jin's group has been using them to catalyze — speed up — the reaction that converts carbon monoxide, a toxic gas, to carbon dioxide.

Zeng explained that the Au<sub>133</sub> nanoparticles are extremely stable, as they can exist in air at room temperature. “We think that their stability is related to the very symmetric surface patterns,” she said. “We think it’s nature’s strategy for fabricating robust nanoparticles.”



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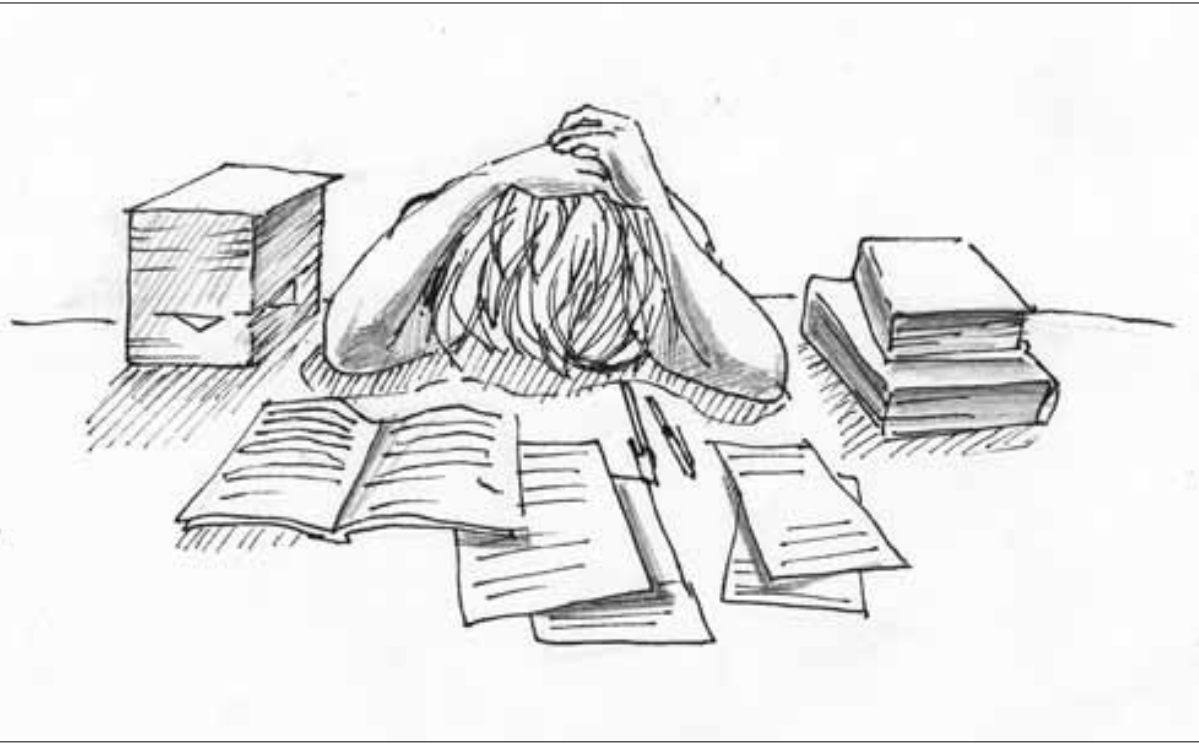
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# Forum

FROM THE EDITORIAL BOARD



Eunice Oh/Art Editor

## Teachers, students must collaborate for healthier finals

The transition from Spring Carnival to finals is stressful. Carnegie Mellon students are finally able to look forward to summer, but often take that deadline as license to push themselves to their limits. They rationalize a sleepless week with the impending summer reprieve, and fail to take care of themselves in the process.

Stress culture is real on the Carnegie Mellon campus. It has become a feature of campus dialogue, but it persists. People are proud of sleepless nights and try to top each other in the “my workload is larger than your workload” game. Neither physical nor mental personal health holds top priority. The “work hard, play hard” philosophy encourages students to relax sporadically or to over-

indulge, instead of keeping up with frequent maintainable behaviors. In some ways, Carnival exacerbates the problem when people “save up” to party harder-than-typical during one crazy weekend. While this is not everyone’s Carnival experience, it is the popular representation of Carnival among students and alumni.

Given the academic calendar, professors tend to load the two weeks between Carnival and finals with midterms, essays, and project due dates. With only two weeks of class until finals to bridge the gap, people seem to carry the Carnival mentality into their work. They push themselves to dangerous levels for two weeks, knowing that they are close to the finish line of summer. Summer is hardly a break in itself:

students work, have internships, take classes, or do research, and yet there is a real danger of burning out before summer even arrives.

The Tartan recognizes the problem, but also sees that students are working as they feel they must in order to accomplish their work in time. Very few universities require five classes per semester in order to graduate on time, so Carnegie Mellon students balance more work than average at finals time.

The Tartan encourages students to pace themselves in these last weeks of the semester. Workload and deadlines have to be part of a dynamic conversation between professors and students in order to keep these last weeks challenging but not overwhelming.

## Robertson’s gender equality victory cannot forget Pao

Three weeks ago, the Tartan gave its thoughts on the gender discrimination case that Ellen Pao filed and lost. What makes cases like these so difficult to win is that many cases of workplace discrimination against women are too subtle to effectively document and “prove.”

Therefore, it is heartening to hear the recent case of Fayette County citizen Sandra Robertson. After hearing her testimony about the discrimination she faced in her workplace, a jury awarded her an unheard of \$12.5 million in damages.

A 20-year veteran of the Air Force, Robertson was hired at Hunter Panels in 2006 and became shipping manager. As an ex-military woman, she was used to working in a male-dominated industry, but while Robertson says she “can take a joke,” her experiences at Hunter Panels exceeded what any woman should

have to tolerate.

Co-workers called her “big girl,” made obscene gestures when her voice came over the radio, and claimed she was “losing her mind” or “throwing fits” when she complained about the treatment.

Evidence also showed that Robertson received less money than her male predecessor, despite her experience in the field.

She was even referred to a counselor for anger management, only for the counselor to deem that she did not require any treatment. Not only were Robertson’s complaints ignored several times, but she was fired in retaliation. The company cited her alleged poor job performance and management style.

The jury made this decision intending to make a point that corporations cannot continue to discriminate against women.

The forewoman said “This is an opportunity to set the tone.” This is tremendously encouraging. The Tartan hopes that this will set a precedent for women filing and winning cases against corporate giants. However, we have to realize that this is a limited victory.

There are some really fundamental differences between Sandra Robertson’s and Ellen Pao’s cases. Robertson and Pao were very different plaintiffs, venture capitalism and construction have very different work environments, and gender discrimination comes in many shapes and sizes.

We still have to be conscious that every case is unique and often evidence will not be so cut and dry. Robertson deserves praise for her courage and celebration for her victory, but those who fight for workplace equality cannot forget about Pao.

## Journalism is indispensable for progressive society

This year’s recipients of the illustrious Pulitzer Prize for journalism were announced last week. It came to light that one of the winners — Rob Kuznia, from the small Los Angeles County paper *The Daily Breeze* — had ceased his work as a journalist shortly after publishing his winning story. The newspaper business wasn’t adequately paying Kuznia’s bills, and he now works in public relations for the University of Southern California.

The case of Kuznia illustrates several things about the current state of American journalism. On the pessimistic side of the spectrum, Kuznia is among the many casualties of the declining position of journalism. Lo-

cal print newspapers like *The Daily Breeze* exemplify the problem.

In an interview with NPR, Kuznia said that the number of journalists employed at his former paper dropped from 25 to a meager seven in the last five years alone. He said that he and his girlfriend were “living paycheck to paycheck... not destitute, but saving nothing.” Unfortunately, Kuznia’s story is far from unique.

Kuznia is a perfect reminder of the great value that quality journalism continues to have in society. Written along with two other *Daily Breeze* journalists, his Pulitzer-winning series of stories investigated corruption in a local school district

and ultimately led to changes in California state law, according to *Slate Magazine*.

Even while the national news scene is often characterized as a constant barrage of content that falls on deaf ears and cannot be trusted, local newspapers still have the power to raise awareness and catalyze concrete change in their communities. Kuznia reminds us that good journalism is still relevant.

Kuznia’s story highlights the need for continued support and patronage of local and national journalism. If we don’t pay for journalists who root out and reveal corruption, we will find ourselves with a fundamentally weaker society.

## Democracy is worthless when based on wealth



EMMETT ELDRED

Last Monday, David Koch of the infamous Koch Brothers suggested at a fundraiser that he believes that Wisconsin Governor Scott Walker should be the Republican nominee for President.

Some in the media took this to be a tacit endorsement of Walker, while others have said that the Kochs will wait to endorse. The skeptics point to Walker’s recent gaffes, such as “punting” on a question so simple as evolution or making several clearly uninformed comments on foreign policy, as well as his shift to the far-Right on some moderate sticking points such as immigration, surely disagreeable to the Libertarian-leaning Kochs.

Whether the Koch brothers ultimately support Walker or not, the buzz around David Koch’s comment means that the real 2016 primary election has officially begun: the scramble for the money of the mega-donors. While candidates in both parties have to go state-by-state in primary elections to win their party’s nomination, their success hinges largely on their ability to win over the super rich.

In many cases, presidential primary campaigns are financed almost entirely by a handful of huge donations from the obscenely wealthy. Before candidates can depend on

nominee.

Candidates in primary elections have to overcome immense expenses without the reliable funding stream of an official presidential nominee. The result is that candidates have no other choice but to campaign to the super wealthy.

Hence, the existence of “hidden primary:” the real election to determine which candidates can run for President. The electorate is the elite, the top 1 percent of the top 1 percent, who vote with dollars instead of ballots.

Why does this matter? Well, just like any other election, the voters in the hidden primary expect the candidate they elect to represent them. It’s important to remember that the super wealthy who get to vote in the hidden primary tend to be successful investors and shrewd business people.

They view the money that they spend in elections like any other investment or business transaction. They expect a return on their investment, and services provided for their business transaction.

The Koch brothers, who by their own estimates expect to spend just under \$1 billion in the 2016 elections at the local, state, and federal level, can easily expect to earn back several billion dollars in the form of deregulation, subsidies, and tax cuts. In a slightly different context, exchanging money for political favors is called bribery. But in the United States, it’s called “Campaign Contributions.”

“The Koch brothers, who by their own estimates expect to spend just under \$1 billion in the 2016 elections at the local, state, and federal level, can easily expect to earn back several billion dollars in the form of regulations, subsidies, and tax cuts. In a slightly different context, exchanging money for political favors is called bribery. But in the United States, it’s called ‘Campaign Contributions’.”

the weight of their party’s support and donor-base in the general election, they need to find a sugar daddy or sugar momma to get their campaign off the ground and into the primaries.

Think about it: The very first primary elections for 2016 are still about eight months away. The primary elections run much longer than the general election, and candidates in the primary have to focus on campaigning in every single state in a way that they don’t for the general. Candidates in primary elections have less name recognition and receive less “free advertising” through media coverage, so they have to spend more money getting their name out there than in the general.

All these extra demands come on top of the public’s general indifference to the primary elections. Most people don’t really pay attention to politics before the general election, let alone give money to candidates. Additionally, many small dollar donors and organizations wait to give money until their preferred party has nominated a candidate, and the largest source of money in campaigns — the political parties — obviously don’t provide funding to candidates until the party has selected a

Unlike a lot of progressives, I don’t believe that the Koch Brothers are any more nefarious than any other mega-donors. Okay, that’s not true — the Koch Brothers are pretty nefarious. But, on the whole, this isn’t just a problem with Republican donors and Republican candidates. Money in politics is the biggest threat to our democracy, and it has infected the operations and priorities of both political parties. Hillary Clinton’s campaign, for instance, expects to spend about \$2.5 billion dollars in the 2016 election, far more than any other campaign in history.

We have to ask ourselves, with so much money in the system and so much influence from the super-wealthy, are regular people really being represented anymore? The ideal of a representative democracy like ours should be one person, one vote.

