

Hurricane Patricia worse than Katrina in numbers but not damage

HANNALORE GERLING-DUNSMORE
Contributing Writer

On Oct. 22, 2015, Hurricane Patricia became the strongest hurricane ever formed in the Western Hemisphere, with sustained winds of 200 mph. The storm formed with nearly record-breaking speed, going from a tropical storm to a Category 5 hurricane in about 24 hours. Late the next day, the storm moved from the Pacific Ocean and made landfall near Jalisco, Mexico, significantly weakened with winds down to 165 mph but still a Category 5. The storm dumped over 20 inches of rain, directly causing eight deaths and indirectly causing five more. The damages are estimated to be approximately \$280 million, with most of the damages coming from agriculture losses, as the storm primarily affected rural areas.

Naturally, the sheer size and strength of Hurricane Patricia brought to mind Hurricane Katrina

a decade earlier. Hurricane Katrina caused massive damage along the Gulf of Mexico, but the starkest memories of the storm come from New Orleans, Louisiana. The city's levees failed, causing massive flooding that led to the majority of the casualties. The devastation was estimated to result in between 1,200 and 1,800 deaths, and caused \$108 billion in damage. Over a million people were displaced from the Gulf region. However, Hurricane Katrina was vastly smaller than Hurricane Patricia in size, only had top winds of 175 mph and had 140 mph winds when it made landfall. For much of its duration, Hurricane Katrina was only a Category 3. This has left many people wondering: how did Hurricane Patricia cause so much less damage, by any possible metric?

For one thing, Mexico had a good share of luck. Hurricane Patricia passed near two major population centers (Puerto Vallarta and Manzanillo), but spared them from

any major damage. In comparison, Hurricane Katrina smashed through many small cities and resort towns, in addition to New Orleans. Additionally, Hurricane Patricia came ashore onto the Sierra Madre Occidental, a mountain range in western Mexico. Living in Pasadena, Techers are probably familiar with how mountains stifle storms. While it only serves to worsen the draught in the Los Angeles area, the Sierra Madre Occidental downgraded Hurricane Patricia to a tropical depression. This effect was compounded by the fact Hurricane Patricia grew so quickly – the storm didn't have much time at sea, and the time it did have was spent mostly as a minor storm.

This gave the storm less time to build a storm surge – rising of water levels due to the storm – which often does a large portion of the damage. Finally, while the satellite images of Hurricane Patricia spanning an immense area are impressive to look at, what

meteorologists use to define one hurricane as larger than another is the diameter of the storm's eye, as the eye's wall has the strongest and most destructive winds. Hurricane Katrina's eye was four times larger than that of Hurricane Patricia, making the former a bigger storm where it really matters.

The Mexican government seems to have learned its lesson from previous disasters. Warnings were sent out over television, radio and social media. Evacuations started before Hurricane Patricia rapidly became a Category 5, giving people enough time to leave. Some of the people who remained were taken to shelters, while others were told to stay in their homes, based on what was considered best. In general, the people responded, and that is credited with improving the outcome of the storm. This stands in stark comparison to Hurricane Katrina, during which the evacuations largely failed.

What is abundantly clear is that Mexico got extremely lucky with

Hurricane Patricia. For such a large and powerful storm, relatively little damage was done. However, we can expect more of these ultrapowerful, massive storms. As climate change heats the oceans, the storms that form will be more intense. In particular, during El Niño years, the wind shear decreases, which further primes conditions for powerful hurricanes. With climate change now considered unavoidable, all we can do is try to mitigate how severe the change is, while preparing for more of these superstorms. If Hurricane Patricia hit an area without mountains and with a high population density, we would probably be looking at a much different result. Next time, the area the storm hits might not be so lucky. More than ever, it is crucial that effective precautionary measures are developed and put into place so that when another Hurricane Patricia comes knocking at a major city's door, we are ready.

News briefs from around the globe

A brief list of events from the past week, compiled by the editors

Samuel D. Burris, black abolitionist, to receive pardon

168 years to the day after Delaware hero's conviction for aiding and abetting slaves, governor's office to issue pardon [CNN]

Semi accident creates enormous tragedy for Arizona pizza lovers

44.5k pounds of dough spilled in accident, no injuries reported [TIME]

U.S. to begin releasing inmates convicted of drug crimes

6k will be part of first wave of mass incarceration policy changes [BBC]

California doctor convicted of murder over poor prescribing habits

3 patient overdoses considered murders among list of charges against Dr. Hsiu-Ying "Lisa" Tseng, verdict could "resonate throughout the country" [LA Times]

Oregon teen diagnosed with bubonic plague

16th reported case in U.S. this year was caused by flea bite, according to Oregon Health Authority; 8th case in Oregon in 20 years [CNN]

U.S. to send ground troops to Syria, but not for combat

50 troops to be sent on a "mission to build the capacity of local forces" [TIME]

Nightclub explosion hospitalizes 145 in Bucharest, Romania

26 confirmed dead so far after spark on stage ignited polystyrene decor [CNN]

Caltech elects two new members to the Board of Trustees

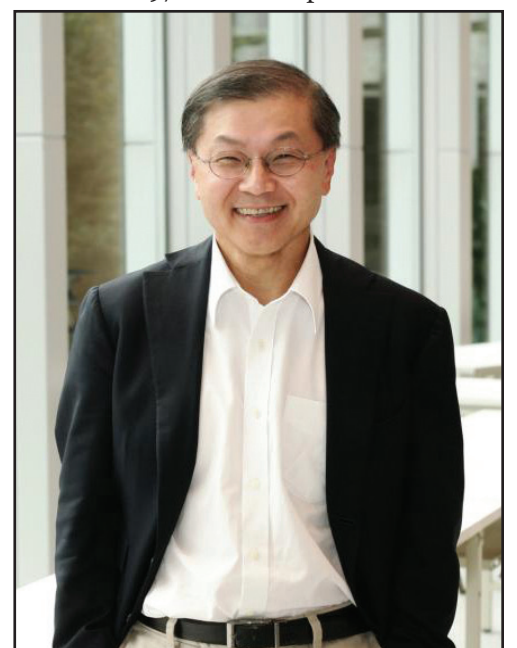
KIMM FESENMAIER
Caltech Media Relations

Two leaders from the world of medicine and biotechnology, David D. Ho (B.S. '74) and William H. Rastetter, have been elected to the Caltech Board of Trustees.

Ho, a recognized leader at the forefront of research on HIV and AIDS, is the founding scientific director and chief executive officer of the Aaron Diamond AIDS Research Center in New York and the Irene Diamond Professor at The Rockefeller University. He previously served on the Caltech Board of Trustees from 1996 until 2006. Earlier this year, he received Caltech's Distinguished Alumni Award, the highest honor the Institute bestows upon a graduate.

