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E7 Construction Receives Federal Funding



CAMERON SOLTYS
3T MECHANICAL

On January 12, the federal government announced that they would be supplying \$32.6 million in funding to help complete Engineering 7 (E7). The announcement was made by Bardish Chagger, who, in addition to being the Government House Leader and the Minister of Small Business and Tourism, is also Waterloo's local Member of Parliament.

E7 is scheduled to open in Spring 2018. When it is complete, it will house the Biomedical Engineering and Mechatronics Engineering departments. It will also include much-needed student space such as a new EngSoc-run C&D and a student lounge. There will also be more design team space, including an indoor drone-flying area.

The building's total cost is estimated to be \$88 million. The funding so far has included \$10 million from the University of Waterloo and \$36.5 million from private donors. A referendum was held in 2014 asking students to support a \$25-per-term fee, starting when the building was complete, to raise \$1 million for construction; the referendum did not pass. University of Waterloo President Feridun Hamdullahpur lauded the grant, and noted that the decision to begin construction before securing federal funding was in line with the university's history of risk-taking.

The federal grant comes courtesy of the Post-Secondary Institutions Strategic



Bryan Mailloux

E7 is currently under construction, and is expected to meet its September 2018 completion date

Investment Fund (SIF), a \$2 billion federal initiative to enhance the research facilities of Canadian post-secondary institutions. According to the government's website, it is specifically designed to "accelerate strategic construction, repair and maintenance activities at universities and colleges across Canada." E7 was, therefore, a prime candidate for funding. The new building is critical to housing the massive growth that the Fac-

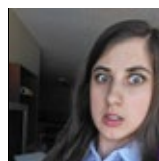
ulty of Engineering expects in the immediate future; enrollment is predicted to increase from 9 400 to 11 000 students over the next four years.

Many other projects have also received funding through SIF. The University of Montreal has received several grants for various projects they are undertaking. Queen's University received \$31 million to upgrade its biomedical research facilities and expand its Innovation and Well-

ness Center. The University of Toronto was awarded \$83.7 million for various projects across its three campuses.

The SIF will, hopefully, keep Canadian universities and colleges competitive, able to perform groundbreaking research and provide suitable learning environments for their students. The grant for E7 is a tremendous investment, bringing the end of construction and the opening of the Faculty's newest building closer.

Trying to Search WaterlooWorks Effectively



ALEXA GRITTANI
3B MECHANICAL

The problem with JobMine was not its search capabilities, so I am disappointed to see how much they have changed as we start using WaterlooWorks. When approaching applying for jobs on WaterlooWorks for the first time, it appeared as if there were some handy functions there. You can quickly search by keyword or location, and there's a handy number of quick searches including one titled "for my program".

Do not be fooled. This search will not give you a concise list of jobs that have duties related to your program. For instance, if I use the "for my program" search function I get anything from Maintenance Assistant to Building Administrative.

Now I understand that some first years have to settle for jobs that are not the best, but these should not be the ones that show up in their "for my program"

quick search. And I cannot figure out what search parameter are used for this quick search. Some of the jobs that come up don't even have Mechanical Engineering, or General Engineering listed under 'targeted clusters'.

What I am trying to get at is that the "for my program" spits out far too many unrelated jobs that can make it difficult to locate jobs actually related to one's program of study.

In order to narrow down the number of jobs that come up in a search and actually find what you are looking for there are some things that you can do.

First you can search by "Program Clusters". This narrows the jobs somewhat, but is not the best for getting rid of the jobs that are not related to your program of study. You can also search by "Individual Programs", but this does not appear to have much effect on the jobs that appear.

The parameter that I have found to be the most effective at narrowing down based on area of study is "Job Category". These search options do not exactly line up with offered programs, but when used will give one more specific results from

what they searched. I mention that it does not list the options like programs because it is missing some programs. One can still narrow their search by selecting similar job categories or lumped categories. This is the filter I used to narrow my job search from upwards of 800 jobs to around 150 jobs.

WaterlooWorks has more options for searching for jobs by location. Now, you cannot only search by region, but by province, state, or country. Also, if you are dead set on working in a specific city in a country on the other side of the world, you can type in the city's name in the first location option.

Other useful search parameter are, of course, searching by level (junior, intermediate, senior), work duration (four months, eight months), transportation and housing. Although transportation and housing's search function does not seem to work that well. What would work better would be a drop down for "Additional Information" that had the options that employers are choosing.

The last parameter that I want to bring up is one that will be most useful during

the continuous round. The application deadline option will be useful for doing just what you have time for in between your studies. Don't waste time writing a cover letter for a job that is closing two weeks from now, when there is another job you are interested in closing today. There is also a couple quick searches that work this way as well. One has jobs with the application deadline that day, and the other has jobs with application deadlines in the next ten days.

Overall the search function works okay, but the website in general is not very reader friendly. You have to scroll to the right in order to see all of the information on the search results page. I also find the actual job posting information hard to glance over quickly. I feel like all of the most important information that I need to see first to weed out the jobs that I definitely can't apply to are no longer grouped together like they were on JobMine.

And you can't turn WaterlooWorks into a verb like you can JobMine. "I'm going to WaterlooWork..." just doesn't have the same ring to it.

Letter from the Editor

Things Are Happening



**DONOVAN
MAUDSLEY**
EDITOR-IN-CHIEF

I honestly can't believe that we're already in our fifth week of class. I don't think I've gotten a whole night's sleep since the New Year. Mechanical Engineering's 3B term is starting to live up to its reputation.

This issue comes with a lot of great content. There's so much content that I seriously considered cutting my own article! *SpaceCam* returns this issue with an update on NASA's new missions. *Ra(Tan) Lines* covers Hello Internet, another classic podcast. Bryan's *Half-Baked* is a bit of a misnomer, as the Haystack Cookies don't require any baking at all. They were pretty tasty though. Elizabeth details the progress of the Maple Leaf's rookies in *The Benchwarmer Report*. If columns aren't really your thing though, have no fear, as we've still got tonnes of other articles this issue.

Lots of things have happened since I last sat down and wrote an editorial. One was a small(ish) error in the printing of our previous issue. The question was not printed for the *Iron Inquisition*, our student poll, so no one knew what people were talking about. Tom had asked everybody what their favourite CSE course was. I was really surprised when people start reporting the issue, because no one had found it while we edited it. Usually these things get spotted, but no one mentioned it. I went back to check the draft and saw that it really was there. The issue stems back to an oversight at the printer, something about the text getting put on a different layer than the rest of the page.

Between issues we also found out the name of the next *Star Wars* film. *Episode VIII: The Last Jedi* has people spinning, wanting to know what's going to happen. It also had my friend Joey and I stumped for a while. Is Luke Skywalker the last Jedi? Is he going to train Rey and then die, in which case Rey would be the last remaining Jedi? Who knows? It was a while later that night when it clicked; Jedi is the plural of Jedi! I ran down to the living room in my pjs to tell Joey, and no one else in the room had any idea what I was talking about. Yeah, I kinda like *Star Wars*.

Oh yeah, and Trump became the President of the USA.

One of my mandates this term was not to write about Donald Trump's administration or policies or controversy surrounding his rise to or actions in office. A series of events that took place after his inauguration really shocked me though, and I feel compelled to write about them.

First up was newly sworn in Press Secretary Sean Spicer's speech on Jan 21st. During this speech, Spicer harangued his democratic predecessors before attacking media outlets for falsely reporting the attendance numbers for Trump's inauguration. He then went on to state that media outlets shouldn't be reporting on this, and should instead be reporting

on Trump's upcoming meetings with foreign leaders or his visit to the CIA. Just a few notes on Secretary Spicer's address:

Attendance at Trump's inauguration is largely thought to be a decrease from both of Barack Obama's ceremonies. This is backed up by aerial photos, transit records, and statements from people who attended both events. In fact, there was less use of the Washington DC public transit system on Inauguration Day than there is on a typical weekend.

In his statement Spicer pretty much ignores the Freedom of the Press, which states that no government official or organization can interfere with the distribution of information and opinions.

Directly following this was Kellyanne Conway's interview with NBC's Chuck Todd on Sunday Jan 22nd. Mrs. Conway was one of Trump's campaign managers, and has since become the Counsellor to the President. In her statement Conway defended Spicer's claims, which Todd called "falsehoods." Mrs. Conway called Spicer's claims "alternative facts."

Let's take a look at that term. Alternative is generally meant to show multiple answers or solutions. Alternatives are typically given when someone has a choice that they can make. Something that is fact is indisputable and true. "Alternative facts" then means that there are multiple things that are inherently true. 2+2 could equal 4, or 5, or fish. Alternative facts are things that just aren't true. Lies. Falsehoods. Fibs. It's very telling that before the Trump administration had even been in office for a single work day (Inauguration Day doesn't count) they had adopted a culture of lying to public and refusing to listen to facts.

After Mrs. Conway's speech, copies of George Orwell's *1984* began selling like hotcakes on Amazon, so much so that it became the bestselling book and then promptly went out of stock. Sales increased over 9,500%, and a new printing was ordered. "Alternative facts" bears a strong resemblance to the Orwellian term "doublethink," where an individual can accept two contradicting statements as fact. Also, if you've never read *1984*, you really should.

Moving on from Mrs. Conway, there was the immense success that was the 2017 Women's March on Washington on January 21st. A grassroots protest meant to bring media attention to the issues of LGBT and women's rights in America, the March spawned over 650 copycat protests around the globe. Cities in Canada, Mexico, South Korea and the United Kingdom all saw marches. There were even two in Antarctica. I personally know people who marched in New York and Chicago. My personal favourite video of the Marches is one from Nova Scotia where 15 people (out of a population of 65) marched. The Marches were all peaceful demonstrations, and I haven't heard of a single arrest around the world. All told over 2 million people protested in the US, making it the largest single-day demonstration in US history.

...And then the executive orders started coming, 14 in total thus far. There's one to

repeal Obamacare. There's one to redirect funds for his wall. There's one to freeze hiring of government officials in the US for 90 days, which actually directly conflicts with his whole wall thing. There're two to get the oil pipelines back on track. There's one which essentially makes it impossible for a woman to get an abortion in the US. There's also one which stops the United States Refugee Admissions Program and bans people from seven countries from entering the US. I wish I had the time and the space to write about each of these orders, but I don't. I'm going to talk about the last one for a while.

This executive order is trash. Terrorism is a very real thing and a very scary thing, but literally no good can come from this order. Out of the seven countries named (Iraq, Iran, Libya, Somalia, Sudan, Yemen and Syria) none have produced citizens who have committed acts of terror on US soil. All are in one state of flux or another, but so are many other countries. Some critics have even stated that there is a "random quality" to the countries selected. Even worse, people who have worked hard and obtained legal travel visas are not exempt from this law. Starting January 27th passengers began to be detained at US airports, and at the time of this writing over 300 have been detained. Protests against the ban began popping up at 16 airports around the country. Lawsuits against the administration have already been filed, with many lawyers providing pro-bono representation.

The chief executives of Twitter, Microsoft, Apple, Facebook, Tesla, Netflix, Amazon, LinkedIn and Google have all condemned the order. Google has also recalled most of their travelling employees, in case the order would prevent them from returning in the future. Sixteen state attorney generals signed a joint statement condemning the order as unconstitutional.

Universities are also affected by this ban, as it means that students from these countries are now unable to study in the US. Many institutions are reportedly looking into the legality of the ban, but the University of Michigan has openly defied the order and refused to release its students' immigration details. In a statement released January 28th the school stated that it "welcomes and supports students without regard to their immigration status," and that they "will continue to admit students in a manner consistent with [their] non-discrimination policy." The statement is bold and eloquent and I recommend reading it. There has been a public call for other institutions to follow Michigan's example.

I want to end my editorial with an excerpt from *The New Colossus*, the poem published to raise funds for the Statue of Liberty. "Give me your tired, your poor, Your huddled masses yearning to break free, The wretched refuse of your teeming shore. Send these, the homeless, tempest-tost to me, I lift my lamp beside the golden door!" In this poem Lady Liberty, one of the great American symbols, literally calls for the world's refugees so that she can shelter them.

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of Waterloo Engineering Society

Editor-in-Chief

Donovan Maudsley

Assistant Editor

Hasan Ahmed

Layout Editors

Donovan Maudsley
Bryan Mailloux

Copy Editors

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Hasan Ahmed
Ratan Varghese
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Thomas Willert

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Web Editor

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The Iron Warrior encourages submissions from students, faculty and members of the university community. Submissions should reflect the concerns and intellectual standards of the university in general. The author's name and phone number should be included.

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Mail should be addressed to The Iron Warrior, Engineering Society, E2 2347, University of Waterloo, Waterloo, Ontario, N2L 3G1. Our phone number is (519) 888-4567 x32693. E-mail can be sent to iwarrior@uwaterloo.ca

Chelsea Manning's Sentence Commuted



HIRA RAHMAN
1B NANOTECHNOLOGY

As one of his final acts as president, Barack Obama commuted the prison sentence of Chelsea Manning, a former military intelligence analyst condemned to a 35-year sentence for her decision to release hundreds of thousands of military logs from the Afghanistan and Iraq Wars, which exposed the US government's questionable actions.

Nancy Hollander and Vince Ward, the two lawyers representing Chelsea Manning, made a joint statement, praising Obama's decision to grant Manning clemency:

"Ms. Manning is the longest-serving whistle-blower in the history of the United States. Her 35-year sentence for disclosing information that served the public interest and never caused harm to the United States was always excessive, and we're delighted that justice is being served in the form of this commutation."

The American Civil Liberties Union (the organization that represents Manning) had been trying to have Manning's sentence commuted for several months, citing that Manning faced imminent danger as a transgender woman at an all-male military prison in Fort Leavenworth, Kansas. Much of the 6 years she spent incarcerated was spent in solitary confinement (which is regarded as torture by the United Nations). This, coupled with Manning's struggle to receive medical aid for her sex reassignment has caused her severe distress and has led to repeated suicide attempts.

Under the terms for the commutation announced by the White House on January 17, Manning will be released on May 17. The 4-month delay is a part of a standard transition period to allow officials to find living accommodations for Manning after

her release.

The act of clemency was a notable decision on the president's part, since his administration has been criticised for its harsh sentencing of whistleblowers. Prior administrations have only experienced a handful of leaks with sentences ranging from one to three year. It is no debate that Chelsea Manning's 35-year sentence was by far the longest punishment imposed by the United States Government for a leak conviction.

Chelsea Manning (then Bradley Manning) was deployed of Iraq in late 2009 where she had access to a classified computer network as an intelligence analyst. In early 2010, she leaked hundreds of thousands of classified military logs from the Afghanistan and Iraq Wars to WikiLeaks. Among the logs were documents exposing the abuse of detainees at the hands of Iraqi military officers working with American forces, a much higher number civilian deaths than disclosed by the US government, conversations and dossiers detailing the assessments of Guantánamo detainees held without trial, a video of the July 12, 2007 Baghdad airstrike which killed 12 people, including two journalists, among others.

