

# Tepper talks business, philanthropy



Courtesy of the Tepper School of Business  
David A. Tepper spoke about his philanthropic efforts, how he got to where he is today, and what would become of his recent \$67 million donation.

**BRIAN TRIMBOLI**  
*News Editor*

David A. Tepper returned to Carnegie Mellon last Thursday to edify an audience on his vision for the new Tepper Quadrangle, answer questions about his business strategy and, at one point, sing a few bars from Elvis's "Heartbreak Hotel".

Tepper first made his mark on Carnegie Mellon in 2003, when he donated \$55 million, after which the Graduate

School of Industrial Administration was renamed the Tepper School of Business. Last November, on the same day as President Subra Suresh's inauguration, the university announced another donation from Tepper, this time of \$67 million.

Tepper's most recent donation will be used to expand Carnegie Mellon's campus by building the four-and-a-half acre Tepper Quadrangle. The Tepper Quadrangle, Tepper said, will include a new space

for the Tepper School of Business and the Center for Innovation and Entrepreneurship, formed by a marriage of the Tepper School of Business's Donald H. Jones Center for Entrepreneurship and the School of Computer Science's Project Olympus.

"The idea is to create some cross-disciplinary, synergistic places in the Tepper Quadrangle," Dean of the Tepper School of Business Robert M. Dammon said when he introduced Tepper in front of a full

McConomy Auditorium.

Tepper, born and raised in Pittsburgh's East End, stayed close to home for his education, earning his undergraduate degree in economics from the University of Pittsburgh in 1978 and his MBA from Carnegie Mellon in 1982.

After he graduated from Carnegie Mellon, Tepper worked for the treasury department of the Ohio-based Republic Steel. Tepper

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# Senate, GSA ratify 2014–15 JFC budget

**RACHEL COHEN**  
*Publisher*

Student Senate and the Graduate Student Assembly (GSA) held a joint meeting on Thursday to hear second-round budget appeals and ratify the slate for total Joint Funding Committee (JFC) allocations for the 2014–15 fiscal year. Both bodies voted to approve a total \$29,467 increase in JFC allocations — an approximate 1.95 percent increase to the original \$1.51 million in allocations.

Student Body Vice President for Finance (SBVPF) and junior statistics major Jalen Poteat gave an introductory presentation, during which he urged senators and GSA members to be mindful of recent changes to the JFC metrics. Among these changes was a flat cap of \$250 per person for travel. This year, the JFC also allocated more money to subsidize food for events where the food relates directly to the culture of that event.

Student Senate Chair and senior chemistry major Lukas Ronner led discussion in coordination with Patrick Foley, GSA president and a doctoral candidate in statistics.

According to Poteat and Foley, the JFC allocations

were typical relative to previous years and aligned with projections for JFC spending. "I don't see any drastic departure from ordinary JFC spending from previous years," Foley said.

A difference in next year's allocations is a decrease in funding for Activities Board (AB) Concerts as compared to this year's allocations. AB Concerts was granted more funding than usual this year in anticipation of the 100th Spring Carnival.

The JFC approved \$125,000 to cover artist booking fees for the spring concert — \$25,000 more than the \$100,000 originally requested, as compared to the \$60,000 granted the year before. Next year, AB Concerts will receive \$60,000 of the \$75,000 originally requested for the annual Spring Carnival concert.

The JFC issued final budget recommendations last Monday and directed organizations who wished to further appeal the JFC's decision to make their case to both Student Senate and the GSA at Wednesday's meeting.

As part of the second-round appeals process, student representatives

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# SolePower aims to charge smartphones with footsteps

**BRIAN TRIMBOLI**  
*News Editor*

In 2013 alone, Carnegie Mellon launched a record 36 startups which, combined, produce everything from 3-D printers, in the case of Piece-Maker Technologies, to artificial heart valves, in the case of PECA Labs.

Recently SolePower, a company that makes electricity-generating insoles, has been making headlines by earning a spot on *Popular Science's* 2014 Invention Awards List. The SolePower insole, according to the SolePower website, produces electricity when the wearer steps on it, and stores the energy in an external power pack.

SolePower was born when its co-founders, Carnegie Mellon alumni Matt Stanton (CIT '13) and Hahna Alexander (CIT '13), took inspiration for their senior mechanical engineering capstone project from hand crank-powered flashlights. They wanted to make shoes that lit up when the user stepped on them, with the initial goal of making walking or

running at night safer.

"After the class, Matt and Hahna saw greater potential for their product," business developer for SolePower Davit Davitian, a University of Pittsburgh graduate, said via email. "By storing generated power for later use, they could make a renewable, portable power source for various mobile devices. As a hiker, Matt saw an immediate benefit for outdoor enthusiasts. Both of them also recognized the great social benefits SolePower can have for people living without access to electricity."

According to *Popular Science's* article recognizing SolePower, "Instead of using piezoelectric and other inefficient, bulky methods of generating electricity, [Stanton and Alexander] shrunk down components similar to those found in hand-cranked flashlights."

Although the idea behind SolePower was a direct result of Stanton and Alexander's classwork, the company grew with the help of Project Olympus, an initiative of the School of Computer Science that fos-

ters student entrepreneurs.

Distinguished career professor of computer science Lenore Blum founded Project Olympus in 2007 after seeing countless Carnegie Mellon students move to California when they graduated to work in Silicon Valley, rather than pursuing their own ideas as entrepreneurs.

"We produce the best technological resources on the planet, namely our students, and as soon as we produce them we export them everywhere but here," Blum, who has worked at Carnegie Mellon for close to 15 years, said in an interview about her inspiration for founding Project Olympus. "I could understand what's going on — if you're getting these great jobs, why even think of starting something yourself? That was the culture."

Inspiration from Project Olympus also came from Blum's work with Aladdin, a National Science Foundation-funded institute for algorithm research. Aladdin researchers

See **STARTUP**, A3

# Zuckerberg lectures on marketing, social media

**BRENT HEARD**  
*Contributing Editor*

Randi Zuckerberg spoke on campus about her role in the development of Facebook and the books and projects of Zuckerberg media, offering advice on how to obtain balance in a life surrounded by technology.

Held in McConomy auditorium last Tuesday, Zuckerberg addressed an audience of around 60 attendees.

Randi Zuckerberg is the sister of Facebook founder Mark Zuckerberg, and is currently the CEO of Zuckerberg media and the editor-in-chief of Dot Complicated, an online community and newsletter.

Dot Complicated, as described on their website, "is an online community aimed at 'untangling' our wired, wonderful lives." The website aims to address shifting social conventions surrounding the use of communication technologies, addressing "how we interact with friends and family, how we raise our children, how we announce major life news, how we find love, and how we manage our careers." In addition to having an online community, the site also curates and sends a weekly newsletter to subscribers.

Zuckerberg was introduced by AB Lectures chair and first-year business administration major Narain Krishnamurthy, who remarked, "having grown up in the Internet revolution, we're all familiar with the disruptive qualities of social media," continuing, "whenever we see something funny or strange on campus, we want to post that to Overheard at CMU."

Krishnamurthy introduced Zuckerberg, saying that she would talk about how "social media has changed the way we interact online and offline."

Zuckerberg began her lecture with her background story. Zuckerberg studied at



Abhinav Gautam/Staff Photographer  
Randi Zuckerberg, CEO of Zuckerberg Media, editor-in-chief of Dot Complicated, and sister of Facebook founder Mark Zuckerberg, spoke about her role in the rise of Facebook and the growing role that social media is playing in our everyday lives.

Harvard University as a psychology and marketing major, after not being accepted for music. After she graduated, Zuckerberg worked at Ogilvy & Mather advertising in New York. "I got staffed on a brand new team called digital interactive marketing," Zuckerberg said. Although at first Zuckerberg had wanted a position in television advertising, she soon saw her department grow to be one of the top divisions in the firm.

Soon after she started working, Zuckerberg began receiving calls from her brother to join Facebook and assist with marketing. "I probably rejected him dozens of times," Zuckerberg said.

"When I got to California,

I was blown away," she said, remarking on the employees "coding around the clock." She said, "they had a passion for what they were building that I didn't see in corporate America." Zuckerberg was asked to choose the startup's logo, a task which someone with years of experience would be performing at an established firm. "It was that moment I knew I had to be part of Facebook," Zuckerberg said.

While Zuckerberg was working at Facebook as their marketing director, she coordinated their live stream of the 2008 presidential inauguration and developed the

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Courtesy of Davit Davitian  
From left to right: Adam Pinson, a sophomore electrical and computer engineering major and former intern at SolePower; Hahna Alexander (CIT '13), current chief technology officer at SolePower; and Matt Stanton (CIT '13), current CEO of SolePower.



FEATURE PHOTO

# Hotta lectures on Korean culture



Jonathan Carreon/Contributing Editor

Chisato Hotta, a postdoctoral fellow in the Center for Africanamerican Urban Studies and the Economy (CAUSE), gave a lecture on Friday in Steinberg Auditorium titled “Beyond National and Racial Boundaries: The Korean Experience in Osaka and the African American Experience in Chicago, 1920–1945.” Hotta’s talk focused on residential segregation within the two cities, which at the time had similar levels of cultural heterogeneity.

## Campus Crime & Incident Reports

### Alcohol Amnesty

April 19, 2014

University Police and CMU EMS responded to the ninth floor of Webster Hall in reference to a call for Alcohol Amnesty. Appropriate medical aid was given and, due to the nature of the call, no citations were issued.

### Theft of Bicycle Wheel

April 22, 2014

A Carnegie Mellon staff member summoned University Police to the bike racks on 311 S. Craig Street after receiving a theft report. The victim stated that her bicycle

was secured to the bike racks, when the front wheel was stolen between April 21 and April 22. This investigation is ongoing.

### Defiant Trespass

April 22, 2014

University Police were summoned to the University Center in reference to a male who was previously issued a defiant trespass notice for entering the University Center and using its facilities. Police arrived and escorted the male from the property, after issuing him a citation for criminal trespass.

### Laptop Theft

April 23, 2014

University Police responded to 4620 Henry Street in reference to a laptop theft. A staff member stated that her MacBook Pro laptop was unlawfully taken from her desk between April 22 and April 23. The victim stated that, while the laptop was in an unsecured room, people must swipe their ID cards to obtain access to the building. University Police are investigating this incident.

### Defiant Trespass Notice

April 24, 2014

A University Police officer on foot patrol noticed a suspicious male she believed was attempting to enter a women’s restroom on campus. The non-Carnegie Mellon affiliate was stopped and identified. The male was subsequently issued a defiant trespass notice, forbidding him from Carnegie Mellon’s leased or owned property. The male was then escorted off of the property.

STUDENT SENATE MEETING MINUTES

### Second Round Appeals

Student Senate and the Graduate Student Assembly (GSA) heard second round appeals from student organizations before the ratification of the annual Joint Funding Committee (JFC) budget. Among those organizations appealing were Spring Carnival Committee, Carnegie Mellon Solar Splash, WRCT,

Ballroom Dance Club, AB Concerts, and the University Rowing Club. Spring Carnival Committee received \$10,500 at the appeal for fireworks, WRCT received \$7,245 to transition to a digital audio system, Ballroom Dancing Club received \$1,532 for their Scotch Ball event, and the University Rowing Club

received \$14,190 for a trailer. Carnegie Mellon Solar Splash and AB Concerts were denied their appeals.

### Discussion: SBVPF, SBVPO Honorarium

Student Senate and the GSA discussed the allocation of \$4,000 total to provide honorariums of \$2,000 per semester each for the student body vice president for finance and the student body vice president for organizations. After an appeal from Student Body President Elect and junior electrical and computer engineering and busi-

NEWS IN BRIEF

### CMU Computer Club finds Warhol art

The Carnegie Mellon University Computer Club — with help from The Andy Warhol Museum (AWM), Carnegie Mellon’s Frank Ratchye STUDIO for Creative Inquiry, the Hillman Photography Initiative at the Carnegie Museum of Art, and New York-based artist Cory Arcangel — recently found several previously undiscovered works of art by alumnus Andy Warhol (CFA ’49).

Warhol’s art had been stored digitally on Amiga floppy disks, found in the archive collection of the AWM. Arcangel started the investigation into the disks after seeing a 1985 Commodore International infomercial that advertised an experiment Warhol did, commissioned by Commodore. Warhol’s work was meant to demonstrate the graphic design power of the Amiga 1000 personal computer.

After finding the disks in the AWM’s archives, Arcangel worked with the Computer Club to read the outdated

diskettes. The floppy disks — originally used for the computer system and applications — contained files with promising names like “campbells.pic” and “marilyn1.pic.” The format of the images, however, was unknown. When Computer Club members reverse-engineered the format they revealed 28 new works by Warhol covering subjects from the well-known Campbell’s soup can to Botticelli’s Venus.

“What’s amazing is that by looking at these images, we can see how quickly Warhol seemed to intuit the essence of what it meant to express oneself, in what then was a brand-new medium: the digital,” Arcangel said in a university press release.

The team’s process and findings are documented in the Hillman Photography Initiative’s “Trapped: Andy Warhol’s Amiga Experiments,” which premieres Saturday, May 10 at the Carnegie Library Lecture Hall in Pittsburgh.

### Girls of Steel work with CMU Robotics

The Girls of Steel, a group of high-school girls from the Pittsburgh area, tested their mettle at the FIRST Robotics Competition Championship in St. Louis last week.

The Girls of Steel are already experienced, having helped members of Carnegie Mellon’s Robotics Institute to build the Autodesk ReCap Robot, which uses the 3-D design software Autodesk to create 3-D models.

Rachel Round, a home-schooled senior from Harrison City, built the robot’s sheet-metal housing. “It was a unique experience,” Round said in a university press release.

The robot the Girls of Steel created takes data from laser scanners to create a 3-D point cloud modeling an interior space. For the FIRST

competition, the Girls of Steel designed and built a robot to do a specific task; their robot catches and throws 24-inch balls. The ReCap Robot was designed with help from Carnegie Mellon roboticists, who ensured that it met professional standards.

“I knew CMU’s Robotics Institute did fantastic work,” said Aaron Morris, product manager for Autodesk’s Reality Solutions Group, in a university press release. “That they were able to build this robot in only a month’s time, and make it audience-safe, has only strengthened my appreciation for their capabilities.”

Compiled by  
BRIAN TRIMBOLI

WEATHER



**TUESDAY**  
High / Low  
65 / 53



**WEDNESDAY**  
High / Low  
72 / 52



**THURSDAY**  
High / Low  
64 / 46



**FRIDAY**  
High / Low  
57 / 45



**SATURDAY**  
High / Low  
61 / 48



**SUNDAY**  
High / Low  
62 / 49

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

#### Corrections & Clarifications

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





# SolePower steps into the future

**STARTUP**, from A1

found applications for algorithms — what Blum called the “basic building blocks of computer science” — outside of computer science theory, using them for everything from mapping logistics and distribution centers for Federal Express to managing auctions. Around this time, too, Blum said, there was a decrease in federal research funding. “There used to be more funding for basic research from the government; in the past 10, 15 years funding has gone down, which is really a shame because the major innovations of our company have come from basic research,” Blum said. “I had this bright idea. I thought, well a lot of our products are close to commercialization, so why don’t I commercialize them and bring money back for research?”

From there, Blum created Project Olympus, which has nurtured close to 150 PProblem-Oriented Business Explorations (PROBEs) since its inception. From these PROBEs, 99 companies have been founded — 76 student-based and 23 faculty- or innovation fellow-based. Recently, Project Olympus partnered with the Tepper School of Business’s Donald H. Jones Center for Entrepreneurship to form the Center for Innovation and Entrepreneurship, which Blum co-directs with Dave Mawhinney, assistant teaching professor of entrepreneurship and executive director of the Donald H. Jones Center. “Project Olympus played a crucial role in the formation of SolePower,” Davitian said. Davitian stressed the mentorship to which Project Olympus gave Stanton and Alex

ander access. “It provided Matt and Hahna with a place to work as well as needed advice and mentoring on how to start a business. Kit Needham and the rest of the staff at Project Olympus helped Matt and Hahna on learning how to create a solid business plan, go to market strategy, and other crucial aspects of business development. [Dave] Mawhinney also had a large role in mentoring them and helping them understand what it takes to start a successful business.” SolePower is only one of many successful companies that have come out of Project Olympus and the Center for Innovation and Entrepreneurship, such as Duolingo, a popular smartphone app for learning new languages, and OpenCurriculum, an online platform for creating and sharing K–12 learning material. SolePower was also part of AlphaLab cycle 10, from January 2013 to May 2013. As part of AlphaLab, SolePower received \$25,000 and business knowledge which, Davitian said, “has been much more viable than the financial benefits of AlphaLab.” Davitian continued, “The program connected SolePower with an amazing group of mentors and advisors.” Although SolePower’s current model requires a 15-mile hike to charge a standard smartphone, Staton said, “The company is working toward a design that can charge an iPhone after less than five miles of hiking and withstand about 100 million footsteps of wear and tear,” according to *Popular Science*. SolePower’s first insoles are on track to be released by the end of this year or early next year, Davitian said.

# Tepper speaks about vision for Tepper Quad



**Left:** Tepper spoke about how he started his own company, Appaloosa Managment, after leaving Goldman Sachs in 1992. **Right:** Tepper shook hands with Dean of the Tepper School of Business Robert M. Dammon at the end of his talk.

**BUSINESS**, from A1

subsequently worked for Equibank and then Goldman Sachs, where, after being turned down for partner three times, he left to start his own business, Appaloosa Management. During the talk, both undergraduate and graduate students in the Tepper School of Business lined up on either side of the auditorium to ask Tepper about his life, business sense, and the Tepper Quadrangle. A graduate student opened the queue of questions by asking Tepper about the motivation behind his \$67 million gift and his vision for the Tepper Quadrangle. “The first gift was basically paying back the school; I had a great education here,” Tepper said. “The

second gift, I thought the school needed to be elevated a little bit. We need to move up in the rankings a little bit.” Tepper also mentioned that he wanted to see the Tepper School of Business be more integrated into the rest of the Carnegie Mellon community. Another important part of the Tepper Quadrangle, Tepper said, will be new athletic facilities. After seeing the university’s existing athletic facilities earlier that day, Tepper noted that they “still suck.” Another student asked Tepper what he considered the most valuable part of his education at Carnegie Mellon. “The education gave me a great foundation, a great business knowledge,” Tepper said. “You come out of here, and you’re as prepared as



Courtesy of the Tepper School of Business

anybody.” Audience members also wanted to know what Tepper learned outside of school during his time at companies like Equibank and Goldman Sachs where, Tepper said, he became head trader in only a year. Tepper said the most important thing for students to learn is that they don’t know anything. “You’re no smarter than the market — when you become a good trader is when you realize how stupid you are.” When someone asked him what he would have done if he hadn’t become a hedge fund manager, Tepper joked that he could do a pretty good Elvis impersonation, treating the audience to a verse of “Heartbreak Hotel”. Tepper also spoke about some of his recent philan-

thropy efforts, including his work with Better Education for Kids, a political action group that Tepper co-founded to improve education in New Jersey. One student asked Tepper if he ever considered signing the Giving Pledge, described on its website as “a commitment by the world’s wealthiest individuals and families to dedicate the majority of their wealth to philanthropy.” The Giving Pledge has been signed by millionaires and billionaires ranging from Warren Buffett and Elon Musk to Bill and Melinda Gates. Tepper remarked that he had been investing in philanthropy long before similarly well-known billionaires, and wasn’t planning on stopping. “I don’t need a pledge to give,” he said.