Born in Taiwan, Ho moved with his family to the United

States at the age of 12. He began his undergraduate studies at MIT in 1970 but transferred to and graduated from Caltech, where he first became interested in medicine. He went on to earn his medical degree from Harvard Medical School in 1978 and complete his clinical



Dr. David Ho is one of the newly elected trustees.
Photo Courtesy of David Ho

training in internal medicine and infectious diseases at Cedars Sinai Medical Center/

Continued on page 2

IN THIS
ISSUE

OPINION | PAGE 3
BOEHNER SACRIFICES
SPEAKERSHIP FOR
BUDGET DEAL

FEATURE | PAGE 4
HUMANS OF
CALTECH FEATURES
CREATIVE WRITER

SPORTS | PAGE 5
JAMSHIDI BREAKS CA-
REER KILLS RECORD

FEATURE | PAGE 7
NIMA TALKS ABOUT
PLANS FOR BECHTEL
RESIDENCE

Caltech Y Column

CALTECH Y

The Caltech Y Column serves to inform students of upcoming events and volunteer opportunities. The list is compiled by Neera Shah from information given by the Caltech Y and its student leaders.

Founded by students in 1916, the Y was organized to provide extracurricular activities planned and implemented by students as an opportunity to learn leadership skills and discover themselves. The mission of today's Y remains the same—to provide opportunities that will prepare students to become

exciting trip to the Nation's capital. The four day trip includes flights, lodgings, and most meals; discussions with those who have played a role in setting and implementing science policy for the United States including: Academics, Lobbyists, Scientists, Politicians, and Caltech Alumni and of course the opportunity to see Washington, DC landmarks like the White House, the Memorials; Smithsonian Museums; the National Archives; and the Capitol. Don't miss this opportunity!

The Washington, DC Science Policy Trip is coordinated by the Caltech Y with generous support from the George Housner Fund. Questions and applications may be directed to caltechy@caltech.edu. More info and application can be found at: https://www.caltechy.org/programs_services/areas/dc/



Engineers Without Borders is one of the Caltech clubs that was at the Community Service Advocacy Fair on Oct. 23.

Photo Courtesy of Tyler Okamoto

engaged, responsible citizens of the world. The Y seeks to broaden students' worldviews, raise social, ethical, and cultural awareness through teamwork, community engagement, activism, and leadership. More information about the Caltech Y and its programs can be found at <https://caltechy.org>. The office is located at 505 S. Wilson Avenue.

Ongoing and past programs hosted by the Caltech Y:

Alternative Spring Breaks: Costa Rica, New York, Yosemite, San Diego, San Francisco

Make-A-Difference Day: Hillside Home for Children, LA County Arboretum and Botanic Garden, Children's Hospital Los Angeles (Coachart), Eaton Canyon, Lifeline for Pets

Explore LA: Lakers game, Next to Normal musical, Norton Simon Museum trip

RISE Tutoring program (an afterschool math and science-focused tutoring program that serves public school students between grades 8 and 12)

Upcoming Events

1. Caltech Y - Washington DC Science Policy Trip

December 12- 15 | Cost is \$485 (with round trip flight to DC and back to LA) or \$285 (with one way flight to DC) | Applications due by Tuesday, November 3rd

Join us for an exploration into Science Policy on an

2a. Pasadena LEARNS

Fridays | 3:00 - 5:00pm | Pasadena

Come volunteer at Madison and Jackson Elementary School! We are partnered with the Pasadena LEARNS program and work with their Science Olympiad team or do regular tutoring along with occasional hands-on science experiments. Transportation is provided. For more information and

to RSVP, contact vkumar@caltech.edu. Eligible for Federal Work Study.

2b. Hathaway Sycamores

Wednesdays | 5:30-8:00pm | Highland Park

Volunteer at Hathaway-Sycamores, a group that supports local underprivileged but motivated high school students. There are a variety of ages and subjects being tutored. The service trip includes about an hour of travel time and 1.5 hours of tutoring. Transportation is included. For more info and to RSVP email Sherwood Richers at srichers@tapir.caltech.edu. Eligible for Federal Work Study.



Fair attendees were awarded tickets for visiting each booth and could get a free boba drink and Caltech Y shirt with five tickets.

Photo Courtesy of Tyler Okamoto

Ho, Rastetter welcomed to Caltech Board of Trustees

Continued from page 1

UCLA School of Medicine and Massachusetts General Hospital/Harvard Medical School, respectively.

Beginning in 1994, Ho conducted a series of studies using treatment data from actual patients and mathematical models and computer simulations to show how HIV operates. In contrast to what was previously thought, Ho proved that the virus continuously attacks and weakens the immune system so that other illnesses can eventually overtake the body easily. He also showed that HIV replicates and mutates incredibly quickly, allowing it to evolve its way around individual drug therapies. These discoveries led him to first devise and later champion the development of a combination antiretroviral therapy, also known as the AIDS cocktail. That therapy has resulted in unprecedented control of HIV in patients. Collectively, these accomplishments earned Ho the title of Time "Man of the Year" in 1996, among other honors.

Ho's team is now working to develop AIDS vaccines and other agents to block the spread of HIV.

Rastetter is chairman of the board for three San Diego-based biotechnology companies: Illumina, Neurocrine Biosciences, and Fate Therapeutics. He retired at the end of 2005 from Biogen Idec, a biopharmaceutical company, where he had most recently served as executive chairman.

Rastetter completed his undergraduate work at MIT, earning an SB in chemistry in 1971. He went on to earn his master's and doctoral degrees from Harvard University in 1972 and 1975, respectively. After that, he was a member of the faculty at MIT until 1982, when he began working in the biotechnology field at Genentech. In 1986, he joined Idec Pharmaceuticals and eventually grew it to a multibillion-dollar company while serving as chairman and CEO. While there, he helped invent Rituxan—the first monoclonal antibody approved by the U.S. FDA for the treatment of cancer. In 2003, Rastetter led Idec through the merger that formed Biogen Idec.

Rastetter is also the lead outside director on the board for Cerulean, a cancer therapeutics company; sits on the board of directors of Regulus, a company that focuses on discovering and developing micro-RNA therapeutics; and serves as an adviser to Leerink Partners, a healthcare-focused investment bank.

In addition to his work in the biotechnology field, Rastetter practices fine art photography and has been represented by the Madison Gallery in La Jolla, California.

The Board of Trustees is the governing body of Caltech. The Board is led by David L. Lee (Ph.D. '74), chair, and vice chair Ronald K. Linde (M.S. '62, Ph.D. '64), and it is currently composed of 40 trustees, 23 senior trustees, 22 life members, and one honorary life member.

Caltechlive!

SATURDAY, NOVEMBER 14, 2015 / 8 PM

Good Lovelies

Swinging Harmonies and Hilarious Tales

\$35, 30, 25 / \$10 YOUTH



Buoyant bluegrass and sweet storytelling come together in a show that features the flawless three-part vocal harmonies of this charming female trio. Expect delightful songs and smiles in this irresistible performance by one of Canada's premier folk bands.