Manning confessed to her actions and apologized at her court-martial, stating that she had been dealing with personal issues at the time. Testimonies from other army personnel confirmed her allegations and revealed that she had been in emotional and mental crisis as she was confronted with the fact that she had gender dysphoria and was also gay.

She was charged with 22 offences, including charges of treason, multiple counts under the Espionage Act and "aiding the enemy" and was ultimately convicted for 17 charges and was sentenced wit 35 years in prison.

After six years, Manning has been officially commuted by the now former president, Barack Obama. Manning's

commutation also brings up questions about the fates of another prominent whistle blower, Edward Snowden, and the founder of WikiLeaks, Julian Assange, with whom Manning shared the classified military documents.

Julian Assange had initially stated that he would turn himself in to the US government for extradition should Barack Obama pardon Chelsea Manning. Now that Manning's sentence has officially been commuted, there is a lot of speculation as to whether or not Assange will keep his word and face any charges against him. To be clear, the United States hasn't officially charged Assange with anything however it turns out that he has reneged his initial offer.

Barry Pollack, Assange's US-based attorney, stated that "Mister Assange welcomes the announcement that Ms. Manning's sentence will be reduced and she will be released in May, but this is well short of what he sought. He had called for Chelsea Manning to receive clemency and be released immediately."

Under the terms of Chelsea Manning's commutation, that is essentially what Obama did. Her sentence will be commuted in May and she will be allowed to leave in May. Assange's decision to back out of his earlier proposition is completely understandable since the United States Government wants to go after him quite aggressively. Thus, it safe to assume that Assange's proposition was never genuine and even if it was, he has no plans to follow through on it at this point.

Chelsea Manning's clemency has also lead people to question if Edward Snowden, who fled to Russia after leaking documents that revealed details about how the National Security Agency (NSA) use of illegal surveillance on American citizens and world leaders, will also be pardoned.

Edward Snowden, the exiled American whistleblower, continues to be a controversial figure in the United States.

Depending on who you ask, Edward Snowden may either be considered a traitor or a hero. After he began leaking classified government documents relating the United States' mass surveillance program, which he obtained while working as an NSA contractor, Snowden fled prosecution to Hong Kong and then later to Russia.

The leaked documents revealed that the US intelligence community and its partners (such as the UK, Israeli and German spy agencies) took part in political and industrial espionage on top of espionage for counterterrorism efforts, affecting civilians and government officials in the US and abroad. The documents also revealed that the surveillance system was created without the authority or knowledge of legislative bodies and the public. Snowden's actions not only began a public debate about the role of government surveillance programs but also pushed government organizations to be more transparent.

When asked about Snowden's future and if he would be excused of his charges, White House Press Secretary, Josh Earnest, stated that the two cases have stark differences:

"Chelsea Manning is somebody who went through the military criminal justice process, was exposed to due process, was found guilty, was sentenced for her crimes, and she acknowledged wrongdoing. Mr. Snowden fled into the arms of an adversary and has sought refuge in a country that most recently made a concerted effort to undermine confidence in our democracy."

While commuting Chelsea Manning's sentence is admirable and is a cause for celebration, it is long overdue. The Obama administration's harsh treatment of whistleblowers can neither be forgiven nor forgotten especially since Edward Snowden still lives in exile. As the world welcomes a new American president, it will be interesting to see how this next administration handles leaks and how transparent it will be about its actions both domestic and abroad.

Kevin O'Leary: The Shark Enters The Tank

AARON PROPP
1B ELECTRICAL

Kevin O'Leary entered the Conservative leadership race the day after the French language debate, January 17th. He joins a crowded field of 13 other candidates including Maxime Bernier and Andrew Scheer. Maxime Bernier and other leadership candidates have criticized him skipping out on the French language debate, as Kevin O'Leary is unilingual with English being his only language. Bernier is quoted as saying "[i]f [O'Leary] believes he can win an election without speaking a word of French, he is wrong." However, O'Leary has started taking French lessons and is committed to being proficient by the time the next federal election rolls around.

O'Leary is currently ahead in the polls

with 27 percent of Canadians saying they would vote him, a double-digit lead over the next closest candidates, Maxime Bernier and Andrew Scheer.

Kevin O'Leary has often been likened to being the Canadian Donald Trump. While it is true that they are both successful businessmen and reality-TV stars, this is where the similarities end. Trump remains economically nationalistic, not opposed to imposing tariffs or ripping up free trade deals he believes don't work in America's favour. O'Leary on the other hand is a fiscal conservative believing in free markets, lower taxes and smaller government.

Donald Trump remains a defense hawk, keen on fighting ISIS and potentially bringing back torture to CIA interrogations. Kevin O'Leary has been quoted as saying "[t]here's nothing proud about be-

ing a warrior. War is a desperate outcome for a human being [.]]" and has instead advocated Canada take a peacekeeping stance in foreign affairs. There is no doubt though that he is riding the same wave of anti-establishment sentiment in the leadership race.

Arlene Dickinson, a former co-dragon with Kevin O'Leary on the show *Dragon's Den* has a different take. Citing Kevin O'Leary refusing to resign from *Shark Tank* should he win the leadership, she asserts he is not fully focused on Canadians. As well, Kevin O'Leary has recently stated that he is "not a capitalist", this despite the fact he rose to fame on a venture capitalist show.

O'Leary has been exchanging a series of open letters in the past week with Ontario Premier Kathleen Wynne and other

members of the provincial Liberal cabinet. Mostly political theatre than substantive writing, O'Leary benefits from the added publicity while Wynne benefits from picking a fight a with a conservative arch-nemesis. She has executed a similar strategy previously, writing open letters to Stephen Harper in the middle of her election campaign which has benefitted her greatly.

It is worth noting that the candidate most like Trump is Kellie Leitch. In the 2015 federal election, she was the public face of the barbaric practices hotlines, largely criticized as being ineffective and nothing but a dog whistle, as anything reported to it was already a federal crime. She has proposed making immigrants take a Canadian values test and charging them for it as well, making it a key part of her campaign platform.



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Academy Award Nominations Announced

La La Land Hoping For Big Night



ALINA PAVEL
1B NANOTECHNOLOGY

It's that time of year again (no, not Superbowl season): the 2017 Oscar nominations are here! This year is the 89th year the awards will be held, featuring 24 categories of awards. They will take place on Sunday, February 26th at the Dolby Theatre in Hollywood and will be hosted by Jimmy Kimmel, comedian and host of his self-titled talk show.

The most noteworthy nominations are as follows:

Actor in a leading role: Casey Affleck in *Manchester by the Sea*, Andrew Garfield in *Hacksaw Ridge*, Ryan Gosling in *La La Land*, Viggo Mortensen in *Captain Fantastic*, and Denzel Washington in *Fences*.

Actress in a Leading Role: Isabelle Huppert in *Elle*, Ruth Negga in *Loving*, Natalie Portman in *Jackie*, Emma Stone in *La La Land*, and Meryl Streep in *Florence Foster Jenkins*.

Best Picture: *Arrival*, *Fences*, *Hacksaw Ridge*, *Hell or High Water*, *Hidden Figures*, *La La Land*, *Lion*, *Manchester by the Sea*, and *Moonlight*.

Directing: Denis Villeneuve for *Arrival*, Mel Gibson for *Hacksaw Ridge*, Damien Chazelle for *La La Land*, Ken-

neth Lonergan for *Manchester by the Sea*, and Barry Jenkins for *Moonlight*.

Among the leaderboard of 60 films nominated, *La La Land* boasts the most nominations this year with 14 in total, including best picture. This is an astounding 6 more nominations than the films in second place, *Arrival* and *Moonlight*, tied at 8 nominations each. *La La Land* is also setting the record for most honored musical film in Oscar history, surpassing classics like *Mary Poppins* and *Chicago*.

La La Land, starring Ryan Gosling and Emma Stone, is a comedy/drama musical, which tells the story of an aspiring actress (Mia) who falls in love with a jazz musi-

cian (Sebastian). Released on Christmas Day, the film made about \$4 million during its opening weekend and has since grossed an estimated \$93 million in the USA alone. The movie is also certified 'fresh' by ratings website Rotten Tomatoes, having a score of 93%.

The Academy of Motion Picture Arts and Sciences (AMPAS) - responsible for organizing the awards and nominations - received a lot of flak last year for allegedly being too "white," by not having enough racial diversity among nominees. In fact, there wasn't a single African American nominee in the lineup. Many famous African American actors

boycotted the awards entirely, spawning the trending hashtag #OscarsSoWhite, in order to show their support for the Black Lives Matter movement and social justice in the film industry. This year however, there is a significant increase in the diversity of nominees, including 7 minority actors nominated out of a total 20 nominees - an all-time record.

Overall, this year's Oscars look set to be well-represented and controversy-free, which is probably a good thing considering the amount of controversy in the news these days. Don't forget to watch out for your favorite stars on the Oscar's stage on February 26th!



Bago Games via Flickr

***La La Land* Leads the List of Nominations with 14!**

Superbugs and Shkreli Drama

Can We Survive a Post-Antibiotic World?



RATAN VARGHESE
2A ELECTRICAL

Recently, a study revealed that a colistin-resistant strain of *E. coli* has started appearing in China. It was being used on farm animals to speed up their growth. The Chinese government has started banning the use of colistin on farm animals: this ban will be effective in April. However, colistin treatments for humans are on the rise in China and elsewhere to help deal with bacteria resistant to other, more commonly used antibiotics.

This is a small part of a distressingly large problem. Antibiotic-resistant bacteria, also called "superbugs", are becoming increasingly common. It is inevitable that this would occur: as weak, antibiotic-susceptible bacteria are killed off, superbugs survive and spread their antibiotic-resistant genes. However our society is giving evolution a big helping hand. Giving patients doses of antibiotics that are too low to eradicate bacteria gives those bacteria a great opportunity to become resistant. Fish farms and factory farms feed antibiotics to animals raised for meat, but this allows bacteria to develop immunity and lethally infect humans in the future.

The cost of developing antibiotics is rising, and pharmaceutical corporations have been happy to pass on the costs to the rest of society. Their main source of funds for researching future drugs is the income from drugs currently sold on the market. The billions of dollars going into developing new drugs is coming from the most vulnerable sectors of our society. While generic drug companies can manufacture medicines at ridiculously low prices, that doesn't solve the problem

of how these antibiotics will be developed.

The face of greed in Big Pharma is of course the stalker and living internet meme Martin Shkreli. His 2015 decision to raise the price of Daraprim by 5000 percent overnight continues to haunt him. Earlier this month, some spirited protesters actually walked up to him, threw dog poop in his face and recorded the affair. Meanwhile a pharmaceutical trade group started releasing television ads admonishing Shkreli, claiming that the rest of the industry had a stronger moral fibre. Shkreli, being more offended by hypocrisy than feces, quickly whipped up a website which lists all sorts of price-gouging and life-threatening behaviour by drug companies. "Don't you dare point your finger at me for the pharmaceutical industry's troubles. It turns out we've all

made some unpopular moves." Shkreli says on his site.

It is possible that human research efforts will one day fail to keep pace with bacterial evolution. Such a world would be horrifying to live in. In the eras before antibiotics, even simple injuries such as scrapes, insect bites, skin infections could be lethal. Getting a tattoo could be a death sentence and an ear infection could leave you deaf. Lots of modern medical procedures such as implanting devices, Caesarian sections, kidney dialysis, and surgery in general would have high risk of infection if not for antibiotics. Treatments that involve suppressing the immune system would also become far more risky: this rules out transplants & chemotherapy. Meat of all kinds would be much more expensive: animals in factory

farms live in extremely unhygienic conditions. Changing farming practices to reduce antibiotic use could be expensive for consumers and even more expensive for farmers.

Currently obscure treatments could return to the mainstream, such as bacteriophages (viruses that infect bacteria). Phage therapy was primarily used by the Soviet Union. During the Cold War, the Soviets had no access to antibiotics and the Western world had no access to phage research. It has remained something of a Russian oddity, as the phages, like the antibiotics they compete with, have a hard time adapting to the ever-shifting bacterial threat. A post-antibiotic world could be on the horizon, and while surviving may be possible, it could be a major ordeal.

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Point Vs. Counterpoint

Are cars an overall boon for society?

POINT

THOMAS WILLERT
3B MECHANICAL

The automobile was introduced as a method of transportation for many people in the 20th century, slowly developing into what it is today. This was mainly due to the development of an infrastructure that already existed, trails and basic roads from town to town. This ease of adopting these “roads” lead to the explosion of the auto industry, which itself generated the potential for growth in many other fields. With the increased development of roadways, it also furthered the ability for distant communities to access cities more efficiently for trade and social development. Overall the automobile has provided an economic and social freedom that has been a key factor in the development of Canada’s and the global economy.

The auto industry has been an economic driver for many countries. Here in Canada every one billion dollars in auto exports amounts to 11 000 jobs either created or maintained. This is a key job creator and makes up a large portion of our GDP. The economic benefits alone justify the industry. With the auto industry built the way it is, it creates avenues for innovation in many different fields. The amount of funding that goes into research and development has had a massive impact on our knowledge on manufacturing processes and materials science. This knowledge has transferred to other industries providing growth in STEM fields, new fields of study such as polymers, and increased opportunities for engineers around the world. In order to grow the market and provide these new and advanced vehicles at an affordable rate for consumers, cars needed to be produced at lower rates. This led to the creation of many free trade deals, spurring economies around the globe, as auto parts and a variety of goods can now be produced and traded freely without tariffs and import fees. This increases the amount of trade to and from those countries, advances the technology available to citizens and generally increases the standard of living of the people. Not only did the auto industry support this development but it also provided the means and ability for it all to happen.

With many communities separated by long distance it is impossible to reach or trade outside of a town without a car. It may be argued that this is wasteful but this was a necessity of the time, and even now cars are the only method of transportation in many countries, since developing anything other than basic roadways over rough terrain is out of their economic scope.

Therefore, with old converted roads simply upgraded to meet new needs, expansion of cities and now greater access for rural residents is possible with the addition of cars. Further, it created and advanced farming methods all throughout the development and improvement of the car, starting with providing access to markets and ability to haul materials with efficiency, to now specialized vehicles that can do any range of tasks needed on the farm. As well as this, as infrastructure improved, and population increased, cars filled the hole again, with the development of trucks to haul goods between cities revolutionizing the way trade was done. This allowed for more growth and yet another avenue for the auto industry to grow, providing more jobs and the ability for the farming industry to revolutionize and develop more advanced systems.