We have lost sight of that ideal. There can’t be complete equality in every facet of our society, and there shouldn’t be. But when it comes to selecting our leaders, a poor single mother should have just as much influence as David Koch.

*Emmett Eldred (eeldred@) is a staffwriter for The Tartan.*

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# EU may have solid case against Google in antitrust suit

**BRIAN WALSH**  
*News Editor*

The search engine industry — it’s a winner-takes-all business. It appears that way in the United States at least, but things aren’t always what they seem.

About 70 percent of American web searches are made through Google, according to *The New York Post*. In Europe, Google’s market share is significantly higher at over 90 percent. Many in the European Union (EU) believe this to be unprecedented, particularly the EU’s Competition Commissioner Margrethe Vestager. Vestager called for the filing of anti-trust charges against Google, effective April 15.

Google denies claims that its search engine caters results to maximize its own visibility and profits, which the EU cites as its major reasoning for the charges.

For example, a user will search “flights to London,” and the page will show *google.com/flights* dominating half of the viewable results in the window. However, Google only has 5 percent of the online traveling market share.

Google argues that this is evidence against the claims in the lawsuit, as according to NPR correspondent Laura Sydell, “U.S. antitrust regulators have looked into these same issues and determined that there is no harm being done to consumers.” This is ludicrous.

Imagine walking into a Walmart, and seeing all of Walmart’s brand items stacked on shelves in front of

It pays to be a winner, and if a company is first on Google Search’s results, it most certainly is a winner. Thus, with examples like the aforementioned flights search, Google is marketing its products for free. This additionally boosts user visits to its own sites, regardless of whether users prefer its products to competitors such as Amazon.

When a company gets too large,

If the EU builds up a strong enough case, it may be in Google’s best interest to settle. If the charges prove valid, and the EU wins, Google may see action taken against it in the United States.

New York University economics professor Nicholas Economides commented on potential U.S. involvement in an interview on NPR: “When there is a suit, even if it happens in

for the law suit against Google. That could be true, though this week Vestager has gone beyond Google, and has filed antitrust charges against another behemoth in its own respects: Russian oil giant Gazprom.

Gazprom is state run, and currently provides the majority of gasoline sales in Eastern Europe. The Russian government also invaded Sevastopol, Ukraine in March of last year, eliminating market competitor Naftohaz Ukrayiny’s control of an oil pipeline that provided 80 percent of Eastern Europe’s oil exports to the EU.

While all these charges may seem over-zealous, it is plain to see the logical arguments behind the claims. Occasionally companies become too powerful, and it is the job of governing bodies to regulate imperfections to markets as such.

However, these current antitrust allegations are not all black and white. One includes a potential design flaw and the semantics of law on the Internet, while the other concerns a complex civil war in the foreground.

It is up to the judiciary body of the European Union to deal the final judgment on the matter.

“It pays to be a winner, and if a company is first on Google Search’s results, it most certainly is a winner. Thus, with examples like the aforementioned flights search, Google is marketing its products for free. This additionally boosts user visits to its own sites, regardless of whether users prefer its products to competitors such as Amazon.”

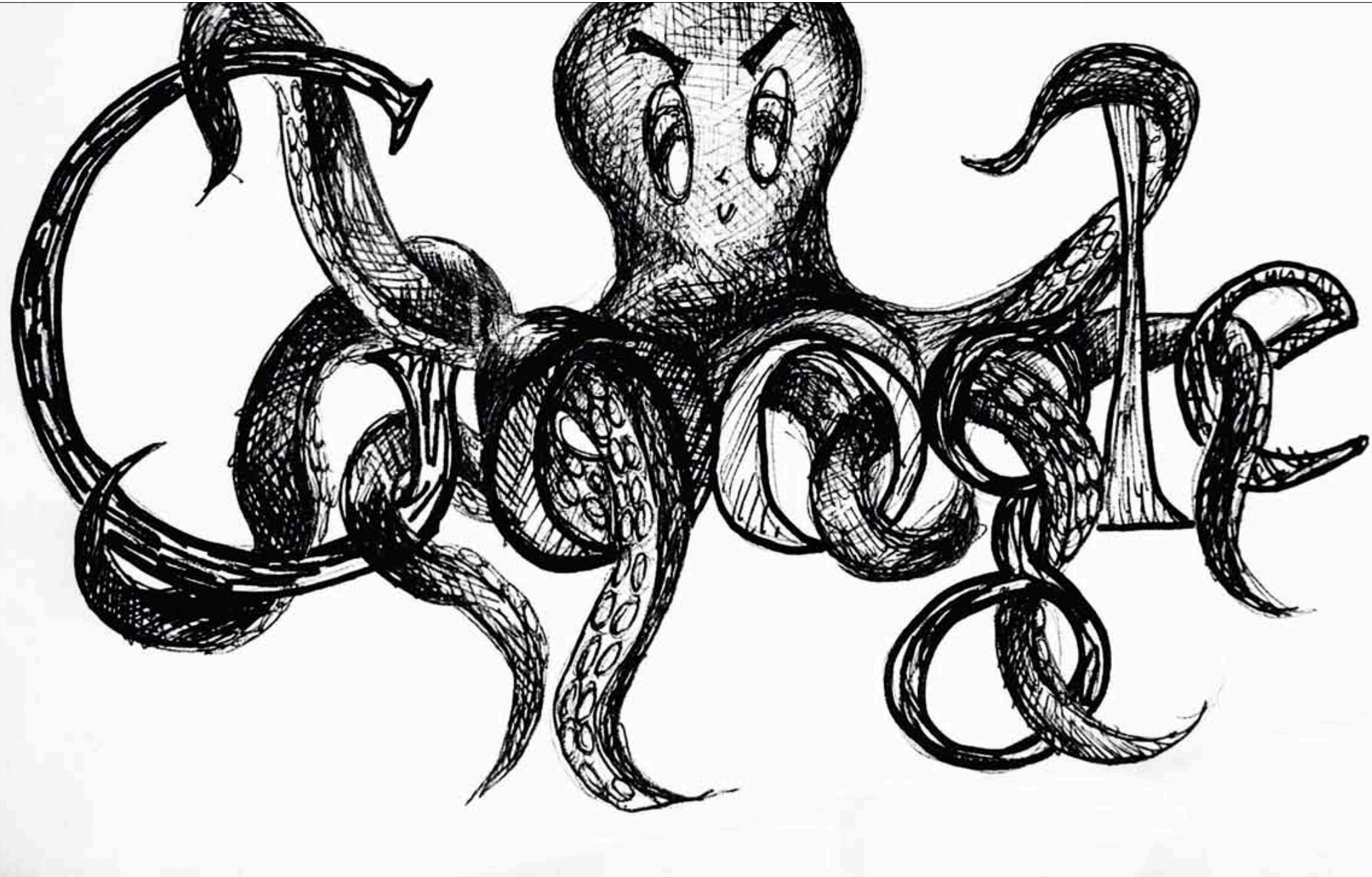
market-dominating brands like Advil or Tide, instead of being placed beside them. It may not seem the case, but it is. According to Marketing Land, “on the first page [of Google results] alone, the first 5 results account for 67.60 percent of all the clicks,” with the next 5 only having 3.73 percent.

market imperfections are bound to occur. This is a simple law of economics. Google, the company that’s motto is “do no evil,” has sadly created externalities in its market.

Even if Google wins the suit, it is a risky deal. The antitrust case could cost the company over \$6 billion in legal fees and other expenses.

Europe, because of the cooperation between the U.S. government and the EU, there is information that comes up and is going to be shared with the United States.”

It is hard to tell whether this will happen, as Microsoft faced similar charges in the past and lost. Many say that Microsoft may be lobbying



Emily Giedzinski/Staff Artist

## A PERSON’S OPINION

Compiled by Justin McGown and Sarah Gutekunst

The Tartan is gearing up for the last week of classes, finals, and *the future* this week. So we asked graduating seniors,

### What are you doing after graduation?



**Ben Walker**  
Information Systems  
Senior

*“I’ll be working for AT&T in Dallas in their leadership development program.”*



**Angelique Rein**  
Business, Japanese  
Senior

*“I hope to be working in Japan and improving my Japanese!”*



**Vinit Palayekar**  
Materials Science, BME  
Senior

*“I hope to work at some research position before I apply to medical school.”*



**Catherine Spence**  
Professional Writing, SDS  
Senior

*“I’ll be interning at UPS Corporate in Atlanta for the summer, then going to grad school at CMU next year!”*



**Jordan Green**  
ChemE, BME  
Senior

*“Going to Philly to start working at a large Pharma company. Plan to get my MBA and start a non-profit in a few years.”*





# “Golden Age” of diverse cartoons must not lose momentum

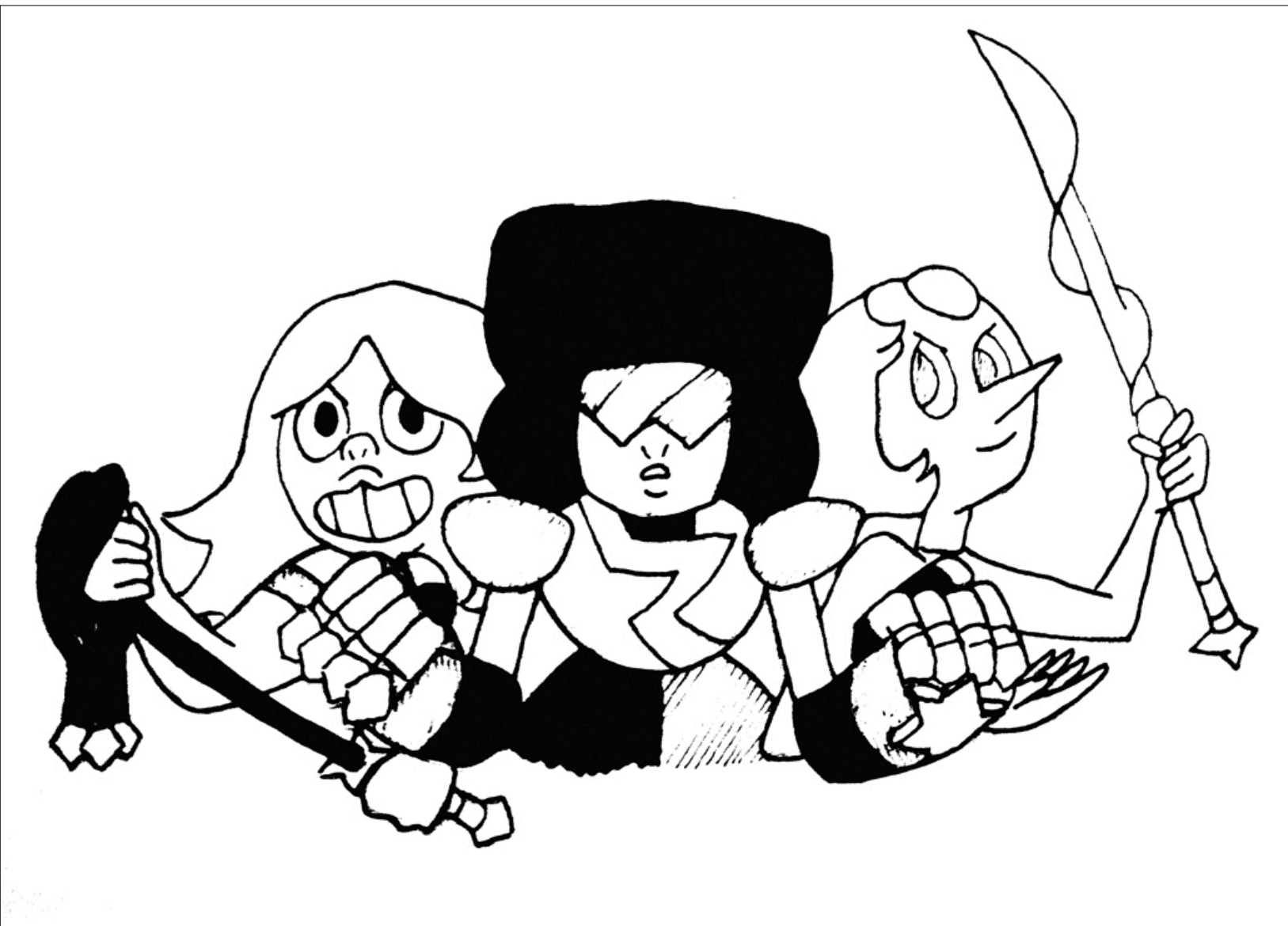
**GORDON ESTES**  
*Junior Staffwriter*

The last few years have brought a surge of good cartoons to our television screens — a “Golden Age,” as some people are calling it. This recent trend of shows, including *Adventure Time*, *Steven Universe*, *Gravity Falls*, and even *My Little Pony*, have provided more than just high quality and equally high ratings. They’ve brought representation back into children’s television, and in a way that’s much more genuine than ’90s tokenism.