Caltech / JPL Faculty & Staff \$5 off • Students \$5

Caltech's Beckman Auditorium
www.events.caltech.edu



Call campus x 4652 for information

Vibert struggles for new ideas on *Bizarster*

NAILEN MATSCHKE
Contributing Writer

There are prolific artists, and there are prolific artists with deep catalogs of good music, but few, if any, can compete with the sheer volume and diversity of Luke Vibert's production over the past three decades. As yet another Cornish act from the '90s, he's released nine LPs of techno-influenced, sample-heavy amalgamations of popular UK electronic music styles under his own name, making up just over a third of his total album-length output, let alone his other EPs and compilations. The remainder of his output is encompassed mostly by the Wagon Christ and Plug acts, specializing in trip-hop and drum and bass, respectively, strewn across labels including Planet Mu, Warp, Rephlex and Ninja Tune. With these records and the incredible list of contemporaries he's worked with, Vibert has carved out his own niche not as one of the legends of his era, but as a true jack of all trades. The magic of his music comes not from his skill as a songsmith, but from the intricacy with which he weaves all manners of instruments and samples together into dense, shifting and funky beats. As a result, the challenge with any new album such as this month's *Bizarster* is whether Vibert can incorporate fresh ideas into his music, or if it's more rehashing of the tropes we've heard from him already.

Perhaps unsurprisingly at this point, this record is largely comprised of the latter; it just doesn't seem like Vibert can do much more with his expertise of electronic genres that peaked at least a decade and a half ago. He's shown time and again that he can write unapologetically odd but memorable melodies, and they make their usual appearances on *Bizarster*, but without much to string them along the music becomes a collection of colorful but not particularly attention-grabbing beats. You get your standard breakbeats on opener "Knockout," supporting a woozy bassline, and on the closer, which works well under a repeated and urgent vocal sample, while the interior of the album is generally slower and much more danceable. In fact, if I had to choose one thing that Vibert really did well on this album, it would be how well he uses drum kits throughout it. I'm sure they're pulled from his enormous sample library, but they're definitely the most organic-sounding I've heard on one of his records, and I don't think the horn samples of "War" or the general discord of "Bizarster" would work without the imperfect texture of the drums.

Still, pulling new compositions from existing recordings is not at all outside of Vibert's wheelhouse; samples are the entire foundation of his work, and *Bizarster* is covered in them. There are some tasteful uses on tracks like "War" where they fit with the instrumentals

and are vital to the tone, but most of the time I found myself getting annoyed by their disruption of the music. The recording of a young child at the beginning of "Power Press" is used for a cheap joke, while the old man on "Doozit" and the Pac-Man effects on the last track stick out like sore thumbs and are too cheesy to take seriously.



-<http://www.factmag.com/>

Meanwhile, "I Can Phil It" even embraces being a joke, with Phil Collins singing "Can you feel it" and "I can feel it" for its entire length. The distorted "Welcome, we have been expecting you" that kicks off "Hey Go" is something we've heard before on at least 2009's *We Hear You*. It wouldn't be a Vibert album without some goofiness, and, again, this isn't out of the ordinary, but without a whole lot going on melodically a lot of the samples here feel unnecessary and like a cheap way to hide other shortcomings.

On the subject of the music's melodic side, there are some hits and a fair amount of misses. Because there isn't much structure to these songs, Vibert generally comes up with a great idea that he subtly milks for a few minutes, or something middling and skippable, and the latter frequently ends up being the case on *Bizarster*. "I Can Phil It," "Bizarster" and "Power Press" all have instrumentals that range from forgettable to downright obnoxious, while I'd describe those on "Knockout" and

"Officer's Club" as tolerable more than anything else. There's also the strange inclusion of "Manalog," composed entirely of sleep-inducing synthesizers, inexplicably repeating themselves until the song becomes the longest track on the album.

On the other hand, there are some songs I really enjoyed, such as the all-around solid "War" and the dense, atmospheric "Hey Go," which is lent a psychedelic feel by a symphony of effect-happy synthesizers along with the whispered "Hey, take a trip." Even if I didn't care for the vocal samples, I thought the clean guitars and bass on "Doozit" created a very warm, enveloping atmosphere, making the vocals that much more distracting. While Vibert never fails to demonstrate that he can produce compelling tracks, these moments come too few and far between on this album.

Ultimately, there's no way I would recommend this album to anybody who's not already a fan of Luke Vibert. I enjoyed it, but thanks to my dad I've heard Vibert's music for longer than I can remember, so I also have a much higher tolerance for his oddities and refusal to take anything seriously than some others. If you're already somebody who enjoys other Vibert albums and his style of meticulously evolving his music layer by layer, then you'll probably enjoy what he has to offer on *Bizarster*. However, it could easily have 20 or 30 minutes taken out of its hour-long length and be a much more enjoyable experience while still being a respectable album. Even for fans of similar artists like Aphex Twin, Squarepusher and the like, I would highly recommend starting with something earlier. There's a lot of mediocre content here, and not much that you won't be able to find on *Lover's Acid*, *Yoseph* or many other releases in his extensive discography.

Boehner Sacrifices Speakership for Budget Deal

SEAN MCKENNA
Contributing Writer

This week, John Boehner embarked on a political quest which could be labeled both as "clearing the barn" and as "burning as many bridges as possible." For this action, he deserves our thanks. Boehner's self-sacrifice advanced the country more in one week than what the rest of Congress will accomplish over its entire term from January 2015 to January 2017.

On Oct. 26, Boehner announced, alongside Senate Republican leadership and the Obama administration, a budget deal that would last nearly a year and a half. This deal suspends the debt ceiling, an instrument useless for anything other than giving migraines to members of Congress, until March 2017. In addition, the deal includes a compromise on spending levels for both defense and non-defense spending that allows for a modest increase in both. As a bone to Republicans, a minor requirement in the Affordable Care Act will be repealed.

This budget deal seems to make sense. It embodies the essence of compromise, and it was even

ashamed of the stark contrast between this reasonable deal and the sum of everything else they have "accomplished" since Republicans took control of the House in 2010. The Republicans have dug into the foothold of opposition they gained in 2010. Since then, mindless obstructionism and stubbornness has prevented progress in either party's agenda for the past five years.

Unfortunately, Boehner's budget deal cannot be interpreted as a sign that change is afoot. Congress should be even more ashamed of what was given up to make this deal happen: Speaker Boehner literally sacrificed his political career for the good of the country. Knowing that we would never be able to work with hard-liner Republicans again after presenting this deal to them, he offered them his resignation from Congress before pressing forward to make the deal happen. He claimed to the press that he wanted to "clean the barn" for the new House speaker by pushing the date of the next budget debacle out beyond the 2016 election. Given the number of budgetary concessions he made in the final deal, he also seems to have burned quite a few bridges

with members of his own party who would never have supported such a compromise on spending.

Boehner's methods are the epitome of statesmanship, a process seemingly foreign to other members of Congress. Some of his colleagues would not support any compromise

because they have black-listed all things associated with President Obama. They do not understand the fundamentals of governing in a democracy, and we can only hope that they will be voted out of office as soon as possible.