# Zuckerberg shares marketing lessons



Abhinav Gautam/Staff Photographer

Randi Zuckerberg left her marketing position at Facebook to start her own company, Zuckerberg Media, which consults with other companies on the use of social media and technology. The company also developed its own online community, Dot Complicated, of which Zuckerberg is editor-in-chief.

**MEDIA**, from A1

company’s U.S. elections and international politics strategy. When she left Ogilvy & Mather, Zuckerberg recalled, “My boss told me I was crazy, I was throwing away my career.” She remarked that people who doubted her have since asked her for jobs. At Facebook, Zuckerberg realized, “I had a front row seat on how social media was changing our life.” “We took a demand-led marketing approach,” Zuckerberg said about her marketing strategy at Facebook. Zuckerberg opened the website one college at a time, and waited until there were people asking for access before spreading the site to other institutions.

After she told her story, Zuckerberg spoke about the culture surrounding technology’s development and use. She lauded hackathons and spoke to how important they were to building Facebook’s “hacker, entrepreneur culture.” It was from a company-sponsored hackathon that Zuckerberg got the idea for Facebook Live, a video streaming program which would attract celebrities and politicians. The program took off after Katy Perry announced a world tour from the platform, and became so popular that Zuckerberg “actually got a call from the White House,” when Barack Obama wanted to livestream a town hall. Zuckerberg left Facebook after running Facebook Live

and founded Zuckerberg Media. The firm consults with other companies on the use of social media and technology, and also develops their own publications, including Dot Complicated. Connected to this website, Zuckerberg is also publishing two books, one of which — *Dot Complicated* — addresses content similar to the website. Zuckerberg is working on a children’s book, *Dot*, which The Jim Henson Company is developing into a TV show. These books address the role that technology plays in people’s lives. Zuckerberg was inspired by her son, who “made me think about technology in a whole new way.” Zuckerberg said she had the “responsibility for the balance

of technology in his life.” “Our relationship with technology is not 100 percent healthy,” Zuckerberg remarked. “A lot of that is my family’s fault. Sorry.” Zuckerberg spent a large part of her lecture addressing upcoming trends in the technology world and trends which can empower the modern entrepreneur, ranging from Google Glass, to Amazon’s drone delivery program, to the movement to unplug from technology on vacation, to encouraging STEM education for young children. Zuckerberg tied these observations in with Dot Complicated, aiming to offer a “balanced point of view of both the opportunities presented and the challenges.”

# GSA, Senate, hear JFC budget appeals

**BUDGET**, from A1

presented to both bodies for one minute. This presentation was followed by a four-minute discussion, then a voting process that was frequently delayed by senators and GSA members as they extended the discussion period. Among the groups whose funding requests were approved were Carnival Committee, WRCT, Ballroom Dance Club, and Rowing Club. While Ballroom Dance Club received a relatively small increase of \$1,532 to fund their Scotch Ball event, other groups received approval for larger requested amounts. Carnival Committee received \$10,500 to reinstate fireworks after next year’s Carnival concert. Campus radio station WRCT was

semester — \$20,000 total — to allow them to negotiate for artists with higher price ranges. They also requested \$4,250 to fund a safer truck stage to upgrade from traditional stage setups. Student Senate and the GSA denied both requests. Finally, Student Body President Elect and junior electrical and computer engineering and business administration double major Ian Glasner appealed to retract a \$4,000 allocation that would provide honorariums to the SBVPF and student body vice president for organizations (SBVPO), continuing a conversation within student government about offering honorariums to student government executives. In light of recently denied efforts to provide honorariums to the student body

## “Only paying SBVPF and SBVPO devalues the SBP and SBVP roles.”

—Ian Glasner

Electrical and computer engineering and business administration double major and student body president elect

granted \$7,245 to facilitate its transition to a digital audio system. Rowing Club received \$14,190 to purchase a new trailer; their old one broke down just last Saturday — too late for Rowing Club to make the request for first-round appeals. Undergraduate solar-electric boat team Solar Splash and AB Concerts were both denied the increases they requested. Solar Splash requested \$11,700 as operational funds for building its boat and hosting community events. AB Concerts requested a \$10,000 increase per

president (SBP) and student body vice president (SBVP), Glasner also moved to eliminate compensation for SBVPF and SBVPO. Despite his overall support for honorariums for student government executives, Glasner said, “Only paying SBVPF and SBVPO devalues the SBP and SBVP roles.” The appeal passed in both governing bodies, and the \$4,000 allocation was removed. After voting individually on each appeal, Student Senate and the GSA voted one final time to ratify the JFC slate for the coming fiscal year.



# Science & Technology

## CMU wins Better Buildings contest

CLAIRE GIANAKAS  
Staffwriter

Today, students pride themselves on much more than just attending classes and getting good grades. Along with classes, many students are involved in various extracurricular activities to supplement their education, and Carnegie Mellon students are no exception. A perfect example is the team of Carnegie Mellon graduate students who participated in the U.S. Department of Energy's Better Buildings Case Competition, an annual competition that addresses real-world energy

concerns. The team, Team Everpower, won two "Best Proposal" awards for their solutions. The Better Buildings Case Competition began in 2012 and aims to give college students an opportunity to gain skills and experience related to careers in clean energy. The program upholds Obama's Better Buildings Initiative goal to reduce energy consumption by at least 20 percent by 2020 in commercial and industrial buildings across the United States.

The competition incorporates a variety of different energy efficiency topics. The Department of Energy, along with other case partners, develops a num-

ber of cases which incorporate real world energy problems. These cases are distributed to the student teams, who have approximately three months to produce 10-page solutions based on the information provided and their own research. After three months, students meet in Washington, D.C. for a one-day workshop where all the teams present their solutions to expert judges and case partners.

This year's culminating event was held on March 14 at the Department of Energy headquarters and brought together 25 participating universities, including Carnegie Mellon, the Massachusetts Institute of Technology, Har-

vard University, Stanford University, Yale University, Columbia University, and the Universities of California, Santa Barbara, San Diego, and Berkeley.

Team Everpower included students from a variety of disciplines. The final team consisted of Matineh Eybpoosh, a doctoral student in civil and environmental engineering; Rubén Morón, a master's student in the School of Architecture; Matthew Plunkett, a master's student in the Tepper School of Business; Vedran Lešić, a Ful-

See **BUILDINGS**, A5

## Sailfish allows for faster gene studies

RAGHUNANDAN AVULA  
Staffwriter

A single cell is home to an unfathomable number of molecular interactions. Over one trillion cells work together perfectly to produce a well-oiled machine: the human body. Scientists, however, are fascinated with how the smallest deviation from the norm within a cell can have catastrophic consequences.

Comparing RNA expression in different cells can provide an incredible amount of insight into these minute changes and understanding how they might affect the cell. Carl Kingsford, an associate professor at Carnegie Mellon's Lane Center for Computational Biology, and his team have developed Sailfish, a revolutionary new software that will allow scientists to analyze massive amounts of RNA gene expression data in a matter of minutes, as opposed to previous methods which took several hours. The tool, which stands true to the speedy fish it was named after, was highlighted in a report published online in April 2014 in the reputable journal *Nature Biotechnology*.

Proteins are the catalytic molecules responsible for what occurs inside a cell at any given time. Researchers want to learn how the presence of specific proteins can impact the characteristics of a cell and how it behaves. For example, if a protein is found to be expressed in a malfunctioning cell, like a cancerous cell, but is absent in a healthy cell, scientists can conclude that the protein is

somehow correlated with the aberration.

It is impractical to physically collect all the proteins expressed in a cell and identify them because protein identification technologies are not robust. To avoid physically collecting and characterizing the proteins in a cell, scientists have developed the technique of RNA sequencing (RNA-seq).

RNA is an intermediate molecule between DNA and proteins. DNA is like a recipe book on how to build all the proteins in an organism. RNA can be considered a messenger molecule that translates the DNA into a language that the cell can understand. The RNA produced are for the proteins that the cell is actively making and expressing at a given time.

Scientists collect thousands of RNA molecules inside a cell that range from a few to hundreds of base pairs in length. Then, they use robust sequencing technologies to determine the sequence of bases that make up the molecules. However, deciphering the RNA code to identify the protein it instructs to build is another challenge in its own right.

Current techniques in computational biology model a string search problem, which involves comparing the RNA sequences to a large database of sequences and identifying the best match. While this has been a hot computational biology research topic in recent years, current methods take

See **GENE**, A5



Courtesy of Mireille Mobley  
The Carnegie Mellon team for the Better Buildings Case Competition consisted of (from left to right) Matthew Plunkett, Matineh Eybpoosh, Rubén Morón, Casey Canfield, Vedran Lešić, Nathaniel Horner, and (not pictured) Julian Lamy.

### HOW THINGS WORK

## Dinosaur fossils are extracted from surrounding matrix

BRIAN TRIMBOLI  
News Editor

While most visitors to Pittsburgh know that the city breaks records for its number of bridges and bars, far fewer know that Pittsburgh's Carnegie Museum of Natural History houses the third-largest collection of mounted and displayed dinosaurs in the U.S., behind only the Smithsonian's National Museum of Natural History in Washington, D.C. and the American Museum of Natural History in New York.

As anyone who's seen the opening scene of *Jurassic Park* knows, getting dinosaur fossils from the ground to a museum hall takes a lot of work.

At the Carnegie Museum of Natural History, visitors can look through glass walls to watch the work of the fossil preparators, whose job it is to remove fossils from the rock — or matrix — surrounding them. Although fossils can be formed in several different ways, one of the more common fossilization processes is permineralization.

During permineralization, cavities in organic matter that have been buried under layers of sediment and earth are filled in with mineral-rich groundwater. Over the course of millions of years, minerals in the groundwater precipitate and harden the surrounding organic matter, which, depending on how decayed the body was when it was buried, can be just bones or teeth or even skin and feathers.

Dinosaur fossils — which are roughly between 65 and 245 million years old — are delicate, requiring a gentle attention to de-

tail to extract from their surrounding matrix. Still, accidents happen: when a fossil breaks, preparators repair it with glue designed specifically for fossils. After a fossil is found in the field, it is taken to a museum wrapped in a plaster and burlap skin and a wooden box, a 100-year-old method that preserves the fossil and surrounding matrix while it is being transported.

There's not just one technique for freeing a fossil from the surrounding strata. One method, according to the American Museum of Natural History, is mechanical extraction, when preparators remove the fossil from the matrix with physical force. To do this, they use tools ranging from steel needles to micro-sandblasters and mini-jackhammers, like the air scribe on display at the Carnegie Museum.

Fossil matrix materials can be relatively soft, such as chalk, siltstone, or sandstone, or much harder, such as conglomerate rock and hematites, which are described on the American Museum of Natural History's website as "specimens covered in a hard layer of iron concretation." According to the Carnegie Museum's website, it can take two days just to work away a piece of matrix the size of a deck of cards around a small fossil, and a few days to work away a piece the size of a cereal box around a larger fossil.

For some fossils, preparators prefer chemical preparation. During chemical preparation, various

chemical compounds are used to dissolve the matrix around a fossil. While chemical preparation has its own set of risks — using the wrong chemicals on a fossil can damage the specimen as well as the matrix, for example — it also has great advantages for fossils too small or delicate to be extracted mechanically.

Chemical preparation requires careful analysis of the fossil and matrix to choose the right kind of chemical bath. For fossils in a limestone matrix, for example, preparators typically use an acidic solution, which would break the stone down into carbon dioxide and calcium ions. In specimens where iron oxide has formed a crust on the fossil itself, preparators may use either thioglycolic acid or the preferred Waller Method, which uses a solution of three sodium salts to break iron down into a neutral pH solution.

If the preparators want to keep a skeleton's structure intact, they may use transfer preparation, a technique developed in the 1950s and still in use today. During this process, half of the fossil is encased in polyester resin and placed in a bath of formic acid. The acid bath

eats away the matrix while leaving the bone intact and supported by the resin, preserving the relationship of articulated parts after matrix removal.

When a fossil is finally free, it's connected into a skeleton and put on display. While most of the dinosaur skeletons visitors see at museums look like the real thing, they are often partly or wholly made up of plaster casts. It's extremely rare to find a fully fossilized dinosaur skeleton; missing pieces of a skeleton are usually filled in with bones from another fossil of the same animal or a very similar species. Casts, which are made using latex rubber, are often exchanged between institutions for research purposes, or used to make the surface details of a fossil clearer.

For many, the most striking part of a dinosaur's skeleton is its skull. Dinosaur skulls are, in fact, extremely rare, and are generally too heavy to safely mount. Instead, a cast of the skull is attached to the skeleton on display.

The Carnegie Museum of Natural History began its extensive fossil collection with *Diplodocus carnegii*, a dinosaur

that lived in the late Jurassic period and whose fossil was first found in the Badlands in Wyoming in 1899, after which it was acquired by Andrew Carnegie. Carnegie sent plaster casts of the fossilized skeleton to museums around the world; casts of the Carnegie Museum's diplodocus fossil are on display on four different continents, according to the museum's website. Outside the museum itself, a statue of "Dippy" the diplodocus, made during the 100th anniversary year of the fossil's discovery, recreates the dinosaur in fiberglass.



Brian Trimboli/News Editor



# Carnegie Mellon team wins two Best Proposal awards



Julian Lamy, a member of the Carnegie Mellon Better Buildings Case Competition team. Courtesy of Julian Lamy

**BUILDINGS**, from A4

Business; Vedran Lešić, a Fulbright scholar in engineering and public policy; and doctoral students in engineering and public policy Casey Canfield, Julian Lamy, and Nathaniel Horner.

“Someone from [engineering and public policy] has been on the team every year,” explained Canfield. “We had a bunch of engineering students interested, but we had to work a little bit harder to get people from Tepper and people from architecture.”

The team was assigned two cases. The first, titled “Picking up PACE: Taking Commercial PACE Financing to Scale,” involved the development of a program and business plan for states to enact Property Assessed Clean Energy (PACE) financing, a method of attaching loans to buildings instead of a person, while increasing energy efficiency.

As a solution, the team proposed using a diffusion model to build up the program over time and placed an emphasis on the advertisement of the non-energy savings benefits of energy-efficiency such as increased health and productivity.

“The judges said it was the most realistic and complete proposal, which is why I think we ended up winning,” said Canfield.

The second case assigned to Team Everpower was titled “A Side of Savings: Energy Efficiency in the Restaurant Franchise Model.” This case dealt with incentives for fast-food restaurants to invest in energy efficiency. The team proposed a competition between restaurants that would use cash prizes to encourage energy efficiency through behavioral changes and investment in new technology.

“The idea is that each store that participates would realize the benefits of any of these measures that they took, whether it’s investing in new equipment or improving their processes, but in addition to that there’s the incentive to participate because of the competition,” said Lamy. “It would give all stores a kind of common ground and common platform to invest in different things.”

For each case, two awards were given out: “Most Innovative” and “Best Proposal.” Team Everpower won “Best Proposal” for both of their cases.

The members of Team Everpower also commented on the benefits they personally gained from the competition.

“For me, coming from an engineering background, the interesting part was working on a real project and learning how I can apply technical knowledge to real issues,” said Eybpoosh. “We had people in our group from many different backgrounds and that also helped me have a bigger picture of what I have learned in the engineering department.”

The team also stressed the fact that these benefits are not limited to graduate students. “One of the things that’s interesting about this competition is that there aren’t different levels, so undergraduates compete against graduate students. We really wanted undergraduates on the team because this would be a really great opportunity for undergraduates to get experience,” explained Canfield.

“It’s a good opportunity for Carnegie Mellon undergraduates to get into [research] and learn how it works,” added Eybpoosh.

# New computational method allows for faster gene analysis

**GENE**, from A4

six hours to identify anywhere from 30 million to 100 million RNA sequences, depending on the number of sequences.

The time-intensive step is in mapping the large string of letters to its complementary sequence in the database. Kingsford explained that “what makes Sailfish so fast is to do away with this mapping step. Instead of matching the whole RNA sequence at one time, Sailfish first breaks down the input into all possible fragments of size k which are appropriately called k-mers.”

Next, the program identifies all the different RNA sequences in the database where each k-mer could be found. The database sequence that has the highest coverage of k-mers will be the corresponding sequence helping to identify the protein that the sequence codes for.

Searching for these k-mers is computationally less intensive than searching for a whole sequence because it is no longer a string search problem.

The database can be constructed as a minimum perfect hash table matching each possible k-mer from the database to all the possible sequences in the database that contain that specific k-mer. In computer science, hash tables are efficient data structures that store and search through information.

Kingsford described that the idea of breaking down large sequences into smaller k-mers is a technique that is commonly utilized in genome assembly. He added, “researchers had strayed away from applying this idea to RNA-seq because they thought breaking the sequence caused a loss of information.”

Instead, Kingsford and his team found that “despite losing some information, you gain in freedom.... In some cases, the analysis will be actually more accurate than older methods.”

Sailfish is more accurate because it does not incorporate mismatches between the search sequence and the database sequence into the analysis. DNA and RNA can be somewhat variable between different individuals so it is very likely that a whole sequence will never be a perfect match. Older mapping methods are exponentially slowed down by the errors that are allowed between the search



Jonathan Carreon/Contributing Editor  
Kingsford and his team developed Sailfish to study genes more quickly.

and database sequence. In this primitive system, some sequences will never find a match and be thrown out because of too many mismatches. Kingsford explained that in their new method, k-mers that have mismatches are not considered.

However, there are other k-mers that don’t have mismatches which will be sufficient in matching the appropriate sequences. Thus, no complete RNA sequence in analysis will be thrown out simply because of a few mismatches.

Rob Patro, a post-doctoral research associate working under Kingsford, was responsible for the majority of the coding and testing of the software.