Overall while they may not be environmentally friendly or without their risks, cars have furthered the development of humanity and globalization significantly, providing more benefits than expected. The auto industry supports many facets of our global economy and is a key job creator and economy driver. Not only does it do this though: vehicles provide a method for communities to connect; in areas where transit and trade are not easy cars are the only way to transport goods and people. This provides a freedom and choice that would be removed from them if it were not available. In addition, cars allow people in developed countries to choose the life they want, being able to select an ideal location to live in relation to work, near or far, without being bound by public transportation. This is only one factor though - it provides an economic balance individual to each person. Work, life and transport are the keys to this balance and each person makes this decision themselves based on socioeconomic reasons. This individual life style is afforded to us by cars and would not exist without them. The misconception that a car is a necessity forced upon society is based on the thought that this balance cannot be found in a local area. However, in all reality most of Canada’s city dwelling population can sustain themselves in their own local area and do not require a vehicle, but will purchase one out of the desire for freedom from public transport as well as a method of providing versatility to their lives. This is counter to that of rural life where a car is a necessity due to the incapability to travel or trade without one, but in owning one your personal balance can be created and benefits can be found within that.

MEAGAN CARDNO
4B NANOTECHNOLOGY

If you are friends with me, you might know that despite being 22 years old, I currently do not have my license. No, this isn’t some sort of lifelong prohibition against the tyranny of our requirement to own and drive a car in order to be a beneficial contribution to society, but I do want to serve as an example of how it is very much possible to live life without what many see as a “fundamental” right of first world living. I am fortunate in regards to having a decent public transport system, allowing me to get to class or to work. I’ve even travelled to the US and back with nothing but public transport, with only commuter-common worries of “did I forget anything?” or “what if there are delays and I miss my flight?” and the like.

Yet it seems as though the average person sees such a motor-less life as just a long struggle of inconvenience. “But what about groceries?” some might cry. Well I buy groceries while on public transit too, and yes that does mean I have to keep in mind how much I can feasibly carry. But does that mean I’m starving? Absolutely not. In fact, I like to think such a weight restriction has been overall more beneficial for me — not only do I waste less food, as I typically buy exactly what I am going to eat for the coming week or so, but I also tend to make more frequent trips for groceries than perhaps the average motorized shopper with \$250 in purchase. Going frequently means that buying produce becomes far more sustainable, as I use and eat what I buy within a few days.

But the majority of my argument focuses on just how much individual driving hinders our society, and how our own selfish desire for convenience is proving detrimental for our planet overall — first and foremost just due to how inefficient such convenience is in terms of fuel cost. There are reasons why benefits are in place at the moment for people who carpool or take public transit, because cars spend the majority of their lifespan taking only one person, the driver, to their destination. If we were to fly airplanes across the Atlantic with only the pilot and his crew, people would be understandably upset. Yet we do the equivalent of that by having nearly half a million vehicles sitting in traffic on the 401 every day — the majority of which hold no cargo aside from the person in the driver seat and their briefcase.

What does this inefficiency mean for us? Well aside from being horrendously expensive to build and maintain infrastructure, its an absolute nightmare for our environmental impact. Transportation as a whole represents about a quarter of greenhouse gas emission sources in the United States, second only to energy production (responsible for just under a third of GHG emissions). Of course transportation doesn’t encompass solely individuals — after all, airplanes and freight trucks are quite the gas guzzlers. But by driving independently and at bare minimum capacity, we could consider ourselves essentially quadrupling our GHG emissions. Imagine the benefits solely from having four people in one vehicle, let alone if we encouraged the use of transport like buses or trains.

While yes, the greenhouse gas emissions argument is neutered significantly if cars were to be replaced with electric vehicles, that comes at a catch too. First of all, the manufacturing process is a huge producer

COUNTERPOINT

of greenhouse gases in its own right (something that will continue even in the production of electric cars). Economic impacts of oil and gas runs deep too, as much of our Canadian economy and personal financial stability is linked directly to the availability and prices of oil and gas prices. Oil and gas companies are amongst the most influential on our planet, largely in part due to our individual need for their resources for us to (quite literally) get anywhere in life. Our need for fossil fuel resources have driven us even to war on numerous occasions (which I will not name in fear of not expressing the complex sociopolitical nature associated with these sorts of struggles). While removing mass public driving from existence might not fish us entirely out of the deep hole of fossil fuel reliance, it would be a damn good step since we are already taking massive strides in other sectors, such as fuel production and industry.

Finally, there is the undeniable truth that driving is in itself a high risk task — why in the name of Feynman is it expected for every able-bodied adult to be partaking in such a high risk procedure? In several studies across the past decades in first world countries such as the United States or the UK, motor vehicle accidents are listed as the number one cause of accidental death consistently. If you think about it, it makes sense as well — even if the chance of having a vehicular accident during any drive is lower than, say, the risk of hurting yourself while using a chainsaw, we interact with cars exponentially more than we tend to interact with chainsaws.

This is the reason that truly baffles me the most, since demanding that such a widespread high-risk activity be performed by the adult population would be unheard of, and considered preposterous. What if we asked every adult to be capable of wiring their own house? In truth the principals of electronic circuits are no more difficult than the principals of road safety, and the risks of bodily harm or death could be comparable. After all, mis-wiring your house could result in your own harm or the harm of others, or you could be put at risk yourself because your neighbour mis-wired their house and started a fire. Except, it’s far easier to avoid a burning building than a car going over 80 kph.

Why don’t we consider driving a high skills job? Why can any 16 year old pass a written test and immediately get behind the wheel of a device responsible for more deaths per year in the US than even their horribly managed guns and other weaponry? Just because it is convenient? It seems that perhaps the principles of prior generations have just been passed on to us without proper reflection — after all, people never had to be warned of the dangers of drinking and horseback riding.

Now you might be asking now: what system do I propose in place of our current system of undeniable reliance of individuals driving themselves from place to place? The reality is we are probably too far gone down our current path to replace this system in the course of my lifetime without costing more in money and materials than the associated issues I just outlined. However, I don’t think that it’s impossible to imagine a future in which we wean ourselves off of our car addiction generation by generation, putting in the time to build better public transit infrastructure and highlighting the global benefits associated with less people driving.



Sicnag via Wikipedia Commons

Henry Ford’s Model T, the car that started it all

Editor’s Note:

Point Vs. Counterpoint is a feature meant to stimulate discussion on thought-provoking topics. The views and opinions expressed here do not necessarily reflect those of the authors, *The Iron Warrior*, or the Engineering Society.

All Things Mental Health!

Fantastic Resources and Where to Find Them



RACHEL MALEVICH
PRESIDENT

Hey readers! Last week, we all had the opportunity to support mental health initiatives across Canada as part of the Bell Let's Talk day on January 25th. Following this, I've decided to dedicate my article this week to informing you about some of the mental health resources available on campus.

The Engineering Society has a very dedicated group of Mental Health Awareness (MHA) Directors this term. They work hard to make sure there's time dedicated every week to mental health

awareness events, resources, and talking about mental health. On Tuesday, January 31st from 4:30 - 7:30 pm in POETS, the Mental Health Awareness Directors will be hosting Let's Talk Mental Health. This event provides an open and safe place to talk about your own mental health stories and discuss coping methods. Even if you're not ready to share your story, you're welcome to come listen. February 14th and March 14th will also be Let's Talk days in case you can't make it on Tuesday!

The MHA Directors will also be bringing back Post-Secret this term starting on Tuesday, January 31st. What's Post-Secret? Glad you asked! Think post-it notes, and anonymous secrets. The MHA Directors will be posting a large piece of

paper around POETS where students can add their anonymous messages. If you'd like to share more than a short message, we're also continuing our Mental Health blog this term! If you're interested in sharing your story openly or anonymously, send an email to engsocmha@gmail.com. You can check out the blog at <https://medium.com/mental-health-uwaterloo>.

In addition to offering opportunities for students to talk about their coping strategies and stories, EngSoc also offers several events focused on de-stressing. On Tuesday nights from 4:30 - 7:30 pm when Let's Talk isn't taking place, the MHA Directors invite you to play boardgames, make stress balls, speed-friend, and try out karate!

If you read my article last week, you'll

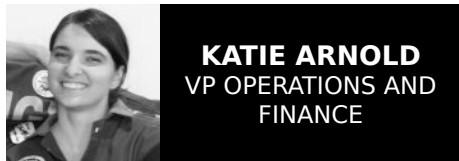
know that this term, EngSoc has partnered with UW MATES (a peer mentoring resource for mental health and stress related issues). If you follow the link <http://www.feds.ca/uw-mates/> you can sign up for an appointment. If you specify that you'd like to speak to an engineering volunteer, the coordinators will do their best to accommodate you!

In addition to the resources offered through the Engineering Society, there are plenty of other great resources available on the EngSoc website under Resources > Mental Health. Engineering Counseling is also a fantastic resource and it's available right here in CPH on the first floor.

For those of you struggling with some mental health related issues right now, you don't need to do it alone.

What a Novel Idea

New Swag Comes to Novelties



KATIE ARNOLD
VP OPERATIONS AND FINANCE

We've heard your cries and we're ready to deliver! Get ready for an entirely new design of Engineering Sweatpants! We're excited to bring a design of sweatpants into Novelties featuring the Ridgid Tool. We're trying out a new system for ordering this term to make sure everyone who is interested can have a size that fits them, so stay tuned for more information as it develops!

Our friends who attended CFES Congress this January brought back two new patches to sell in our store; the CFES (Canadian Federation of Engineering Students) and the

Engineers Canada patch now available for \$5 each. These patches join the Hard Hat Goose patch introduced by VP Finance Abdullah, based on last year's NEM patch.

As IRS approaches, look out for our Iron Ringer patch. Long since out of stock, we're bringing these patches back just in time for our fourth years! While you're in there, don't forget to pick up your How Many Days 'Til IRS chevrons! We love our fourth years, please drop by and pick up some swag to remember us by.

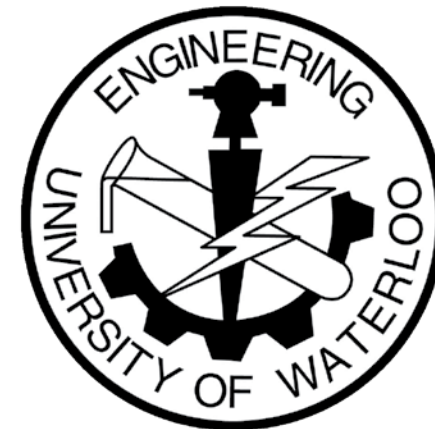
Keep an eye out for the outcome of Katie Chin's Patch Design competition! Submissions were collected from engineering students and voting will commence shortly. The winner of the contest will win 5 patches of their own design, and the patch will be brought in as stock to Novelties, available for

purchase by anyone. New patches are coming your way!

For our less patch-inclined Engineers, we currently have an incredible stock of T-Shirts available to display your Eng Pride. The EngSoc Logo, Lady Godiva, the POETS Lager and others are currently available in Novelties for \$15. We also have (my favourite item in stock) EngSoc Baseball Tees available for \$17.

We have several glassware and drinking options available in our store as well! Need a water bottle for your morning runs? Accidentally break your favourite mug this morning? Need a smooth way to carry your BEVERages? From shot glass you can send to your friends to ceramic mugs you can buy for your mom, we have every solution to any of your drinking needs!

Our team of Novelties directors have



a wonderful list of ideas that we're working towards together. I'm honoured to be part of this inspired team, and I'm excited to see what other things we'll have by the end of this term.

Keep your eyes peeled and feel free to drop into Novelties anytime between 11:30 and 1:30 Monday to Friday!

Upcoming Events Calendar

Wednesday Feb 1	Thursday Feb 2	Friday Feb 3	Saturday Feb 4	Sunday Feb 5	Monday Feb 6	Tuesday Feb 7	Check out up-to-the-day event postings on the EngSoc website at engsoc.uwaterloo.ca/event-calendar/
EngSoc Council Meeting 5:30PM - 7:30PM Change for Charity Ongoing until Feb 4			Enghack Starting at 9:00AM	Enghack Until 10:00 AM	EngiQueers 6:00 PM - 9:00PM	De-Stress Events 4:30PM - 7:30PM Board Games 5:30PM - 7:30PM	
Wednesday Feb 8	Thursday Feb 9	Friday Feb 10	Saturday Feb 11	Sunday Feb 12	Monday Feb 13	Tuesday Feb 14	
WiE - Beginner Python Workshop 5:30PM - 7:30PM	Public Speaking Workshop 4:30PM - 6:30PM Excel Workshop 6:00PM - 8:00PM Arts - Valentine's 11:30AM - 2:30 PM	Sleepover in POETS Starting at 7:00PM	Sleepover in POETS Until 10:00AM DnD 12:00PM - 2:00PM		Hell Week :(EngiQueers 6:00PM - 9:00PM	Romantic Pictures with The Tool 11:30AM - 1:30PM De-Stress Events 4:30PM - 7:30PM Board Games 5:30PM - 7:30PM	

Why Should I Give a Flying ESSCO about Conferences?

And Other Questions



Hello there reader! You may have noticed I used the word “ESSCO” to fill in for h*ck in my very engaging headline this week. So what’s ESSCO? ESSCO is the Engineering Student Societies’ Council of Ontario, and all the engineering schools on Ontario have a vote on ESSCO’s council. They exist to facilitate the sharing of best practices between schools and advocate for engineering student issues on a provincial level. The Canadian Federation of Engineering Students (CFES) provides similar services between engineering schools on the national level.

Why does the Waterloo Engineering Society send students to conferences?

Well, the Waterloo Engineering Society

believes that conferences greatly benefit the individuals who attend and our society as a whole. By meeting with peers from other engineering societies, delegates are able to bring improvements back to our own Engineering Society. This network continues to be beneficial as our society aims to foster diversity, create meaningful events, and ensure effective role transitioning. Additionally, the Waterloo Engineering Society is able to influence the engineering undergraduate experience on a much larger scale by being part of provincial and national meetings.

These are the 5 annual conferences you can apply to attend through the Waterloo Engineering Society:

ESSCO First Year Integration Conference (FYIC)

FYIC is a leadership development conference for first-year students looking to get more involved in their respective engineering societies. First years participate develop their leadership potential and learn ways that they can improve their

own engineering societies.

ESSCO Annual General Meeting (AGM)

The focus of this conference is leadership development and the sharing of best practices. This is achieved by having external speakers and ESSCO alumni run sessions for delegates.

ESSCO Professional Engineers Ontario – Student Conference (PEO-SC)

PEO-SC is a professional development conference that introduces delegates to the work of PEO and the benefits of obtaining a P.Eng license. Delegates are exposed to the licensing process discuss the future of the engineering profession in Ontario.

CFES Congress

Congress is the annual general meeting of the CFES. Congress is a great op-

portunity to engage engineering student leaders from every institution and field of engineering, as well as industry partners and sponsors. For more information, you can check out Tiffany’s article about the latest Congress, which took place at the beginning of January.

CFES Conference on Diversity in Engineering (CDE)

CDE aims to encourage discussion and collaboration between engineering students and professionals around the theme of diversity in engineering. Students attending CDE will hear from talented speakers who share their experience on how to embrace diversity to address the complex, interdisciplinary problems of society.