"Congress members should be ashamed of the stark contrast between this reasonable deal and the sum of everything else they have 'accomplished' since Republicans took control of the House in 2010."

passed an entire week before the debt ceiling would have been raised. This is what good governance looks like. However, Congress as of late has not provided any other examples of good governance. Congress members should be

ellen's 626.441.4415
SILKSCREENING EMBROIDERY & PROMOTIONAL PRODUCTS
1500 MISSION ST. SOUTH PASADENA
WWW.ELLENSSILKSCREENING.COM

Show Off Your School Pride !!!
T-Shirts, Sweats, Caps, and over 250,000 promotional items to grab their attention!
Bring your student I.D. to receive one FREE large setup (a \$25 Value)



Humans of Caltech: Meet creative writer Jon Cotler, class of 2019

The California Tech brings you stories of Caltech community members



Jon Cotler embraces Thomas Arnold, who is dressed as a Paladin for Halloween.

Photo Courtesy of Katherine Guo

KATHERINE GUO
Page Editor

What's your favorite brand of cereal?

I really like Cocoa Puffs, but my favorite brand is probably Honey Graham Oh's. It's not a big brand, just Cheerios with honey in the middle. It's not Honey Nut Cheerios, though. I've seen them in like one store, ever, and I always get them when I see them.

What do you consider to be your worst haircut?

Throughout elementary school and the beginning of middle school I would get buzz cuts a lot, and I just don't have the right shaped head for a buzz cut; it does not look good. I think there's some pictures that I'm not going to send to you.

If you were a captured prisoner of war, which form of torture would you dread the most?

So I read something that was like — they would take a wet rope and tie it around your head, and then put you out in the sun, and as the rope dried it would contract around your head, and I heard that was really, really awful, so I'm going to avoid that one if possible.

If you could bathe in one food item, what would it be?

[prompt response] Mac and cheese.

JON COTLER
Page Editor

Note from the author:

This piece is a creative writing assignment originally submitted for credit in a high school class on March sixth, 2015. Since then, the author has revised and modified the essay, though it still retains much of its original form. As the title may suggest to the well-versed reader, this piece is inspired in part by the novel A Portrait of the Artist as a Young Man by James Joyce. This piece in particular seeks to emulate the writing style of Joyce, namely a loose chronological progression of events over a short period of time,

punctuated by flashbacks to non-chronological memories that have been triggered by surrounding stimuli, much like a person will experience in everyday life. Though loosely based on his own personal experiences, this work is a piece of fiction, and thus many of the memories may have been modified slightly from their factual groundings. Feedback is greatly encouraged and appreciated.

A Portrait of the Engineer as a Young Man

An essay by Jonathan Cotler

"The absent-minded genius." That's what the whole school called him. Or, at least that's what he hoped they called him. He didn't really know what they called him because he was, well, a little absent-minded. Shower thoughts had always been very amusing to Jon, but he could never quite figure out why. Regardless, he dried himself off, got dressed, and set off to make himself breakfast.

After putting his two waffles and two hash browns in the toaster oven, Jon noticed the run-down microwave in the corner of the kitchen. It had been lying there for ages, but Jon had never found the time to fix it. Jon walked over to it, gave it a quick glance, and noticed that it was missing a motor.

"I still need to get that back from Mr. T's room," Jon muttered to himself. His parents had been quite upset that he had "borrowed" it, but it had fit exactly right. So despite his parents' complaints, he took the motor and added it to the robot. Bryce screamed at him.

"YOU CAN'T JUST ADD PARTS WHENEVER YOU WANT TO! THEY HAVE TO BE APPROVED!" Bryce's solution had been to gear-chain four motors together. It worked, but it wasn't perfect. Jon could see that the gears didn't properly mesh, and it made this horrible ticking noise when turned on.

"No. It has to be perfect," said Jon. "This motor, it's perfect. Not your silly contraption." Bryce eventually agreed to give it a try. Once inserted, this motor had an agreeable hum to it. Jon grinned.

"Like I said, perfect." One wheel down, three to go. Bryce and Jon

own. Bryce and Jon embraced, then got back to work, tightening screws and making various small adjustments, until it was perfect.

A pungent odor curled its way into Jon's nostrils, snapping him back to reality.

"That's probably my waffles." After removing the very well done waffles and the fairly crispy hash browns, Jon took another whiff.

"Carbon dioxide, likely with a touch of carbon monoxide." Chemical names, formulas, and symbols came rushing to his brain, the result of years of memorization, starting the summer before high school. The lab was cold. It was maybe 60 degrees, which was fairly unusual for the middle of July in central Pennsylvania. Sitting down for the pre-test, Jon began to shiver.

"I should have brought my sweatshirt," he thought. Seizing the test laid in front of him, Jon began to read. "Gibberish," he thought. "Complete and utter gibberish." Nevertheless, Jon struggled over the Scantron for the full 80 minutes, coming away with a not-so-impressive score of 23 percent.

"It was the cold. Plus, it was only a pre-test, so I'm not even supposed to know any of it!" Still, Jon felt an unreasonable sense of guilt. He had been told his whole life that he was smart, that he was different. He was at nerd camp for a reason. Yet now he was below average. He felt he had let his parents, and, more importantly, himself, down, and started to cry. As the hot, salty tears gushed down his face, he vowed that he would never fail another test in his entire life. After lights out every single night, Jon would study his notes, even though no work was allowed outside the classroom. He hunched over his binder, flashlight in one hand, the other holding the blanket over his head to shield the light. It was oppressively hot, and thin beads of sweat trickled down Jon's forehead, but he studied on. During one of the lectures, Jon's mind lit up like a light bulb.

"Wait, so bonds are TWO electrons? Not one?" Jon asked.

"Two electrons, one from each atom," explained Mrs. Koehler. Finally he understood. Everything

he had spent hours on, forced into his memory, suddenly made sense. Jon was barely able to contain his sheer joy. He finally liked chemistry. In fact, he loved it. After class, Jon explained to his teacher that he now wanted to be a chemist. He just knew that chemistry, in some way, shape or form, was his true calling.

Slowly, the smell faded. Jon got the butter out of the fridge and grabbed a knife. He began to smear a thick layer of butter over both of his waffles. As he was putting his knife in the dishwasher, Jon cut his thumb on the blade. A tiny droplet of blood began to well up.

"Only I would cut myself on a butter knife," lamented Jon. He quickly put his thumb into his mouth. He could taste the metallic blood. As the blood poured forth, so did memories. He looked around at all the pieces of the computer he was dismantling, the one he had gotten from his elementary school. His mom had told him not to take the computer apart, that he was too young, but Jon wouldn't listen. He pulled his finger out of his mouth and looked for the piece that had cut him. He couldn't find it immediately and soon lost patience, so he went back to taking apart the monitor. As the pieces became smaller and smaller, Jon began having a more and more difficult time sorting them into their places.

"Metal goes here, plastic goes here, glass goes here, and other stuff goes here!" Jon exclaimed. "Does that work, Mommy?" His mom didn't answer right away, and finally asked, "Jon, are you sure you want to do this? Taking apart a computer is a lot of work." "Yes, Mommy! It'll be fun! I'll get to practice being a motor-er!" "Engineer, sweetie. People that build things are called engineers." But Jon was hard at work once again, taking apart the computer piece by piece, trying his best not to break it with his shaky, pudgy fingers.