They collaborated with Stephen M. Mount, an associate professor in the University of Maryland’s Department of Cell Biology and Molecular Genetics and its Center for Bioinformatics and Computational Biology.

In November of 2013, the

group released their code and started a forum for users to discuss their experiences. Kingsford shared emphatically that users were having “very positive experiences” and that “it is very rewarding to go from an idea to implementation and then to actual users so they can actually do what they want to do.” They spent the past six months working on their publication.

Previously, researchers were limited in their RNA sequencing studies because of the time required for such intensive computation. Kingsford hopes that this speedy software will “let researchers do much more exploratory analysis, test many more conditions getting millions and millions of RNA sequences and comparing them to even larger data sets.”

Kingsford and his team will continue to improve their software, possibly enabling other scientists to make discoveries furthering the human understanding of the beautiful complexity of biology.

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# Spergel journeys through time at Bennett-McWilliams lecture

**BROOKE KUEI**  
*SciTech Editor*

What if you could go back in time? What if you could go so far into the past that you could see the beginning of the universe?

David Spergel, chair of the department of astrophysical sciences at Princeton University, took his audience back in time at the second Bennett-McWilliams lecture in Rashid Auditorium last Thursday with his creatively named talk, “Taking the Universe’s Baby Picture.”

The truth is, you are traveling into the past each time you look up at the night sky. The stars are so far away that by the time the light they are emitting — which travels very fast, but still at a finite speed — reaches your eyes, you are seeing the stars not as they exist in the sky at that moment, but how they were when that light first left the star.

“If you were on a planet 10 light-years away and were looking at Earth, you would see all of us as we were 10 years ago — and I had more hair,” Spergel joked. It makes sense, then, that the farther away an object you are looking at is, the older a version of it you will see.

It is this concept that allows researchers to use the cosmic microwave background (CMB) to study the universe’s history. The CMB is essentially leftover heat from the Big Bang. When the universe was young, it was very hot and very dense, and protons and electrons moved around freely in plasma.

However, as the universe expanded and cooled, protons and electrons began to combine and photons — that is, light — began to decouple from the matter. It is this light, which has moved freely from then to now, which gives us a window into the universe’s initial conditions.

“The microwave background is a wonderful thing to study if you want to understand the evolution of the universe’s history,” said Spergel. “Because it really is, I’ll argue, the universe’s baby picture.”

So what exactly does a map of the CMB look like? You might be familiar with the famous CMB pictures, which look like an oval on which various patches of different colors are dispersed, that have been published by surveys such as Planck and the Wilkinson Microwave Anisotropy Probe (WMAP). These different colors correspond to the slightly different temperatures across the universe.

“What we want to do is look at this pattern and study the ‘lumpiness’ as a function of scale. What is the characteristic scale of the hot and cold spots on this map?” Spergel explained.

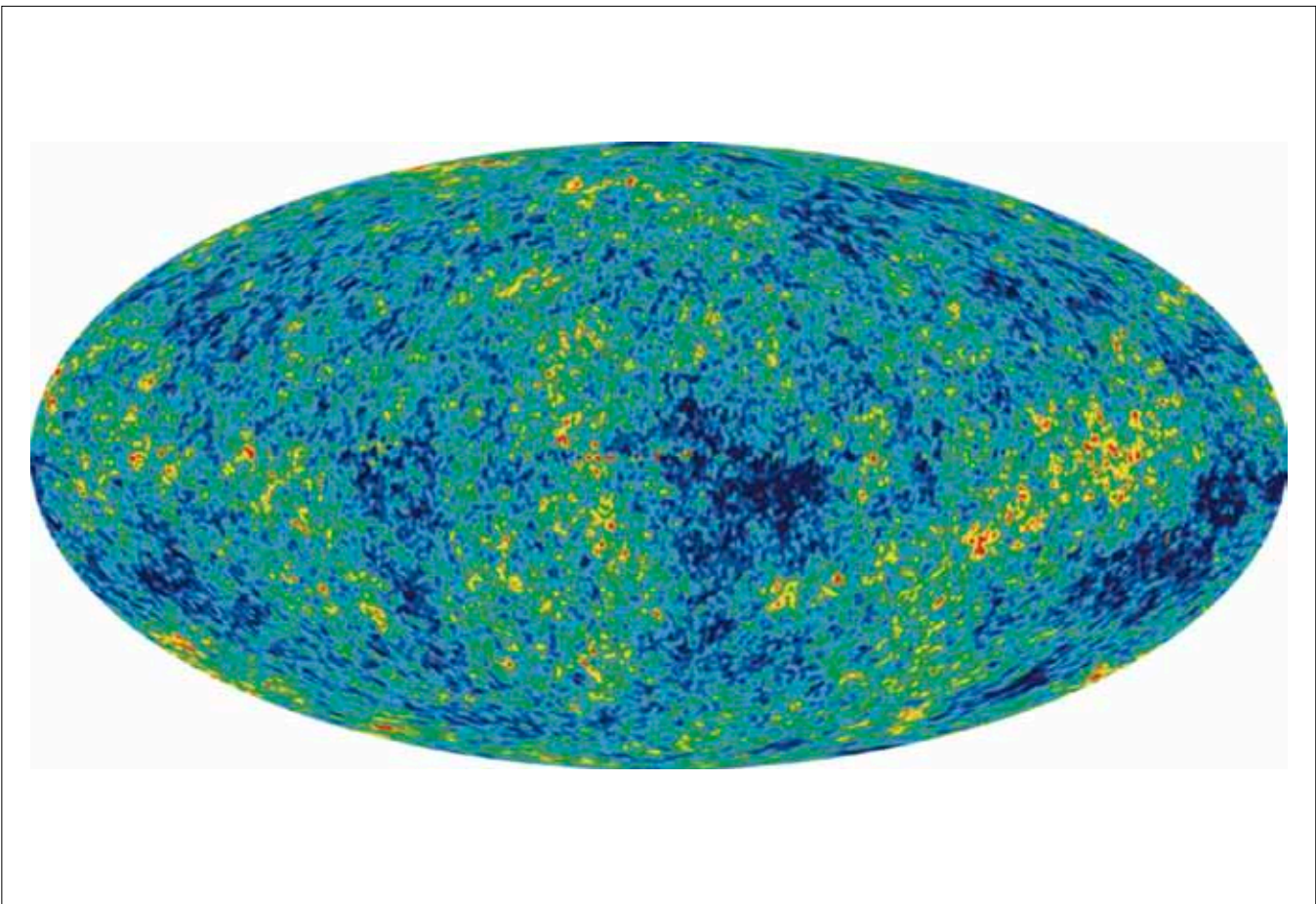
To illustrate his point, Spergel showed the baby pictures of his own children — “Three completely randomly selected babies,” he assured, as the crowd chuckled — followed by a more recent picture of them.

“Given the initial conditions, you can extrapolate forward to today,” Spergel explained. “Now, this will not work with babies ... but the universe turns out to be more simple.”

Using computer simulations of the initial conditions of our universe and evolving them forward in time, we can compare our predictions of the present universe’s “lumpiness” to actual observations, and it turns out that they match remarkably well.

While the first half of Spergel’s talk began with the universe’s initial conditions and went forward in time to the present day, the second portion of his talk was about how observations made in the present can take people back in time to the universe’s first moments, a discussion which revolved around the theory of inflation.

“The way that I think about the motivation for inflation comes from having taught for a number of years,” Spergel said. He explained the theory with an example: If you gave an exam to a classroom full of students and every student handed back their exams with the same answers, one of two things must have happened —



The cosmic microwave background (CMB) is leftover radiation from the Big Bang and helps astronomers study the universe’s history.

either there was communication between the students during the exam, or the students shared the same information beforehand.

Similarly, when we look at the many different regions of the CMB, all of the patches are the same temperature, with only minuscule fluctuations between them. However, according to the standard Big Bang Theory, these regions of the sky did not have time to communicate to each other, suggesting that they shared a common initial condition. The theory of inflation states that these regions once existed at a single point, and that the universe underwent a rapid, exponential expansion to become the universe we know today.

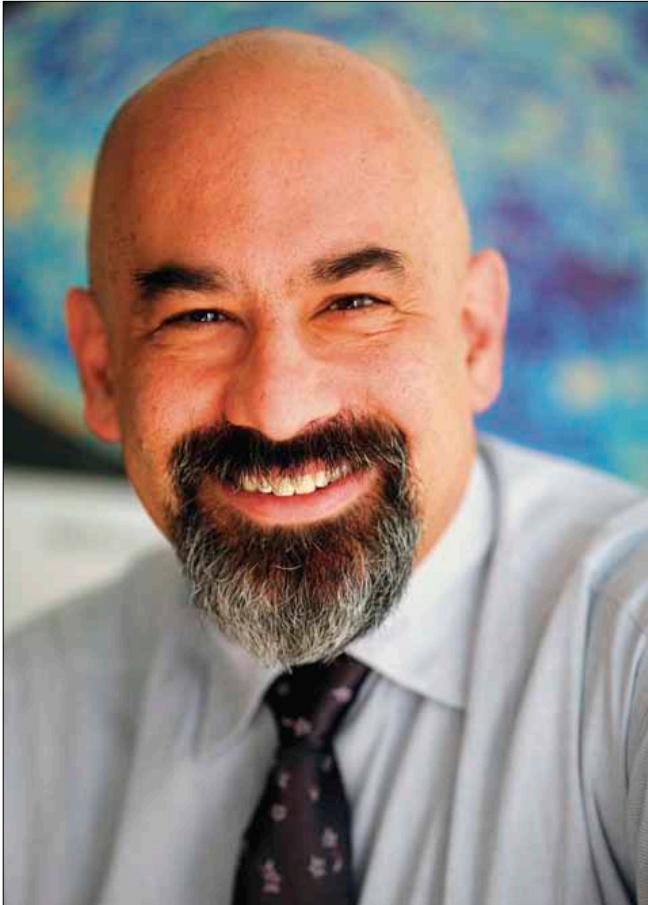
During this inflation, tiny ripples in the fabric of space-time were blown up, resulting in the gravitational waves that the Background Imaging of Cosmic Extragalactic Polarization (BICEP2) telescope very recently detected, causing a similar ripple of waves

to propagate throughout the physics community.

“My reaction to this — and this might be me being a bit of a cynic — is that important results deserve careful scrutiny,” Spergel cautioned. He worried that since the CMB is composed of both cosmological emissions and galactic emissions, the signal that was detected by BICEP2 could include contributions from distant galaxies that were not accounted for.

In the next two years, fortunately, seven different experiments will be independently working to confirm the discovery.

Between the first Bennett-McWilliams lecture — which occurred in December and featured Alan Guth, the theorist behind inflation — and Spergel’s lecture last week, gravitational waves have already been detected. Spergel’s lecture took the audience on an adventure through the past, but who knows what greater discoveries the future has in store for us?



David Spergel spoke at the second Bennett-McWilliams lecture.

## PUGWASH COLUMN

# Corporatization is here to stay

  
**JOSEPH ROLLINSON**  
*Special to The Tartan*

With the recent partnership between Yahoo Labs and Carnegie Mellon’s computer science department and the announcement of Google Vice President Andrew Moore for Carnegie Mellon’s dean of computer science, Pugwash decided to tackle the emerging issue of corporatization of universities. We were fortunate to be joined by Heather Steffen, a literary and cultural studies graduate student who teaches an interpretation and argument course on this topic.

The corporatization of universities is defined as universities building closer ties with industry and universities acting more like corporations. We began our discussion by naming examples of corporatization we have run into at Carnegie Mellon. The partnership with Yahoo Labs was fresh in everyone’s mind. According to a Carnegie Mellon news release, Project InMind is a five year, \$10 million dollar partnership between Yahoo and Carnegie Mellon. It is predicated on providing Carnegie Mellon researchers access to real time data from Yahoo services to “speed up the pace of mobile and personalization research and create a better user experience,” said Ron Brachman, chief scientist and head of Yahoo Labs, in the news release. The partnership also includes a fellowship program for students and faculty with financial support from Yahoo, and mentorship from researchers at Yahoo

Labs and Carnegie Mellon.

We also discussed Carnegie Mellon’s Silicon Valley campus, which according to its homepage, works “with partners in the San Francisco Bay Area to establish a natural extension for the university’s acclaimed graduate degree programs, innovative research, and support for entrepreneurs.” A final example of corporatization at Carnegie Mellon is the interpretation and argument class that every first-year must go through, which is taught by adjunct professors and teaching assistants at a much lower cost to the university.

Our discussion then moved on to the effect of corporatization on teaching. According to the American Association of University Professors, 76 percent of instructional staff appointments in American higher education are non-tenure-track appointments. Non-tenure-track faculty are advantageous to universities, because they are less expensive than tenure-track faculty. However, the American Association of University Professors remarks that the use of contingent faculty “damages student learning, faculty governance, and academic freedom.” We then discussed the effect of corporatization on research. Steffen gave a wonderful summary of the history of the relationship between universities and business of which only the final point will be provided here. The Bayh-Dole Act of 1980 allowed universities to hold the patents for the results of research conducted with federal funding. Since then, federal sponsorship for university research has declined whilst corporate sponsorship has increased.

This change in sponsorship is not without cost. According to *The Guardian*, “Pittsburgh based industry group, the Marcellus Shale Coalition, canceled its funding of a Pennsylvania State University research project after two faculty members bowed out, citing bias in the study. An earlier Penn State report, also paid for by the natural gas industry, was used by Pennsylvania legislators in 2009 to kill a state tax on gas drillers.” Research can be controlled and skewed indirectly by the sponsors.

After this quite depressing look at universities, we turned the discussion to what we can do to preserve the benefits of corporate sponsorship whilst dampening the costs. First, teachers must rally together to win back their voice. Adjunct faculty and graduate students are increasingly unionizing and pushing for better working conditions. Second, universities need more control over their corporate sponsorship. For example, if Pennsylvania State University had a contract with the Marcellus Shale Coalition stating that the funding would continue, even if negative results came out, the bias may never have occurred. Obviously, these two suggestions are not perfect and require refinement, but they are a step in the right direction.

Corporatization is here to stay. Universities must learn to control it.

*Student Pugwash is a non-advocacy, educational organization that discusses the implications of science. This article is a summary of last week’s discussion on the corporatization of academics.*

## SCITECH BRIEFS

### Chernobyl birds adapt to radiation

Ecologists have found that birds living near Chernobyl are adapting, and even benefiting, from long-term exposure to radiation. While previous studies suggested that exposure to radiation depleted antioxidants and increased oxidative stress, the researchers found the opposite happening in the birds. A greater exposure to ionizing radiation instead increased antioxidants and increased the animals’ resistance to larger doses of radiation. The ecologists captured 152 birds, measured background radiation levels, and then took blood and feather samples before releasing the birds. The results of the study also helped scientists further distinguish between the different species of birds in the area.

Source: ScienceDaily

### Worry spreads over emerging virus

As of Friday, there have been 92 deaths and 313 confirmed cases of Middle-Eastern Respiratory Syndrome (MERS). Most of the cases have been in Saudi Arabia and the United Arab Emirates, and the virus can be transmitted between people. The World Health Organization (WHO) and the Centers for Disease and Control Prevention are preparing for outbreaks in case the virus spreads from the region, such as through air travel.

Scientists believe the virus resides in camels and recently jumped to humans. Currently, it seems that MERS only spreads from one person and then stops transmission.

Source: NPR

### Scientists decode tsetse fly genome

Scientists have recently decoded the genome of the tsetse fly, an insect that spreads the parasitic disease, sleeping sickness, in Africa. The scientists specifically looked at the genome of *Glossina morsitans*, one of the species of tsetse flies. The project took over a decade, partially due to the unique biology of the creature. For example, tsetse flies are the only insects to nurse their young. While other insects give birth to hundreds of eggs, tsetse flies typically hatch only one larvae, which complicates sequencing because geneticists need to look at nearly identical or closely related females flies in order to accurately sequence a genome. Tsetse flies typically only produce 10 progeny in their life span.

Source: *The New York Times*

### FDA may regulate e-cigarettes

The Food and Drug Administration (FDA) has recently announced plans to control cigars, pipe tobacco, hookah, and e-cigarettes. E-cigarettes are devices that deliver water vapor with nicotine. The new proposal by the FDA would limit legal purchase of these products to those over 18 years old, similar to regulations put in place regarding chewing tobacco and cigarettes.

While some have touted claims that e-cigarettes are an alternative to help current smokers quit, studies have shown little evidence. Rather, the products might introduce more individuals to tobacco products.

Source: *Nature*

### Y chromosome no longer shrinking

Previous research has shown that the Y chromosome — the sex chromosome found in males — has significantly shrunk over the past hundred million years. Scientists now say, however, that the Y chromosome has been stable for the past 25 million years according to a paper published in *Nature*. The authors state that in addition to sex determination, genes on the Y chromosome are involved in protein synthesis, gene activation, and gene splicing. Scientists analyzed the Y chromosome in eight mammalian species. They looked at the chromosome in animals that appear relatively early in the fossil record, such as mice, and compared them with those that appear later, such as humans.

Source: *Scientific American*

### Recent liquid is found on Mars

Research by scientists at the University of Gothenburg in Sweden suggests that there was liquid on Mars as recently as 200,000 years ago. The finding can be traced to the discovery of a young crater on the southern hemisphere of the planet. The crater contains well-preserved gullies and debris flow deposits. These formations indicate that the crater was formed by liquid water relatively recently.

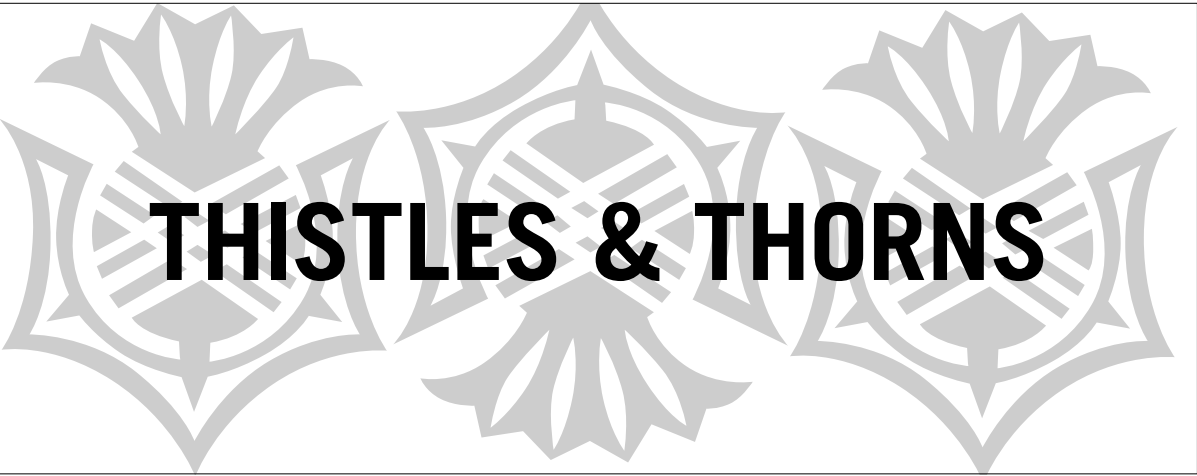
The research group compared the landforms in the crater with similar ones on Earth.