Ethnic minorities haven’t been made the only new focus of cartoons. *Steven Universe*, a slice of life show about a good-hearted kid out to make friends and master his magical abilities, has a pronounced focus on the virtues and aspects of femininity. Four of the other five main characters are female, and each has a unique and well-developed personality. Similarly, the newest iteration of *My Little Pony* has (unsurprisingly) an almost completely female cast, but none of the “girlish” icons of ’80s female television dominate.

That’s not to say that either *Steven Universe* or *My Little Pony* denigrate “girly” things — far from it. The important part, though, is that neither tries to really limit what “femininity” really is. Femininity might mean playing with dolls and dressing up for parties, but it might also mean reading science fiction or being a party animal. Or it might mean kicking some serious butt. The female characters of both shows avoid limiting themselves, and in doing so provide role models for young girls who might want to emulate them.

But girlishness isn’t the only thing that new cartoons have embraced. We’ve also seen a slow but steady acceptance of LGBTQ people and couples in media as more and more people come to view gay rights as human rights. *Steven Universe* — without spoiling — outright depicts one lesbian relationship, and strongly hints at another. Meanwhile, *The Legend of*



The characters Amethyst, Garnet, and Pearl from *Steven Universe* exemplify diversity in new golden age cartoons.

Ben Hammer/Junior Artist

*Korra*, the steampunk spinoff of the original *Avatar: The Last Airbender*, ended with the hint of a same-sex relationship between two of its leading female characters. It might not be a wedding, but it’s certainly on the right track.

Can we all pack up and go home, then, congratulating ourselves on a job well done? Not quite. It’s undoubtedly an important step forward to depict queer role models for little

girls, but queer male representation is still at a premium in even adult television. Racially, shows like *Steven Universe* have done a lot to integrate black, Asian, and Hispanic characters into their stories as a natural part of the animated population, but one look at the top five cartoons today show that we’ve yet to move away from the archetype of the young, white, male protagonist.

More representation is always

positive, and it’s never good to dismiss progress that hasn’t gone far enough. But there are still kids out there without proper role models, without anyone to tell them that they matter, or that they’re not alone. Shows like *The Legend of Korra* have already made great progress by showing that there’s a real audience for shows with a female, non-heterosexual protagonist of color. Maybe by 2020, we’ll have a black protagonist,

a trans character, or even an explicit same-sex relationship. But it won’t happen if either creators or audience sit back and applaud themselves on their laurels.

The last five years have been a golden age of cartoons and television in general, no small thanks to the writers who’ve worked so hard to make real, genuine characters and inclusive storytelling. Let’s just hope that it keeps getting better from here.

## LETTERS TO THE EDITOR

# CMU’s custodial staff deserve fair pay, appreciation from community

**ABIGAIL SMITH**  
*Special to The Tartan*

As I sat on the third floor of Hunt Library last year, I heard vaguely loud Gospel music playing from behind me. Instinctively, in my intense third-floor mode, I turned to tell the person to turn the music down. Instead, my eyes met the smile of a custodial worker, dancing as she took out the trash. It was the start of a very unique and special friendship.

Anna,\* who wishes to remain anonymous, works the night shift, 11 p.m. to 7 a.m., scrubbing bathroom floors and dragging out mountains of trash. Every day I talked to her about her work and her five-year-old son, and I am continually amazed by her hard work, dedication, and positivity.

College students are gross. It’s an accepted fact; many of us leave cups and wrappers behind without thinking about the men and women that will clean up later.

I asked Anna if she minds cleaning up the seemingly never-ending mess. She smiled and said, “At first, I would get frustrated when trash would be everywhere around the trashcan. But then I realized: it’s job security.”

With more sincerity however, “job security” has become a recent source of concern for our custodial staff. Carnegie Mellon switched from ISS to a new contractor known as ARAMARK in January, and since that shift there have been a number of concerns raised by the custodial workers about their new employer.

ARAMARK is against union and non-union workers working the same shifts, which is proving to be a problem as the contractor has hired many non-union workers from a temp agency. As a union worker, Anna worries that her job may be in danger. Even more troublesome, however, is the potential pay decrease; the contractor has threatened to cut custodians’ wages by almost 40 percent, even for those who have had the job for over 10 years.

“We cannot support our families with that much of a decreased salary,” Anna said. “We are already living paycheck to paycheck.” One day, Anna came to campus to pick up her paycheck. When it was not waiting in her mailbox, she realized that she

would not have enough bus fare to make it to work later that evening.

Workers have additionally raised concerns about the lack of communication between them and the contractor. Often, staff members are forced to clean areas by themselves that would normally require two to three workers. Requests for appropriate cleaning supplies are not met promptly. Paychecks do not come on schedule. Put simply, the workers “know what works and the employer does not.”

“We’ve been here longer than they have, yet they continually have demonstrated that they do not value our opinions. The ‘big guys’ just don’t listen to the ‘little guys,’” said Anna.

There have been recent rallies and protests about a similar situation at the University of Pittsburgh. About two weeks ago, the contract for University of Pittsburgh custodial employees expired. The more administrative employees received a 9 percent raise, while the workers continue to work outside of a solid contract.

“Thinking about it just makes me want to not go to work sometime,” Anna said. “We are here, we are at the front line. We just want our voices to be heard.”

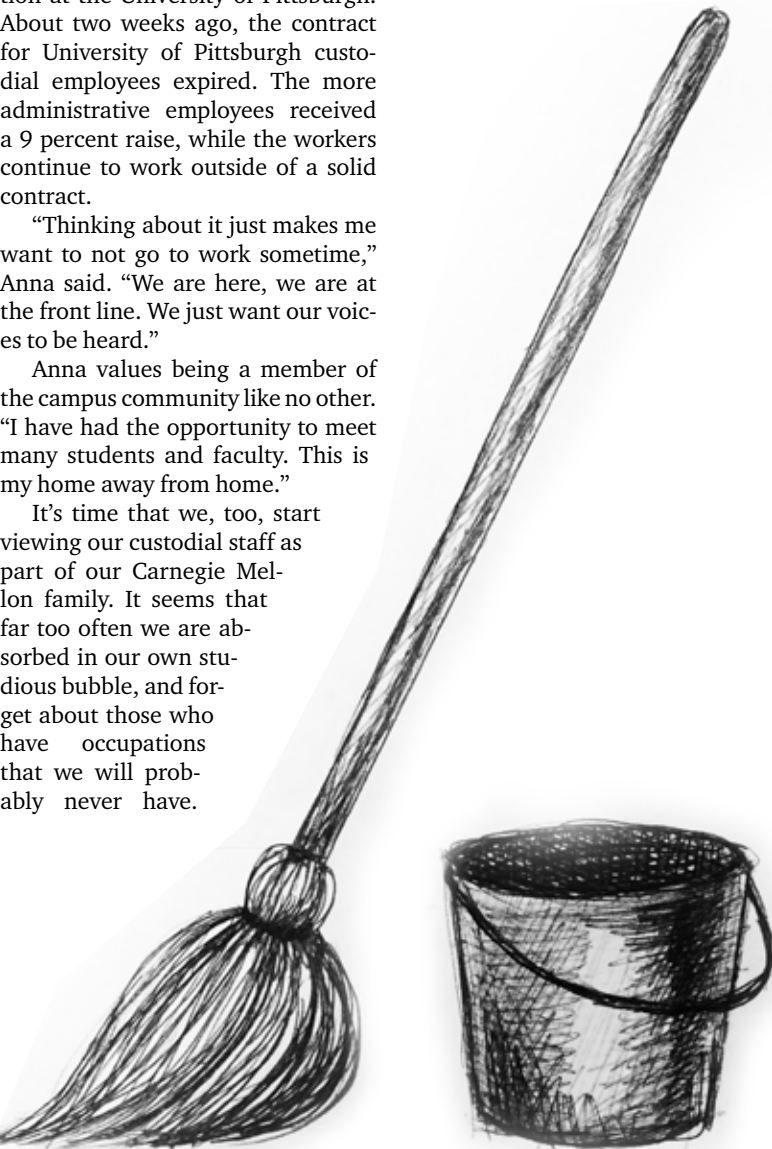
Anna values being a member of the campus community like no other. “I have had the opportunity to meet many students and faculty. This is my home away from home.”

It’s time that we, too, start viewing our custodial staff as part of our Carnegie Mellon family. It seems that far too often we are absorbed in our own studious bubble, and forget about those who have occupations that we will probably never have.

If this is something that matters to us, we need to talk about it. Conversations at Carnegie Mellon often turn very self-centered: What about our tuition? What about our scholarship money and our endowment? Shift the conversation. What about the livelihoods of those who work here? Maybe then the “big guys” will listen.

Anna said it best: “I see all of the students as my own children. Would I want my son living in a home that isn’t clean? At the end of the day, it’s about the students and making this campus better.”

*\* Name has been changed to protect the privacy of the individual interviewed for this article.*



Anne-Sophie Kim/Layout Manager

# Student-led diversity conversation should keep growing louder

**STUDENT DIVERSITY COMMITTEE**  
*Special to The Tartan*

We write in regards to the recent ongoing conversations about diversity, inspired by the March 16 Strategic Planning Town Hall Forum. As many of you know, on March 22 Juan Acosta published an article in The Tartan calling for campus leaders to seriously commit to diversity efforts. As a result, undergraduate and graduate students, supported by staff and administration, united as a Student Diversity Committee.

We recognize that it is everyone’s responsibility, including students’, to play a role in fostering a diverse campus community. As a result, we did our part by hosting two student-driven Diversity Forums on April 9 and April 10. This letter seeks to elevate the voices of students who participated in the forums and calls on Carnegie Mellon’s leadership to share in these continued efforts.

## Recruiting a Diverse Student Body

Participants in the forums emphasized that expanding Carnegie Mellon’s socioeconomic diversity and representation of domestic minorities is key for developing tomorrow’s leaders. The recent changes to Carnegie Mellon’s underrepresented minority pipeline program (SAMS) has many students concerned that pipeline programs may be disappearing or getting less support.

We call on the university to commit more funding and resources to its pipeline programs at the undergraduate and graduate level. Specifically, we call on the university to focus on efforts such as locally recruiting underrepresented minorities, increasing the percentage of Pell Grant Recipients (in 2013–14 it was only 13 percent), and offering diversity-based fellowships to graduate students.

## Students’ Learning Experience

Another primary concern at the

forums was the representation of diverse faculty and the impact on students’ learning experience.

As one participant noted: “It’s hard to see yourself in faculty or staff, but easy in CulinArt.” In addition to faculty representation, the nature of the university’s research and curriculum should address issues of diversity with rigor and continual open-ended inquiry and investigation.

We call on the university to prioritize diversity in hiring faculty and ongoing support for minority employees once they are hired. We call on faculty from across the university to include structured conversations about diversity in their classrooms. Additionally, we call on deans and department heads to direct funding toward research that addresses diversity-based issues.