A ringing in Jon's ears startled him. It was his mom, yelling at him that he was going to be late. He hated when she yelled, hated it more than just about anything else. Especially when she was right. Then she would subtly taunt him about it later. Jon felt he was right most of the time, as did his mom, so yelling was certainly commonplace in the Cotler household. Every time she yelled, he couldn't help but remember the worst fight they ever had, the one about summer camp, one of the few instances where Jon would ultimately admit he was wrong. He wanted to spend his summers doing nothing, being lazy, just like all his normal 12-year-old friends wanted. Fortunately for Jon's couch, Jon was not normal, and his mom certainly knew that. She had other ideas for how he should spend his summer. She wanted to send him away to a "nerd camp,"

as he called it, for three weeks. Jon and his mom fought bitterly over this, screaming at each other until Jon was blinded by his own tears and stomped away, his footsteps reverberating with anger.

"I'M GOING TO HATE IT THERE. I'M GOING TO HATE IT, AND I'M GOING TO HATE YOU IF YOU MAKE ME GO."

Ultimately, Jon's mom played her trump card: no video games unless you go take the entrance exam and either pass or miss passing by a few points. Jon was furious, and used his anger to score well above the minimum passing score, because if Jon hated one thing more than being wrong, it was failure. Nevertheless, Jon hardheadedly refused to attend. Only after Jon's mom agreed to let him enroll in electrical engineering, the only course he was interested in, and promise to take him to Six Flags on the way back, did Jon reluctantly agree to attend. Despite Jon's best efforts to be miserable and prove his mom wrong, which she liked to call "cutting off your nose to spite your face," Jon fell wholeheartedly in love, and began to look forward to those three, short, blissful weeks for the next three, short, blissful summers.

Of course, she was right this time, too. It was 7:16 and Jon needed to leave a minute ago to be on time. As he ran through the dining room, he knocked a letter off the dresser. He felt the peculiar gloss of the envelope, and knew that it was his Governor's School acceptance letter. As he placed the envelope back on the dresser, he felt along the torn edge. He remembered ripping it open, being unable to contain his excitement. Two and a half years of hard work had finally paid off. The paper crinkled as he held it in his sweaty hands, his beady eyes darting across the labyrinth of neat, printed characters. His vision was swimming, his hands were shaking, and he felt like he was about to pass out, rendering him almost unable to read it, yet he struggled through until he got to the word "congratulations." Jon let out a shout that shook the foundation of the house and immediately called his friend Erin to tell her the good news. But of course, like every other time he had some exciting information to share, she didn't pick up. Still, Jon was too excited by the prospect of going to a new, better nerd camp this summer, one where he would finally be able to do real research in a field of his choice. He couldn't have wished for a better opportunity. He already had his research all planned out: he wanted to do research in polymers engineering. He had never been surer of anything in his life.

Once again, Jon heard his mom yelling. He put down the letter and checked his phone. It was 7:20! Jon grabbed his lunch and sprinted out the door, beginning yet another day in the life of the young engineer.

Jon and his mom fought bitterly over this, screaming at each other until Jon was blinded by his own tears and stomped away, his footsteps reverberating with anger.

Ultimately, Jon's mom played her trump card: no video games unless you go take the entrance exam and either pass or miss passing by a few points. Jon was furious, and used his anger to score well above the minimum passing score, because if Jon hated one thing more than being wrong, it was failure. Nevertheless, Jon hardheadedly refused to attend. Only after Jon's mom agreed to let him enroll in electrical engineering, the only course he was interested in, and promise to take him to Six Flags on the way back, did Jon reluctantly agree to attend. Despite Jon's best efforts to be miserable and prove his mom wrong, which she liked to call "cutting off your nose to spite your face," Jon fell wholeheartedly in love, and began to look forward to those three, short, blissful weeks for the next three, short, blissful summers.

Of course, she was right this time, too. It was 7:16 and Jon needed to leave a minute ago to be on time. As he ran through the dining room, he knocked a letter off the dresser. He felt the peculiar gloss of the envelope, and knew that it was his Governor's School acceptance letter. As he placed the envelope back on the dresser, he felt along the torn edge. He remembered ripping it open, being unable to contain his excitement. Two and a half years of hard work had finally paid off. The paper crinkled as he held it in his sweaty hands, his beady eyes darting across the labyrinth of neat, printed characters. His vision was swimming, his hands were shaking, and he felt like he was about to pass out, rendering him almost unable to read it, yet he struggled through until he got to the word "congratulations." Jon let out a shout that shook the foundation of the house and immediately called his friend Erin to tell her the good news. But of course, like every other time he had some exciting information to share, she didn't pick up. Still, Jon was too excited by the prospect of going to a new, better nerd camp this summer, one where he would finally be able to do real research in a field of his choice. He couldn't have wished for a better opportunity. He already had his research all planned out: he wanted to do research in polymers engineering. He had never been surer of anything in his life.

Once again, Jon heard his mom yelling. He put down the letter and checked his phone. It was 7:20! Jon grabbed his lunch and sprinted out the door, beginning yet another day in the life of the young engineer.

Wang, Jin claim épée, foil titles at IFCSC Open Tournament

GOCALTECH.COM
Actual Sports Content Editor

PASADENA, Calif. (Oct. 25, 2015) – Freshman William Wang and junior Matthew Jin each went undefeated en route to claiming titles in the épée and foil, respectively, for Caltech men's fencing at the IFCSC Open Tournament hosted at Caltech on Sunday.

Wang overcome an incredibly deep épée field which included two 'A' class and four 'B' class fencers in his first collegiate competition. The rookie did not drop a single bout in pool play, narrowly beating out Arizona State University 'A' fencer George Crosby, 5-4, to earn a #2 seed in the direct elimination round while sophomore Ethan Lo also went unscathed and earned the #3 seed. The teammates would

meet in an epic semifinal where Lo took the lead on three occasions, but Wang ultimately rallied to advance to the final in a 15-14 victory, where he took an early lead and held on to defeat 2014 champion Jake Hillard of Arizona State University, who had knocked out his own teammate, Crosby, in the other semifinal.

Lo improved on his position in last year's competition by three places while sophomore Spencer Strumwasser moved up from 13th last year to sixth, dropping just one pool bout in a 5-4 defeat to Hillard before bowing out at Lo's hands in the quarterfinals. Freshman Alex White placed seventh in his collegiate debut, followed by Nima Badizadegan in 11th.

In the foil, Jin cruised through a 13-man field in which he entered as the highest-rated fencer in the

'C' class, improving on last year's finish by three places. Jin swept through pool play and the direct elimination round, beating eventual third-place finisher Alex Lew in the semifinals, 15-5, and crushing the only other rated fencer in the weapon, UCSB's Joseph Alderson, in the final, 15-4. Lew edged out junior Keegan Mendonca, who would better 2014's 11th-place finish with sixth in this year's event, in the quarterfinals while James Hamilton came in 11th.