Source: ScienceDaily





# Forum


FROM THE EDITORIAL BOARD





At the close of every school year, *The Tartan* reassesses the year's events. We present here a list of people and happenings that are worthy of recognition. **Thistles** go to people and events that had a positive effect on the campus community and the world at large; **Thorns** go to those that have negatively impacted the community.


 A **thistle** to the Carnival Committee and all who actively participated in organizing a memorable 100th Spring Carnival. This year's Spring Carnival was complete with some of the best booths we've seen in years and not one, but two, artists for the Carnival Concert.


 A **thorn** to the individual who cut off the arm of the child statue of "Walking to the Sky." Although the sculpture is often regarded negatively by the student body, it is still a centerpiece visual of the university, and one that should be respected and remain completely intact.


 A **thistle** to first-year economics and statistics double major and Senate sergeant at arms Vaasavi Unnava and Student Senate for a successful "The First Lectures" series. These lectures provided great insight from graduating seniors about finding one's footing at Carnegie Mellon and served to help redefine success at the university.

 A **thorn** to Russia for its human rights violations, in regard to the current debacle in Crimea and discrimination in the 2014 Winter Olympics.


 A **thistle** to the states of Colorado and Washington for legalizing and regulating the sale of marijuana, generating additional tax income from a drug already in regular use. Progressive drug policies have the potential to raise millions in state revenues and decrease imprisonment for drug possession.


 A **thorn** to the Boy Scouts of America for reinforcing their ban on LGBTQ leaders and volunteers even as they finally conceded to public pressure to allow openly gay youth to join. Equal rights cannot be compromised upon, and a compromise in favor of further discrimination is hypocrisy at the highest level.


 A **thistle** to sophomore civil and environmental engineering major Angela Ng and Project Smile for spearheading the Mindfulness Room, a space for students to relax and think introspectively and a place of respite within the confines of stressful academia. While the room is still underused, it exists for a worthy cause.


 A **thorn** to the academic audit, which remains woefully outdated while other online tools such as Student Information Online and Andrew Webmail are making big


strides toward user-friendly access.


 A **thorn** to the state of Pennsylvania for allowing the rampant use of hydraulic fracking. The fracking process is connected with numerous environmental hazards such as contaminated drinking water supplies and is used to drill for non-renewable and emissions-generating fuel.


 A **thistle** to Carnegie Mellon Dining Services's expanded and improved dining options this year, from the healthy menu options at the Underground to the extended Entropy+ hours, among other positive changes.


 A **thorn** to Carnegie Mellon's Career Center for moving into the West Wing residence. West Wing is one of the most coveted dorm buildings on campus, and will now lose available rooms due to the career center relocation.


 A **thistle** to this year's runners in the Boston Marathon for returning to the course in record numbers after last year's bombings, honoring all those who died or were injured during last year's race.


 A **thorn** to the United States Congress for the government shutdown last fall. The fact that partisan politics were allowed to overcome good governing is disgraceful.

 A **thistle** to the incoming student government executives — in particular, Student Body President Elect Ian Glasner and Student Body Vice President Elect Shalini Ray. They ran on a strong platform of targeting student unity and improving campus policies, and we expect good things from them over the course of their term.


 A **thorn** to Carnegie Mellon for receiving a Title IX complaint from the American Civil Liberties Union in response to a student's complaint that the university allegedly failed to protect her from an abusive ex-girlfriend.


 A **thistle** to the overturning of Proposition 8 and the Defense of Marriage Act in the Supreme Court. This victory was a major one for the equal treatment of all marriages under federal law as well as the freedom to marry, propelling state moves toward same-sex marriage legalization across the nation.


 A **thorn** to the Supreme Court for striking down limits of aggregate campaign contributions. Speech should not have measurable units and citizens' jobs should not determine the amount of speech they have.


 A **thistle** to Nelson Mandela — his work as a leader in South Africa led to the end of apartheid and the development of a stable


democracy. He was awarded the Nobel Peace Prize in 1993 and as an elder statesman he worked to combat poverty and HIV/AIDS. May he rest in peace.


 A **thorn** to the National Security Agency for not only overstepping its bounds of surveillance and data collection, but also for failing to inform the public of many of these practices.


 A **thistle** to current student government executives, especially Student Body President Lindsay MacGillivray and Student Body Vice President Ian Glasner. They led Carnegie Mellon well throughout the past year, and The Tartan thanks them for their service.


 A **thorn** to the regime of Syrian President Bashar Assad for its use of chemical weapons against Syrian civilians in August 2013. The use of chemical weapons is a war crime, and its use against civilians is especially horrific.


 A **thistle** to the legalization of same-sex marriage in Minnesota, New Jersey, Hawaii, Illinois, and New Mexico, as well as judicial victories in favor of marriage equality in Utah, Oklahoma, Kentucky, Virginia, Texas, and Michigan. This encouraging forward momentum is unlikely to slow anytime soon.


 A **thorn** to the Simon Initiative for covering too broad a scope in its goals, and for still being unclear as to how it will go about its vague goal of "solving the mystery of human learning."

 A **thistle** to State Senator Wendy Davis (D—Texas) for her 11-hour filibuster to combat a controversial anti-abortion bill, that would severely limit abortion services all across Texas.

 A **thorn** to the violence against political protestors in Egypt. The increase in violence in July and August of 2013 saw hundreds of innocent people killed, and such destructiveness should not be tolerated.

 A **thistle** to Pittsburgh Mayor Bill Peduto, who has been far more transparent in his governing than former Mayor Luke Ravenstahl, and has shown a strong commitment to growing and developing this city.

 A **thorn** to Arizona's proposed religious freedom bill. Though the bill was vetoed due to national outrage, it encouraged other conservative states to take similar measures which could be used to defend discrimination against LGBT clientele by businesses and other public services.

 A **thistle** to the Andrew Webmail update last summer from SquirrelMail — a flawed and outdated format — to Google mail.

## Don't let plans get in the way of passions



JOSH SMITH

Uncertainty is incredibly scary. It's why people are afraid of the dark, and why death and what happens afterward are so important to so many cultures and religions. For a graduating senior, what's about to happen in a few short weeks has that strong air of the unknown.

I don't want to compare graduating to death — although the black cap and gown don't help — but graduation is a time where many of us are saying goodbye to a way of life we've known for most of our lives. We're trading grades and homework for a salary and late nights at the office. The mix of excitement and fear is palpable.

But at the same time, it's that uncertainty that drives us. Adhering to a plan and claiming that you know for certain where you'll be in five years is not only ridiculous — it's impossible. The most important lesson I've learned at Carnegie Mellon is that instead of being adamant about your plans, you should focus on your resolve to follow your passions and do what you love.

Plans are subject to change, and there's a large number of students at Carnegie Mellon who already know that. Out of everyone who arrived at the university when I did, 232 people changed colleges in their undergraduate career by the start of their senior year, according to the Office of Institutional Research and Analysis's Fall 2013 College Enrollment Patterns Report. 203 students were no longer enrolled at their initial college within the school by their third fall here, and 97 students made the decision to switch colleges after just one year at Carnegie Mellon.

This number has only been increasing over the years, with 188 of seniors in the fall of 2012 enrolled in a different college than their initial college, and 157 seniors in the fall of 2011. None of these numbers reflect how many students changed majors within their initial college, or left the university altogether. Regardless, it's interesting to see how a significant portion of people who I competed with and against at House Wars made a big change in their academic careers while here.

The fact is that there's very little

that stays the same your whole life. Your looks, where you live, your finances, your career, your friends, your plans, and numerous other aspects of your life are subject to change. That only becomes more evident as you enter the workforce. According to the Bureau of Labor Statistics, people hold, on average, 11.3 different jobs from age 18 to 46. While that includes promotions and job changes within the same career, changing how you describe what you do or who you work for often makes adhering to a plan that much more difficult.

So with all of this uncertainty, the best thing to do is what makes you happy. Barring that it isn't harmful to yourself or others, following your passions is the only surefire way to find happiness. Your passions can be your career, the people in your life, or what you do with your spare time.

Even your passions aren't immune to change. But adhering to a plan and having it prove impossible will leave you worse off than finding a new calling. There's a line in *Chicago Tribune* columnist Mary Schmich's famous essay, "Advice, like youth, probably just wasted on the young," that this sentiment echoes. The line is this: "Don't feel guilty if you don't know what you want to do with your life. The most interesting people I know didn't know at 22 what they wanted to do with their lives. Some of the most interesting 40-year-olds I know still don't."

I admire people who have plans, who have goals, and who have the drive to pursue them. That's the case with so many of the talented people I know here at Carnegie Mellon. But when things change, when you divert from your "plans" — or get thrust out of them — it's important not to become discouraged. There's so much that is out of our control that it can be scary. That's why it's important to have a firm grasp on your passions. Knowing who you are, practicing your values, and letting your passions motivate you will help you find a certain level of peace that those who pore over why their plans went astray won't know. Uncertainty is incredibly scary, but it helps to know that whatever changes, you can take the steps to do what you love and, in that, find satisfaction.

Josh Smith (jjs1@) is a contributing editor for *The Tartan*.



Kelsey Thompson/Staff Artist

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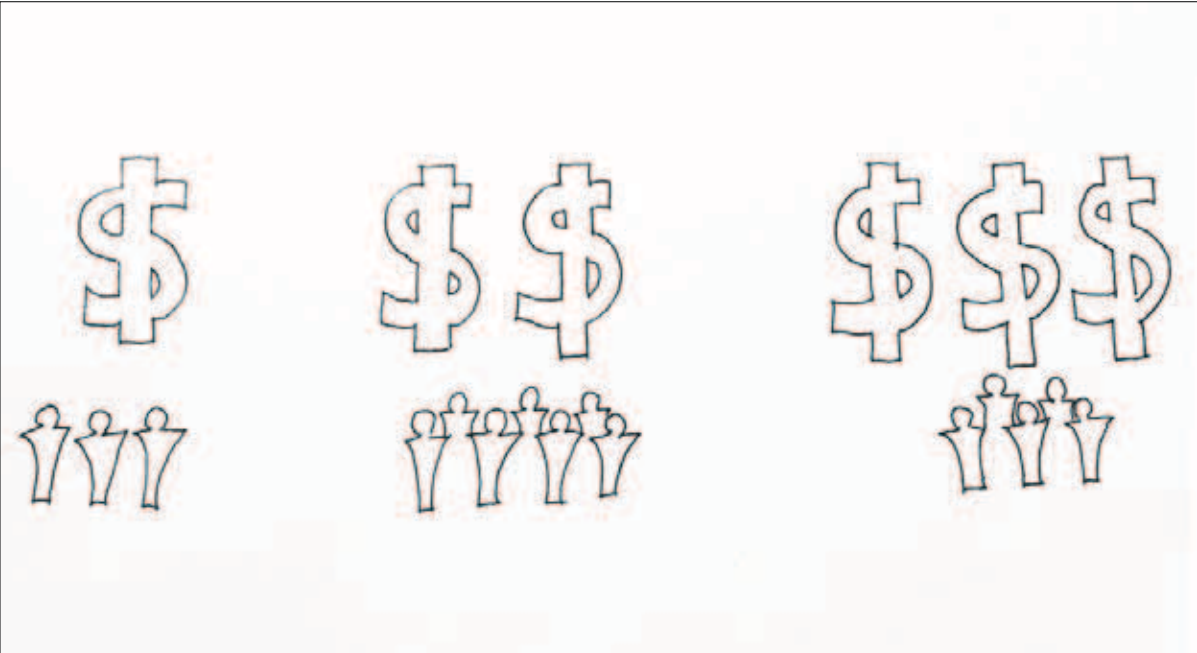
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# Colleges need socioeconomic diversity



Joanne Lo/Staff Artist

AMELIA BRITTON  
Junior Staffwriter

Diversity is something of a buzzword in college admissions, yet it is one of the most misrepresented elements of a school’s identity. Colleges are right to focus on diversification, but I believe they ignore the socioeconomic homogeneity of their student bodies.

Elite universities make an effort to be diverse, and by many measures, Carnegie Mellon has succeeded. All 50 states and several dozen countries are represented in the student body, and data from the Carnegie Mellon Diversity Resource Guide shows that undergraduate enrollment by non-white and international students has outnumbered white student enrollment every year since 2002. There are still more male than female students, but that gap is closing steadily.

As a white girl from the Midwest, I am neither geographically nor racially underrepresented here. However, students from high schools like mine are few and far between at top-tier universities like Carnegie Mellon. I attended an urban public high school where 86 percent of students from the district are legally “economically disadvantaged.” According to a pamphlet published by my school district, one-fourth of the students do not graduate high school in four years.

I am proud of my high school. Our attendance rates are above 95 percent and our test scores consistently exceed state averages. Not everyone attends college, but I wish that decision was made on a personal basis rather than a socioeconomic one. Among those who do attend college, scholarships for “homegrown” students at local universities incentivize students to enroll at in-state public institutions. I believe many more students from my high school and schools like it could attend elite universities if given the resources, information, and financial guidance.

Financial aid documents like the FAFSA and CSS Profile are tricky to navigate, especially for nontraditional families. According to the guidelines for 2013-14, any noncustodial parent must submit supplemental paperwork. Since estranged parents are considered noncustodial except in extraordinary circumstances, the onus of tracking down these family members falls to the student. A deceased parent also complicates a student’s assets. Given the stresses

that accompany these issues of documentation, students with unusual family and financial situations face a more arduous process than those from typical two-parent households. This flaw could be construed as systematic discrimination, though I believe it is more likely an accident of the system.

Carnegie Mellon’s ridiculous costs are no secret. The tuition and fees of over \$60,000 put a strain on middle class budgets and are absolutely impossible for worse-off families. Financial aid makes it possible for students from less-than-elite socioeconomic backgrounds to attend elite universities. But what does it say about our student body that only 53 percent of students received aid last year?

According to *admissionsconsultants.com*, this percentage is on par with Ivy League financial aid. Still, the idea that 47 percent of our student body can afford the full price of tuition seems absurd. We all worked hard to get here, but that doesn’t necessarily translate to diverse personal histories. Certain life experiences for students from middle-to-upper class families tend to be similar, whether they come from the Bay Area in California or the suburbs of Boston.

A caveat: this is not to say that economically-disadvantaged students are victims of society. Countless students have overcome adversity in their personal lives in the course of their educational journeys. The argument for greater socioeconomic diversity at elite universities is not meant to be patronizing, but rather hopes to transform popular perceptions of who is disadvantaged.

Race remains linked to socioeconomic status in the United States, but the latter gives a much fuller representation of a student’s background. When we consider race alone, the rich members of any minority — in comparison to the poor members — are overrepresented virtually everywhere.

This is, perhaps, most visible in primary and secondary education, where public schools are funded by property taxes. This means that lower-income neighborhoods usually have lower-quality schools and produce a smaller proportion of students who go on to higher education. Meanwhile, public schools in rich areas and private schools are better funded, overrepresent rich white students, and tend to send more students to top-tier universi-

ties. There exists a cycle of economic disparity linked to education. Every high school has smart, driven, hard-working students, so universities shouldn’t limit the selection of their student body to primarily well-off high schools.

Colleges should promote diversity that is broader than race or geography. Policies like affirmative action promote racial diversity, but may disregard other elements of identity. Incorporating socioeconomic data into college admissions may solve part of the problem, as long as the process is transparent.

Admissions decisions need to be made in the context of a student’s life, instead of through predominantly quantitative analysis. When grades, test scores, extracurriculars, and essays of two students are considered equally strong, the context of the students’ achievements — whether a personal struggle, family situation, or educational obstacle — must become the deciding factor for admission. Consider a prep school with supplemental instruction on standardized testing, and contrast it with an urban, inner-city public school with a 30:1 student-faculty ratio, or a home-schooled student from the rural Great Plains. An SAT score of 2100 should be evaluated differently in each case, and reflect differently on the student in question.

Some colleges already have admissions policies which consider personal history, but there is still much to be done. Beyond discussing the issue with Carnegie Mellon’s administration, we can promote top-tier universities in economically challenged school districts. Many students in these districts have only ever heard of long-shot Ivy League schools, or else believe they cannot afford them. Students should be encouraged to consider all of their options. For instance, we could make it better known that private universities offer more need-based aid, while public universities offer more merit-based aid. Informing students of these intricacies — and emphasizing the possibilities for financial aid — would broaden the applicant pools at elite universities.

Although socioeconomic diversity is narrowly represented at schools like Carnegie Mellon, there is hope. A holistic approach to admissions would include racial, geographic, and cultural diversity — all of which would inherently follow socioeconomic integration.

# Federal government has power to tackle oligarchy

MOHAMMED BURNY  
Staffwriter

In a Tartan article published last week entitled “Cut federal power, eliminate oligarchy,” staffwriter Kyle Henson editorialized that the only way to remove oligarchic influence in American politics today is to shrink the federal government where these oligarchs exert their undue influence.

Henson’s editorial was provoked by the release of a recent report — authored by Martin Gilens and Benjamin Page of Princeton and Northwestern Universities, respectively — that claimed that “the majority does not rule, at least not in the causal sense of actually determining policy outcomes. When a majority of citizens disagrees with economic elites and/or with organized interests, they generally lose.”

Henson asks us if we should actually be surprised by this finding. At the risk of sounding naive, I would like to say that I am indeed surprised. His rhetorical question is a bit too hard-bitten, and I must protest against the casual cynicism it implicitly conveys about our political system.

I do believe that our politics can be more inclusive and representative — than this report claims, and insofar as they fall short of this standard today, I reserve the right to be permanently surprised at their failure.

More substantially, however, Henson argues that if we wish to lessen the influence of economic elites and organized interests in our policymaking process, we must lessen the power of the federal government itself. The logic of his argument is quite simple: “The less power the government has, the less it can do for special interests, and the more democratic our society will be.” In fact, this logic is fatally simple.