## Extracurricular Support

A third recurring theme in our discussions was the siloing of the student body on campus, often by race and culture.

We recognize that if students do not engage with those who are different from them, then having a diverse population becomes meaningless. This siloing of students is often reinforced by the structure of student organizations. We call on the university to provide more advising and funding support for campus-wide diversity programming, especially between student organizations.

We were inspired by the great turnout and the level of critical reflection offered by participants at both diversity forums. The Millennial generation, in particular, is critically attuned to issues of race, gender, class, culture, varying capabilities, and sexual identity.

Students offer invaluable insight to Carnegie Mellon’s campus discussions about diversity, and we look forward to seeing this insight reflected in the university’s strategic plan and ultimate implementation.

Our heart is in the work and we hope yours is, too.



# Sports

## Early returns set the scene for Tigers, Mets playoff runs

**ZEKE ROSENBERG**  
*Sports Editor*

As April comes to a close, nearly every bit of information we have about baseball is useless. Over the course of a 162-game season, it's a fool's errand to try to make long-term predictions based on early season trends. However, early season madness can sometimes change the picture of a season in a meaningful way. This year, two crowded races — the battle for the American League (AL) Central crown and the struggle for the National League (NL) Wild Card — could have seen the favorites change due to some early season surprises.

Early season swings cause changes in close races. Say a team would normally be expected to win 81 games in a season. This would mean it wins 50 percent of its games. If that team wins its first ten games, their talent level did not change, but those games count. Now, instead of 81 games, that team is expected to win 86.

That random hot streak has an impact on the playoff

position of that team. Saying the hot streak will level out in the long run is true, but the season is not long enough to render those ten games irrelevant. Further, the team is not more likely to experience a random cold streak because they had a random hot streak. This is the gambler's fallacy. The early season successes of two teams, the Detroit Tigers and the New York Mets, have massively improved those teams' chances to get in on the MLB playoffs.

In the AL Central, four teams — the Tigers, Kansas City Royals, Cleveland Indians, and Chicago White Sox — all had their sights set on a division crown. While projection systems were less kind to the Royals despite their AL pennant from last season, the Tigers, Indians, and White Sox were all projected by Baseball Prospectus' PECOTA, Clay Davenport, and Vegas lines to finish with only a couple games between them. The Royals were projected to find themselves a bit back of the pack. However, with a fast start, the Tigers have pulled five games ahead of both the

Indians and White Sox. The Royals, who have matched the Tigers so far, may have been underrated by the preseason projections.

Even if they were not, this random hot streak has put them in position to finish about level with the Indians and White Sox, putting them back in contention for the Wild Card race in the AL. This is not a big upset considering expectations, as the White Sox and Indians were relying on younger players taking a step forward. This doesn't always happen, and it means that both teams are likely to improve as the season goes along. However, if both teams finish with the same record as the Tigers in a vacuum, that five game league is likely to hold over the remaining 145 or so games.

A stacked field featuring the San Diego Padres, Chicago Cubs, Miami Marlins, and whoever between the Pittsburgh Pirates and St. Louis Cardinals misses out on the NL Central crown was supposed to have a season-long scrum for the two spots in the NL Wild Card playoff game. The

Cardinals and Pirates were expected to finish with somewhere between 89 and 93 wins, but one of them would win the NL Central. That means that one spot would be left for the rest of the field, all of whom were often projected to finish in the 83 to 85 win range.

Just behind those four teams was supposed to be the Mets, a .500 team with some great pitching but little else better than average. The Mets had other ideas, however, as they burst out of the gate with a 13–3 start. Considering their projections, prorated to a whole season, the Mets would then be expected to follow that start with .500 baseball and finish with 86 wins.

With none of the other wild card teams performing according to expectations so far, the Mets' 86 expected wins seems to have launched them not only into the conversation, but maybe even the pole position. The Marlins have been horrible out of the gate, and in a crowded race a cold streak can be death. Slow starts have left the Cubs and Pirates hovering around .500, so consid-



Karina Tjin/Junior Artist

ering preseason expectations, the Cubs are likely an 83-win team and the Pirates an 87-win team. The Padres have been good to begin the season, but they did not project more than two games better than the Mets coming in and sit three games back right now. The Mets are being tested early with injuries to third baseman David Wright and catcher Travis D'Arnaud, but starters Matt Harvey, Jacob deGrom, and Bartolo Colon can help the team go a long way, and

highly rated prospect, starter Noah Syndergaard, is waiting in the wings. These Mets might be able to put a playoff run together this season.

Of course, it's only April, and small sample size wonkiness happens during every small sample over the course of a season. Injuries might derail the Mets, or all of those teams might go on even more impressive runs. Either way, what seemed like an exciting and close MLB season looks even closer one month in.

## Machika Kaku dives into successful pair of seasons

**IAN TANAYA**  
*Assistant Sports Editor*

If you've kept up with The Tartan, you may have noticed that this semester has featured quite a large number of athlete profiles. These profiles delve into how the student athletes at Carnegie Mellon have been able to survive the academic rigors we all share while devoting a considerable amount of time into something they have a passion for. While that passion doesn't have to be a sport, these young men and women lead balanced, complete lives, and sophomore diver Machika Kaku is no exception. She, like all the athletes who have been featured over the course of this semester, exemplifies what it means to be a Tartan: being able to handle a demanding workload without sacrificing the things that bring enjoyment to life.

In Kaku's case, sports have been that part of her life that balances out everything else. "I've been active since I could walk," the biology and creative writing double major said. Growing up in Irvine, California, Kaku spent a lot of time roller blading, surfing, and rock climbing recreationally. When she eventually moved toward team sports, she initially gravitated toward gymnastics. She soon discovered aspects of the sport she liked, such as the team spirit and unity, and those that she did not, such as the level of

competitiveness and rates of injury, leading her to choose diving. "Water is a lot more forgiving than a concrete floor," Kaku said.

Although Kaku was the only diver on her high school's swimming and diving team, she felt like part of a family with the swimmers. She attributes this welcome to the school's pride in swimming; the team often won their state championships. This type of group environment was something she sought from college programs as she prepared to search for her home after high school. Between Carnegie Mellon and a local Division II school, she chose the former to focus more on academics and to begin an adventure away from home.

At Carnegie Mellon, Kaku hoped to see as cohesive a team as she had come to expect from her previous years. "I made it a point to get to know the swimmers."

She was not disappointed. Kaku arrived at a time where the swimmers and divers thought of themselves as one team. "Apparently before, they never spoke to each other. I was glad that they were now a team," she said.

During her first year with the team, Kaku managed to make it to the regional level of competition, though she was the only member of the team who had achieved the minimum score to do so. "I was so nervous; I did really badly," she said. This year,

however, Kaku managed to finish in fourth place in the regional competition, making it to the national competition. She credited the two teammates who made it with her to regionals for giving her the sense of camaraderie she needed to do her best. "I felt comfortable with my teammates around," she said.

She was excited to make nationals, especially considering she almost wasn't allowed to participate in the regional competition. "I had a concussion before regionals," she said. She was only cleared to return to practice shortly before the regional competition began. For her, being able to make the most out of her opportunity to play made the victory one of her proudest accomplishments. With Carnegie Mellon hosting regionals next year, meaning that the team won't have to travel to New York as they have in previous years, Kaku believes she and the team can do even better.

In the meantime, Kaku will be continuing research at the Minden Lab in Mellon Institute. She is currently trying to find protein bio-markers that causes those with rheumatoid arthritis to develop Interstitial Lung Disease.

Whether she's devoting time to her sport, working in the research lab, or hanging out and enjoying a good time, Kaku represents someone who has defined being a Tartan in her own way.

## Carnegie Mellon tennis and track compete at UAA final

**CARL GLAZER**  
*Senior Staffwriter*

Over the weekend, the Carnegie Mellon men's and women's track and field teams competed in the University Athletic Association (UAA) Outdoor Championships.

On Saturday, the men started the competition strong with a new school record in the 4x800-meter relay with junior Marc-Daniel Julien, first-year Evan Larrick, sophomore Owen Norley, and senior Thomas Vandenberg combing for a winning time of 7:39.98. First-year David Trzcinski added to the Tartan success by earning third place in the shot put with a 13.90 meter heave. Vandenberg and Julien continued the Tartan domination in the 800 meter distance with first and second place finishes, crossing the line at 1:53.64 and 1:54.94 respectively. In the 5000 meter run, senior George Degen finished fourth with a time of 15:15.23. In the field events, first year Jacob Schofel placed second in the discus throw with a top throw of 42.47m. To finish off the day, the 4x400 relay team, with sophomore Nathan Willis, Julien, Norley and Vandenberg, finished fourth with a time of 3:21.37 — less than .6 seconds out of second.

On the women's side, the Tartans came out strong on Saturday, breaking three school records.

First-year Sarah Cook

broke the school record in the 400 meter dash during her preliminary run with a time of 57.65 and went on to place third and break the record again with a time of 57.22 on Sunday. In the 4x800 meter relay, senior Sara Kelly, sophomore Ariel Tian, Cook, and junior Erin Kiekhaefer placed fifth but broke the school record by over 10 seconds with a final time of 9:22.34.

In the pole vault, sophomore Grace Yee took first place and broke her own school record with her 3.40m leap. Senior Sasha Spalding took second in the long jump with her 5.20 meter bound to continue the Tartans success in the field events.

In the 4x100 meter relay on Sunday, sophomore Jerilyn James, Cook, Tian and Spalding placed third with a time of 49.23. In the 1500 meter run, Kiekhaefer took second with a final time of 4:39.84 and then fourth as part of 4x400 relay with James, Tian and Cook, crossing the line in 3:59.25. Overall, both squads placed sixth out of seven schools with the men racking up 90 team points and the women earning 65.

Both tennis teams for Carnegie Mellon competed in the UAA Championships this weekend as well.

The women's team is ranked seventh in the nation and faced stark competition. They easily dispatched Rochester 8–1 in the first round, but had a much tougher time

pulling out a victory against 11th-ranked Washington University in St. Louis, coming from behind to squeak out the 5–4 victory.

In the finals, the Tartans faced off against second-ranked Emory University, which had defeated the Tartans in the finals the last two years. Senior Bryn Raschke and first-year Cori Sidell were able to pull out a point in double play, but Carnegie Mellon was still down 2–1 going into the singles play. There they lost 4 points in straight sets and a fifth in a tie break to crush any title hopes. Sophomore Vanessa Pavia gained the only singles point for the Tartans with her 6–2, 6–3 straight set victory as Carnegie Mellon fell 7–2.

The 10th-ranked men had high expectations after beating 29th-ranked Brandeis University in the first round 7–2, but against fifth-ranked Washington University in St. Louis, the Tartans fell 7–2, with the only points coming from junior Abshiek Alla and sophomore Kiril Kirkov, who both needed tiebreaker sets.

In the third place game, Carnegie Mellon completely unraveled and fell 8–1 against 13th-ranked University of Chicago, with senior Christian Heaney-Secord earning the sole point.

Both teams will next look to play in the NCAA DIII Tennis Championships, with bids announced next Monday, May 4.

## First round of NHL playoffs dominated by close contests



Maegha Singh/Staff Artist

**ZEKE ROSENBERG**  
*Sports Editor*

**(1) Anaheim Ducks 4 – 0 (W) Winnipeg Jets**

Winnipeg hockey fans were seeing playoff hockey for the first time in 19 years, and the atmosphere inside the MTS



Center was amazing. However, the Ducks brought too much talent to the table for crowd noise to matter and swept the Jets with just one game leaking into overtime. The short series bodes well for the Ducks, who get some valuable days off.

**(2) Vancouver Canucks 2 – 4 (3) Calgary Flames**

The Flames' cinderella run continues after a six-game series with the Canucks. This series got intense after game one, featuring fights and plenty of hits, but the Flames were unshaken and advanced.