Want to know more? Check out our new conference website uwengconferences.ca, where you can find how to apply, some FAQs and read blog posts from some of our delegates who attended the CFES Congress!

See Congress, Pg 12 For More!

Coming to Events

Doing Things, Being Involved, or Not -- It’s All Good



Hey guys, we’ve survived the first month of school so far! Someone reminded me the other day that we have midterms coming up soon. That’s fine though, because we still have a few more weeks of either self-induced ignorant bliss, or well-thought-out, scheduled studies. *whispers* Choose wisely.

Event Updates

EngHack is happening this weekend! If you’re a part of it, GET EXCITED! :D

Tuesday Feb 7th – Candygrams in CPH foyer

Thursday Feb 9th – Making valentines in POETS <3

Friday Feb 10th – 7pm, Sleepover in POETS

Tuesday Feb 14th – Romantic Pics with the Tool!

Soon I’ll be spearheading an initiative to paint a mural in the Orifice! Upon the first wall you see when you walk in is what we want to make lively and colourful. Interested in submitting a design? Stay tuned to the Engineering Society Facebook page!

These days and these weeks are moving by really quickly for me, because I tend to overload myself with commitments, outings, and projects. Oops. Constant work brings a strange overlay to passing time, because every moment has to be used... and used productively. Not every moment is productive, obviously, (HAHA) but having purposes and ongoing tasks helps keep you moving. It’s like those sharks that die if they stop swimming. I started thinking about this a bit when I went to the P&P event a few days ago, where many friends and classmates made presentations for each other to describe (in varying degrees of

hilarity and seriousness) how involved and supportive they’ve been with EngSoc, and otherwise. There are so many people who are incredibly involved, and so many people who do really cool things. It comes down to is a similar theme; doing things is fun, and helping people helps you. This isn’t just about EngSoc. Whatever you enjoy doing, you should commit yourself to and let it fuel you through the things you don’t enjoy as much. If you can make yourself happier, do it. EngSoc events and outings are an easy opportunity to do things and meet people throughout the week; even just sitting in POETS is a good way to have inspiring conversations. If you love coming to events and meeting new people, do that. If you would rather stay at home and read books, or critique Netflix, that’s good too. Any hobbies or skills that you have are so vital to keep alive and active.

Finding time is hard sometimes. Especially when you have multiple labs and assignments and midterms all com-

ing up at once... we all feel that. But we make time for what matters to us. If you were to look back on this time, how would you change your prioritizations?

On an ending note, I want to credit the health inspector who saw a cow licking bread in a bakery, and passed the inspection nonetheless. He inspired bread lick poetry, and further, this piece by the lovely Clarisse Schneider.

i’m enjuhnear
and wen it’s late
i stair at screne
for ours strait
but now i’m tyrd
i’m dun wid skool
i want a tast
i lik the tool



Love Lost, and What It Means to Move On

From JobMine to WaterlooWorks, That Is



Hey engineering students!

I hope job applications have been going well for the most part, and hope the transition from JobMine to WaterlooWorks hasn’t been too bad.

Now, you’re probably questioning the title I used, so let me explain. When I’m talking about love lost - I’m not talking about the loss of a relationship with another human being. What I’m referring to is the love lost between the undergraduate student body, and the software they use to find employment. Yes, it’s official, we (the undergraduate student body) have ‘broken-up’ with JobMine, and our relationship with WaterlooWorks has just begun.

I’ll say it: I miss JobMine. I miss its functional (albeit outdated looking) UI. I miss its intuitive (relative to WaterlooWorks) design, and its simple navigation. I miss actually being able to delete files, and having applications returned to me once I’ve been rejected. However, most of all - I miss the JobMine glitch (#RIPJobMineGlitch2016).

While it certainly wasn’t a perfect relationship with long times spent apart due to JobMine’s sleep schedule (the system managed to get more sleep than me in 2B) - at least it was a consistent experience (more or less). From my understanding based on the students I’ve spoken with, and the concerns I’ve had emailed to me since the start of term - I am not the only one who feels this way about the new system versus the old.

Admittedly, being in a transitional period, we would expect some growing pains. So far, we’ve been seeing a lot

of issues come up with WaterlooWorks - more than I expected. Issues ranging from simple UI gripes like having to scroll horizontally to see all job content (even on big displays), unintuitive searching (which often returns jobs outside of the scope of your program), unexpected downtime maintenance, and even 500 internal server errors: WHERE IT SPITS BACK THE ENTIRE STACK TRACE TO THE END USER (seriously, why??). Yeah, so while JobMine had its fair share of problems and ineptitudes - WaterlooWorks has its own set of issues as well.

On a more serious note: I want to collect as much student feedback as possible from the undergraduate student body, to have data backing proposed changes to the system. This includes what the new system is doing well, what it is lacking, and what features we miss from JobMine (I doubt they’ll bring

back the glitch though - sorry). I will be putting together a survey of WaterlooWorks which I hope to distribute to all undergraduate engineering student through your class Academic and EngSoc representatives. Stay tuned.

If there are any issues you’ve witnessed with regards to the system, please report them to CECA via the feedback page on WaterlooWorks, or shoot me an email with the relevant information, and I will bring it to their attention.

As always, if you have any questions, comments, or concerns about WaterlooWorks, the co-op process, school, or just want to chat (I was serious about The Smashing Pumpkins in my last update) - please don’t hesitate to contact me at vpacademic.b@engsoc.uwaterloo.ca, or find me in the orifice at CPH 1327.

Cheers everyone! Best of luck with the job application process!

Prof Personalities

James Tung



HASAN AHMED
1B NANOTECHNOLOGY

PROF PERSONALITIES

This week, I interviewed another professor from the faculty of Mechanical Engineering, Prof. James Tung. He is an interesting professor, who's had many experiences in the industry and who pursues intriguing research interests. Overall, I was charmed by his welcoming personality and his ability to speak casually while conducting this interview. James is a very wonderful person, so this week's prof personality was super fun to write, and I'm glad I got to spend time with him.

What courses do you teach?

I teach Digital Logic and Microprocessors (ME262), Capstone Tron (MTE481/482), and I will be teaching a new course called Neural and Rehabilitation Engineering, which is a graduate course too (ME597 & ME780 grad) in the near future.

Favourite course to teach?

I like them all for different reasons, but my favourite is the capstone because students have a lot of responsibility and creativity. It's the final project so it's always interesting. I supervise about 14 groups, which all have fantastic projects in mind, and are well motivated. I couldn't be prouder.

How'd you end up as a Professor?

My background is in biomedical engineering at Guelph, went to McGill for a while, worked for a while at IBM, Kelloggs, Bayless Medical, and Sunnybrook for about 5 years. In between that I also travelled for a year. I've always liked the research part at

my job, and was encouraged to do a PhD. Sunnybrook said they would fund it, so why not? I was going to do the same type of work for a while, so I chose the PhD route. From there, I did it at UofT in a clinical rehabilitation program so I could interact with patients. Then I came to UW for a post-doc (moved around CompSci, Kin, then Tron), and now I'm a professor.

Favourite part of being a Prof?

Well it's definitely not being called Professor, I don't really enjoy that, to be honest. But my favourite would be the encouragement to think and expand knowledge and research. I have the autonomy to go after projects. Since 2014, teaching has been really rewarding. I'm very invested in how well my students do, and it hurts me when they're not doing well. It hurts me more when they're struggling through life and I care a lot about the well-being of my students.

Hardest part?

Forms are definitely the hardest part, as there's a large volume of them, multiple approvals, and arduous processes with lots of rules. It takes up a lot of my time, and limits what I can do. But involving my students, the hardest part is when I don't have control over the things they struggle with. When they're struggling mentally/socially, I don't have control over that, so I feel that pain.

Teaching philosophy?

I don't really have a single philosophy, but one thing I try is to understand individual context. Everyone has their own story/background/beliefs/expectations. You have to put that into perspective for everything. It's all important to the student so I try to understand as best as I can.

If you weren't a professor, what would you be doing?

As a kid, I wanted to be the first Canadian born Chinese player to be in the NBA, but I was so-so at basketball, and on the smaller size, so that was difficult.

So interviews are upcoming. Do you have any tips for 1B students?

Prepare as much as you can. Dress for the job, which is not always a suit. Also be prepared for common questions (strengths, weaknesses, tell me about yourself, why do you want this job, etc.) If you don't have an answer for that, it's not going to reflect well. Always have some questions prepared for them, as it shows that you have actually prepared for it.

3 tips for undergrads?

Find time to explore. You can easily get caught in the bubble of school. Student design, intramurals, activities, events, volunteer, etc. There's so much happening in university that is so important. You're going to find things you like and don't. Now is the time to find out. Same thing for coop. Find what you like and don't.

Learn teamwork. I do the 4th year capstone. It's not the course or the content that is difficult for students. It's the team. You have to do it outside of class, so learn now how to work in teams.

Mental health is real, don't be afraid to talk. Some people aren't cognisant of how real it can be. It's not responsibility of school, or the students, it's EVERYBODY. Open that up if we can. [January 25th was] Mental Health Awareness Day. If you have problems, please talk them out.

Favourite memory of undergrad?

Some of my eccentric profs shared moments in class that we continue to share.

They're fun.

One of my professors was completely oblivious to one of my classmates, messing with everything. The lights, projectors, etc., but no matter what happened, she would always have her back turned to the class.

Where have you travelled?

Southeast Asia, went with girlfriend (now wife) for 4 months in China. Highlight: 1 month in Burma. It was difficult at the time, but we still did it. It gives you perspective on developed vs. underdeveloped. Travelling always puts things into perspective. There's so many ways to do things that are not always better, but different. Not always better or worse either, because they're happy. There's no healthcare or material possessions, but people are still happy. They grow food, their climate is more tropical, and have family and friends, so they don't need as much as us.

One thing I can say that's important is people can deal with hardships in a lot of different and impressive ways, which continues to drive me. There's a lot of creativity born from harsh conditions.

My favourite places were the remote ones, as it offered a more authentic experience. We helped put together the first internet connection somewhere in rural China. Some guy brought a computer from Western China (14 hr train ride, 7 hr pickup truck). It was a tower computer, and the man asked me to fix it. So I fixed his graphics card and modem, and with that we were able to send the first email from that computer. He asked how much long distance was? I said it was about \$3 US per email, so that deterred him from sending more.

The email was a thank you to a colleague who helped find the original computer. He didn't get a reply.

Engineering Events Are Cool!



GABRIELLE KLEMM
2A GEOLOGICAL

ENGSOE EVENTS

Welcome back to my not-quite-a-column (it's a working title) where I attempt to go to as many engineering events as I can and report about them here in this newspaper. A crazy amount of engineering events have taken place in the past two weeks, but sadly your trusty reporter was not able to attend them all. This week we bring you WaterlooWorks-a-Thon and EngSoc's minor hockey league game!

WaterlooWorks-A-Thon

If any of you are first years, you probably think I'm being dramatic about WaterlooWorks; it's just a new system, we'll all adapt. But I am a firm stick in the mud and I am annoyed that I must learn to use this in my twilight years as a student (ok, well maybe it's a bit soon to be saying that but sometimes a girl just doesn't like change!). I attended WaterlooWorks-a-Thon hoping to get a better grasp of the situation, and maybe learn some things to help me get a job. Here's what some of you had to say at the event.

2A Mech and 1A Mech

Did you find this session helpful? "Yea... I didn't have any questions today but I know I'll probably think of some later." "I already spent the whole week figuring out how it works but it was nice to have someone confirm everything I figured out."

Civil 1B

"Everything really makes more sense

now, I understand what to do a lot better!"

"I'm glad there was someone here to explain everything. The session was really in-depth and went into how to upload all your documents and the process of applying to jobs, which was super helpful."

Enviro 2A

"#jobmineathon2012 I'd like to thank Tron 2020 for the plugin. Everything is fine, everything is super fine."

Chem 3B

"It was really helpful. I got to learn how to apply, what the differences between Jobmine and WaterlooWorks are. I'm so used to Jobmine at this point that having someone break it down was nice."

Geo/Enviro 2A

"I learned a few new things even though I thought I knew a lot about WaterlooWorks by going with."

"It was really good, super helpful, now I just have to create my applications!"

Good luck on the job hunt everyone, and remember, EngSoc runs tons of workshops throughout the term to help you with a variety of things from soft skills workshops in Public Speaking, to Technical Interviews, to various coding languages! Check 'em all out on the EngSoc Facebook or in the EngSoc section of this newspaper!

Cheering on EngSoc's Minor Hockey Team

About three years ago in an attempt to give back to the Waterloo community, EngSoc started sponsoring a group of "tiny children with knives on their feet" (not my words) to have fun hitting things with sticks. And yes, there was more than just puck hitting in this game, it got vicious. Last year, EngSoc



Engineering students at the EngSoc Minor Hockey Game

decided to attend one game in the season in order to show more physical support for the team and have a great morning going hoarse, cheering on a minor league hockey team.

Before attending this event, I had been to precisely four hockey games in my life. I've now been to five, but I can honestly say for a non-hockey-er like myself, this game was absurdly entertaining. All the engineers got signs supporting a player on either the Waterloo or Jiffy Lube team, or both, and proceeded to encourage from the sidelines at the tops of our lungs, much to the amusement of the parents in attendance.

It was very quickly obvious that the stronger team was Waterloo: the final score was 4-1 for Waterloo but that didn't discourage the Jiffy Lubes one bit! Each team's goalie had some pretty amazing saves, and each team had at least one pretty awesome goal. Although - my personal favourite was

when one small child would fall and take down the next three kids with him. Falling children, how adorable!

Overheard on the sidelines:

"I'm really happy to be here to cheer on the teams and give back to the community!"

"I'm on the edge of my seat with excitement! And I'm not even sitting!"

"Why are they so cute?"

So why dedicate precious sleep-in time to some tots on skates? Well as one engineer put it, "It's so nice to see the kids having fun, and seeing them rush up to the boards and recognize that it's their name on a sign!" I couldn't have put it better myself, and when the kid on my sign scored you bet I was just as proud as his mum! Well no, I probably wasn't, but it was still a good feeling.

Join me next week when I'll be covering even more exciting events that I hope to see you at!

Something's Phishy

How To Not Get Burned



HASAN AHMED
1B NANOTECHNOLOGY

Have you ever looked at the spam inbox of your email and wondered how stupid some people are to fall for those kinds of scams? Well, did you ever think that you may have already fallen for one? Scammers aren't stupid. They know how to slip by the spam filters of your email service, and they can easily obtain your personal information in the most subtle of ways. So here are some tips to prevent phishing from happening to you.

1. Make your passwords **STRONG**. They should be relatively long with special characters, numbers, lower and uppercase letters, and finally, unique. This will prevent password cracking codes from accessing your passwords using conventional methods.