The current size of the federal government is the result of a century’s worth of advocacy by the American people for robust federal intervention against special interests in our society. Progressive reformers, galvanized by the economic disparity and political corruption of the Gilded Age in the first two decades of the 20th century, called for a vigorous federal government to serve

as a counterweight to the powerful special interests that then shaped public policy. The trustbusting and regulatory initiatives of Presidents Teddy Roosevelt and Woodrow Wilson illustrate the actual role of federal government in that era, and its ideal role ever since.

If Gilens and Page are correct, then the federal government today has relinquished its former vigor. Into the breach have swarmed special interests of every variety, who have captured the institutions — elected and regulatory — once intended to control their activities in the marketplace and the polis. Nothing else explains how a majority of the American people can be on one side of policy debates and consistently lose to elite minorities on the other side.

Henson argues that we shall not renew our democracy by restricting lobbying or regulating campaign finance. I beg to differ.

If these policies are enacted, then we shall have taken two great strides toward renewing our democracy. Such policies can replenish the strength of our federal government, now long flagging, and give it a fair chance to combat the pernicious influence of special interests in our politics.

Henson claims that we can only renew our democracy by moving power downward, from the federal government to the states. I take special exception to this proposal. Historically, the federal government has been the only power in American society capable of checking the power of the special interests. If the federal government is deliberately stripped of this power, then nothing will stand between us and the special interests in our society. Oligarchy will finally supplant democracy in our republic.

Both Henson and I would like special interests to exert less influence in our policymaking process. But Henson, in calling for a weaker federal government, is actually making it vastly easier for special interests to exert a greater influence in shaping public policies. I ask him to pause and consider an intermediate step: Arm the federal government once again to combat special interests, so that the voices of the American people can once again be heard in the halls of power.



Courtesy of Ed Brown via Wikimedia Commons

# A PERSON’S OPINION

Compiled by Sara Remi Fields

The Tartan can’t believe that the end of the year is almost upon us. So we asked,

## How do you manage stress during finals?



**Shashank Goyal**  
ECE  
First-year

“I play pool and play any kind of sport to chill.”



**Andrew Yee**  
ChemE  
Junior

“Eat. Sleep. Play video games.”



**Danielle Lehmann**  
Architecture  
Sophomore

“The studio environment is arranged to distress. It’s open and social. I usually sleep or go for a run.”



**David Buzzell**  
ECE, Music Technology  
First-year

“I really adhere to my sleep schedule. I also participate in group activities and socialize!”



**Hemanth Kini**  
Computer Science  
Sophomore

“I make a lot of music.”







# Sports

## Both tennis teams fall just short of titles at UAAs

## CMU takes 2nd, 6th at track and field championships

**CARL GLAZER**  
*Senior Staffwriter*

The top-10 ranked Carnegie Mellon men's and women's tennis teams both competed in the University Athletic Association (UAA) Championships in Orlando this weekend. Both teams made it to the finals, but ultimately fell short of taking home the title.

The ninth-ranked men's team started off the competition on Thursday against the University of Rochester.

The Tartans came out strong in doubles play and jumped out to an early 2-1 lead after the duos of juniors Christian Heaney-Secord and Will Duncan and sophomores Yuvraj Kumar and Joel Lankford won both of their matches, 8-2 and 8-4, respectively.

The Tartans then put it away by taking five of six singles matches on their way to a 7-2 match victory. Sophomore Abhishek Alla, and first-years Kiril Kirkov, Duncan, and Kumar all won in straight sets to quickly seal the victory and punch their ticket to the semifinals. Kirkov was particularly impressive, only surrendering a single game in his two sets, 6-1, 6-0.

In the semifinals on Friday, Carnegie Mellon faced off against the fourth-ranked Emory Eagles for the right to go to the finals for the first time ever.

The Tartans came out swinging, winning all three doubles matches. Heaney-Secord and Duncan made it look easy with their 8-2 win, while both Kirkov and junior Bryce Beisswanger and first-year Kenny Zheng and sophomore Yurjav Kumar won 8-5. The Tartans split the singles matches with the Eagles 3-3, but moved on to the finals due to their edge in doubles, winning 6-3.

All three Carnegie Mellon victories required at least one tiebreaker, and only first-year Kunal Wadwani won in only two sets, 7-6 (7-1), 7-5. Duncan fought hard for his victory, going three sets and

winning his two both in tiebreaker, 7-6 (7-5), 4-6, 7-6 (7-4).

In the Saturday finals, the Tartans were up against second-ranked Washington University in St. Louis. Carnegie Mellon fought well, but were ultimately no match for the Bears.

Kirkov was by far the most successful Tartan, winning both of Carnegie Mellon's points on the team's way to a 2-7 loss. He and Beisswanger took the lone doubles victory, 9-7, and Kirkov was the only singles victor for the Tartans, winning in straight sets 6-4, 6-2.

The eighth-ranked women's team started out competition against the University of Rochester as well. The 9-0 victory was their second in a row as they looked to be peaking at the right time.

Junior Angela Pratt and first-year Nicholle Torres left nothing to chance sweeping their doubles match 8-0. Junior Byrn Raschke and first-year Vanessa Pavia, along with senior Katie Cecil and sophomore Brooke Tsu, both won 8-1.

In singles play, all six women won in straight sets with no one giving up more than three games in a single set.

Sophomore Elizabeth Martin did not drop a single game on her way to a 6-0, 6-0 win,

while fellow sophomore Abbey Hamstra and junior Lydia Utkin each surrendered only one game as they each won 6-0, 6-1.

On Saturday, the women took on ninth-ranked Washington University in St. Louis for a chance at the finals. This time, the Tartans started off a bit more sluggishly with only Pratt and Torres winning a doubles match.

Down 1-2 going into singles play, Carnegie Mellon knew they had to take care of business and did just that, taking five of six singles matches. Cecil, Torres, Tsu and Martin all won in straight sets, with Cecil truly dominating with a 6-0, 6-1 win.

Pavia won the fifth singles point, but had to work for it, dropping the first set 1-6 before battling back to take the last two sets 7-5 and 6-3.

On Sunday, the Tartans faced off against the second-ranked Emory Eagles in the finals. It was going to be a long day for the Tartans when they dropped all three doubles matches. Cecil took the one Tartan point in singles play as she won 6-0, 6-3 on the way to the Tartans' 1-8 loss.

Even though both teams left on a bittersweet note after falling in the finals, the season is not over: NCAA Championship draws will be announced on May 5.



File photo by Jason Chen/Assistant Photo Editor  
The women's team advanced to Sunday's final round of the UAA Championship before falling 1-8 to the Emory Eagles.

**CARL GLAZER**  
*Senior Staffwriter*

This weekend, the Carnegie Mellon men's and women's track and field teams competed at the University of Chicago in the University Athletic Association (UAA) Outdoor Track & Field Championships. Overall, the men's team finished second out of seven competing schools, and the women's team finished sixth.

The men's team was led by its strong throwers, as it was all season. In the shot put, senior Zachary Erra-Hernandez continued his dominating season, taking home first place with a 15.80-meter throw that was 1.38 meters further than the runner up. Senior Nathan Cheek also continued performing well as he finished in fourth place with a 13.79-meter throw.

Cheek and Erra-Hernandez continued in the discus event, where they finished second and third with throws of 44.73 and 44.32 meters, respectively. They switched places in the hammer throw, where Erra-Hernandez finished second with a 52.19-meter throw and Cheek took home third with a 46.56-meter toss.

The Tartans had another two-three finish in the javelin throw. First-year Jacob Brooks took second with a 53.38-meter throw, with Cheek in third place at 53.14 meters.

The Tartans also performed well in the other field events, with junior Mike McDermott finishing second in the high jump, leaping 1.89 meters. He also took fourth in the pole vault by clearing the 4.27-meter bar.

In the long jump, the Tartans took home third- and fifth-place finishes, with first-years Don Boyer and Matthew Seifu finishing with jumps of 6.69 meters and 6.51 meters, respectively.

Carnegie Mellon had a tougher time in the track events. First-year Andrew Chang had a very good day, finishing third in the 200-me-



File photo by Jason Chen/Assistant Photo Editor  
Sophomore Brian Bollens competes in the steeplechase at a meet at Carnegie Mellon on April 5.

ter dash — crossing the line in 21.97 seconds — and fourth in the 110-meter hurdles — finishing in 15.68 seconds.

The 110-meter hurdles were dominated by Carnegie Mellon, as Chang was just one of four Tartans in the eight-person finals. Sophomore Ben Neiman finished third with a time of 15.59. Boyer and first-year Matthew Sheh finished sixth and eighth, with times of 16.14 and 16.46, respectively.

In the 800-meter run, junior Thomas Vandenberg finished in first place with a time of 1:53.68, and in the 400-meter hurdle, senior Mike Standish finished in third place with a time of 54.80 seconds.

Senior Josh Newby placed second in the 3,000-meter steeplechase with a time of 9:31.06.

The relay team made up of Standish, Vandenberg, first-year Owen Norely, and sophomore Marc-Daniel Ju-

lien took home first in the 4x800-meter relay and third in the 4x400-meter relay with times of 7:46.25 and 3:20.80, respectively.

The women's team struggled in nearly all aspects of the meet, but had a couple top performers. Senior Jacqueline Guevel finished second in both the 100- and 400-meter hurdles, finishing with times of 15.09 and 1:03.82.

Junior Sasha Spalding placed second in the long jump with a leap of 5.47 meters. She also finished third in the shot put with a 10.49-meter throw.

In the high jump, first-year Rebecca Fortner finished in fourth place after clearing the 1.53-meter bar on her first attempt, and in the hammer throw, first-year Colette Tano finished in fourth with a 42.09-meter throw.

Both teams will next compete in Allegheny College's Gator Invitational on May 9.

### SPORTS COMMENTARY

## Pirates struggle through April, playoff hopes dashed

**CARL GLAZER**  
*Senior Staffwriter*

April has not been kind to the Pirates. The start of the season after their magical playoff run has been less than spectacular as they sit in fourth place in their division, over eight games behind the upstart Milwaukee Brewers.

After sitting put during the offseason, it looked like management was putting their hopes on Pittsburgh repeating the strategy of taping holes in the roster with veteran players trying to rebuild their careers.

Sadly, lightning never strikes twice, and with the loss of ace A.J. Burnett and last year's in-season rentals Marlon Byrd and Justin Morneau, the Pirates are even thinner this year.

Last year's team stayed in games with a solid starting rotation and shut down bullpen, both of which were piecemeal groups of developing talent and resurging veterans.

So far this season, the rotation has been shaky at best with only free agent veteran pitcher Edinson Volquez posting a sub-3.5 earned run average (ERA).

Emerging star Gerrit Cole has been shaky in his first four starts but shows some signs of turning it around before the calendar hits May.

The larger problem for Pittsburgh has been the bullpen. Last year's team was so dominant they became a fundamental part of the team identity, dubbed the "Shark Tank," and routinely finished out close one-run Pirates victories.

This year, the bullpen has had 10 save opportunities. Saves are fundamentally defined as the pitcher having the chance to finish out a close game, meaning that the team has less than a three-run lead.

Of these 10 opportunities to win the game, the Pirates have converted only four of them. Those four saves are courtesy of veteran closer Jason Grilli.

Unfortunately, he is also the cause of half of the blown saves and is currently on the disabled list following his back-to-back blown saves last weekend during the Pirates

abysmal homestand.

Hopefully his woes came from trying to pitch through an injury, but setup man Mark Melancon is taking over the closers role for at least the next two weeks, and depending on his performance, maybe permanently.

One of the few consistencies for the Pirates has been their offense.

Unfortunately, this consistency is not a good thing, as both this year and last, Pittsburgh is missing strong bats at several traditionally strong offensive positions, namely first base and right field.

To their credit, the Pirates did finally do something about the first base issue by making a rare mid-April trade with the New York Mets, getting underperforming slugger Ike Davis.

While Davis may look like an upgrade, the fact that the Mets were so willing to give up on him for pennies on the dollar has to raise concerns for Pirates fans.

Speaking of underperforming corner infielders, third basemen Pedro Álvarez has regressed as a hitter. He has always struggled with the balance between hitting for power and hitting for average.

So far, Álvarez has clearly decided that home runs outweigh batting average. His six home runs have him on pace for over 40 home runs this season.

Unfortunately, he is also on pace for a .176 batting average, which would be grounds for benching and demotion to the minors for nearly any other player without his power.

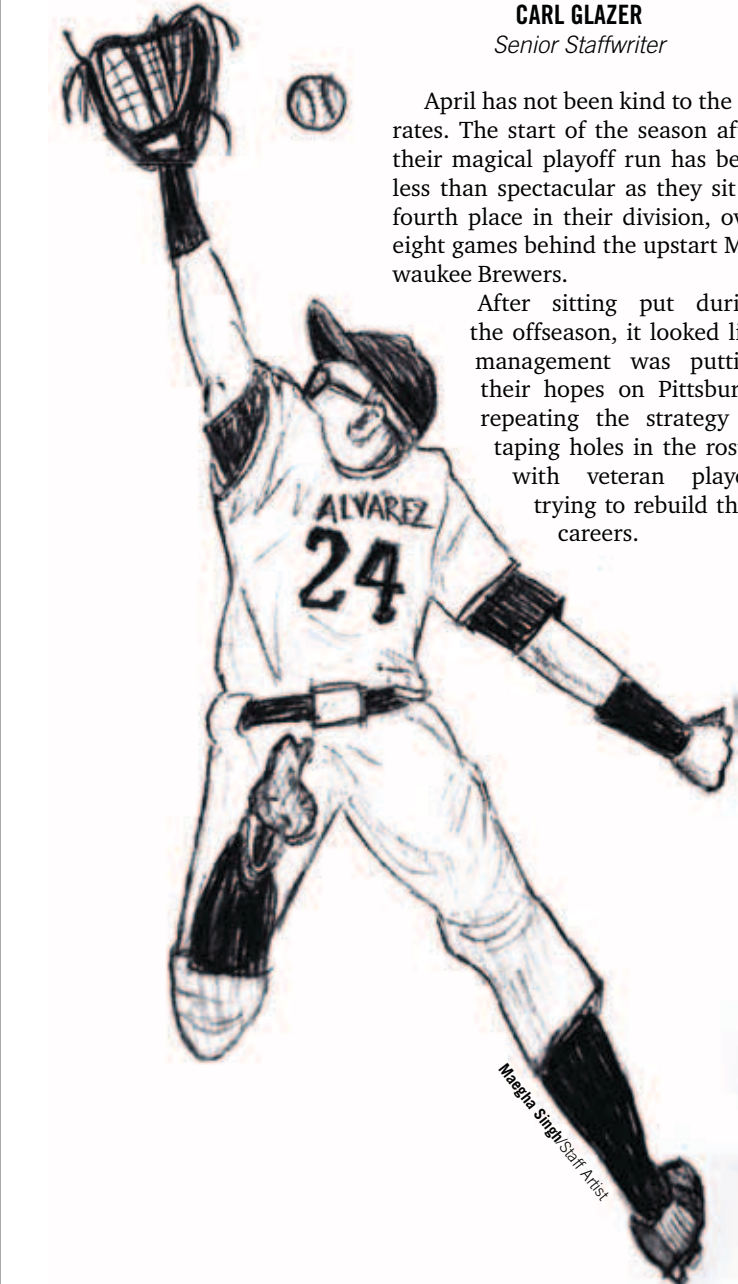
**Unfortunately, the stark reality of the situation is that this is the same team the Pirates had last year, but the clock is well past midnight for this Cinderella story.**

It's not too late to try and recapture the magic and turn things around. Less than a sixth of the way through the season, plenty can change and there are plenty of other trades to be made.

Hot prospect Gregory Polanco is likely to make his major league debut in about six weeks after the Pirates maximize his team control going forward.

Unfortunately, the stark reality of the situation is that this is the same team the Pirates had last year, but the clock is well past midnight for this Cinderella story.

Teams that sit a game out of the basement in their division at the end of April are rarely capable of flipping a switch and becoming contenders. I really hope Pittsburgh enjoyed its small taste of playoff baseball, because at this pace, it may be a little while before Pirates play in October again.



Maegha Singh Staff Artist



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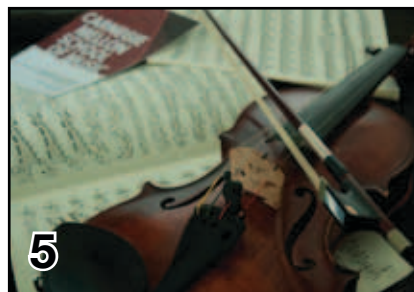
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# Beijing comes to Pittsburgh

## ARCC celebrates Chinese culture with performances, film

One Night in Beijing, the annual Chinese cultural performance show held by ARCC (Awareness of Roots in Chinese Culture), was held on Saturday night.

This year, the theme of the show was “Pig Tales,” which featured an overarching skit billed as “an original sequel to the famous *Journey to the West*.” *Journey to the West*, of course, is one of the most well-known stories in Chinese literature, featuring the adventures of Sun WuKong, the Monkey King, and the other disciples of a Buddhist monk, who travel from China to India on a pilgrimage. The skit follows the story of Zhu Bajie, the comical pig-man disciple known for his laziness and gluttony, who must serve time tending to a temple after he commits a number of misdeeds.

While at the temple, Zhu Bajie, played by sophomore information systems major Daniel Song, forms a friendship with a taciturn girl named Huan Meiling, played by senior international relations and politics and Chinese studies double major Sandra Yeh, who is being hounded by literal demons. Bajie must also face harsh rebukes from the deified Chinese general Guan Yu, played by junior mechanical engineering and biomedical engineering double major Calvin Chan. The Monkey King also makes an appearance as a comically adorable version played by junior computer science major Joy Lin.

The skit had a number of humorous touches, including the use of “oh my Buddha” instead of “oh my God,” as well as a subplot about the Bandit Queen, who finds the Monkey King sexy, much to the dismay of her husband.

The skit also segued into the performances well, with each performance complementing a portion of the skit. The performances themselves surveyed the landscape of Chinese culture, from its ancient roots to modern times.

One of the best performances of the night included “You Know You Love Me, I’m Your Bad Boy,” a performance led by the Bandit King as he tried to impress his wife into loving him again. A dance to the song “Moonwalk” by Taiwanese boyband JPM, “I’m Your Bad Boy” was a smooth but energetic dance performance that showcased effects such as silhouetted lighting. The dancing was choreographed well enough to be a music video for the actual song.