**(1) St. Louis Blues 2 – 4 (W) Minnesota Wild**

The Wild started setting the NHL on fire after acquiring goaltender Devan Dubnyk at the trade deadline. After posting one of the league's best second half records, they put up a long and hotly contested battle against one of hockey's best teams. It was enough for a second round visit as the Wild won game six 4–1 being outshot 31–21 by the Blues.

**(2) Nashville Predators 2 – 4 (3) Chicago Blackhawks**

Nashville actually outscored the Blackhawks in this series, turning in two dominant games while the Blackhawks scraped by on wins in double and triple overtime games. It's unfair to see the Predators go down in a series where they played better, but luck happens in short series.



**(1) Montreal Canadiens 4 – 2 (W) Ottawa Senators**

The Montreal Canadiens came in as heavy favorites, but a series of closely contested, one-goal games left this matchup in reach for the Senators. Ottawa's 5–1 beatdown of Montreal in game five remains the only convincing win of this series.

In the end, however, Montreal had enough to win the series in six games.

**(2) Tampa Bay Lightning 2 – 3 (3) Detroit Red Wings**

In a fast-paced series, the Lightning — hockey's best offensive team all season — was held scoreless in games three and five, putting the Red Wings on top. This series continues on Monday when the Red Wings have a chance to win on their home ice.

**(1) New York Rangers 4 – 1 (W) Pittsburgh Penguins**

The Rangers came in with the President's Trophy, and the Penguins came in with an ugly, months-long cold streak, making this outcome widely expected. However, as is often the case in hockey, the lopsided game count belies a close series.

The Penguins held their own, but lost four games 2–1 after plenty of deflections and moments of luck.

**(2) Washington Capitals 3 – 3 (3) New York Islanders**

The Isles and Caps have traded thrillers up to this point, and great goaltending has left three of the six games as one goal affairs.

Monday's series finale should be yet another nail-biter.





# ***pillbox***

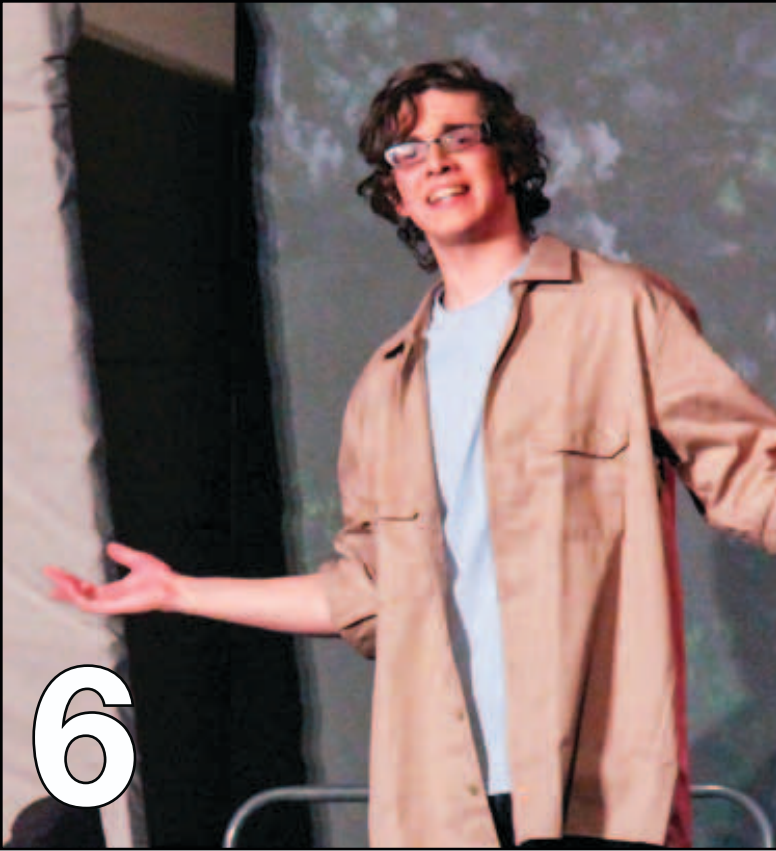
*the tartan's arts and culture  
magazine april 27, 2015  
volume 109, issue 25*



***Othello: Shakespeare in Pittsburgh Public Theater B3***  
***Rachel Cohen: highlights of her 4 years B4***  
***Guts: theater by the students, for the students B6***



# ...this week only



3

## *Othello*

A review of Pittsburgh Public Theater's performance of the Shakespeare classic.

4

## Rachel Cohen

Graduating senior reflects on the best artistic experiences The Tartan has afforded her.

5

## *Daredevil*

Netflix releases a new Marvel television series.

5

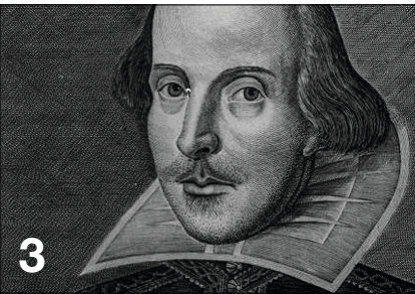
## Summer

If your summer plans are up in the air, here are some useful tips for a productive break.

6

## *Guts*

Student musical premieres at Carnegie Mellon.



## regulars...

3

## Advice

Evan Kahn pens his last advice on how to make the remaining weeks count.

15

## Calendar

Take advantage of the multitude of student work on display before you leave for the summer.

## ...diversions

11

## Comics

Bring some levity and giggles to your pre-finals lifestyle.

13

## Puzzles

Solve this week's puzzles and take a moment to feel good about your mental prowess.

14

## Horoscopes

Learn what the sky and stars tell you will happen in this lovely spring week.

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# Love, Betrayal, Deceit

*Othello*, playing at the Pittsburgh Public Theater, intrigues the mind

I was very intrigued when I first heard *Othello*, written by William Shakespeare and directed by Ted Pappas, was playing at the Pittsburgh Public Theater. *Othello* is one of those really famous Shakespearean plays (although, to be fair, which one of Shakespeare's plays isn't famous?). This one falls in with *Macbeth* and *King Lear* and all of the really serious, really awesome Shakespeare plays. If you find yourself attending the play without prior knowledge, I would suggest you Google *Othello* before you go or you will totally be lost in the first act. Also you may want to read the plot summary before reading this review. Just a suggestion.

Even if you do read the book in its entirety, I'm pretty sure you'll still find the first act rough. Like, actors tripping on lines rough. When I was sitting through it, I was really worried that this play was going to be torture — and let's face it, writing a bad review of Shakespeare is basically asking to be called a jerk. I understand that introductions must be made and the scene set, but I think the actors found the first act boring, too. Many of them seemed to be spitting out their lines as fast as they possibly could (hence my suggestion of reading up before the production).

The visual element does not really help at all. Sets at the public theater are always interesting because of the open floor plan and lack of curtain, meaning that part of the set must always remain. Yet this set is extremely sparse and seemingly has no relation to the play. It consisted of a frame made of steel beams set in stone, with the rest of the background made up of gray stained planks. It appears somewhat modern, with kind of a Scandinavian minimalist design. Yet the program and costumes indicated the setting was the mid-19th century. I have no idea why the mid-19th century, because this seemed to serve no purpose either. Having seen the 2010 production of *Midsummer Night's Dream* at the Public Theater, my only guess is that Ted Pappas, who directed both productions, really has a thing for setting Shakespearean plays in the 19th century. From an audience's perspective, it certainly does nothing to detract from the performance, but also nothing to enhance it.

At this point you must be thinking that I absolutely hated this production, but actually walking out of the theater, I have to say that I really enjoyed it. While it may have had its rough spots during the first act, everything comes together after that. Suddenly the characters take on new realness, and we get to really know Iago, perhaps one of the most interesting villains ever written. Jeremy Kushnier did a really excellent job with his role. His changing vocal inflections did a nice job of highlighting the deceit Iago weaves around the other characters.

I only wish that Kushnier had highlighted the psychopathic elements of Iago more, to make him a bit scarier and a bit more demented. Overall, however, Kushnier's performance was engaging.

I have to say, I have a particular soft spot for the role of Emilia. Played by Jessica Wortham, Emilia, Iago's wife and lady-in-waiting to Desdemona, kicks some serious butt. When she goes on about women essentially being the equal of men you kind of half expect some weird time travel element to be at hand — sorry, *Outlander* fans, no such thing here. You find yourself thinking to yourself: "Really? Shakespeare wrote that? No!" I mean seriously, I never would have thought anything that progressive could be found in a 17th-century play. But yes, it's true, and the dramatic irony in about half her lines also makes her character one of the more amusing ones. But ultimately, Emilia stands her ground and fights for justice. So what if Iago knifes her in the back? She already made sure that Iago would get his just desserts. Badass.

Teagle F. Bougere, playing the title role of Othello, was also a show stopper. You could feel the energy he was putting into the performance. Bougere is able to make you see almost every facet of *Othello*. Sometimes arrogant, sometimes endearing, sometimes mildly psychotic, and seriously misled, Othello is a rich character that you could spend forever analyzing, and Bougere makes you see each part. Matched up with Amanda Leigh Cobb in the role of Desdemona, the two bring such chemistry to these leading roles as to make the final sequence truly heart wrenching. I have never before walked away from a play feeling bad for a character who committed murder, but Othello is not your standard murderer.

Ultimately, like most of Shakespeare's great works, *Othello* is exceptionally rich, and the production currently at the Public Theater does not disappoint.

**Kate Groschner** | Contributing Editor

## Advice for awkward people

About finishing up the college experience

Dear Evan,

**Senior year, post-Carnival: I'm suffering from a more-than-mild existential crisis. I've grown to hate school; heck, part of the culture at Carnegie Mellon is that you're so, so ready to work less hard than you did here, and out of that, people grow to resent this place. Despite that, bubbling to my emotional surface is a feeling that I'm going to miss this sorry school — with its nerd culture, odd traditions, and misguided priorities — for the rest of my days.**

**How should I go about spending my last few weeks at Carnegie Mellon to make my collegiate experience complete?**

**With mixed feelings, Reaching End of Academic Life, Tense And Looking for Komfort**

Dear REAL TALK,

Well, if you've never been to Tazza d'Oro at the bottom of Gates, then you could eat there. And I guess you should go to Razzy Fresh at least once, too... oh, wait; you probably want to do more than just eat food. That's a little tougher to answer.

You're probably doing this already, but avoid homework like the plague until at most 24 hours before it's due. If you already have a job or

internship lined up, and you don't plan on going to grad school, then you don't really need to be doing anything except enjoying your time here.

Your best bet at making the most of your time before commencement is to hang out with as many estranged friends as possible — people you met in your first and sophomore years and connected with but then never made the mutual effort to foster a true friendship. Try to make as many positive personal connections as possible, and if one of those people ends up complaining about not having seen you in so long, then you can let them go without a colored conscience.

I know my usual advice is to stay in, eat, and play video games, but I'm going to break my own rules here: Get out of the house. See Phipps; go to the Altar Bar, Heinz Hall, the Incline, Fallingwater. Be a tourist.

Also, I in no way condone climbing onto the roof of Hamerschlag Hall, or any other academic building — but I've heard it's kinda fun.

**Pittsburgh will miss you, too, Evan Kahn**

Send your queries to [advice@thetartan.org](mailto:advice@thetartan.org)



# A senior looks back on The Tartan experience

Pillbox editor and publisher emerita looks back on some rewarding Tartan moments

From four years writing reviews for The Tartan, here's my list of the best of the best:

## **Carnegie Museum of Art (CMOA): *Storyteller: Photographs of Duane Michals***

I've never wanted to milk an exhibit dry as I have *Storyteller*. Michals isn't just a photographer; he's a craftsman, piecing together stories with whatever media he has available. His work is simultaneously artful and activist, simple and deeply thought provoking. And there's a lot of it. That's where the masterful touch of CMOA curators came into play: How to build an exhibit that both organizes all there is to display, and guide us through such that we discover the genius for what it is? This one was pretty perfect. I went back again and again before it closed in February.