Kai Chang paced the Beavers in the saber, finishing seventh to better last year's top Caltech finish of 13th. Junior Marco Cruz-Heredia and sophomore Yu Han Nam placed 11th and 12, respectively.

The Beavers will participate in the individual BladeRunner USFA ROC at UC San Diego Nov. 7-8.



I really don't know who's in this picture, but I'm going to assume by their orange socks that they're both from Caltech.
-<http://gocaltech.com>

Percin named female SCIAC Swimmer of the Week



Thank goodness for pictures that take up more space than necessary, because I really wanted to fill up the page without adding another article.
-<http://gocaltech.com>

GOCALTECH.COM
Actual Sports Content Editor

PASADENA, Calif. (Oct. 29, 2015) – Caltech women's swimming and diving freshman Brittany Percin has been named the CollegeSwimming.com SCIAC female Swimmer of the Week.

Percin broke the program's 200 Freestyle record by over two seconds in her collegiate debut at Pomona-Pitzer Colleges on Saturday, beating out six Sagehens to clock the fastest time in the conference this season at 1:58.31. The rookie just missed setting the 500 Free record by three seconds later in the meet and swam the fastest 100 Free split as part of the 400 Medley Relay in the last three years.

Jamshidi breaks women's volleyball career kills record

GOCALTECH.COM
Actual Sports Content Editor

PASADENA, Calif. (Oct. 24, 2015) – Senior Cat Jamshidi broke the Caltech women's volleyball career kills record on Saturday night against Pomona-Pitzer Colleges.

Jamshidi matched the record with three kills in the first set and surpassed the mark in the second with the 555th of her career. She also ranks among the Top 3 all-time in digs and solo blocks.

The Sagehens claimed a 3-0 victory to even their record at .500, both overall (11-11) and in the SCIAC (6-6), while the Beavers drop to 2-20 (0-15). Pomona-Pitzer was in control throughout, recording set scores of 25-8, 25-10 and 25-9 as the Beavers only strung together consecutive points once in the match.

Jamshidi paced the Beavers with four kills while senior Meghana Pagadala recorded nine digs and junior Kate Lewis tallied two blocks.



After weeks of promising she's going to do it, Cat Jamshidi finally breaks the career kills record. Go Cat!

Photo Courtesy of Bob Palermini

Hernandez, Meyer take third place at IFCSC Open

GOCALTECH.COM
Actual Sports Content Editor

PASADENA, Calif. (Oct. 25, 2015) – Senior Emilia Hernandez and Christina Meyer placed third for Caltech women's fencing in the épée and foil, respectively, at the IFCSC Open Tournament hosted at Caltech on Sunday.

Hernandez qualified third among her pool to earn the #4 seed in direct elimination, where she picked up a win in the quarterfinals before falling in the semis. Meyer topped her group in pool play to earn the #2 seed but was knocked off in the semifinals, while freshman Maia Stiber qualified as #6 and held her position with a defeat in direct elimination.



"Hello. My name is Inigo Montoya. You killed my father. Prepare to die." – Inigo Montoya, not pictured (unless that's him hiding behind that mask)
-<http://gocaltech.com>

ASCIT Minutes

ASCIT Board of Directors Meeting

Minutes for 27 October 2015. Taken by Sean McKenna.

Officers Present: Nima Badizadegan, Catherine Jamshidi, Jay Palekar, Sean McKenna, Robin Brown

Call to Order: 12:04 pm

Guests: Kurtis Carsch, Chris Dosen, Laura Watson

President's Report (Nima):

- Spoke to Joe Shepard regarding career center and athletics at Caltech
- Will continue conversations with both parties
- Working with IHC to put together student representatives regarding alcohol policies at Caltech

Officer's Reports:

- **V.P. of Academic Affairs (ARC Chair: Jay):**
 - Discussing Ec11 and other course concerns, course capturing with Deans.
- **V.P. of Non-Academic Affairs (IHC Chair: Cat):**
 - Cat and one other student representative will sit on an ad-hoc Alcohol Policy Committee to meet soon. My primary goal is to make sure student/security relationship remains positive.
 - Many meetings, etc. will be happening to plan Bechtel. IHC is working closely with the architectural team. Committee will tour similar style residences at Claremont.
- **Director of Operations (Sean):**
 - I will summarize the applications in a document that we can look at on Sunday.
 - I'll send out an email tonight with details of any applications that require additional screening or attention. Please look at that before Club Funding on Sunday.
- **Treasurer (Kalyn):**
 - Absent
- **Social Director (Robin):**
 - Trivia night at Chouse is still a thing every other Thursday.
- **Secretary (Phillip):**
 - Feminist Club, Chemistry Club, and Quizbowl came in to make up their club-funding pitches.

If anyone has any questions or concerns about a section of the minutes please email the appropriate officer. We are happy to answer any questions.

Meeting Adjourned: 12:32 pm

VICE PROVOST'S OFFICE HOURS

Vice Provost, Chief Diversity Officer and Professor of English, Cindy Weinstein, offers weekly office hours beginning Thursday, October 15, in Room 104 Parsons Gates. She views these hours as an opportunity for undergraduates, graduate students and postdocs to meet and discuss whatever you'd like to talk about. Professor Weinstein oversees the Council on Undergraduate Education, Caltech accreditation, the Staff and Faculty Consultation Center, Student-Faculty Programs, the Center for Teaching, Learning and Outreach, the Caltech Diversity Center and the libraries.

There are four appointments per hour, 15 min. each. Sign up the day of the meeting in 104 Parsons Gates, Vice Provosts' Offices (x6339).

Fall Term Hours:

Thursday, Nov. 5, 12pm-1pm

Monday, Nov. 23, 12pm-1pm

Tuesday, Nov. 10, 12pm-1pm

Tuesday, Dec. 1, 12pm-1pm

Thursday, Nov. 19, 12pm-1pm

Wednesday, Dec. 9, 12pm-1pm

The highly dramatic, almost bipolar *Symphonie Fantastique* of Hector Berlioz anchors the November 13th concert by **Pasadena Community Orchestra**. The work moves from love, a pastoral country scene and a ball to a delightfully snarky march to the scaffold and witches' dance – it has it all! Also on the concert is Franz von Suppé's rollicking *Light Cavalry Overture*, with its bold fanfares and cantering-horses' rhythms. Rounding out the evening is the hauntingly beautiful *Intermezzo* from Bizet's popular *L'Arlesienne Suite*. **Friday, November 13, 8:00 p.m. at First Church of the Nazarene**, 3700 E. Sierra Madre Blvd., Pasadena. Admission is free, and no reservations are necessary. For more information, contact 626-445-6708 or publicity@pcomusic.org, or visit us at www.pcomusic.org. Find us at <https://www.facebook.com/pages/Pasadena-Community-Orchestra/125809577468516>, and follow us at <https://twitter.com/PCOrchestra>.