2. Don't use the same pass for multiple stuff, especially important accounts. If someone gets access to one of your accounts, they may then have access to the rest, which can be detrimental, as you might not be able to reset the passwords from there if they can gain full access.

3. If it ever asks you to sign into something, don't click the link in the email. Always go directly from the site. Try not to click the link in your email either. If you're really unsure, always right click and select "inspect element" to see the code. Fake sites usually have offsetting qualities. Check the site address and make sure it's https: if it's a secure server. Always **ALWAYS** double check the hyperlink for spelling mistakes and

wrong characters.

4. Check the source of the email. I used to get a lot of emails from Scotiabank, which I found pretty odd considering I was a BMO customer. Just because it's "official" doesn't mean it's real. Have your doubts, and call banks/companies directly if you're ever unsure.

5. Change your passwords if you're unsure if you've lost any info. Accidentally clicked that suspicious link and are now paranoid that your details have been swiped? Change your password, regardless if it's true or not.

6. Check for malware and spyware on your computer. Be careful with what you download and be sure to uninstall anything that seems sketchy. Some antiviruses work well, like Bitdefender, or HitmanPro.

7. Don't be afraid of "scare tactics" like accounts shutting down, service delay, etc. You'd probably know about those directly from a source. Again, if you're ever unsure, contact the company directly.

8. Finally, report phishing campaigns when possible. It's really easy to report spam email, and takes a few seconds to do. Don't just toss it in your junk. Notify the email service so you can prevent these emails from showing in your inbox (and others) again.

With WaterlooWorks, Office365, and a plethora of other passwords you have that are super vital to your career/advancement, it's super important that you keep your identity safe. Also inform everyone around you (especially your parents) and double check if they get similar emails. Remember to always stay safe on the internet!

Google Parking?

Updated Maps Helps Find Open Spots



LEANDER RODRIGUES
1B NANOTECHNOLOGY

There's nothing more frustrating than spending an hour and a half trying to get to your favourite shopping mall, only to realize that all the parking spaces are taken, and you're forced to stress out and drive until you find a place to park (which is always so far from your destination). Google Maps is looking to fix this problem. They are in the process of implementing a very useful tool, which hopes to allow users to see information about parking before getting on the road and being disappointed when they finally arrive!

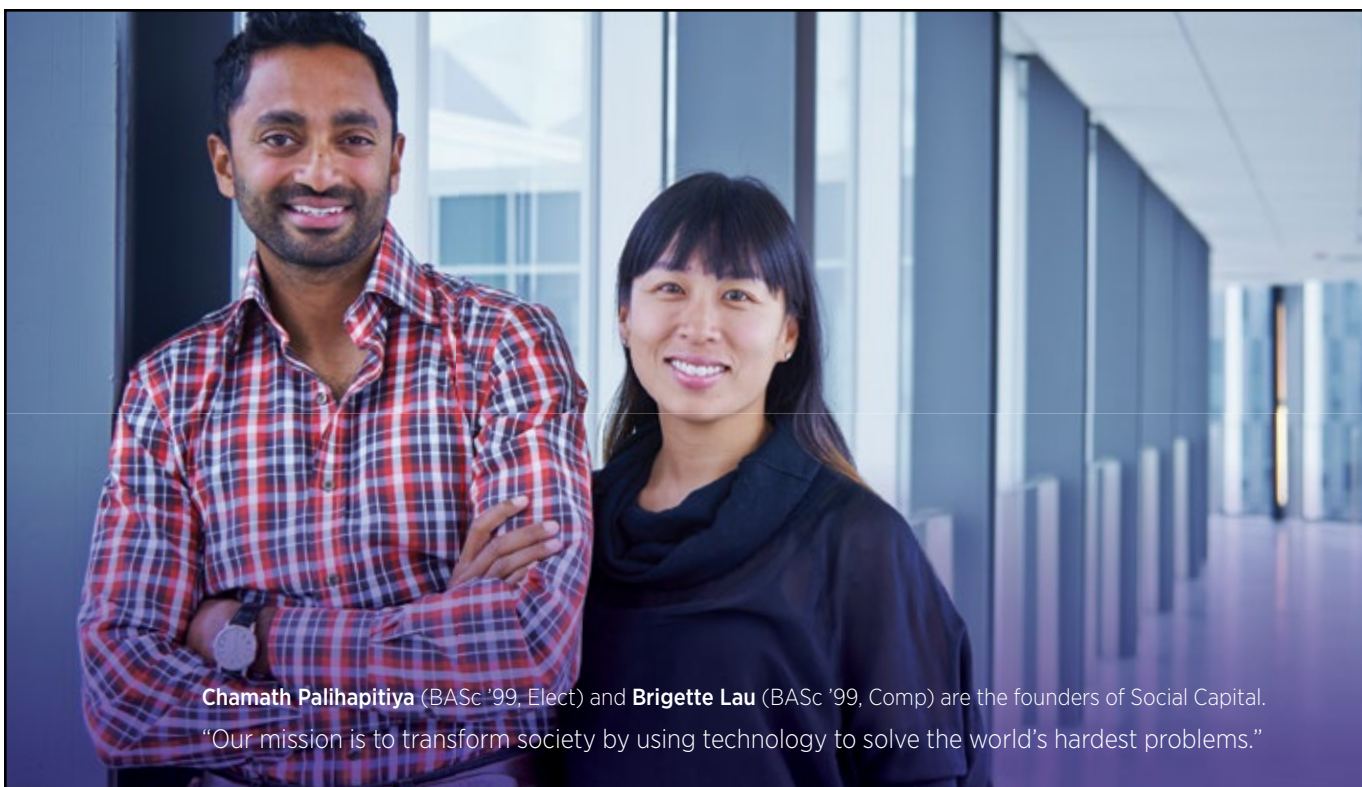
This feature is currently being beta-tested and there is nothing to indicate when it will be going public. The idea is to make users feel more inclined to plan their outings using Google Maps over any of its competitors, even over some of the built-in car GPS systems. Google has already implemented a wildly popular GPS add-on that turns your phone into an on-board system, telling you when to turn and where to get off the highway. But with the new parking feature, it can also direct you to the most available parking spaces.

The system is currently only available in 25 major American cities: San Francisco, Seattle, Miami, Atlanta, Boston, Chicago, Detroit, L.A., Minneapolis, NYC, Washington, DC, Cleveland, Dallas, Denver, Houston, Phoenix, Portland, Sacramento, Charlotte, and Tampa. The information it will give users is nowhere

near exact. It just adds a small circle 'P' icon with a descriptor to describe the parking situation at any given location. It uses words such as 'Available' or 'Limited' and changes color to give a broad estimate.

Hopefully this system will eventually be available across all of Google Maps, but for the near future that does not look like it will be the case. It takes a lot of data just to do this kind of system for 25 cities, so don't expect too much by the end of 2018. The amount of data they use and output just applying the feature for these select cities is already outstanding, but where is the data coming from? The truth is, Google hasn't said much about it, but it's been completely ruled out that there is any sort of live check system. There is no constant satellite imagery and it has been all but proven to just be estimates based on historical parking data, like how it calculates Popular Times and Visit Duration. However, Google is looking for ways to improve the feature.

Google has already started an opt-in system which will use crowd-sourced information from users in these different cities. Using users' location history, the app will then ask them questions about parking on given days to make this system increasingly accurate. Though what they have now works extremely well, this will help refine the data to be more representative. Then again, the system is still in beta, so they have plenty of time to refurbish or even scrap the idea depending on how the next few months go for those cities. Still, don't expect Waterloo or Kitchener to be on that list anytime soon.



Chamath Palihapitiya (BASc '99, Elect) and **Brigitte Lau** (BASc '99, Comp) are the founders of Social Capital. "Our mission is to transform society by using technology to solve the world's hardest problems."

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Congress 2017 Conference



TIFFANY CHANG
2A CHEMICAL

Hey, friends! My name is Tiffany, and I was one of the Engineering Society-B's delegates to the Canadian Federation of Engineering Students' (CFES) annual Congress conference. This year, the University of Western Ontario hosted this conference from January 2nd to 8th.

You may be wondering: What is Congress? Why is this relevant to me?

With my fellow delegates, we will answer these questions, share some of what we learned, and how we can potentially implement ideas from the conference and other Engineering schools across Canada to make our very own Engineering Societies as great as they can possibly be!

Conference streams are bolded, and session names are italicized.

What is Congress?

Congress is the CFES' annual, bilingual conference that serves as the "annual general meeting of the Canadian Federation of Engineering Students" and "a platform" that encourages knowledge sharing of best practices amongst "industry partners, sponsors, and fellow students".

There were four conference streams of that delegates attended: EngSoc, Leadership, Professional Development, and VP External.

The EngSoc Stream

This conference stream intended to provide strategies and actionable procedures for operating an Engineering Society, running events, and working with fellow teammates, intended for delegates who are current Engineering Society Executives.

These sessions were some of the ones that were presented to the delegates who attended the EngSoc stream. For more details about the content of any EngSoc session, please contact Abdullah Barakat, Kieran Broekhoven, Rachel Malevich, Emma Xie, or Will Wilmot.

Improving Council Reputation and Inclusivity, presented by Lora Blondin

This session detailed how to break the stigma of the Engineering Society Council being portrayed as a clique and to encourage the engagement and attendance by all members (voting or not). Engineering Society Executive could work more towards improving transparency and accountability not just to Council but to the entire engineering student body. Orientation Week is when our Engineering Society should begin engaging with students. The first Council meeting sets a key precedent to the later meetings, and our Executives should aim to provide context to everything that happens during the meeting and on what our Society is currently working on. Our Executives should also work with the Speaker of Council meetings to invest their efforts into inclusivity and adding small elements of fun into Council meetings, as this could improve how Council and meetings operate. Potential improvements that could be implemented would be to engage students on Council proceedings through social media (e.g. live tweeting throughout meetings, live-streaming them for those who are unable to attend them for whatever reason).

Engineering Culture and New Traditions, presented by CFES Atlantic Ambassador Alyson Petsche

Traditions are an essential aspect to the culture of our Engineering Society,

as they provide a sense of identity and unity, teach people about the values of the Society, and offer a sense of comfort and security, in that they help keep consistency as time goes on (i.e. establish a sense of institutional memory). Remember that traditions differ from routines and habits, as they are followed with a purpose in mind and require purposeful thought. If the demographic changes, and the intention of the tradition is no longer applicable, then our Society must adapt to meet the needs of the Society in its current state. Thus, traditions involve a fine balance of appreciating the old while embracing the new. Revamping traditions to fit the student experience is key to successfully engaging your students. The legacy of the tradition comes with proper transition and adaptation to the student experience.

Student Services Round-table Discussion, facilitated by CFES VP Services Nicole Barber

This round-table discussion allowed students of all Engineering Societies to share their strengths and area where they struggled with. Most of this session contained topics that both A- and B-Society at Waterloo already have a good grip on and allowed Waterloo to help out other schools. However, we learned some unique ways that other Engineering Societies interact with their professional networks (e.g. hosting pub nights with sponsors; having a reverse career fair where some people from industry come in and see either Fourth Year Design Projects, Student Teams or other things that Waterloo should be advertising to potential partner companies; a Résumé Roast that Carleton does, where they take a résumé and put it up on a big screen and allow people to roast it in a way that is beneficial to the student who wrote it).

The Leadership Stream

This conference stream was geared towards first- and second-year students who are interested in becoming more involved within their Engineering Societies and featured more hands-on learning and interactive activities and discussions.

These sessions were some of the ones that were presented to the delegates who attended the Leadership stream. For more details about the content of any Leadership session, please contact Grant Mitchell or myself.

Reeling Them In, Presented by Atlantic Ambassador Alyson Petsche

This session focused on networking strategies. Networking can be broken down into four stages. Essentially, have a clear goal before you walk into a networking session, prepare a minute-long elevator pitch to use as a self-introduction, be yourself throughout the conversation, and always thank whomever you were conversing with before moving on to another conversation. Always remember that all parties involved in a conversation at a networking event should benefit from this brief information exchange.

Leadership Inclusivity, presented by Leadership Development Commissioner Esther Te Linde

This session defined key terminology and covered steps/strategies to promote and advocate for inclusive communities. Inclusivity is defined as "events and situations that are equally welcome to all who attend and are involved". A key ingredient to adopting inclusivity as a guiding principle is awareness, which begins with increased empathy and respect for others' differences. A safe space that is inclusive must have ground rules, respect as the first and foremost priority, and some form of training to allow for

in-depth education about safe spaces and how to create them. When you witness inappropriate behaviour, be an active bystander: essentially, do the best that you can to diffuse the situation without putting yourself or others in harm's way.

Leadership Mistakes, presented by Leadership Development Commissioner Esther Te Linde

By addressing the many possible mistakes that one can make when they hold a leadership position, you will recognize and work on avoiding or minimizing these common mistakes. This session contained a very long, but not exhaustive list of leadership mistakes. These mistakes are probably the most common ones: being inconsistent (i.e. in your treatment of your teammates) starting strongly and ending weakly,—or vice versa—neglecting your own social or personal life, overcrowding your schedule at the beginning of a school term, setting too high standards for yourself, not differentiating the roles of teammate and friend, not asking for support when you need it, poor time management, not thinking in other people's shoes, and using gossip or secondary information to make decisions. Some of these points seemed obvious at first, but even then, it is possible that we are guilty of these pitfalls and that they have become our habits.

The Professional Development Stream

This stream intended to inform delegates who were looking to improve their professional lives from multiple lenses, which included but was not limited to prioritizing mental health, improving soft and technical skills, and optimizing your opportunities for full-time employment through co-op or internship experiences.

These sessions were some of the ones that were presented to the delegates who attended the Professional Development stream. For more details about the content of any Professional Development session, please contact Alan Huang, Rachel Malevich, or Emma Xie.

Team Management, presented by Wellness Coordinator at Western University Dr. Julia Dalphy

This session starts off by differentiating Leaders from Managers. Leaders have a more abstract vision of the goal, while Managers are more concerned with the logistics and how they can guide the team towards the goal. Effective team management ensures clear and efficient use of resources, a harmonious work environment, and an increase in overall productivity. To facilitate effective team management, develop the team and its individuals (e.g. the manager can arrange short, one-on-one meetings with each team member to know them better), and allocate sufficient resources to each member (e.g. relevant transition documents, sufficient financial resources, a flexible check-in structure with members, using project management tools); and, finally, recognize and reward a job well done (e.g. this can be as simple as saying "thank you", or you can go to the extent of acknowledging the achievement publicly).

Preventing Burnout, presented by CFES President Julie Tseng

This session provided information on symptoms of burnout and how to cope with it, in addition to helping your team cope. There are two types of burnout; commonly in student leaders we see frenetic burnout (overloading ourselves). In cases of burnout, people usually endure a lack of acknowledgment, support, unhealthy team dynamics, and perhaps

repeated failures. Prevention strategies include allotting time instead of "making time", to-do lists, knowing when to treat yourself, and boundaries. To cope, ensure that your team is aware of how you are feeling and that you need time and/or support. As a team member to someone who is enduring burnout, it is important to be the person who can connect them to resources (e.g. counseling, support groups).