## **Faculty Interview: Reza Vali**

When I sat down with Professor of Composition Reza Vali in February 2014, I expected to learn about "Elements," the piece he had co-composed that was due to premiere with the Pittsburgh Symphony Orchestra that month. Instead, I got a story — nearly unbelievable in its scope — spun in the whining half-tones of the Persian melodies from Vali's youth. Vali told me about dastgah, the Persian music system, and his mission to create a Western instrument that could play the notes-between-notes that color those classic tunes. This interview changed me. It's an inspiring reminder that our campus is scattered all over with hidden diamonds, faculty who are literal icons in their fields.



File photo by **Andrew Viny**

Pittsburgh instrument builder Michael Johnsen performs a synthetic soundscape at the April 2013 wats:ON? Festival.

## **Carnegie Museum of Natural History: *Roads of Arabia***

Tied with *Storyteller*, *Roads of Arabia* is one of my favorite exhibits I've seen grace either Carnegie museum. There's something remarkable about an exhibit that takes you out of your habitat and places you so wholly and seamlessly into another. Maybe it was the 6,000-year-old anthropomorphic steles guarding the doors, their wizened human expressions speaking sadness, that made me feel a desert wanderer myself. The curators at the Carnegie museums know how to stun with their material, and *Roads of Arabia* — in its understated way — has been one of their best.

## **wats:ON? Festival 2013: NOISE**

Not every act during this festival was my favorite. In fact, I found one of them downright intolerable. But when I was a guest at wats:ON?, I felt like an insider on some big secret. At wats:ON, artists, and students met and shared their work, opened their eyes to new sights and sounds. I saw projects I didn't expect to see, and will probably never see again. It had the feel of an exclusive, art-sharing club when in reality, it was incredibly accessible, hosted in the College of Fine Arts and entirely free to attend.

## **The Mattress Factory: *Gestures***

It seems not many students venture to the Mexican War Streets neighborhood, weaving through the artfully painted row houses to find the hidden treasure that is the Mattress Factory, a museum of exclusively installation art. What does installation art mean?



File photo by **Susie Ferrell**

Museum-goers gather for a balloon-releasing ceremony as part of artist Ling He's exhibit "Wish exchange dandelion" on display in Mattress Factory's *Gestures*.

The art isn't confined to frames and canvases: It creeps into the viewer space until it surrounds you. *Gestures* was one of the most vivid examples of this when it opened in April 2012, with rooms filled with rope dangling from the ceiling and apple-red balloons you took outside and lifted to the sky. The Mattress Factory rotates through exhibits excruciatingly slowly, with maybe one or two openings a semester at most. But when these openings happen, they're worth the trip.

## **Pittsburgh Symphony Orchestra: Anne-Sophie Mutter**

Violin soloist Anne-Sophie Mutter dazzled in this September 2011 performance with the Pittsburgh Symphony Orchestra, but the PSO itself stunned me more. I discovered the Symphony was wonderful, and thought maybe I could start writing about it. I've been to see the PSO many, many times since, and every time they blow me away. With the ability to consistently bring world-class soloists to the Steel City, the PSO's best asset is its own talent. When concertmaster Noah Bendix-Balgley picks up his violin, his nectar-sweet sound floors me every time. I'm probably one of very few in saying that the Symphony has become one of my top destinations as a college student. But they've never disappointed me, and I find myself newly inspired every time I go.

**Rachel Cohen** | Contributing Editor and Pillbox Editor & Publisher Emerita





# Daredevil: Justice is blind in Hell’s Kitchen

## Netflix-produced Marvel television series brings new level of depth to the comics

In 2003, 20th Century Fox released a movie about the Daredevil, and it was just that: a movie about a comic book character that offered a lot of action, some big names — Ben Affleck, Colin Farrell, and Jennifer Garner — and very little character development. The current TV show that started on Netflix on April 10 does bring a lot of action, but it brings much more character development, a deep and rich origin story, and little-known names to play the characters. These characters, like some other comic book characters, are very complex and nuanced, which is why the serial format — comic book or television show — is very useful.

The origin story is about a boy who loses his sight, but in the process acquires superhuman hearing. The hearing is so enhanced that he is able to see using a radar sense. Unlike the movie, the TV show focuses on how the boy becomes the vigilante and how the vigilante becomes the hero. In other words, the show focuses on the character development that the movie missed. Of course we must consider the fact that the movie has at most 2 hours to provide enough context and backstory so that people can care about the characters in question, and they do have to hit some people and make it exciting enough to be a blockbuster. It is a lot to

pack into a two hour film, and 20th Century Fox at that time did not have the best track record with doing this — take *X2* and *X-Men: The Last Stand* as examples. This is the main reason why the serial format is much better for development.

*Daredevil*, however, brings something new to the game. While many TV shows about superheroes start at the point where the hero has his unrealistic costume already made and a back-up team already formed, this program starts off when Matt Murdock is simply a blind lawyer by day and a masked vigilante at night, without weapons or any actual practice with vigilante justice. We see him get beat up a lot, we see him lose, we see him learn, and we see him become the hero that he must become. This, paired with some flashbacks of his childhood, provide a lot of information about the character and why Matt is the way that he is. The show doesn't only focus on him, it also brings forth his old trainer, Stick (another blind man with radar sense who hasn't aged in 20 years — hint: This might indicate he has all the superpowers from the comic version). The Stick's presence could also indicate future work with The Hand and The Chaste, organizations in the Marvel universe that Daredevil has been involved in. Some foreshadowing in the show has

also indicated that more characters are set to become part of the storyline and that it will link with many of the other Marvel Cinematic Universe elements.

The show also brings the law aspect into play; since Matt is a lawyer by day, he is also seen forming his office and working with his partner to solve cases and help others in Hell's Kitchen. Finally, one of the more interesting aspects of the show is that even with all of the focus on character development and complex storytelling, it brings high action elements and highlights the artistry behind a really good fight scene. The program has some of the best fight scenes I have ever seen. Compared to other superhero shows — and even big-budget movies — they are ealistic and intense, as well as gripping and non-cliché. Since the program shows you the story from the time when Matt wasn't very experienced with fighting, you do see him struggle against thugs and criminals, but also you see him showcase his martial arts training.

**José Lopez** | Staffwriter

# Make the most of a potentially boring summer

## The Tartan’s Forum Editor Ariel Hoffmaier shares some tips for loving the next few months

“So, what are you doing this summer?” Ah, that loathsome, inescapable question. There are only a couple weeks of the semester left and, if you’re lucky, you have your summer plans set right now. Some of you probably landed that big-bucks, knockout internship way back in January (I’m looking at you, CS majors). If you are one of these people, I salute you and your peace of mind — my insane jealousy notwithstanding.

Meanwhile, there are the rest of us. We, the increasingly panicked hordes, are still waiting on job leads and the couple or couple dozen fishing lines (résumés, cover letters, and applications) we’ve flung into the void. If you’re like me (eternally thinking, “Well, there’s still time”), I sincerely hope you end up catching something.

But even if you don’t, hang on to the fact that it won’t be the end of the world. With a little motivation and creative thinking, you can definitely make this summer worthwhile. Here are just a few options:

### 1) Start a project.

Now that outside forces have stopped throwing work at you, why not give yourself some work? It’s amazing how quickly doing nothing can become soul-crushingly boring. Build a website, or — if you’re technologically incapable of that — start by picking up some HTML on Code Academy. Write that novel you’ve been dreaming of. Read ten whole books. Learn how to play “Wonderwall” on guitar and experience the joy of being “that guy.” You’ll collect some new skills

to give next year’s résumé more of a fighting chance. Plus, you’ll build yourself into a more well-rounded and interesting person. Or whatever.

### 2) Get healthy.

It’s true — all that you need in order to have a “bathing suit body” is to put a bathing suit on your body. That said, this could be the summer when you finally do get in shape. Take advantage of the best season for fresh fruit. Eat some salad; get over the fact that salad will always be on some level disappointing. Get a three-month gym membership, or take some five dollar Yoga to the People classes (marvel at the fact that *woah, you can actually get your leg up there*). For the more economical alternative, watch just a few of the Zumba videos that seem to proliferate Youtube; sweat like a pig, look like an idiot, and revel in it all.

### 3) Go outside.

Most of what’s fun about summer is not confined to your (hopefully air-conditioned) home. Wherever you happen to be, there is definitely an awesome concert heading your way, from SummerStage festival in New York City (which runs through August and is mostly free) to the tons of individual bands that will be rolling through Pittsburgh. You should also probably hit up a beach at some point, or bike/drive up to the nearest river and have a picnic if you’re feeling more adventurous. Re-cement your bonds with friends back home. Nature is pretty cool, actually.

### 4) Make money.

It’s actually easier than you’d expect to earn a few bucks over the summer. You could always go the \$7.25 an hour barista route (it’s a pretty valuable life experience, in my opinion), but there are also tons of smaller jobs you can pick up or create for yourself. Put up a poster in your building offering your services, whether it be some kind of sitting (baby, pet, plant, etc.), tutoring (though any kid who actually has to learn over the summer will probably be a handful), or computer help (“Have you tried turning it off and then on again, Mrs. Jenkins?”). Keep your eyes open for freelance work. Opportunities tend to pop up in the most unexpected places.

### 5) Embrace the rage.

Even now that you’ve learned some things, had some fun, and gotten ripped, it might still be hard to swallow the bitterness that you were forced to throw together a decent summer from scratch. Realize that joblessness, unpaid internships, and massive debt are the burden of college students everywhere. Realize that this generation works its butt off with little credit. Let that anger empower you to make next summer an even better one.

Alright, I’m off to frantically check my email, send out a dozen more applications, and cry my way toward finals week. Best of luck to you all!

**Ariel Hoffmaier** | Forum Editor





# Student-written musical *Guts* truly gutsy

Musical written, produced, and acted by students draws advertent eyes to Kresge

Last Friday, I had the privilege of attending the opening night of *Guts*, a small musical built from the ground up at Carnegie Mellon University. Performed in Kresge Auditorium within the College of Fine Arts in front of not more than seventy people, *Guts* was an immensely moving experience. I walked out with a broken smile on my face, and a ton of big ideas in my mind. Written by senior electrical and computer engineering major Brad Plaxen, with music by senior chemical engineering major Alex Petti, and directed by senior professional writing and global studies double major Razghiem Golden, *Guts*, is a post-apocalyptic zombie story like no other. The play follows a small group that has survived for ten years inside the confines of the protective but oppressive Bunker 63.

Rules and routine, the cornerstones of the group's survival strategy, are thrown out the window when an outsider enters the bunker. This outsider is no ordinary survivor, and the aftermath of his arrival brings out the best and the worst in the bunker's inhabitants. Some of them welcome the change he is the harbinger of, while others resent it. Everybody makes decisions — some wise and some unwise, some brave and some cowardly — that go on to have repercussions for the group as a whole. In the wake of what follows, fundamental questions about life are brought to the fore. What does it mean to be alive? Is surviving the same as living? If the zombies are up there, and can see the sun and feel the grass, while we're down here in a little bunker, who's really dead: them or us?

Even though zombies dominate the narrative throughout, not once does one actually appear on stage. Because of this, in spite of being such a central focus of the script, the zombies are but a means to another, more universally relevant theme: breaking free from fear and reaching for something more than just surviving. On this level, *Guts* thrives in its ability to resonate with us; who hasn't felt trapped, whether it's in the wrong major, a sad job, with misunderstood friends, or in a loveless relationship?

The attention to detail that the writers, director, and cast brought to *Guts* is incredible for the small scale of the show. The subtlest of glances and mannerisms give clues to characters' motivations. Every one of the nine characters is meticulously considered and developed. In one spectacularly put together scene, two characters are spilling their hearts out to each other about a perceived lack of affection from their respective significant others. In the background, the silhouettes of the aforementioned others are seen getting intimate with each other. In another scene of unbelievable poignance, an infected character needs to be euthanized. The group, completely fractured by that point, gets into a heated argument on how to kill him, in front of his horrified eyes.