Caltech Public Events Hiring Ushers

**Flexible hours.
No experience needed.
Outgoing Personality.**

**Pay Rate:
\$15 per hour**

**Caltech Students
only!!**

**Contact: Adam Jacobo
626.395.5907
ajacobo@caltech.edu**

The California Tech

Editors-in-Chief

Neera Shah
Nehaly Shah

Page Editors

Jon Cotler
Katherine Guo
Ching-Yun (Chloe) Hsu
Valerie Pietrasz

Contributing Writers

Nima Badizadegan
Hannalore Gerling-Dunsmore
Nailen Matschke
Sean McKenna

Contributing Photographers

Tyler Okamoto

Circulation Manager

Kit Chinetti

Advisor

Richard Kipling

Caltech 40-58, Pasadena, CA 91125
Contact tech@caltech.edu

The Tech is published weekly except during vacation and examination periods by the Associated Students of the California Institute of Technology, Inc. The opinions expressed herein are strictly those of the authors and advertisers.

Letters and submissions are welcome; e-mail submissions to tech@caltech.edu as plain-text attachments, including the author's name, by Friday of the week before publication. *The Tech* does accept anonymous contributions under special circumstances. The editors reserve the right to edit and abridge all submissions for any reason. All written work remains property of its author.

The advertising deadline is 5 p.m. Friday; all advertising should be submitted electronically or as camera-ready art, but *The Tech* can also do simple typesetting and arrangement. All advertising inquiries should be directed to the business manager at tech@caltech.edu. For subscription information, please send mail to "Subscriptions."

REMINDER FROM COUNSELING CENTER:

Meditation Mob

(drop-in mindfulness meditation group)
Meets every Tuesday, 12:00-12:50 p.m.
Bottom floor of Winnett

From the president's desk: The past and future of Bechtel residence

NIMA BADIZADEGAN
ASCIT President

As you have probably heard, there are a number of construction projects that are occurring on campus this year. By far, the biggest and longest-planned project is the Bechtel residence, often referred to as "Bechtel House." In January 2012, the S.D. Bechtel, Jr. Foundation pledged \$25 million to "expand and strengthen the Institute's commitment to K-12 educational programs and engagement with students and teachers throughout California," according to the Caltech website. In recognition for the gift, Caltech decided to build a new residence hall, named after Bechtel, with the goal of bringing 100 percent of undergraduate students into on-campus housing.

The planned residence hall will have 250 beds, along with common areas, an underground parking garage and a server for CDS. The Bechtel residence will be located next to Avery, along Moore walk, and should be a 2- or 3-story building with approximately 120,000 square feet of total space. For more information, Student Affairs will soon have a description of the Bechtel project posted on studaff.caltech.edu.

In 2012, Anneila Sargent, then the vice president of Student Affairs, formed a committee chaired by Professor Paul Asimow to look into the use of the new

Bechtel residence. The committee produced a report containing any decisions about the use of the

administration has yet to make any decisions about the use of the Bechtel residence, some of the older buildings that currently house undergrads may be repurposed for grad student housing, so the landscape of housing at Caltech will likely be very different when the Bechtel residence opens.

For the past three years since the Bechtel gift, Caltech Facilities and Student Affairs have been preparing for the construction of the new building by selecting

around at Caltech for long enough to see Bechtel.

Over the next four to six months, the IHC will be working closely with the architects of the Bechtel residence to help the architects get an idea of what the Caltech experience is like and figure out how Bechtel should look and feel. We will also be sending out a survey for every undergraduate to provide direct comments to the architects about what they like and dislike about their current living conditions, and the architects will be visiting the houses to get an idea of what undergraduate life at Caltech is like.

Regardless of how the Bechtel residence is used, the impact of the new residence cannot be understated. It is clear that all-freshman housing would have a significant impact on the campus culture and the mental health of new students. However, the other options on the table will also have some impact on students. In particular, the removal of all off-board Caltech-owned housing may cause more students to rent apartments off-campus than move back on. A ninth house or two extra houses would have to be incorporated into rotation.

In the coming months, we as a campus have a lot of thinking to do about what we want Bechtel to look like, and how we want it to be used, because the decisions we make today will have a large impact on how our campus will be tomorrow.



This satellite image shows the potential area for where Bechtel will be built. The indicated area is larger than the actual area that will be taken up by the residence hall.

<http://maps.google.com/>

a set of potential uses for the new residence, which includes proposals like:

- Off-campus housing, including unaffiliated housing and/or off-campus alleys
- All-freshman or all-sophomore housing
- A ninth house or a pair of new houses

The exact text of the report is not public. However, with all of the changes in the president's office and in Student Affairs, the

new residence hall. Additional proposals have also been brought up, including the idea of "multi-generational" housing, where undergraduate and graduate students live together.

Unfortunately, it is likely that construction will begin on the building before final decisions about its use are made. I have been avoiding the use of the words "Bechtel House" during this article because it is not clear whether Bechtel will become a house or not.

architects and moving buildings like the child care center out of the way of the planned construction site. Now that the architects have been selected, the design process will be starting soon, and construction should begin the following year. According to the official timeline, design will start in the fall of 2015, construction will begin in the fall of 2016 and the residence hall will be ready for students to move in for the 2018-2019 academic year. Only the current freshmen will be

You chose one of the most trusted institutions in SCIENCE.



Now choose one of the most trusted institutions in FINANCE.



When you want unsurpassed stability, integrity and value for your money, Caltech Employees Federal Credit Union offers an honest alternative. There are no gimmicks. No annual fees. No harsh penalties.

Just some of the lowest lending rates and highest savings rates in the nation... and a state-of-the-art eBranch for easy, convenient online and/or mobile access to your account. We're the overwhelming choice for financial services among the entire Caltech family. If you haven't yet joined, call or visit us online or in person today. You belong here.