Its companion performance “Fragile Falling Flowers and Breakups,” was a graceful fan dance that touched on the same themes as “I’m Your Bad Boy.” Together, the two songs offered female and male perspectives on love and breakups. Also notable was the showing of Carnegie Mellon



Maryyann Landlord | Comics Editor

Dancing was just one of many Chinese traditions showcased at One Night In Beijing.

alumnus David Hsu’s (CIT ‘06) short film, “Fate,” about a girl who loses her boyfriend in a freak automobile accident, but gets a chance to reverse the death — at a price. The film features many Carnegie Mellon-centric locales and references. At one point, Hsu worked in a reference to *The Last Lecture* by Randy Pausch.

Many other performances also featured fan dancing, Chinese folk songs, and C-pop. The Ballroom Dance Club made an appearance in the performance “Toxic Tango,” a dance to the Britney Spears hit. At one part of the show, Princess Anna from *Frozen* teamed up with a sea deity to sing “Let Part of Your World Go,” a mashup of the hit songs from *Frozen* and *The Little Mermaid*.

The show also featured performances with uniquely Chinese instruments and objects, such as the Chinese yo-yo, the Chinese qin (a traditional stringed instrument), and lion dancing — dances in lion costumes traditionally performed during Chinese festivals.

One Night in Beijing was a show that brought together a multitude of talented performers from the Carnegie Mellon community and a variety of influences from Chinese culture. It was a great show for anyone with a connection to, or interest in, China.

**Xiyu Wang** | Assistant Forum Editor

## Advice for awkward people

About procrastinating and loud sleepers

**Dear advice columnist who seems to be a different person every week (what's up with that?),**

I've been trying to find anything at all to do instead of study for finals, and I mean anything: prank calling, volunteer work, and I even signed up for jury duty yesterday. Then I found out *House* was on Netflix, and any ray of hope for my academic adequacy is now gone. Should I even try to pass my finals?

**Lazily yours, Don't Regret Whining, Instead Languid, Splayed Out, Noshing**

**Dear DR WILSON,**

Well, first thing's first: Watching all eight seasons of *House* should be your main priority. Jury duty can wait; if you're watching five episodes a day, as you should be, that's around when he's admitted to a mental asylum, and there's no way you can miss that arc. Oh, I'm sorry, were those spoilers? Whoops.

Also, why would you ever willingly sign up for jury duty? What could possibly be worse than ... oh, wait, you're taking 251? Well, better bring a good book to the courtroom. If you're feeling masochistic enough to volunteer for such excruciating experiences, I recommend *Infinite Jest*. Nice light reading.

**Remember, it's never lupus, Evan**

**Dear guy,**

It was 3 a.m. I was working on a PowerPoint on the Mac side of the CFA clusters. I thought I was the only person there, until I realized there was a really tall guy curled up into a ball in one of the blue swivel chairs. He was sleeping and snoring loudly enough to be really, really annoying. I didn't wake him up this time, but what should I do if this happens again?

**Sincerely, Want to Unhinge Mouth of Precariously Uncoiling Snorer**

**Dear WUMPUS,**

I wouldn't do anything really mean — unless you're morally bankrupt, in which case, by all means, take the risk and slap him awake, only to be knocked out by a likely member of the football team. Actually, wait; don't do that. Even players on Carnegie Mellon's football team have a little intimidation factor.

It's probably best to put on your CFA headphones, blast some math rock, and pretend the snoring is just percussion.

**Or dip his right hand in warm water, then go to Hunt, Evan**

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



# A couple of easy, tasty, and healthy recipes

These items can be made quickly in any dormitory kitchen and will fuel you through finals

The weather's getting warmer, the flowers are blooming, and campus is waking up from its long winter nap. With the arrival of spring comes a desire to be healthier, but with campus food being what it is, it's hard to commit to eating healthy. In honor of the beautiful spring weather this week, here are a few quick and easy recipes that are tasty and healthy.

Make them on-the-go as you explore the city or enjoy them while relaxing on the Cut.

## Fruit Smoothies

Serves 4

Source: *foodnetwork.com*

### Ingredients:

4 frozen bananas  
4 cups of frozen berries  
2 cups of milk  
1 cup of vanilla yogurt  
1 cup of orange juice  
2 or 3 tablespoons of honey

### Equipment needed:

Blender

### Instructions:

1. Start with the fruit and blend it until it's chunky.
2. Add the milk, yogurt, and honey. Blend until smooth.
3. Taste, and then add honey until it tastes good, blending for a few more minutes to mix it in.
4. Pour into a glass and enjoy. Smoothies should be served cold and can also be refrigerated for later.

## Granola Bars

Makes 18 bars

Source: original home recipe

### Ingredients:

2 cups of oats  
½ cup of brown sugar  
½ cup of honey  
½ cup of butter, peanut butter, or apple butter  
¾ cup of raisins, dried cherries or cranberries, M&Ms, mini chocolate chips, sunflower seeds, sliced almonds, or any other add-in item

### Equipment needed:

Oven, baking pan, mixing bowl

### Instructions:

1. Preheat the oven to 350 degrees. Spray a 9 by 13-inch pan with cooking spray.
2. Mix the brown sugar, honey, and butter together in a large bowl.
3. Add the oats and the add-ins, mixing to make sure that everything is coated. The mixture should be thick

and sticky.

4. Dump into the pan, and press the mixture down.
5. Bake for about 18 minutes or until light brown. Do not overcook — the bars will get dry.
6. Cool for five minutes, then cut into squares.
7. Serve when cooled. Store the bars in an airtight container for a quick snack.

## Hearty and Healthy Soup

Serves 4

Source: *womensday.com*

### Ingredients:

½ cup of quinoa  
2 tablespoons of olive oil  
1 medium onion, chopped  
1 carrot, chopped  
2 stalks of celery, chopped  
3 cloves of garlic, chopped  
1 tablespoon of smoked paprika  
1 yellow pepper, cut into ½ inch pieces  
1 red pepper, cut into ½ inch pieces  
2 cans of rinsed chickpeas  
2 cups of vegetable broth  
1 cup of water  
2 tablespoons of red wine vinegar  
Salt and pepper to taste  
Chopped fresh parsley for garnish (optional)



Laura Scherb | Operations Manager



Laura Scherb | Operations Manager

Whip up this hearty soup for a quick meal, or a great study snack for those late nights.

### Equipment needed:

Stove, small saucepan, large pot, knife, cutting board

### Instructions:

1. Cook the quinoa in the small saucepan. When finished, set aside.
2. Meanwhile, put the oil in the pot on high heat. When hot, add the onion, carrot, and celery and cover. Cook for about six minutes.
3. Add the garlic, paprika, and salt and pepper and stir for one minute.
4. Add the peppers and then cook for five minutes while stirring.
5. Add the two cans of chickpeas and the vegetable broth. Add one cup of water and then bring to a boil.
6. Reduce heat and simmer for 5–10 minutes.
7. Take off of the heat, and add the vinegar and the quinoa.
8. Stir, and top with parsley. Serve hot.

**Laura Scherb** | Operations Manager

Make a batch of granola bars to save for a few days. One of these in the morning can jumpstart your day.





# Philharmonic rocks Carnegie Music Hall

Orchestra comprised of School of Music undergraduates performs a challenging program

It's one thing to read that Carnegie Mellon's School of Music is one of the top undergraduate music programs in the country; it's another to hear the product of student work come to life on stage. On Wednesday, the Carnegie Mellon Philharmonic graced Carnegie Music Hall with impressive performances across the board. Beginning with a roaring *Ruslan and Ludmila*, moving into a showcase of solo talent, and concluding with the epic Shostakovich 5, the orchestra rose to the challenge of a broad and well-rehearsed program.

The orchestra launched the evening with a breakneck rendition of Mikhail Glinka's notoriously fast *Ruslan and Ludmila* Overture. Conductor Andrés Cárdenes took a very laid-back style in leading the orchestra in this first piece. After his first cue, he leaned back, conducting with nothing but an occasional bob of the head or twitch of the fingers. Surprisingly, the orchestra maintained a reasonable tempo on its own, staying a unified body and resisting the ever-present temptation to speed up to the point of total cacophony.

The phrasing was cloudy at moments, but overall sharp and unified, and the cellos were simply beautiful when they took the limelight with their sweeping melody, wringing every ounce of tenderness from each bar without slowing the tempo. The Glinka proved an excellent choice for an opener: It infused the performance with energy right from the start and elicited cheers from the audience.

The evening also showcased Carnegie Mellon's solo talent: After the Glinka, the musicians rearranged their seats to make room for Krzysztof Rucinski, a master's student in violin performance and the highlight of the second part of the program. He chose to play Karol Szymanowski's Violin Concerto No. 1 — a piece written in 1916 and often considered one of the first modern violin concertos, for immediately obvious reasons: The piece is beautiful but atonal, departing from traditional compositions of the form.

At first appearance, Rucinski did not have a particularly emotive or even charismatic stage presence. Many concert soloists naturally try to charm their audience or make a show of chemistry with the conductor. Rucinski crossed the stage wearing all black, only modestly acknowledging the applause that greeted him. All that changed, however, when the music started. When Rucinski lowered his violin during the extended breaks between passages, he lifted his head up as if in wonder, eyes shining — as if he were drinking in the music for the first time. At times, he closed his eyes, as if shutting off his vision would enhance his hearing that much more.



Photo illustration by **Alan Vangpat** | Senior Photographer

The Carnegie Mellon Philharmonic gave a spirited performance of challenging pieces to those in attendance at Carnegie Music Hall last Wednesday evening.

Rucinski's playing itself was flawed at points, but overall it was exquisite. His eerie, beautiful first notes were made tender and haunting by a fluid, effortlessly quavering vibrato. Rucinski sometimes lacked the volume for his sound to rise over the clamoring orchestra, but his playing was no less forceful for it; during grittier passages, Rucinski seemed to rage at the music, digging recklessly into the strings — and snapping a few bow hairs in the process.

After a long intermission, the full orchestra took the stage again for Dmitri Shostakovich's Symphony No. 5. While not technically difficult, the symphony is one of the composer's better-known works, and an ambitious choice given its historical context. Symphony No. 5 was Shostakovich's response to criticism and intimidation by Stalin himself and his associates in 1930s Russia. While overtly patriotic — the piece gained wide acclaim from Stalinist authorities upon its premiere — it is now generally understood that Symphony No. 5 was Shostakovich's subtly seditious effort to make realist commentary on the suffering of the Russian people while appeasing Stalin's regime and avoiding arrest himself. It is a depiction of forced celebration: the appearance of patriotism, with a strong undertone of turmoil and suffering tainting the happy picture.

From Wednesday's performance, it was clear that the orchestra did not take this challenge lightly: The

musicians gave the piece the gravity and attention it deserves. Clocking in at roughly 45 minutes, the symphony isn't a short one — but the musicians maintained energy and a high quality of performance throughout. The well-rehearsed moments in the performance were apparent in the clear, unified phrasing and well-coordinated, broad range of dynamics. The performance held a wide range of moments, from fragile, creepily soft spider-web passages to roaring crescendos that tumbled into furious musical chaos. At times, the piece reached very brief but deafening peaks of volume, characterized by a fierce rumbling of the timpani.

Cárdenes, too, was especially animated throughout the Shostakovich in contrast to his approach to the Glinka. It seemed he had been saving his energy all night for that last 45 minutes. During particularly energetic passages, he shook his fist at the orchestra, as if threatening them with violence if they didn't play loud enough.

The piece concluded with a racing fourth movement, which mellowed into a full, round sound that carried the triumphant — or despairing — last minutes of the symphony into a grand swell of an ending. Immediately after the musicians lowered their instruments, the audience leapt into a full standing ovation.

**Rachel Cohen** | Publisher



# Guess who’s coming to perform in Pittsburgh

Catch a few of your favorite artists if you’re staying in town for work, class, or no reason at all

The semester is finally wrapping up, and it’s time to start thinking about summer. Many students choose to remain in the Pittsburgh area to take classes, work at an internship in the city, conduct research, or just for convenience. Music lovers who choose to remain in Pittsburgh this summer are in luck — there is a great lineup of concerts coming to the Steel City. There are many more concerts than the ones listed here and likely many more to be announced in the future; these are just the highlights.

## Neon Trees

May 14  
Kick off the summer with a bang at a Neon Trees concert. You’ve heard their songs “Animal,” “Everybody Talks,” and their latest single, “Sleeping With A Friend” on the radio. Now hear them live. This tour celebrates the release of their latest album, *Pop Psychology*. In addition to the upbeat, danceable music, lead singer Tyler Glenn is a high-energy performer with great dance moves and a knack for putting on an entertaining show. The Neon Trees will be at Stage AE on the last day of finals.

## Ingrid Michaelson

May 25  
Want to hear great live music but don’t want all of the chaos of a typical concert? Then Ingrid Michaelson’s sweet, indie-pop tunes and smooth vocals are the right choice for you. Her music has the ability to make listeners feel like they’re curled up in a fuzzy blanket with a cup of hot cocoa and a puppy in their lap. For a nice alternative to the typical concert, check out Ingrid Michaelson at Stage AE.

## Backstreet Boys and Avril Lavigne

June 14  
Backstreet’s back, and there’s nothing complicated about it. Take a trip down memory lane at this concert. The Backstreet Boys are celebrating 21 years together with their “In A World Like This” summer tour. Avril Lavigne will be performing new songs in addition to the classics we all know and love from 2002. For a nostalgic and fun concert, head out to the First Niagara Pavillion.

## Arctic Monkeys and White Denim

June 17  
For music enthusiasts with a special preference for indie rock and a soft spot for English men, the Arctic Monkeys are the perfect band. They will make this international summer tour in support of their fifth and most recent album, *AM*. Similarly to the Arctic Monkeys, White Denim is a four-piece indie rock band. This band from Texas has a unique sound drawn from dub, psychedelic rock, blues, progressive rock, soul, jazz, and experimental rock. This concert at Stage AE promises to be a great show for fans of alternative music.

## Tegan and Sara

June 19  
Tegan and Sara, a sister band, are one of those bands that sound even better live than they do on the radio. Most well-known for their single on the radio, “Closer,” these girls are anything but superficial pop stars. Their lyrics are powerful and evocative, and they pour tons of emotion and energy into all of their performances. Not to mention, breaks between songs are filled with humorous banter between Tegan, Sara, and the audience. If you’re looking for a high-energy concert with charismatic performers, check out Tegan and Sara at Stage AE.

## Monumentour: Fall Out Boy & Paramore

July 3  
This concert promises to be exactly what the title of the tour implies: monumental. This is one of those concerts where both acts will keep you excited, dancing, and enthusiastic from start to finish. With Fall Out Boy’s recent album, *Save Rock and Roll*, and Paramore’s recent self-titled album, these two bands are sure to put on a great performance featuring many fresh songs, as well as familiar songs from earlier in their careers. Check out the bands you fell in love with in middle school that are somehow still making great music for you to rock out to on the radio at the First Niagara Pavillion.

## Paul McCartney

July 7  
An oldie but a goodie, no explanation is really needed for why Paul McCartney would put on a great show. For

those not impressed by his accomplishments already, at least give the man credit for continuing to put on high energy performances even though he’s not as young as he once was. If your heart lies with classic rock music, check out this iconic star at the Consol Energy Center.

## Katy Perry

July 22  
Fun fact: *Teenage Dream* was the first album by a female artist to have five number-one hits. This firework has tons of achievements and honors under her tiny belt for her fun, catchy tunes. However, her latest album *Prism* features darker music with more self-empowering themes. For a little taste of girl power and a lot of fun, go to the Consol Energy Center.

## Jason Aldean, Tyler Farr, Miranda Lambert, & Florida Georgia Line

July 26  
If you are a country fan, this concert should sound like heaven — four well-known country stars will come together in one night for what promises to be an awesome concert and a fun time. The location is great too — PNC Park is a great location and a beautiful park that offers a spectacular view of the rivers. Get all your best pals together and head downtown to PNC Park for a night of good old-fashioned country music. Just don’t forget your cowboy hat.

## Panic! at the Disco

August 1  
Looking for an alternative concert with upbeat, dance-inducing music? Look no further than Panic! at the Disco. If that isn’t enticing enough, attractive lead singer Brendon Urie’s fancy footwork, which includes backflips, should be a solid reason to attend. Urie isn’t just all show, however. He wrote almost every song on the newest album, *Too Weird to Live, Too Rare to Die*, about his best friend who struggled with a drug addiction. Check out this fun concert with a deeper, complex meaning behind the lyrics at Stage AE.

Jenna Bodnar | Assistant Pillbox Editor

## Here are a few more concerts coming to Pittsburgh this summer:

M.I.A. — April 28, Stage AE	Gibbzmatik — May 30, Altar Bar	Zomboy — June 11, RexTheater	311 and Sublime w/ Rome — July 14, Stage AE
Lady Gaga —May 8, CONSOL Energy Center	Bastille — June 1, Stage AE	O.A.R. and Phillip Phillips — June 18, Stage AE	Jack White — July 27, Stage AE
Mastodon — May 9. Stage AE	Needtobreathe — June 3, Stage AE	Luke Bryan, Lee Brice, and Cole Swindell — June 21, Heinz Field	Dark Star Orchestra — August 8, Stage AE
Black Label Society — May 15, Stage AE	Tyler, the Creator — June 4, Stage AE	Journey and Steve Miller Band — June 27, First Niagara Pavillion	OneRepublic — August 8, First Niagara Pavillion
Brad Paisley —May 17. First Niagara Pavillion	Titus Andronicus – June 5, Cattivo	Counting Crows — June 27, Stage AE	Toby Keith — August 9, First Niagara Pavillion
The Head and the Heart — May 30, Stage AE	Tim McGraw — June 6, First Niagara Pavillion	Sugar Ray and Smash Mouth — July 13, Stage AE	





# *Parks and Recreation* moving up but not out

Season six finale leaves many characters on a high note, sets up seventh and likely final season

*Warning: This article contains spoilers for the Parks and Recreation season six finale, "Moving Up."*

Pawnee, Ind. is far from perfect. The people are rude and morbidly obese; the infrastructure is crumbling and prone to raccoon infestations. But despite all its flaws, former City Councilwoman and Deputy Director of the Pawnee City Department of Parks and Recreation Leslie Knope (Amy Poehler) loves Pawnee with a fierce passion.

What would Pawnee be without her? More importantly, who would Leslie be without Pawnee? Last Thursday, *Parks and Recreation* played with those questions in its season six finale, "Moving Up."

There were a lot of storylines going into this finale, which could have made even the extra 20 minutes feel crammed with content, but the writers managed to merge them into one cohesive storyline.

The NBC comedy saw Leslie tackle all sorts of new obstacles this season: the recall election, the pregnancy and subsequent exit of her best friend Ann Perkins (Rashida Jones), and the merger between Pawnee and its neighbor and rival city, Eagleton.