Successful Internships, presented by CFES National Councillor Allyson Francis and CFES Ontario Ambassador Amir Kiassat

This session focused on how to turn a co-op into a full-time job and how to make the most out of a co-op position. To maximize your chances of getting a full-time job out of co-op positions, Allyson and Amir advised delegates to rise to challenges and take on jobs that highlight your strengths. Taking on challenging and impressive tasks is a trait that all employers look for in their full-time hires. In particular, meeting colleagues from different teams and upper management in the company increases your potential of getting hired by any team. Act like you are a full-time hire (i.e. be accountable and professional, take ownership of your work) to convince management to perceive you as a full-time employee. Making the most out of a co-op includes all these areas, in addition to asking your supervisor to expand or refocus your role, if you find yourself in an unideal project or team; and look for learning opportunities any and everywhere, as requesting work that may be out of your current comfort zone can earn you both hard and soft skills—a huge asset in landing future co-op or full-time positions.

The VP External (VP Ex) Stream

This conference stream gathered the VP External and VP Communications from all the Engineering Societies across Canada for Plenary. In Plenary, delegates debate and discuss various motions that are brought forth to the Canadian Federation of Engineering Students. It was very exciting to watch; I felt as though I was witnessing United Nations calibre proceedings unfold before me!

For more details about the motions that were brought forth during Congress, please contact VP Communications-A Steven Jia or VP Communications-B Melissa Buckley.

Congress is a fantastic conference where you learn about what other Engineering Societies across Canada are up to, network with fellow engineering students, and open your mind to fresh ideas and perspectives.

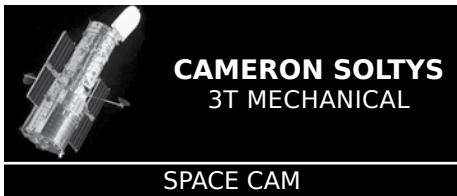
If you are more of a visual person, I highly recommend you to check out this video of our Congress experience, made by A-Soc's VP Communications Steven Jia: <https://tinyurl.com/uw-engsoc-attend-conferences>.

B-Soc's VP Communications also made an awesome new conference website, with all the conferences that the Waterloo Engineering Society attends and so much more: <http://www.uweng-conferences.ca/>.

For full coverage of all conference sessions that we attended, please refer to this document: <https://tinyurl.com/congress-2017-all-sessions>.

If any content from any conference session has piqued your interest, keep in mind that you do not have to currently be the most involved individual in Waterloo's Engineering Society: all you need is to take the initiative to begin your involvement and apply to future conferences!

Psyche and the Metal Asteroid



CAMERON SOLTYS
3T MECHANICAL

SPACE CAM

NASA recently announced that they will be pursuing two new unmanned missions. The missions, Lucy and Psyche, are both “Discovery Class”—the name of their lower-tier missions. Previous Discovery missions have included the Mars Pathfinder, recently brought back to center-stage by its role in the book *The Martian*; and Stardust, the first probe to return samples of a comet’s tail to Earth. These are narrowly-focused missions that are designed to answer specific questions about planetary bodies. This is in contrast with the Flagship missions like Cassini, which are designed to do detailed and wide-ranging research; and mid-range New Frontiers missions like New Horizons and Juno that fall somewhere in between.

There were five missions in the running for funding from the Discovery program this year. Two Venusian missions and an Earth-observation mission completed with Lucy and Psyche, which are both directed at asteroid observation. As noted by the Planetary Society, there has been a drought in missions to Venus in the previous decades. NASA Planetary Science head, Jim Green, was reported saying that each mission was assessed on its own merits; the Venus missions, unfortunately, came up short.

Lucy, the first mission to launch, will be

heading out as far as Jupiter. Specifically, it will be heading to the Trojans and Greeks, two groups of asteroids that are in orbits associated with Jupiter. The two groups are so referred because the objects within each group are named after characters from the Greek myth of the Trojan War. The Greek bodies orbit the Sun at a location known as Jupiter’s Lagrange Point 4 (L4). This is a point 60° ahead of where Jupiter is in its orbit around the Sun. Objects in this location are in stable orbits, forced to remain there by the gravitational interactions of Jupiter and the Sun. The Trojans are similarly located at L5, 60° behind Jupiter.

Psyche, which will launch in 2023, will be heading to an asteroid of the same name. It is one of the largest asteroids in the solar system, and the largest of the M-type metallic asteroids—asteroids that are made almost entirely from metal. This mission has gotten more of the hype that Lucy has, perhaps with good reason. While Lucy will undoubtedly make many terrific findings during its tour of the Jovian trojans, Psyche is exploring a never-before-visited type of asteroid. It also helps that there was an attention-grabbing headline for Psyche that Lucy couldn’t match: NASA to Visit 10 Trillion Dollar Asteroid (although, curiously, most articles seemed to say 10 000 Quadrillion dollars instead). The assertion is true but, unsurprisingly, misleading. Psyche is made primarily of nickel and iron, just like the Earth’s core; it is speculated that Psyche is the remains of a protoplanet that formed in the asteroid belt, but had all of its

rocky exterior pounded away by impacts. If one could get all of that metal back to Earth, along with the smaller amounts of rare metals like gold and platinum that are assumed to be present, it would sell for the aforementioned sum. However, it would cost an enormous amount of money to retrieve any of that material. It will probably not be worth it for a long time, with iron being an abundant metal on Earth.

While the 1×10^{19} price tag on this asteroid is ridiculous, the concept of mining asteroids may not be. Several companies have formed with the purpose of starting commercial ventures centered around the prospect. One is Planetary Resources. They are currently working on designing and testing cheap (relatively speaking) prospecting probes that they could send to observe and land on potentially-mineable asteroids. Their current plan, as laid out on their website, is first target the numerous water-bearing asteroids—some of which Lucy will fly by. After retrieving the water, they can turn it into rocket fuel in the form of liquid oxygen and hydrogen. This fuel could be sold to other companies, many of whom will be clamoring at the chance to escape the tyranny of the rocket equation by refilling their spacecraft in space. It could also be used to fuel Planetary Resources’ own fleet of metal-mining ships. These mining drones could then harvest precious metals and return them to Earth, or could harvest the non-precious metals and use or sell them in space, once again avoiding the high costs of lifting material out of Earth’s gravity well.

This discussion of metal asteroids raises some interesting political and legal questions specifically tied to the 1967 Outer Space Treaty (OST). This treaty, signed at the height of the Cold War and in the context of the race to put humans on the Moon, forms the basis for international space law. Among other things, it prevents nations from laying claim to any objects in space, except those that it launches from Earth. This has caused some concern to would-be asteroid miners, who are worried about their ability to stake out an asteroid for mining and their ability to enforce any claims they make.

To inspire more development in outer space commercialization, ex-US President Barack Obama signed the U.S. Commercial Space Launch Competitiveness Act in 2015. This act recognizes the right of US citizens to own resources they obtain from asteroids. This act is controversial because it may be in conflict with the OST, especially depending on how it is implemented. To comply with the OST, the US would have to assert its citizen’s right to a contested asteroid without asserting that the US owns the asteroid.

Two new missions are, as always, exciting. These missions will mean more research and more discoveries. Lucy is embarking on an odyssey that will take it from one side of Jupiter’s orbit to the other. Psyche’s mission is to visit a type of body that, at some point in the future, will have enormous political, economic, and legal importance. It is, as always, an exciting time in space exploration.

Can The Nintendo Switch Compete?



ALEXANDER LEE
4B NANOTECHNOLOGY

Last October, Nintendo announced its next-gen gaming console, the successor to the middling Nintendo Wii U, named the Nintendo Switch. As with previous iterations of Nintendo consoles dating all the way back to the original Nintendo Wii and the handheld Nintendo DS, the Switch attempts to innovate on and revolutionize traditional console designs. In this case, the biggest innovation is the modular Joy-Con controllers. The console is due for release on March 3, 2017. The buzz about the console has been intense and Nintendo reports that preorders have already reached 80% of launch day availability. However, it has significant ground to catch up on the Xbox One S and PS4 Pro, Microsoft and Sony’s iterative improvements to their previous consoles, both of which launched last fall.

Nintendo has had a history of innovation in the console market. In 1983 they were one of the first in the business with the Family Computer, or Famicom, better known as the Nintendo Entertainment System (NES) in the west. They also were one of the first in handheld gaming with the iconic Game Boy in 1989. Nintendo also took a stab at virtual reality before it was cool, releasing the Virtual Boy in 1995, which proved to be a failure. In 2004, Nintendo released the dual screen handheld Nintendo DS, and in 2006 they released the Nintendo Wii with its revolutionary motion controls. In 2011, the Nintendo 3DS was released which featured a glasses-free 3D display, and then launched the Wii U, a hybrid handheld/TV console which was financially unsuccessful. This long history of innovation, both successful and not, leads us to the Switch.

Since its announcement, the Switch had generated significant buzz and information has been revealed about it. While primarily designed as a home console, the Switch

console can be used as a handheld device as well. The console comes with a 6.2 inch LCD screen that can support up to 720p resolution, which can be used when the console is disconnected from the dock. When docked, the console supports up to 1080p and 60 frames per second. However, the true innovation the Switch brings to the world is contained in the controllers, collectively known as the Joy-Con. While Nintendo has experimented with controller designs before (see the N64 controller which required three hands), the Joy-Con takes this a step further. The Joy-Con is modular, and can be attached to the console when in handheld mode, used freehand like the Wii remote and Nunchuk extension, or attached onto a frame called the Joy-Con Grip to be used as a gamepad. The Joy-Con consists of left and

right controllers which have familiar features such as the ABXY buttons, the D-pad and analog sticks. They also feature gyroscopic motion-sensitive controls which have been touted to be able to provide very detailed, precise tactile feedback. The Joy-Con looks to be truly visionary, allowing players to play however they want.

So how does the Nintendo Switch stack up vs. its competitors, Microsoft’s Xbox One S and Sony’s PS4 Pro? Well, as is typical with Nintendo machines, the Switch does not quite match up specification wise, meaning that the PS4 and Xbox One S will still be able to provide better graphics and games that require more intensive machines. However, it would take a truly ambitious game to make use of the full power that the rival systems have to offer, so the majority of games will

run just fine on all three systems. Obviously, the advantages the Switch enjoys are its innovative handheld/console functionality as well as its modular controllers. Pricewise, all three come in around four hundred dollars. This is compared to the Wii and Wii U, which had the advantage of being around 75% of the price of its competitor. However, at the end of the day, the most likely point of divergence is in the exclusive games - the ones that are only on one console and not ported to all of them. As always, the console with the better exclusive games will probably be seen as the most successful in the long run.

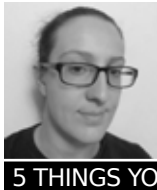
Nintendo has generated considerable hype with the Nintendo Switch, but it remains to be seen if it will match the success of its predecessors such as the Wii. A stance of cautious optimism is probably best.

WIN CASH
EVERY
WEDNESDAY

LE SHIN SWAH
★
TABLE TENNIS
LEAGUE

Join our Le Shin Swah Table Tennis and Foosball League.
Register at www.leshinswah.com

Historically Weird Protests



CAITLIN MCLAREN
4A CHEMICAL

5 THINGS YOU DON'T WANT TO KNOW

As readers will know, the thesis of this column is that all people, in all time, are ridiculous. Politics don't enter into it - all sides have their absurd foibles. However, these are what are generally (and often pejoratively) referred to as interesting times. Since protest is the word of the day, protest it shall be.

Protests have a long and storied history, and are by nature transgressive. Humans being what they are, some protests have gotten weird.

Shooting the moon

Everybody loves a good mooning; it's a very in-your-face way to show disrespect. It shows up in all cultures, whether you're Braveheart, a Roman soldier, or Ozzy Osbourne. The Maori traditionally call mooning someone "whakapohane", which is probably have the best word ever used for baring your buttocks. My personal favourite historical moon-er is Liam Warriner of Australia, who ran alongside Queen Elizabeth's motorcade while clenching an Australian flag between his buttocks. Apparently, this was to protest economic inequality. That'll show her.

However, Warriner is dwarfed by the several hundred Sarnia residents who gathered together in 2009 in order to perform a mass mooning of an American surveillance balloon hovering nearby. Now that's a cause I can get behind.

Haystack Cookies



BRYAN MAILLOUX
3A MECHATRONICS

HALF-BAKED

Welcome back to this issue's installment of Half-Baked. As promised, I'll be featuring dessert today, namely cookies!

Ever tried to bake anything in the oven? Well, probably if you tried last issue's featured recipe. But have you ever left anything in the oven for too long and had it burn? That's a problem I've had waaaaay too often. And it's always a sad day when all your hard work literally goes up in flames. Like, all you wanted was some yummy goodness and all you got for your efforts was charred disappointment. If you're brave, you might try to still eat whatever you tried to cook... but it's always terrible compared to what could have been.

Maybe some incident like that turned you off from cooking forever. Maybe your greatest cooking achievement so far has been not screwing up pasta. Or maybe you're a cooking god, able to cook 5 different dishes at the same time. Well, regardless of your skill level, this recipe is definitely for you.

Haystack Cookies (makes 8 medium or 16 bite-size cookies)

Ingredients:

- 1/2 cup margarine
- 2 cups sugar (if you're eating healthy, 1 cup will give enough of a sugary taste without sacrificing flavour)
- 1/2 cup evaporated milk
- 1 teaspoon vanilla flavour (artificial vanilla works just as well as real vanilla and is a lot cheaper)
- 1 pinch of salt (optional)
- 6-7 tablespoons cocoa powder
- 3 cups oatmeal (quick oats works pretty well)

Clowning Around

Let's talk about something funny and totally not worrying in any way: anarchist clowns! What do clowns have to do with protesting, you ask? Well, clowns can protest too! Just ask the Clandestine Insurgent Rebel Clown Army, who operate in Britain and protest things like war and globalization. Apparently, they dress up as clowns to be less threatening, which shows that they are not well versed in popular culture. They are nonviolent, although sometimes they carry water pistols and feather dusters, and will very rarely steal anyone's soul.

Meanwhile, another group of clowns appeared on the scene recently in Finland. They were accompanying the "Soldiers of Odin", a white supremacist, anti-Muslim, anti-immigrant gang of thugs who fancy themselves to be badass Norse warriors. On one of their marches in January last year, a bunch of clowns showed up, only to be joined by counter-protesters dressed as actual clowns. The "Soldiers of Odin" marched along, singing and dancing, carrying a flag that said "Sieg Fail!" The Soldiers of Odin bravely left the scene, and the puzzled clowns declared that these guys must be better clowns than they were, since people laughed at them more.