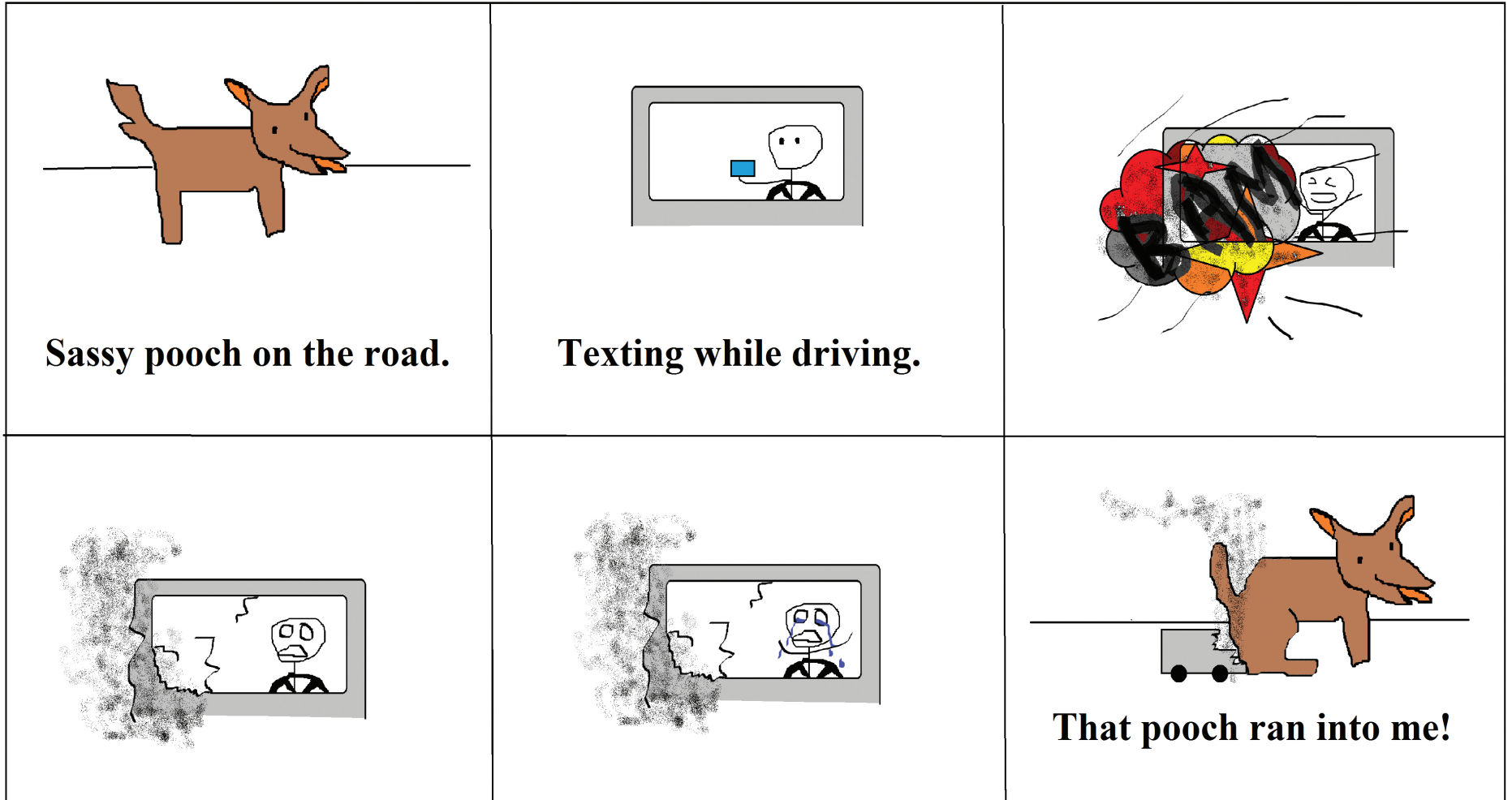
Smarter Solutions. Proven Results.

Campus Office 515 S. Wilson Ave. (physical address) • **Campus ATMs** Winnett Center & Keith Spalding Building
626/395-6300 • 800/592-3328 • www.cefcu.org

Must qualify for CEFCU membership to join. Minimum \$5 deposit and one-time \$5 membership fee due upon opening any CEFCU account. **Federally insured by NCUA.**

Texting while driving: A Tragedy.

Niva, Slava, Lazarina



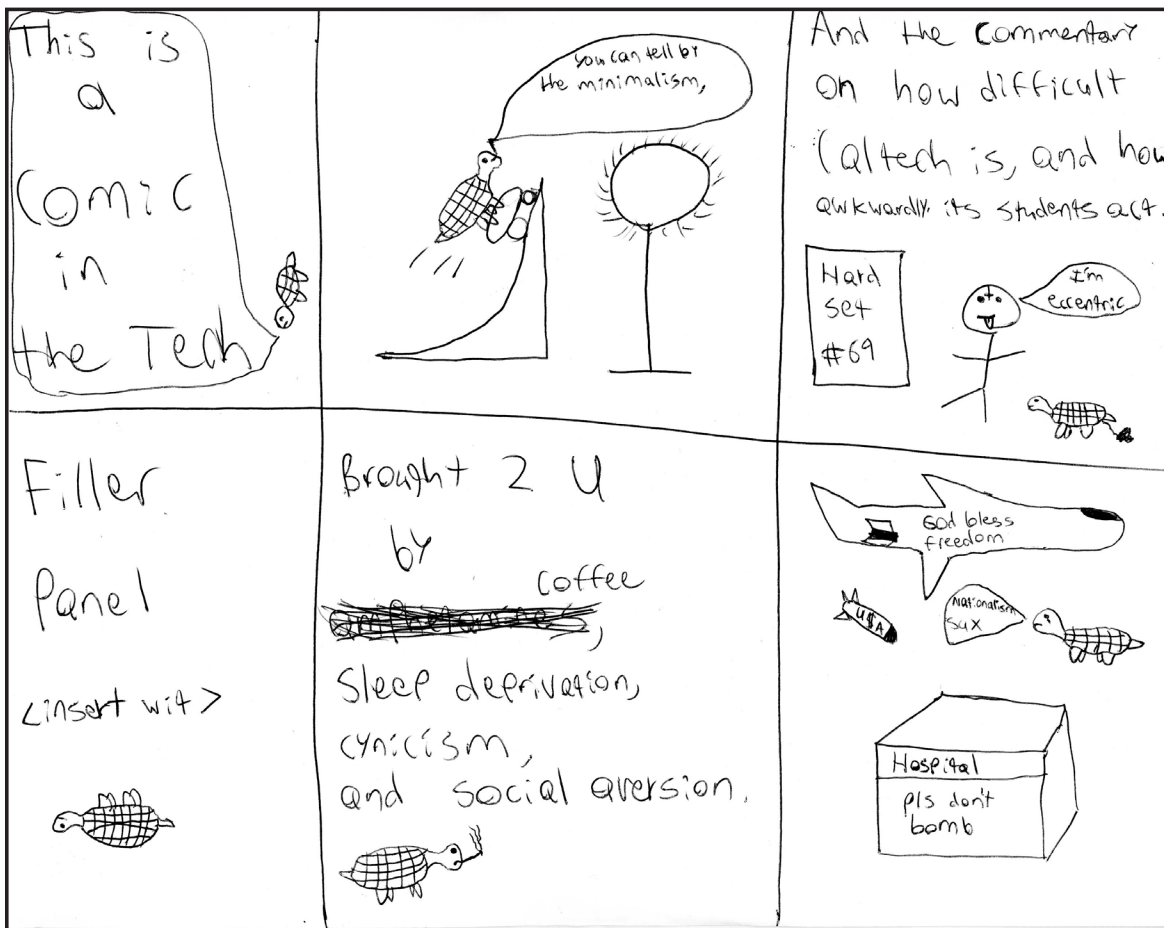
Sassy pooch on the road.

Texting while driving.

That pooch ran into me!

Is this thing on?

C. Bhad



NOTICE: The email address tech@caltech.edu is currently not working. To contact the editors, please email us at nshah@caltech.edu or nmshah@caltech.edu.

wow, I didn't realize my comics were so bad -G. Kuo

The California Tech
 Caltech 40-58
 Pasadena, CA 91125