The last few episodes took the show to a new level, as it was revealed that Leslie and husband Ben Wyatt (Adam

Scott) are expecting triplets — the always-overachieving Leslie had even managed to overachieve a family.

To top it off, Leslie was still mulling over a major job offer from the National Parks Service that would require a move to Chicago. It was only halfway through the episode that Leslie decided to take the job, which left about 20 minutes for viewers to wonder how the show was going to progress next season.

In fact, much of the episode felt like a series, rather than a season, finale, as all the characters examined their own lives and voiced their appreciation of them. This show depends heavily on its supporting cast for humor and actual storylines, so any major decisions made by Leslie need to be examined in terms of everyone else.

Set against the Pawnee-Eagleton Unity Concert, "Moving Up" saw Ron Swanson (Nick Offerman) reaffirm his commitment to family life, while April Ludgate (Aubrey Plaza) and Andy Dwyer (Chris Pratt) reaffirm their status as the most perfectly dysfunctional couple on TV.

Meanwhile, former Parks employee Tom Haverford (Aziz Ansari) finally opens his newest business venture, Tom's Bistro, with some help from his friends, some Pawnee celebrities, and some actual celebrities. After a few hiccups, the restaurant actually turns out to be a success.

underappreciated comedy. Despite continuous threat of cancelation, the whole team manages to turn out quality, heartfelt episodes every week.

This week was no exception. It was nice after a season that sometimes felt like a downer to see everyone legitimately happy in their lives.

Even moves that could seem like cop-outs, such as Leslie convincing her new boss to move the Chicago operation to Pawnee, manage to come off as the most natural thing in the world. Of course Leslie would manage to move up in the world without ever having to move out of Pawnee.

And despite the episode's overarching tone of finality, the final two minutes firmly close out this season and simultaneously push the show into the next, and possibly final, season.

A three-year time jump gives the writers room to jump head first into Leslie's new roles, both personal and professional, without having to deal with all the transitions.

It's nice to see a show grow and develop while still maintaining everything that makes it great. *Parks and Recreation* is consistently funny and entertaining, but continues to find new ways to make a small town in Indiana seem like the best place in the world.

*Parks and Recreation* has always been an

**Mairéad Pettit** | Personnel Manager



McConomy Auditorium, University Center

**Andie Park** | Staffwriter

## Monty Python and the Holy Grail

Friday, May 2 — 9, 11

Saturday, May 3 — 9, 11

In one of the most iconic films ever, the Pythonites return to help King Arthur in his quest to find the Holy Grail. What ensues are anachronistic characters, Trojan rabbits, and crazy musical numbers that somehow create one of the funniest films of all time. Directed by the brilliant Terry Gilliam, *Monty Python and the Holy Grail* is a hysterical yet twisted take on Camelot that is highly imaginative and inspired. Warning: you might suffer from self-induced asphyxiation from the constant laughs throughout the movie. Be prepared. Free with Carnegie Mellon ID, \$3 admission without one.



# Arts Greenhouse concert gives local high school musicians the stage

Carnegie Mellon’s hip-hop education program provides music experience, social support for Pittsburgh teenagers

by **Chloe Thompson** | Senior Staffwriter

The voices of young Pittsburgh artists rang out over the College of Fine Arts lawn this past Saturday in a combination of rap and hip-hop songs. They belonged to the participants of Arts Greenhouse, a hip-hop education program for Pittsburgh teenagers that is affiliated with Carnegie Mellon. The students come to campus every Saturday from September to April to practice making music and to record their songs in CFA’s basement recording studios.

During the performance, students in Arts Greenhouse showcased their work from this semester. There was also a cookout with free food for anyone who came to watch. The soundcheck took a few minutes, and the Arts Greenhouse students wandered around the CFA steps, sometimes participating in the soundcheck, but mainly talking and joking with each other.

One of the goals of the program is to foster community between the high school students themselves, and it seems to have succeeded in that goal. Khalil Sellers, a senior at The Neighborhood Academy, said “[Being in Arts Greenhouse] definitely impacted my life. These guys are my best friends. We’re always hanging out, making music. I’m always collabing with these guys.” Sellers goes by the stage name K.I.P. and plans to pursue music as a full-time career, though he plans to move to Denver after graduating high school to work in design.

Other students concurred with Sellers’s sentiments. Naomi Dowden, a sophomore at the Barack Obama Academy of International Studies, said, “I really like the atmosphere. All these people have the same passion, music.... It’s an open environment that I can escape to.” Dowden occasionally sings, but her main focus is songwriting. She stated that being in Arts Greenhouse helped her discover her talents. “It made me realize the talent I have inside me. It made me realize I always want writing to be a part of my life,” she said. After high school, Dowden plans to attend college in New York City and pursue a career in acting.

After the soundcheck ended, the performances began. The first two songs, “Groovin” and “AG’s Diner,” featured many different students collaborating together. “Groovin” showcased Dowden, Sellers, Allie Rose, Sovren Gray, and Imani Jai Chisom, while “AG’s Diner” featured Dowden, Chisom, Rose, Gray, Arthur King, and Hussein Salim. The students were all talented, and the two songs started off the performances well because they both had good rhythms.

Though the group songs were quite good, the individually performed songs that followed were even better. Sellers was up first, performing an original song



Maryyann Landlord | Comics Editor

Freestylers Khalil Sellers (“K.I.P.”) and Michaela Hammer performed at the Arts Greenhouse concert on the CFA Lawn, which happened on Saturday.

called “Love Jones.” Sellers had good stage presence and got his audience to sing along with him, keeping them engaged and entertained.

Next up was Obama Academy sophomore Imani Jai Chisom. She also performed an original song, called “Mr. Cigarette.” As Chisom walked up to the microphone, she said, “This song is called ‘Mr. Cigarette.’ I don’t support cigarettes, though.” Only a few seconds into her song, the wind that had been blowing through the crowd pushed her skirt up. Chisom was clearly flustered, but recovered gracefully as her Arts Greenhouse peers encouraged her to sit down and keep singing. So she sat on the stone CFA steps and restarted her song. She had a truly enchanting voice that stood out even among her talented peers, and even though she may not personally

endorse cigarettes, she sang about them with a lovely kind of longing.

Another standout performance followed Chisom’s, given by City Charter High School sophomore Montell Frazier. Frazier is a rapper and producer and goes by the stage name Cargo FL. He performed his latest single, called “Bad Guys.” He rapped with a soulful intensity, occasionally stretching his arms out to the crowd. “Bad Guys,” among some of Frazier’s other work, is available to listen to on SoundCloud.

After the last individual performance — Taylor Allderdice High School junior Sovren Gray performing a song called “FUBU” — the show returned to a more collaborative format, with four to five students up on the steps at any

given time. All the while, the students who were not performing stood before the steps in a tight knot, smiling and calling encouragement to their friends. When performers entreated them to put their hands in the air or sing along, they did so with more enthusiasm than anyone else watching. They filmed each other with their phones and took pictures to immortalize the moment. Eventually, the scheduled songs came to an end, but the students performed more pieces, including a rap battle.

“These kids are like every other teenager,” said Arts Greenhouse co-founder Riccardo Schulz, an assistant teaching professor in the School of Music. “Except — they’re polite. They don’t say ‘like’ after ever other word. They relate well to adults, and they’re not self-conscious about that. They are also very supportive of each other.”

Schulz co-founded Arts Greenhouse with history professor Judith Schachter 12 years ago. Schulz said that he wanted to fulfill a community need. “I decided it would be a good thing to share with the community. There are a lot of young folks who have talent, but no place to record.”

Schulz also stated that he wanted to give Carnegie Mellon engineers the opportunity to interact with people from the greater Pittsburgh community, as well as inspire local teens to pursue higher education. “I wanted to help teenagers find their identity and give them the idea that college is not out of their reach. Yes, you can apply to college. You could go to college,” he said. He spoke of senior business administration major Kai Roberts, a former participant and current mentor of Arts Greenhouse, as an example of an Arts Greenhouse student who decided to pursue higher education at Carnegie Mellon.

Roberts isn’t the only current Carnegie Mellon student involved in Arts Greenhouse. Several students from history professor Nico Slate’s Sustainable Social Change class have become involved with the program this past semester. These students include sophomore global studies and human-computer interaction double major Lucy Pei, junior global studies and professional writing double major Alexandria Hernandez, sophomore economics, statistics, and global studies triple major Jillian Ward, junior architecture and global studies double major Andrea Saloman, and senior global studies major Christian Manoli. Pei and Saloman work on student profiles and publicizing the organization, while Hernandez teaches spoken-word poetry.

“The kids are really passionate in a way that’s beyond their years,” Hernandez said. “It’s inspiring to work with them, not for them. They really teach alongside me.” Manoli shared this sentiment, saying, “I like Arts Greenhouse because it transcends the traditional classroom. The students are the teachers, and we’re the

students. We talk about a plethora of issues, from politics to music.... The passion is really what draws me.”

This environment of passion drew many Arts Greenhouse students, and many of the students spoke about how Arts Greenhouse has made them feel safe and free to explore their natural talents. Malaisha Thompson, a sophomore at Obama Academy, said, “I like the freedom that we have. Every song is just ours. Well, it’s AG’s, but it’s ours.” Another Obama Academy sophomore, Jada Lowe, said “It’s a cool environment. There’s no judgment here; you’re here to just be free.”

Feeling safe is an important part of a healthy teenage experience, and that comfort is especially important for artistic pursuits. Arts Greenhouse gives talented local teens the space and the means to expand their abilities — sometimes abilities that they didn’t even know they had — while simultaneously allowing Carnegie Mellon students to interact with Pittsburgh residents in a more intimate way. Next spring semester, take a break from finals preparation and check out an amazing community collaboration that produces some quality music.



Maryyann Landlord | Comics Editor



Maryyann Landlord | Comics Editor

**Top:** Montell Frazier (“Cargo FL”), a sophomore at City Charter High School, performs at the concert on Saturday. In addition to collaborative work, he sang his latest single, “Bad Guys.” **Bottom:** Students from the Arts Greenhouse project hang out in front of the CFA building after their concert.





# Philip Glass reflects on his compositions

Celebrated classical music composer gives a talk sponsored by the School of Music

Kresge Theatre was abuzz on Friday afternoon in anticipation of a special guest talk. The last time this guest was in Pittsburgh, it was 1964, not long before his works began to gain popularity. Since the 1960s, this man has been a major figure in propelling classical music to an entirely new world.

Musical celebrity Philip Glass shuffled on stage a few minutes late to tumultuous applause. He walked with the slow ease of a man in his later years, and greeted the audience with the familiarity of a musician who is no stranger to the stage. His casual mannerisms and modest attire did not indicate his fame for composing beloved compositions such as *Einstein on the Beach*, 10 symphonies, and a series of operas, nor that he'd won a Golden Globe and has been nominated for several Academy Awards for his film scores.

Richard Randall, assistant professor of music theory and researcher in the College of Fine Arts, followed the composer on stage and began the conversation. Glass was witty, comfortable, and likably straightforward in his answers. He admitted how he changed concentrations at The Juilliard School from flute to composition



Courtesy of Pasquale Salerno via Flickr

Celebrated composer Philip Glass spoke to Carnegie Mellon students in Kresge Theatre last Friday.

because, frankly, he was better at the latter. He insisted that, although some of his most famous works contain electronics, he still adheres to a pencil and paper for composing.

When speaking about hearing one of his early pieces on the radio whilst in Pittsburgh, he casually remarked, "It wasn't as bad as I thought it was." Glass continued to display remarkable modesty throughout the interview, most notably when Randall acknowledged his role in creating the tonal, repetitive, and easily accessible genre of classical music called minimalism. Rather than accepting this credit, Glass argued that he was not the only composer moving toward something new at the time, and that it was the culture as a whole that demanded classical music move to a new place.

Regardless of what Glass claimed he did, the effect he has had on classical music is enormous. Even Pittsburgh has felt his influence: Nancy Galbraith, composer and professor of composition at Carnegie Mellon, writes music tinged with recurring motifs and crystalline harmonies reminiscent of Glass's style, and the Carnegie Library has more early Glass scores than virtually any other library in the world.

As the interview continued, Glass revealed a knack for dropping unexpectedly wise advice in such a nonchalant way that one could easily miss it. On the subject of never turning down opportunities to work, he commented, "You don't get anything from saying 'no.' It didn't hurt Bach, it won't hurt you." He exhibited awareness

of the legacy he will leave — as well as a sensible understanding, acquired from a lifetime of composing — that "very few things live beyond the maturity of the artist." In his opinion, composers will always find their distinct sound. "Losing your voice is the hard part," he said. "You'll be working on that for the rest of your life."

Witnessing a cherished composer speak of his own music in an era that acknowledges him for his contribution is a rare and precious occasion. It was especially relevant to the performers in attendance, who were able to get a firsthand understanding of what exactly the composer wanted. Glass described how separating notes into their respective measures can get in the way of the music-making; he sees his music as grouped into twos and threes instead. He explained how rhythmic structure is the ultimate driving factor in his compositions. His compositions often don't contain any clear melody. Content is not Glass's strength (or perhaps content is simply not his point), but rather it is the overall form and the progression of one section to the next that he focuses on, causing the listener to feel like they've gone on some sort of ambiguous journey.

The audience had a chance to experience this journey firsthand as the interview portion drew to a close and the Matisse String Quartet, the School of Music's honors string quartet, took the stage. Made up of graduate and postgraduate students, they played a clear, engaging rendition of "Glass String Quartet No. 5," one of the gems of Glass's chamber music repertoire. The piece is bookended by an elegy-like theme and filled in with walls of lively harmony driven forward by perpetual rhythms. It is head-bobbing music, but with subtle changes here and there that make it impossible to predict when the head should bob.

Needless to say, Kresge Theatre was swept along for the ride as the student ensemble deftly and artfully executed the piece. The cellist, master's student in cello performance Marlene Ballena, and violist, master's student in viola performance Si Yu, were the soul of this performance. They played synonymously in articulation and color, and weren't afraid to drive the quartet forward. While the upper strings didn't quite achieve the same blended sound as their counterparts, there was no mistaking the brilliance of their performance.

The audience was quick to enthusiastically applaud. The defining moment occurred when Glass himself walked onto the stage to shake the hands of the students, smiling widely. He seemed immensely pleased with their performance. Seeing the five of them bow together offered a rare and special moment of unity between a renowned composer and student performers.

**Alyssa Wang** | Junior Staffwriter

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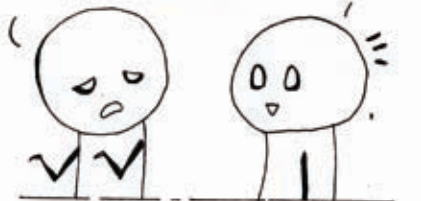
# PUNS

By Swetha Kannan

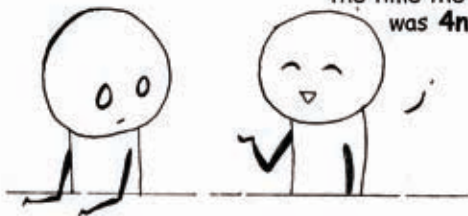
I can't believe I failed my math final!



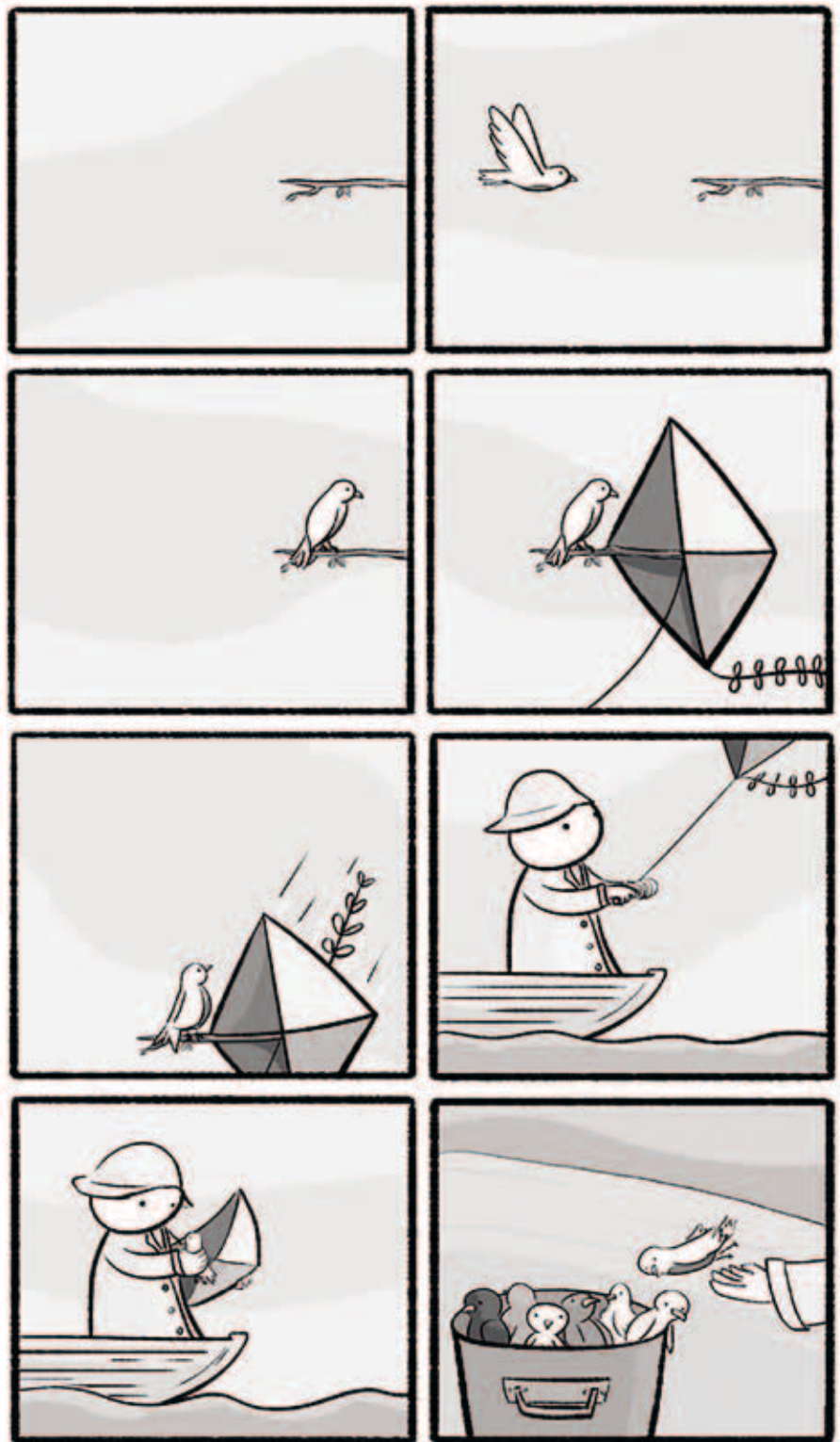
But I was so nervous! I couldn't even add  $2n + 2n$  together...