Food Fights

One of the most traditional ways to show displeasure is by throwing rotten tomatoes or eggs at them. Not only do these make a mess, but they also smell bad and go "splatt!" in a very satisfying way. Or so I've heard.

Food can be used in protests in many ways, though. For example, when George W. Bush was elected President, he jokingly

said that he hated broccoli and would not allow it in the White House or on Air Force One. Disgruntled broccoli farmers proceeded to dump several tonnes of broccoli outside the White House.

In 2012, dairy farmers protesting low milk prices decided to hose down the European Parliament with milk, along with police officers. If you don't think that is too bad, imagine how the whole area would smell when the weather got warm.

However, the food protest that got the most out of hand ended up creating a popular festival. Supposedly, in the 1940s, angry citizens in Buñol, Spain began pelting their town councilmen with tomatoes during a festival. Everyone enjoyed this so much that they started doing it every year. Today, around 30,000 people take part in La Tomatina, an annual gigantic tomato fight. For bonus points, the festival is kicked off by people attempting to climb a greased pole and retrieve a ham, for reasons that remain mysterious to me. Maybe they are Freudian.

Hanging from Fishhook Piercings

No one likes animal cruelty. That's like Level 1 of empathy. Unfortunately, some people fail even that; hence, the barbarous practice of shark finning. Since the fins are the most popular part of the shark to eat, some fishermen will just cut the shark's fins off and toss the rest back in the water, since it is less valuable. Frequently this will be done without killing the poor shark, which will not be able to swim and will sink to the bottom. Since sharks need to swim continually to keep oxygenated water flowing over their gills, they will die of suffocation. Or get ironically eaten by fish.

Hello Internet



RATAN VARGHESE
2A ELECTRICAL

RA(TAN) LINES

"What you're really looking at is a thin layer of meat on top of some bone with some watery sacks in the middle that look out at you as well. That's what a face really is," said CGP Grey.

"Wow, Grey, that's lovely. Was that part of your wedding vows?" replied Brady Haran.

Did those last sentences excite you? Disgust you? Well, then you know what to do with the Hello Internet podcast, at least with episode 42, "Hello and Always". The rest of you may appreciate some explanation.

Hello Internet is a podcast where CGP Grey and Brady Haran talk about stuff. It is part of a genre that they call "Two Dudes Talking", and as usual for this sort of podcast, the appeal depends on how you feel about the two dudes. CGP Grey is cold, inflexible, sarcastic and has a deep disdain for material baubles. He has more faith in systems, behavioural or mechanical, than in sudden shifts of will and emotion. Brady Haran by contrast is warm, sociable, sentimental and earnest. He has a strong sense of wonder and is kind of childishly charming. Let's not get too overboard here, he is also very interested in plane crashes. While they both create educational YouTube videos their pattern of production is different as well. Brady makes the most of his background in the press by interviewing prominent scientists and mathematicians and uploading their explanations extremely rapidly. CGP Grey, meanwhile, produces one short, informationally dense video with stick figures every few months. The differences in personality and lifestyle of these

An artist named Alice Newstead was so outraged by this practice that she decided to protest in a way that would definitely snag some attention. She had her back pierced with two huge fishhooks, and hung in a Parisian boutique window suspended by them. This lasted for about 15 minutes, which were probably more painful than any 15 minutes a lot of us have had.

Seriously people, shark finning is not cool.

Holes Too Big

Once again, Canada shows up in the crazy protests article! And once again, it involves nudity. I am a little worried.

In 2006, conditions on one length of highway in Saskatchewan were incredibly bad. Potholes were so big that you could literally float a canoe in them. Of course, citizens tried to get the province to rebuild it, but there wasn't a lot of interest. How, then, to get the government's attention?

This being Canada, a loud, aggressive campaign wouldn't do. What else are government officials interested in? Nudity, of course!

A group of Saskatchewanians (Saskatchewanites? Saskatchewaners?) decided that they would make a nude calendar. Not a regular nude calendar; a highway pothole nude calendar. Locals took pictures along the highway, sitting in potholes, sitting in canoes in potholes - you name it, all while in their birthday suits. Proceeds from the calendar were enough to pay for re-roofing a community centre, and it did get the attention of the government, who finally fixed the highway. The moral of the story: if something annoys you, get naked and try to embarrass the problem into going away.

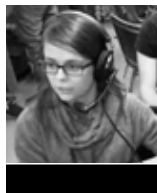
two dudes is the main entertaining aspect of the podcast.

Comparing Grey and Brady's actions on YouTube and in podcasting shows the differences in the two mediums. Each podcast episode is over an hour; in fact it is very often multiple hours. Instead of their extremely well-researched YouTube talking points, the hosts make unguarded guesses and discuss anecdotes from their personal life. When a scientific or technological topic comes up, it is sometimes clear that they did no homework at all. CGP Grey fans may of course find it odd to hear Grey even talk to someone in a two-way conversation. While educational at times, education is not a core attribute of the podcast. *Hello Internet* is a collection of entertaining, heavily edited records of two dudes talking.

There is no single focused theme, although there are topics that pop up multiple times. The hosts often discuss items in order of increasing depth, starting with Brady's minor complaints about the world, some observations from recent trips, anecdotes sent in by the audience, uncommon habits, flags, emojis, animals and misused words. Eventually they often arrive at big issues involving Brady and Grey's livelihoods, a book or television show of great depth, politics, law, the nature of social interaction, the existence of free will and existential threats to the human race. There are some special episodes where Grey takes a quiz made by Brady, or regarding the *Hello Internet* flag referendum, or one of the recent *Star Wars* movies is discussed.

Hello Internet updates every few weeks. I've been waiting an unusually long time for a new episode but maybe by the time you read this, it will be released. "Look, I'm not saying there's a Hello Internet in the works but, you know, I'll just leave this link here." reads a recent tweet by Grey. The link was to the podcast's subreddit, which is a thing by the way.

What's In a Name? Elemental Etymology



MEAGAN CARDNO
4B NANOTECHNOLOGY

CHEMHISTORY

For many of us, even in engineering, there are only a select few elements on the periodic table that are of interest to us in our lives – usually those in first two or three rows, and whose names rhyme with carbon. However, it sometimes is rather obvious when looking at the known elements and their associated symbols that some funny business is going on with the naming conventions. Perhaps the origins of some names, such as Bohrium or Californium, probably do not need to be explained, as we as humans do so love to name things after people and places – so much as we even give the habits their own names, referring to substances named after people as “eponymous” and after places as “toponymous”.

Of course some naming conventions are

more creative than others – cerium, element 58 and a lanthanide, was discovered in 1803 and named for the dwarf planet Ceres, which was discovered two years earlier – although at the time, it was believed to be an asteroid. I guess it was selfless of Swedish chemist Jöns Jacob Berzelius to not name it after himself, but he could’ve at least named it after his cat or something. The now-planet/then-asteroid Ceres itself was already named after the Roman goddess of the same name, goddess of fertility and agriculture, which makes it even more absurd of a name to consider. I guess whatever floats your boat, Berzelius.

There are more mythical etymologies we can explore as well. Helium was named for the sun and its god, helios, and mercury for the god and planet of the same name. However, Mercury is also listed to the frustration of high-schoolers everywhere with the symbol of Hg, two letters which are not used when spelling mercury. This stands for the Latin term hydrargyrum, meaning “water(hydra)-silver(argyrum)”, referencing

its silvery liquid state at room temperatures.

Perhaps you might guess then why silver is given the symbol Ag – or perhaps you just remember that argent is French for Silver. Either way you’d be correct, as both come from the Latin root argentum, describing something shiny or white. This is also the namesake of the country we know today as Argentina, which was visited out by many European explorers for mythical “silver mountains” containing large amounts of the valuable metal. But then, where did the English term “silver” come from then? It’s the descendant of the term used by ancient cultures in reference to the precious metal long before it was designed as an element, including known Anglo-Saxon spellings such as seolfor and siolfor, or Germanic spellings like silabar and silbir.

Don’t let this confuse you about the phonetically similar noble gas, argon. Its name is a direct romanization of the word ἀργόν (argon), which literally means “inactive” in Greek. You can probably guess why the highly non-reactive gas was

given this name. It’s noble cousin, krypton, was named similarly for its properties, from the Latin kryptos, where we also get the adjective “cryptic” or the study of cryptology. The term means “hidden”, referring to the element’s elusiveness both in rarity as well as in measurement, being colourless, odourless, flavourless, and just as non-reactive as the other noble gases.

This only begins to scratch the surface of the odd but unique origins of the origins of words – iridium comes from the same root word iris that we give to the coloured part of our eye and the vibrant flower due to its salts being known for their bright colours, while the “Pb” symbol of lead comes from the Latin plumbum, which is where our modern term of “plumbing” originates due to lead being widely used as plumbing material. Next time you wonder why something is spelled the way it is or referred to in an odd way, perhaps take a look into the etymology – you might just find a hidden story written amongst those phonetic similarities and silent letters.

Discover Broadway

Ramin Karimloo



TIFFANY CHANG
2A CHEMICAL

DISCOVER BROADWAY

Welcome to another edition of Discover Broadway!

We will continue our journey through the wonders of musical theatre. This term, however, I hope to enrich your experience and knowledge of this great art by exploring some behind-the-scenes gurus, underrated performers, and the history of this art.

As promised in the last installment, we will explore some of the work of a Canadian performer, best known for his work in London’s West End.

Ramin Karimloo is an Iranian-Canadian actor and singer. He was inspired to become a performer thanks to Colm Wilkinson, who is considered one of the beloved performers

of musical theatre and was touring in *The Phantom of the Opera* in Toronto at the time. Thanks to a class trip, Karimloo fell in love with *Phantom* and set his eyes out for earning the title role.

Little did he know that he would achieve his goal—and then some.

Karimloo’s first role may not have been the Phantom, but his West End debut was the role of Feuilly in *Les Misérables*, in which he also was understudy for the roles of Marius and Enjolras.

A year later, he took on a lead role in *Phantom* as Raoul.

More recently, he starred as the Phantom in Andrew Lloyd Webber’s sequel to *Phantom*, *Love Never Dies*, alongside Sierra Boggess as Christine Daaé. They had great chemistry together, despite the sequel not living up to the original—obviously—so it was no surprise that they reprised the two roles for three performances in *The Phantom of the Opera* at the Royal Albert Hall in honour of

the musical’s 25th anniversary.

The staging of this anniversary performance was fairly different than the Las Vegas version that I saw around six years ago, which was already modified from the original version of the musical. However, Karimloo was a fantastic Phantom; his lilting, seductive voice certainly suits the role. He plays the both sides of the Phantom—vengeful and deadly versus soft and vulnerable—extremely well. His line, “Insolent boy!” at the beginning of “The Mirror (Angel of Music)” resonates in the Albert Hall, striking fear into the audience. He is a dangerous, riveting Phantom, but one with which the audience can sympathize.

My favourite performance of his was when he played Jean Valjean in the Toronto production of *Les Misérables* in 2014. I was so incredibly blessed to have seen his performance—unlike my friend, who watched the show with Karimloo’s alternate or understudy in the role of Valjean. Karimloo was a shining star throughout the show. In

particular, there was not a single dry eye in the house during his rendition of “Bring Him Home”—his falsetto certainly did the heaven-bound prayer more than justice.

In addition to his contributions to musical theatre, he also has a number of the solo albums under his belt. Many songs are musical numbers, such as an acoustic version of “Bring Him Home” from *Les Misérables* and “Til I Hear You Sing” from *Love Never Dies*.

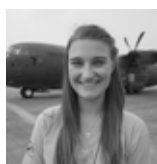
As one of the founders, Karimloo is currently on a U.K. tour with The Broadgrass Band; “Broadgrass” is a genre of music that he created and combines Broadway showtunes with traditional bluegrass instrumentation (such as banjos).

Karimloo is definitely a performer to look out for in the genre of musical theatre. Personally, I cannot wait to see to which show his career propels him next.

Thanks for joining me on another musical adventure. Tune in next time!

Can Netflix Sustain Its Rise?

10 Years of Binge Watching



GABRIELLE KLEMT
2A GEOLOGICAL

I blink my eyes and stare blearily at my phone. 1:32 AM. When did that happen? Surely it’s not already one thirty? I had so many plans; I was going to finally start sewing those patches on my covvies, what about that coffeeshop I was supposed to go check out earlier? Wasn’t there some event that I was going to go to? Do I have work in 6 hours? Slowly my day starts to unwind in the back of my mind like a movie reel. Waking up bright and early and full of intentions, turning on Netflix to pass the time with breakfast...

Now it’s coming back to me. There was that show everyone was talking about, they said it was good but it couldn’t hurt to watch one episode. Now, hours later two seasons in and no snack food left in the house I feel defeated by the beast that is Netflix. How is it that all will to move can have been drained out of me by the desire, the innate need to watch the next episode!

As humans, it’s in our DNA (total scientific research went into this) to binge on

things we love, and there’s no way that’s changing any time soon. There’s no doubt in my mind that Netflix will continue streaming as long as there’s demand, which is great for me and my bad habit. What I think will change is what Netflix is, and pretty soon they’re going to turn into more of a production company, which they’ve already begun doing considering how much original material they put out just this past year compared to three years ago.

It’s hard to believe, but it was actually in 1997 that Netflix started out. Happy 20th, compadre! In the beginning they simply rented DVDs, but in 1999, they upgraded to the monthly subscription format which allowed you to rent as many movies as you wanted for a month. In 2007 Netflix moved to their much more well-known streaming model online. In 2013 Netflix released its first original TV series, *House of Cards*, and life as we know it changed. It was the first online only show to receive Emmy nominations and it brought Netflix into a much brighter spotlight.

Do you remember when you first started talking to your friends about Netflix? Do you remember when it first started really showing up in pop culture? I don’t either but reading that apparently it has been

around for my entire life was quite surprising. Netflix has managed to worm itself so deeply into our culture that it’s hard to imagine a future without it.

It’s no secret that arguably the best shows in the past few years have come out of Netflix. Yes, there are some outliers but Netflix has created a formula that works so well people can’t stop consuming it. When you make every episode available at once the way Netflix does, you’re able to create a huge movie in bite-size segments. The movie industry tried its hardest with this; think of the seventh Harry Potter movie, then try really hard not to think about the *Hobbit*. They knew there was just way too much content to satisfy the fans with one movie, so they tried and ultimately failed, to make everyone happy by splitting the book into halves, creating a trend Hollywood just won’t quit even though they really should. Netflix, with its small episode-sized sections, can do the same thing so much more effectively because there’s no need to make each episode into a whole movie. Additionally, they’re able to create tons of content themselves because they already have so many viewers waiting for it.

So, since it has now officially been 10 years since Netflix started offering us the

ability to watch all of the shows (well, not all of them, where’s my British TV at?) all at once with the click of a mouse, is it possible that Netflix will continue to innovate for the next 10 years? Or maybe even the next 50? While the content coming out of Netflix is very high right now, especially considering the low quality of a lot of other media, they probably can’t stay in this area of creation and streaming of content.