This attention to details is equally prevalent in the music. "Musical" isn't the first thing that comes to mind when someone says "zombie apocalypse," yet the importance of the music in *Guts* cannot be overstated. In so many scenarios, lyrics and melody effectively express sentiments that would seem heavy-

handed and tacky if expressed through dialogue. The music itself comes across as effortless and earnest. A sparse ensemble consisting of a drummer, a guitarist, a pianist and two violinists put together what can best be described as a mixture of alternative rock and more traditional musical theater. The simplicity of the music complements the unpretentiousness and sincerity of the script well. This, combined with the natural intimacy of Kresge Auditorium, adds up to an experience that is less like watching a fancy bells and whistles production, and more like watching a bunch of your close friends put up something that is obviously deeply important to them.

That said, *Guts* is unabashedly a "rough around the edges" student production — don't go in expecting Broadway. The set is a single room of Bunker 63 with a dining table, a radio, and scaffolding hung rags for walls. While watching *Guts*, every once in a while, I heard a note that was ever so slightly off key or off time. The tech setup wasn't the greatest either. Monitor feedback aside, two characters' mics got completely cut off in one slightly embarrassing scene. Ultimately though, even these little fumbles only added to the overall vibe that *Guts* was succeeding in building.

On the back of a brilliant story, some whip-smart dialogue and heartfelt music, *Guts* clicks in a way that nothing this casual has any right to. Considering the constraints it works in, *Guts* accomplishes amazing things. A big budget adaptation would spruce up the set, spruce up the sound mixing, and play in a much bigger space than Kresge. Yet, for all the gains that such an adaptation would make, I believe it'd lose even more. You see, more than anything else, *Guts* moved me by the sheer emotional weight of its pure, unassuming simplicity. I loved *Guts* not because it wowed me with intimidating scale, but because it innocently drew me in, deep into its emotional core, until I was too invested to let go.

**Abhishek Tayal** | Staffwriter



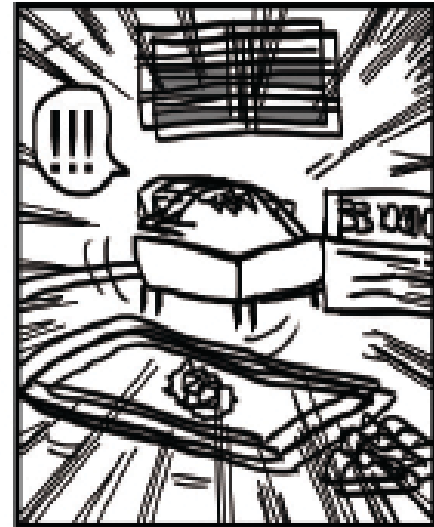
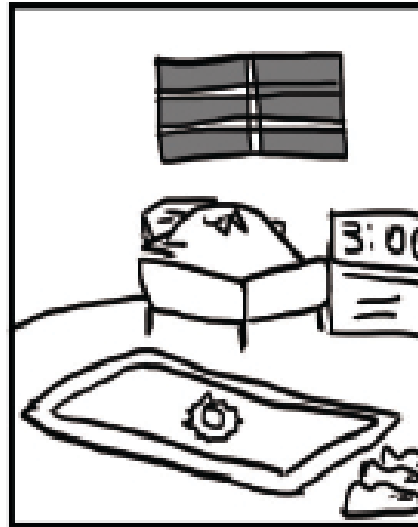
Danielle Hu | Junior Photographer

Viktor, played by Scott Cuva, and Maura, played by Brianna Hudock, share a moment in the bunker.





# DRILL



END

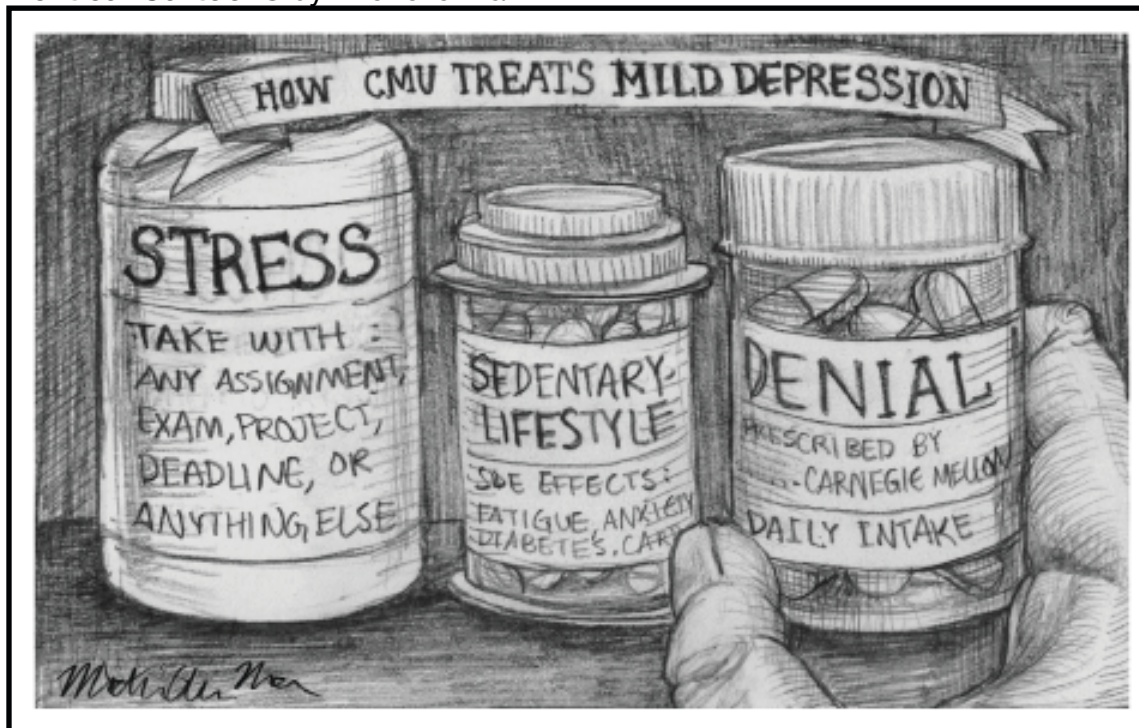




email@exocomics.com

exocomics.com

Political Cartoons by Michelle Ma



michell3@andrew.cmu.edu

michelledoeswhat.com



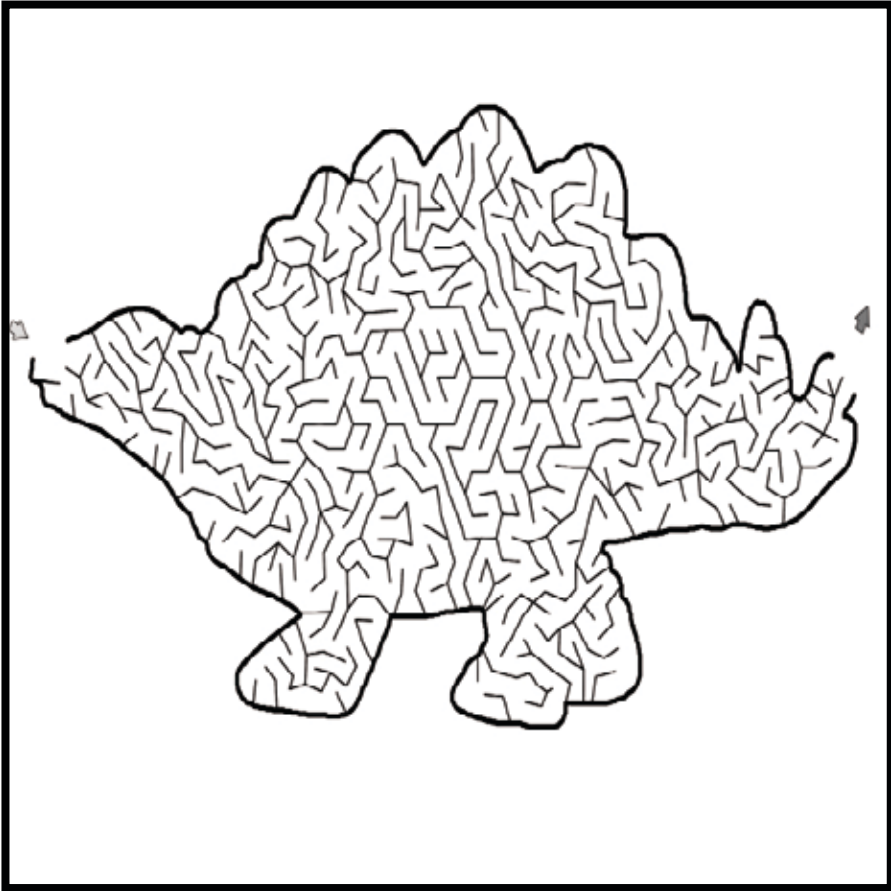
Sudoku Puzzle: Intermediate Difficulty

	8		9				4	
6		5		8				
9	3		6		5			1
1				5				4
		6				7		
7				6				9
4			3		8		9	6
				1		4		3
	7				6		1	

Sudoku courtesy of [www.krazydad.com](http://www.krazydad.com)

Fill all empty squares using numbers 1 to 9. No number may be used in the same row or column more than once.

Maze Puzzle: Easy Difficulty



Maze courtesy of [www.krazydad.com](http://www.krazydad.com)

Start from the left arrow and find your way through the dinosaur maze.

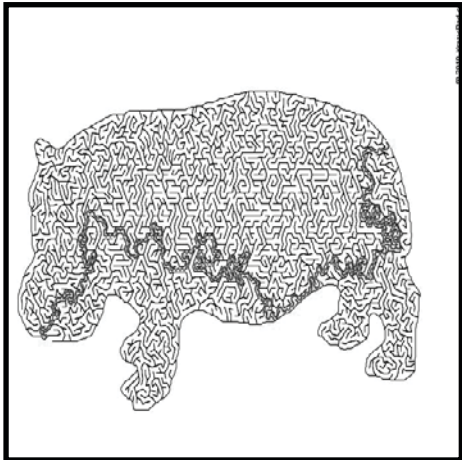
Solutions from April 20

A	T	F	I	R	S	T		L	A	B	O	R	E	D				
15	T	R	I	B	U	T	E		16	A	N	A	T	O	M	Y		
17	L	I	C	E	N	S	E		18	R	A	T	T	E	E	N		
19	A	N	T	A	E			20	N	E	V	I	S		21	B	R	A
22	S	K	I	M		23	M	A	H	A	L		24	R	U	G	S	
25	E	E	L		26	R	O	G	U	E		27	F	A	C	E	T	
28	S	T	E	N	O	S	E	D		29	F	O	L	K	S	Y		
					30	O	D	E	R		31	T	A	L	L			
32	P	A	R	L	E	Y		33	S	U	K	I	Y	A	K	I		
34	A	C	E	T	O			35	L	O	T	I	C		36	V	A	N
37	J	A	P	E		38	M	A	N	O	R		39	S	I	T	S	
40	A	D	O		41	S	A	T	Y	R		42	A	C	A	R	E	
43	M	E	S	H	A	C	H		44	A	S	T	A	T	I	C		
45	A	M	I	A	B	L	E		46	G	A	R	M	E	N	T		
47	S	E	T	T	E	E	S		48	E	L	A	P	S	E	S		

Crossword

3	5	7	4	6	1	9	8	2
9	8	2	3	5	7	4	6	1
4	6	1	9	8	2	3	5	7
7	3	5	1	2	4	6	9	8
6	4	9	7	3	8	1	2	5
1	2	8	5	9	6	7	3	4
8	7	3	6	1	5	2	4	9
5	9	4	2	7	3	8	1	6
2	1	6	8	4	9	5	7	3

Sudoku



Maze



# Horoscopes

Are you ready for some summer fun?

## aries

march 21–april 19

It's time to go on a vacation with your pals to balance your hectic life! Soak up some sunlight on the beach.

## taurus

april 20–may 20

Take a break near oceans, lakes, or rivers. Enjoy the romantic attention you'll attract there.