You could say that at the time the concept was  $4n$  to you!



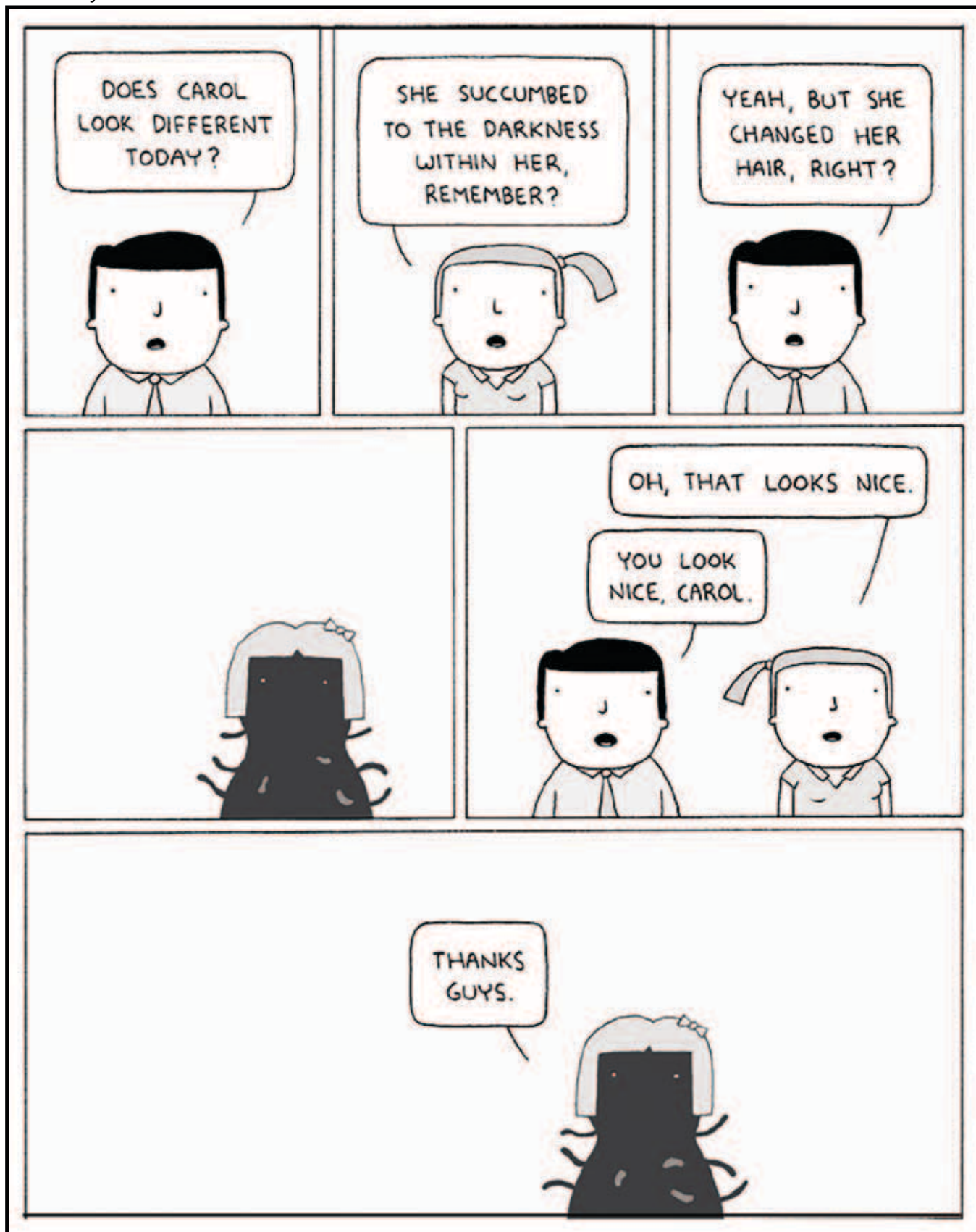
kan\_swetha@yahoo.com



buttersafe@gmail.com

www.buttersafe.com





poorlydrawnlines@gmail.com

poorlydrawnlines.com





Madlib Puzzle: Very Fun Difficulty

LOVE LETER

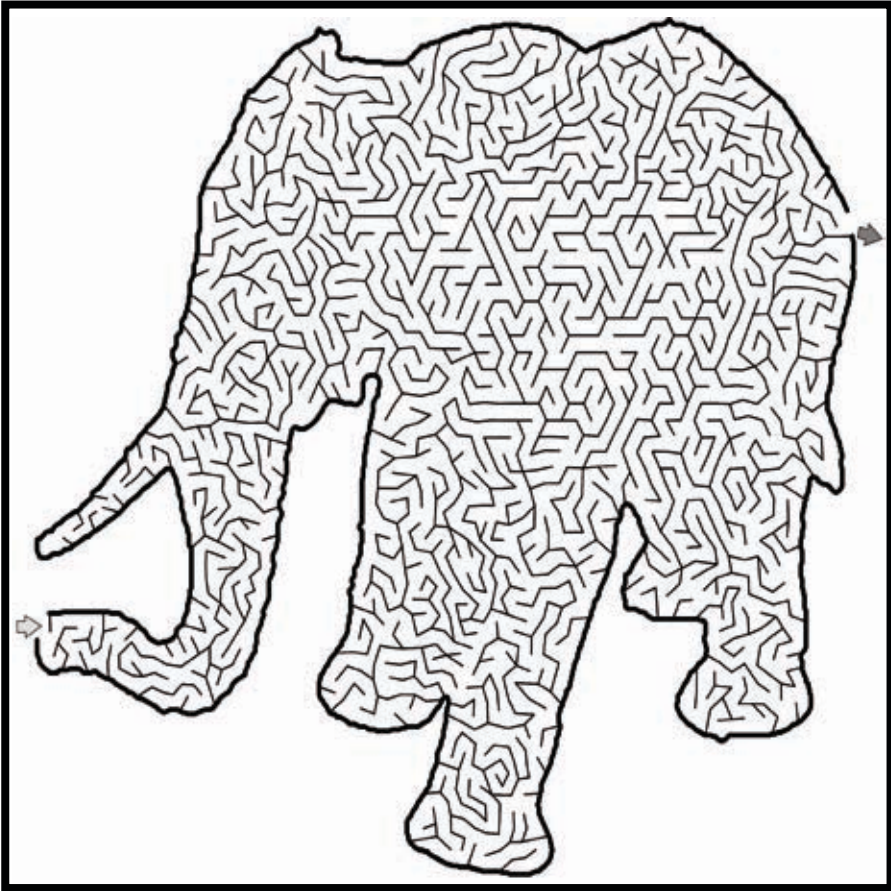
Dear \_\_\_\_\_,

You are extremely \_\_\_\_\_ and I \_\_\_\_\_ you! I want kiss your \_\_\_\_\_ times. You make my \_\_\_\_\_ burn with desire. When I first saw you, I \_\_\_\_\_ stared at you and fell in love. Will you \_\_\_\_\_ out with me? Don't let your parents discourage you, \_\_\_\_\_ are just jealous.

Yours forever, \_\_\_\_\_

Madlib courtesy of [www.madglibs.com](http://www.madglibs.com)

Maze Puzzle: Animal Difficulty



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

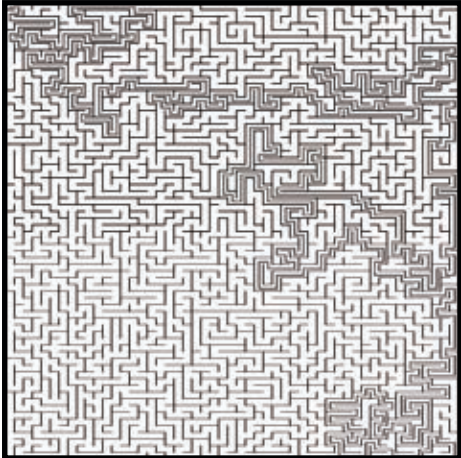
Fill in the blanks to create a fun, engaging story.

Start from the trunk of the elephant and find your way out.

Solutions from April 21



Crossword



Tough Difficulty



# Horoscopes

## aries

march 21–april 19

Take a 10-minute walk: Walking helps clear your head and boosts endorphins, which reduces stress hormones. Consider walking somewhere with lots of vegetation. Trees naturally release chemicals that boost your immune system and relieve stress.

## taurus

april 20–may 20

Try doing some yoga: Breaking exercises help you relax and reduce the built up tension and stress. Yoga is characterized by deep breathing, as opposed to shallow breathing that stimulates the sympathetic nervous system, which creates stress.

## gemini

may 21–june 21

Eat a snack: Stress-eating isn't always a bad thing. The gut-brain axis is the connection between the gut and the brain — more and more researchers have produced data that pegs the gut as a major mediator of stress response.

## cancer

june 22–july 22

Buy yourself a plant: Houseplants don't just beautify a room. They can actually help you calm down; simply being around plants can make you more relaxed.

## leo

july 23–aug. 22

Step away from the screen: There is a direct coloration between stress and late-night computer use. Make sure to take frequent breaks when you use your computer throughout the day.

## virgo

aug. 23–sept. 22

Pucker up: Kissing relieves stress by calming your body and creating a sense of connection. Kissing releases endorphins into your bloodstream that combat stress and depression.

## libra

sept. 23–oct. 22

Put on some music: While classical music has a particularly soothing effect by slowing down your heart rate and lowering your blood pressure, it also decreases your level of stress. Any music that you love will flood your brain with good-feeling neurochemicals.

## scorpio

oct. 23–nov. 21

Spend time with friends: The best way to wind down after a long day is to talk it over with your best friend. Friends are great for both fun and comfort.

## sagittarius

nov. 22–dec. 21

Craft: Repetitive motions like the fine motor skills used to knit, make jewelry, or cross stitch can soothe anxiety. It puts the mind in a comfortable, easy state.

## capricorn

dec. 22–jan. 19

Drink green tea: Green tea contains theanine, an amino acid that gives the tea flavor and promotes relaxation. It counteracts the stimulating effects of caffeine that can worsen stress response.

## aquarius

jan. 20–feb. 18

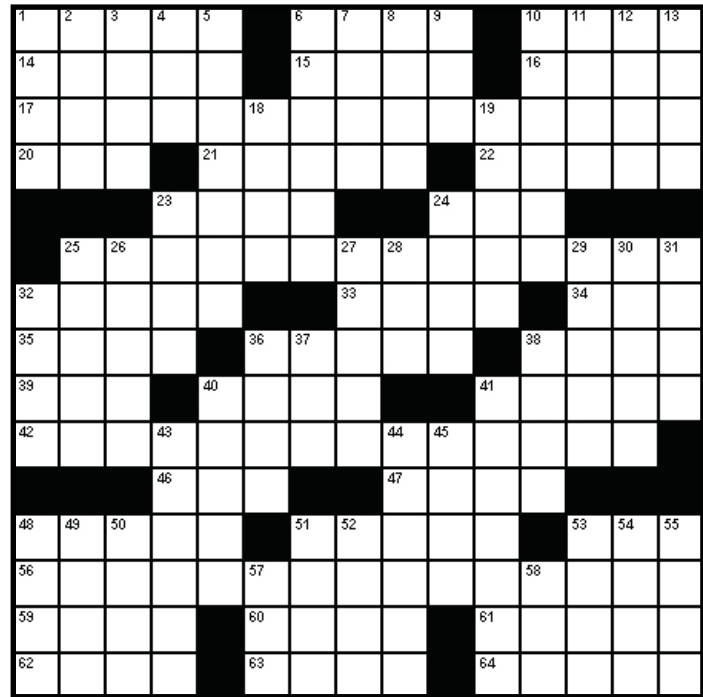
Open the window: Just looking out your window can have a relaxing effect. Looking out at a city landscape or a nature scene slows down your heart rate. It's a lot more effective than looking at a picture — the brain is not so easily fooled.

## pisces

feb. 19–march 20

Work out: Working out is a great way to take a bite out of tension. When you are mentally tired, intense exercise can make you more stressed. Light-to-moderate exercise won't improve your fitness, but will lighten your mood.

Maryann Landlord | Comics Editor



Crossword courtesy of *BestCrosswords.com*

### ACROSS

- Distributed cards
- Slave
- "Hard \_\_\_\_!" (sailor's yell)
- Essential oil
- Dressed
- Dweeb
- In spite of
- Abby's twi
- Valleys
- Clear the boards
- Leeds's river
- \_\_\_\_ kwon do
- Put to a wrong use
- Art supporter
- Bothers
- Conk out
- Final Four org.
- Bridge declaration
- Cambodian currency
- Man-mouse connector
- Med school subj.
- Wharves
- First appearance of an influential phrase or idea
- Mom-and-pop org.
- \_\_\_\_ expert, but...
- Form of lyrical poem
- Dined at home
- Monetary unit of Bulgaria
- Divide up
- Depilatory brand
- Legal claim
- It's human
- Actress Heche
- Injectable diazepam, in military lingo
- Short literary composition

### Down

- Comedian Carvey
- Thames town
- Env. notation
- Legal science
- Insignificant
- Lug
- Ultimatum word
- Phooey!
- Rx watchdog
- Peace Nobelists Sakharov
- "Star Wars" princess
- Sea eagles
- Periphery
- Diamond cover
- Approaches
- On the briny
- Toll rds.
- PC shortcut
- Designer Mizrahi
- Gauchy's rope
- Surgery sites, briefly
- Old French expression meaning "goodbye"
- Layers
- Congers
- Hydroxyl compound
- Member of a great Peruvian people
- Amigo
- Puerto \_\_\_\_
- Fall bloomer
- Resembling a feather
- Bring up to current moment
- Yellowish brown pigment
- Struck, old-style
- Dame \_\_\_\_ Everage
- Hammer head
- Not closed
- What \_\_\_\_ mind reader?
- Adolescent
- Untruths, tells falsehoods
- Poet Pound
- Extremely
- Pampering, briefly
- Acapulco article





**Justice is Mind Screening.** Giant Eagle Auditorium. 5 p.m.  
This film, set in a time when fMRI technology is readily used to decode a person's thoughts, follows the trial of a person accused of a double murder who doesn't remember committing the crime. This event is free and open to the public. Pizza and refreshments will be served.

**Carnegie Mellon University Jazz Orchestra.**  
Carnegie Music Hall. 8 p.m.  
The orchestra will be performing jazz classics in a big band style, with special guests Lincoln Park Performing Arts Center Saxophone Group and Carnegie Mellon's JIVE (Jazz Improv Vocal Ensemble). Admission is \$5, but free with a valid Carnegie Mellon ID.

TUESDAY 4.29.14

**Lucky After Dark.** Giant Eagle Auditorium. 4:30 p.m.  
Carnegie Mellon's Center for the Arts in Society will host a lecture by Carnegie Mellon's director of the Humanities Scholars Program Timothy Haggerty and the center's own artist-in-residence Harrison Apple regarding the upcoming exhibit of the same name that will explore the role after-hours nightlife in postwar Pittsburgh played in reestablishing and shaping gay and lesbian identities. This event is free and open to the public.

THURSDAY 5.1.14

**Lucas Barkley, Collaborative Piano.**  
Kresge Theatre, CFA. 8 p.m.  
Master's student in collaborative piano performance Lucas Barkley will be performing a recital featuring the music of Franz Schubert, Francis Poulenc, and Johannes Brahms. Admission is free and open to the public.

**Pierrot Lunaire.** George R. White Studio at Pittsburgh Opera. 8 p.m.  
Arnold Schoenberg's famous setting of Albert Giraud's *Pierrot Lunaire* poems will be performed live in its entirety. Admission is free and open to the public.

**Cluster Truck.** CFA Lawn. 5 p.m.  
This outdoor art installation features eight College of Fine Arts students using eight U-Haul trucks as their personal gallery to showcase performances, sculptural installations, and participatory works. This event is free and open to the public.

FRIDAY 5.2.14

**Carnegie Mellon University Contemporary Music Ensemble.** Kresge Theatre, CFA. 8 p.m.  
The ensemble will be performing the works of Charles Wuorinen, Simon Steen-Andersen, Marian Marquez, and John Adams. Admission is free and open to the public.

OPENING

**Actual Size.** Miller Gallery. Through May 17.  
This exhibition of graduating-senior artwork spans video, performance, drawing, printmaking, photography, painting, sculpture, interactive, and code-based works, and more. There will be an opening reception on Friday, May 2 from 6–8 p.m., and an artist and faculty talk on Tuesday, May 6 from 1–4 p.m. Admission to the Miller Gallery is free and open to the public.

ONGOING

**RACE: Are We So Different?** Carnegie Museum of Natural History. Through Oct. 27.  
This exhibit explores the experience of living with race in America, using interactive multimedia components.

**Digital Hand.** 709 Penn Gallery.  
Through May 25.  
This exhibition includes works created by Pennsylvania State University students exploring the sculptural possibilities of digital fabrications. Admission is free.

**Electrified.** Wood Street Galleries.  
Through June 22.  
Artists Edwin van der Heide and Alexandre Burton pay homage to the work of Nikola Tesla and his pioneering experiments in electricity, X-rays, and wireless communication in two installations seeing their North American premiere. Admission is free.

**The Occasional Market.** 707 Penn Gallery.  
Through June 22.  
This art project by artist Tom Sarver turns the 707 Gallery into a communal gathering space, a place where stories are told and relationships established, featuring unscheduled activities and drop-ins from the artist himself and various drawings, sculptures, and collections of objects. Admission is free.

**Candida.** O'Reilly Theater. Through May 18.  
Presented by the Pittsburgh Public Theater, George Bernard Shaw's *Candida* tells the story of Candida, who is caught in the middle of a romantic war between her practical husband John Morell and the passionate poet Eugene Marchbanks. Tickets start at \$23 and can be purchased at [trustarts.culturaldistrict.org](http://trustarts.culturaldistrict.org).

Compiled by **Joey Peiser** | Pillbox Editor

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# kevin garrett.



Josh Smith | Contributing Editor

Last Thursday, Brooklyn-based singer/songwriter Kevin Garrett gave a free performance in Skibo Café. The event was sponsored by the Activities Board and signaled the end of a great academic year for the organization, which brought Chiddy Bang, Icona Pop, and many others to campus.