## gemini

may 21–june 21

Spend some time with the people and the activities you love. If you're sick of your job, now is the time to find a more satisfying one.

## cancer

june 22–july 22

Enjoy the positive energy you'll get from hanging out with your friends. Take a road trip and let your creativity shine!

## leo

july 23–aug. 22

Have some alone time. Tap into your spiritual side and refresh yourself .

## virgo

aug. 23–sept. 22

Pause to smell the flowers on the side of the road. The sun is shining and you should be, too.

## libra

sept. 23–oct. 22

Summer is the best time for a tan. Grab your blankets and a few friends to spend a lazy day out on the grass.

## scorpio

oct. 23–nov. 21

Get ready for a summer relationship to bloom. Be attentive toward the people around you.

## sagittarius

nov. 22–dec. 21

This summer be prepared for some extra cash in your pocket. You are in for a happy surprise at your job.

## capricorn

dec. 22–jan. 19

Revamp your daily routine with a better diet and exercise regimen. Sleeping early and waking early is better than staying in after a late night.

## aquarius

jan. 20–feb. 18

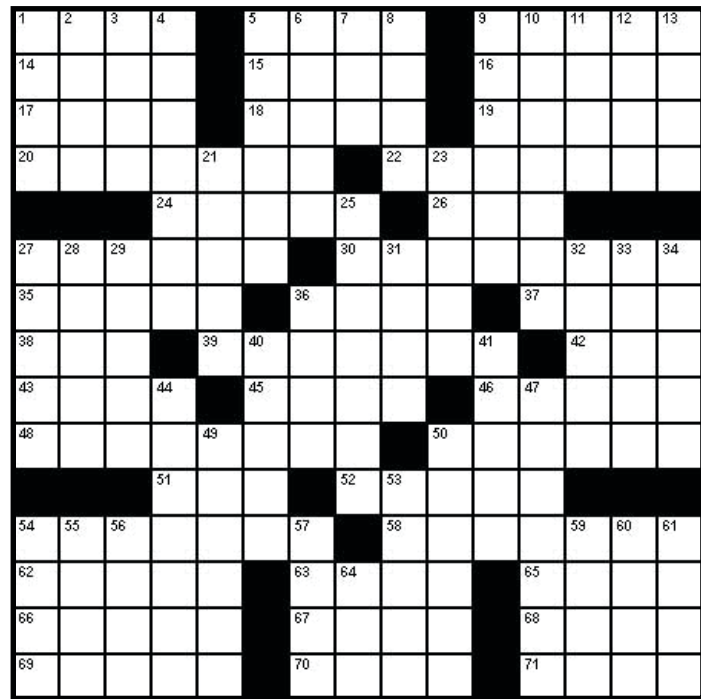
Go backpacking in a city you've never visited before, and romance may just come your way.

## pisces

feb. 19–march 20

Get inspired! Use this summer to start and finish a project you've always wanted to complete.

Maryyann Landlord | Comics Editor



Crossword courtesy of *BestCrosswords.com*

## ACROSS

- Junk e-mail
- Singer Perry
- Actor Delon
- This, in Tijuana
- Dust Bowl refugee
- Dolt
- Apropos of
- Dry watercourse
- Bony prefix
- Substitute
- Portable lamp
- Off the leash
- Pitch
- Termination
- Changeable
- Hindu loincloth
- Head of France
- Vientiane is its capital
- Obtained
- Intoned
- Take a load off
- Dog star
- Pack \_\_\_\_ (quit)
- Mindful
- Russian mystic
- Less fresh
- In favor of
- Physician to Marcus Aurelius
- Garfield's snack
- Having a valid will
- Without \_\_\_\_ in the world
- Spouse
- Model married to David Bowie
- Four-door
- Norwegian king
- TV's "Nick at \_\_\_\_"
- Marriott rival
- Filly's father
- Paraphernalia

## DOWN

- Oceans
- Over here!
- \_\_\_\_ boy!
- Lighted by Earth's satellite
- Wrangler
- Green-lights
- Central
- Trompe l'\_\_\_\_
- Title of reverence for God
- Used in a rite of purification
- Start the pot
- Champagne bucket
- Dodge model
- Column type
- \_\_\_\_ Grows in Brooklyn
- Latter part of the day
- Mystery writer's award
- Language with click consonants
- Annie of "Designing Women"
- Memo abbr.
- \_\_\_\_ metabolism
- Longest river in France
- Fragrant compound
- "Mon Oncle" director
- Make a pass at
- Palm fruits
- Existing power structure
- Lacking
- Imperative
- Record holder
- Rose essence
- Lid attachment
- \_\_\_\_-deucey
- Actress Thompson
- Singer Tori
- French girlfriend
- See ya!
- Steven Chu's cabinet dept.
- Poetic pugilist





**The FBI: Safeguarding National Security.**

Kresge Theatre, CFA. 4:30 p.m.

The sixth director of the FBI, Robert S. Mueller III, is coming to speak to the Carnegie Mellon community today about national security. Nominated by President George W. Bush, Mueller was sworn in as FBI director a week before 9/11. Mueller served as director for the following 10 years. His visit is sponsored by The Institute for Strategic Analysis and the Thomas M. Kerr Jr. Prelaw Program. Registration is required.

**Thursday 4/30/15****Piazz-Kahn-Cert: Concertos of the South Bay and Buenos Aires.** Alumni Concert Hall, CFA. 5 p.m.

Senior cello performance major Evan Kahn plays his father's Concerto for Cello and String Orchestra. It is the work's premiere. The other half of the concert will consist of junior violin performance major Alyssa Wang's concert premiere, with a virtuosic performance of Astor Piazzola's *Las Cuatro Estaciones Porteñas*.

**Carnegie Mellon University Chorus.**

Kresge Theatre, CFA. 8 p.m.

The Carnegie Mellon University Chorus join together for a performance featuring the voices of the sophomore and first-year vocal performance majors. The performance, titled "Opera Obsessions," will include music from a variety of composers and operas, including Puccini's *Madama Butterfly*, Mozart's *Idomeneo*, and Boito's *Mefistofele*, among others. Admission is free and is open to the public.

*Editor's note: Evan Kahn is a member of The Tartan. We wish him the best of luck!*

**Mirror of Venus: A Visitation.**

The Frame Gallery. Through May 2.

Junior fine arts major Hannah Gaskill displays her beautiful work in The Frame. Come enjoy the work of a talented Carnegie Mellon University student in this on-campus gallery.

**Boeing Boeing.**

CLO Cabaret. Through May 10.

This Tony Award-winning production from the 1960s tells the story of a Parisian player with three girlfriends, all flight attendants. He gets himself into trouble when, with the invention of a faster plane, they all come to town at once. Tickets are \$39.75.

**Elements.**

The Hunt Institute (Hunt Library floor 5). Through June 30.

The Hunt Institute for Botanical Documentation presents its spring exhibition, "Elements." This exhibition features drawings and watercolors of bird nests and photographs of transitional landscapes inspired by the relationship of the nest to time, place, music and architecture. The featured artists are Sue Abramson, Wendy Brockman, David Morrison, and Kate Nessler. There is also a selection of birds, nests, and eggs on loan from the Carnegie Museum of Natural History.

**Sketch to Structure.**

Carnegie Museum of Art. Through Aug. 17.

This exhibition in the Heinz Architectural Center explores the process from an architect's initial concept to client presentation. Featuring a number of sketches by Lorcan O'Herlihy and Richard Neutra.

# Classifieds

**Change kids' lives with KEYS AmeriCorps.**

Join a team of over 90 members at 20 Pittsburgh summer camps for one unforgettable summer. Earn \$3,241 throughout the summer and a \$1,493 education award upon completion. May 26 – Aug 12. Visit [www.keysservicecorps.org](http://www.keysservicecorps.org) or email [aaron.gray@alleghenycounty.us](mailto:aaron.gray@alleghenycounty.us).

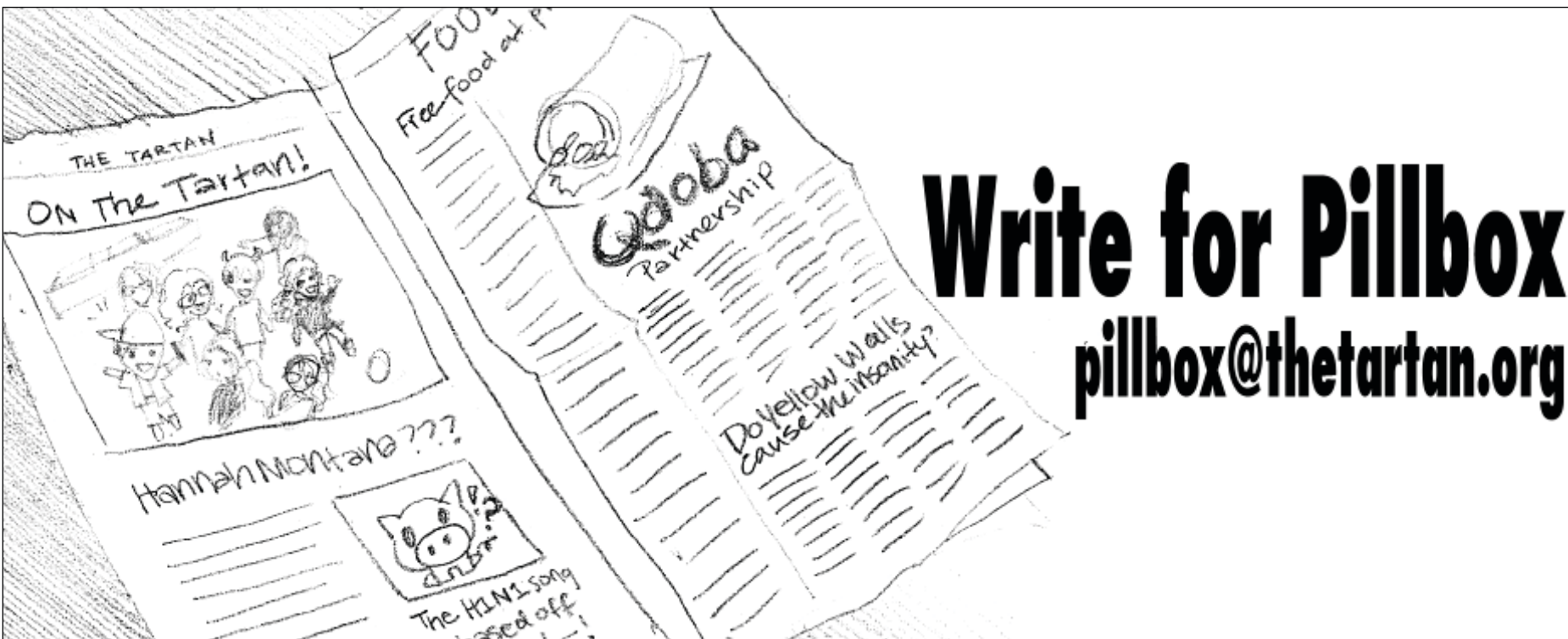
**Smokers Wanted!** The University of Pittsburgh's Alcohol and Smoking Research Laboratory is looking for people to participate in a three-part research project. To participate, you must:

- Currently smoke cigarettes
- Be 18-55 years old, in good health, and speak fluent English
- Be willing to fill out questionnaires, and to not smoke before two sessions.

Earn \$150 for completing this study. For more information, call 412-624-8975

Compiled by **Lula Beresford** | Pillbox Editor

Want your event here?

Email [calendar@thetartan.org](mailto:calendar@thetartan.org).

# Write for Pillbox

[pillbox@thetartan.org](mailto:pillbox@thetartan.org)



# juggling.



Abhinav Gautam | Photo Editor

Carnegie Mellon's juggling club — “Masters of Flying Objects” — takes advantage of beautiful Sunday weather to work on their juggling skills. Founded in 2006, Masters of Flying Objects is inclusive of juggling enthusiasts of all ability levels and can often be found on The Cut when the weather is nice.