So do I think Netflix can sustain its rise? You better believe it. And I can’t wait, especially if it means I get to continue to watch some of my favourite book series turned into fantastic mini-series rather than shitty movies. Netflix is going to get bigger and bigger but I don’t think it will stay the same streaming site it is now. It’s going to go into live shows and production and turn into some kind of on-demand cable/production house. Yes, one day it will stop producing the loveable indie shows we’ve come to expect from it and the content will get stale, but that will be when it’s old and fat like most of us and some new kid will come on the scene with some great new ideas. For now, I’m going to continue watching *A Series of Unfortunate Events* if you’ll care to join me, and await something new to feed my procrastination.

Red Hot Maple Leaf Rookies



**ELIZABETH
SALSBERG**
4B NANOTECHNOLOGY

THE BENCHWARMER REPORT

Mitch Marner and Auston Matthews. Do these names ring a bell? If not, they should. These 19-year-olds have led the Leafs to within a point of the third and final playoff spot in the Atlantic division and the wild card. With a 23-15 record at the all-star breaks, these Leafs have already dramatically improved since last season, in which they won only 29 games in what was rightly termed a re-building year. The result? Marner went back to Junior and ate up the competition, not only winning the Memorial Cup but was also awarded playoffs MVP. Currently ranked first among rookies for assists and tied for 2nd in rookie scoring, magic happens every time Marner touches the puck. Matthews, the first overall pick of the 2016 draft, has not disappointed, as he is ranked fourth overall in goal scoring (tied with Alex Ovechkin, and first among rookies) and tied with Marner for 2nd in rookie scoring. Oh yeah, and Matthews will also be an all-star. Impressed

yet? That's what I thought.

Behind the two phenoms are six more rookies, including forwards William Nylander, Connor Brown, Zach Hyman, Nikita Soshnikov and stalwart defensemen Nikita Zaitsev. Hyman and Brown play on either side of Matthews on a dynamic top line that has been too hot to handle even among the best teams in the league. While they are certainly potent offensively, the top line has not slouched on the defensive end either. Led by the speedy Hyman, ever-ready to sacrifice himself to block shots and the fantastic play of Matthews away from the puck, these guys back check and they mean business.

Speaking of defense, Zaitsev has been absolutely sensational playing alongside anchorman Morgan Rielly. What a great find for the Leafs who signed the 25-year-old undrafted Russian in the offseason. Zaitsev played with fellow countrymen Alex Ovechkin and Evgeni Malkin in the World Cup of Hockey, and boy, now we know why. Ranked third in blocked shots (77) and fifth among rookies in assists, Zaitsev brings it at both ends of the ice. With Rielly out with a recent knee injury, expect Zaitsev to shoulder some of the extra load down

the stretch.

Soshnikov, the other Russian rookie, has also impressed despite playing on the fourth line. He is a speedster with skill and a demon on the penalty kill, especially with fellow penalty killer Zach Hyman. When James van Riemsdyk eventually leaves (hopefully via trade), Soshnikov is as good a candidate as it gets for the extra ice that opens up. His speedy and defensive playing style is well suited to playing alongside third-line centre Nazem Kadri, where the talented young Russian will almost certainly get more chances to put the puck in the back of the net. There will of course also be the opportunity to play him with any of Brown, Marner or Nylander... etc.—it's really only a matter of time.

With all this excitement around the Leafs, it's tempting to ask why they don't go all in for the final piece of the puzzle, a good, young puck-moving defenseman. It's a hot commodity around the NHL these days and the only one currently available is the Blues' Kevin Shattenkirk. Shattenkirk would be strictly a rental, since he becomes a free agent at the end of the season. The Leafs brass has been pretty adamant about sticking to the rebuilding plan, and in

that regard they are absolutely right. The Leafs should not be making any moves at the deadline. Maybe they make the playoffs this year, maybe they don't. But they still aren't a serious Cup contender anyway, so there's no point in rushing things.

That being said, it may be worth trying to sign Shattenkirk as a free agent in the offseason just as they did to get stellar goaltender Frederik Andersen. Shattenkirk (27 years of age) is in his prime, and brings some veteran presence and playoff experience to an otherwise very young team. Racking up 44 points last season plus 19 in the playoffs, it would make some sense to sign him to a four or maybe five-year contract, if MLSE is willing to cough up the cash. These types of players don't come around very often, and the Leafs are generally ahead of schedule as far as the rebuild is concerned—we also don't have any promising defensemen coming down the pipe up from the minors.

No matter what happens with Shattenkirk, the Leafs will look to continue surpassing our expectations over the second half of the season. It's a grind, and there will be some wear and tear, but it's going to be great fun to watch!

It's Almost Super Bowl Time!



**DONOVAN
MAUDSLEY**
3B MECHANICAL

I have a horrible record predicting the Super Bowl. I've lost every year for the last three. I chose the Denver Broncos over the Seahawks (AFC West = AFC Best), the Seahawks over the Patriots (they surprised me last year), and last year the Carolina Panthers over the Broncos (the Broncos let me down before). Last year's loss was the worst though, because I made a bet with then-EIC Raeesa, and I had to write a full article about how the Panthers got crushed. Pure cruelty. This year, I'm just going to lay out the facts, and you can bet for yourself.

The New England Patriots and their

quarterback Tom Brady are playing the Atlanta Falcons. Brady gets a lot of credit for how well his teams have done over the years. If the Patriots win, Brady will win another Lombardi trophy, which would make him the only quarterback to win five. Brady put together a terrific season after having to sit out the first four games with a suspension. Many even believe that he would've been up for league MVP if he wasn't forced to sit out. The Vegas odds at the time of this writing have the Patriots winning by 3.

The Atlanta Falcons are fighting for their first NFL championship, and this is probably their best shot in recent history. Quarterback Matt Ryan strung together an awesome season. He threw touchdowns to thirteen different players this year (a record in the NFL) and had a dominant passer rating. He's the frontrunner for league MVP.

The Falcons offense has never looked as good as it has in their most recent playoff games. Against two competent defenses (Seattle and Green Bay), Ryan and company have put up 80 points. The victory over Green Bay was also fairly monumental as it was their last game at the Georgia Dome, which has been their home since 1992. Next season, the Falcons are moving to the all new Mercedes-Benz Stadium. Moving into the new stadium with a Lombardi Trophy in hand would be perfect.

This game could also be the turning point in Ryan's career. He has been verging on greatness for a few years now, but always makes the worst mistake in the worst situations. If he can lead his team to a win and not bungle anything too badly, he can earn some serious street-cred.

Looking at the game ahead it's hard to decide who has the advantage. As I said,

the Falcons have been running hot for the past few games. The Patriots have always had a terrific defense under Bill Belichick. He, and his defensive staff, are incredible at analysing their opponents and picking their game plan apart. The Falcons have a diverse offensive plan which might be able to escape Bill's wrath. Defensively, the Falcons aren't great. They were ranked 27th in the league in points against. Historically, the Patriots are very good at scoring just enough points to win, so there is a chance that the Falcons may be able to outrace them. You can't ever count out Touchdown Tom though. He has led the most 4th quarter comebacks in the history of the NFL, and is on pace to take over the top spot all time on the points scored list.

This is the Super Bowl, where the stakes are high, and anything can happen. Place your bets wisely folks.

A Board, a Ban, and a Barrier

Trump's First Days in Office



ALEX PEZZUTTO
1B NANOTECHNOLOGY

Trump is officially president. Now, I could just end the article right here, since I'm pretty sure everybody's sick of Trump clogging up the news headlines, but I won't—because sometimes low-hanging fruit just need to be picked.

So what controversies did Trump stir up this time?

He's going to allow torture (specifically waterboarding), he enacted a ban on refugees and visitors in predominantly Muslim-populated countries from coming to the US, and he's going to build the wall.

Torture has been one of Trump's talking points since the start of his campaign, the rationale being to “fight fire with fire”. In an interview, he states that “I have spoken with people at the highest levels of intelligence, and I asked them the question—does torture work? And the answer was yes”.

Yet CIA director Mike Pompeo, and Secretary of General Defence James Mattis claim the opposite, as well as a study done by the US government. From 2002 to 2008, the CIA detained 119 people, and 39 of them were tortured. The conclusion of the Senate committee's 6700 page report was that it didn't work. Considering the Senate committee as well as two of the most highly influential figures in the intelligence agency disagree with his position, it certainly does beg the question—who are his sources? This endeavour ends up being pretty pointless however, as Mattis will be granted full discretion on whether or not to use this power. Given his opinion on the matter, I'd say it'd remain quite unused.

As for the second of Trump's mentioned edicts; persons visiting from Iran, Iraq, Libya, Somalia, Sudan, and Yemen are prohibited from entering the country for 90 days. In addition, all refugees are banned from entering the country for 40 days, and Syrian refugees are banned indefinitely.

“We want to ensure that we are not ad-

mitting into our country the very threats our soldiers are fighting overseas”, referring to radical Islamist terrorists when Trump explains this decision. While selfish, the ban on refugees is somewhat understandable, considering the financial, time, and managerial burdens of handling such a project. Banning everyone from entire countries from entering your's however, is particularly egregious, and I'm sure there are other ways to ‘monitor the situation’ in the Middle-East without setting back the lives of Americans who have family or business relations in those countries. Was there a breakout-pandemic of terrorism in America recently that I missed? Because when you have an entire ocean and continent between you and the Middle-East, as well as having one of the strictest airline screening processes in the world, you would think such an action would come off as somewhat paranoid and hysterical.

Then there's the wall. For such a drastic piece of news, there's not much to say about this. Plans are in the works, and construction is to begin “probably in months”, according to Trump. The speci-

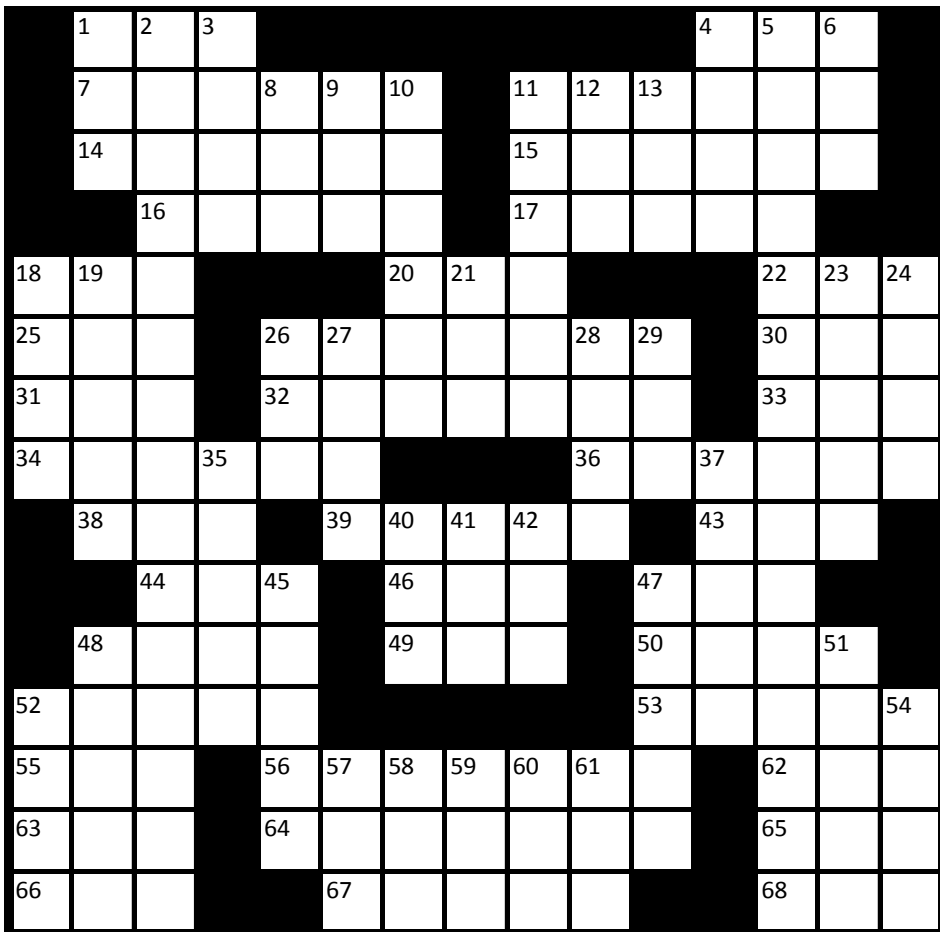
fications of the wall are unknown, as are the plans for getting Mexico to pay for it as well. Considering the predicted costs of building and maintaining such a wall he described in his campaign are around \$12-15 billion, it's probably a good thing too! In short, the wall is happening, but we don't know when, where (specifically), or how. Hurray for politics!

If you considered Trump's actions from a critic's perspective, they may seem like insubstantial or vague solutions to the issues he promised to address. However, the above enactments were all declarations he made during his campaign, and when one considers these moves from a political perspective, they're actually quite clever. A common gripe people have with politicians is their frequency to speak in sweet-nothings. By taking action so soon, Trump is creating a separation between him and that stereotype—something a lot of his supporters will end up appreciating. Only time will tell if the novelty of his ideas will end up producing the results he wanted, end up having severe repercussions, or remain ineffectual.

The Iron Crossword

List of Lists of Lists

CAMERON SOLTYS
3T MECHANICAL



ACROSS

- 1: Leader of Communist China
- 4: Organization that provides entertainment to US servicemen (abbr)
- 7: Leaders
- 11: Holds peas
- 14: Parent's eventual response to "Why?"
- 15: Hidden or enclosed place
- 16: Spelling errors
- 17: River German armies crossed in 1936
- 18: Used to propel a rowboat
- 20: Old age security (abbr)
- 22: Unit of radiation dosage
- 25: Country south of Canada (abbr)
- 26: Molecules with identical chemical formulae
- 30: Ontario's Experimental Lakes Area (abbr)
- 31: Your daughter's husband (abbr)
- 32: A cure-all of Greek mythology
- 33: Copper female birth control prod-

DOWN

- 34: Large island off mainland China
- 36: Mark of disgrace or dishonour
- 38: Association for realtors (abbr)
- 39: Action of a volcano
- 43: Add-___, programs that alter existing ones
- 44: Opposite pos
- 46: Suffix indicating a saturated hydrocarbon
- 47: A in Q&A (abbr)
- 48: At a distance
- 49: Cow sound
- 50: He ___ at his chair
- 52: Volleyball move
- 53: Barely
- 55: Internet speak for "This is new to me"
- 56: Path traced by an object in orbit
- 62: ___ Chi
- 63: Robotic ___, industrial machine
- 64: Dispense or allot judgment
- 65: Twice-yearly Islamic holiday

- 66: Browser extension for reddit (abbr)
- 67: Singular laser
- 68: Cunning and deceitful

DOWN

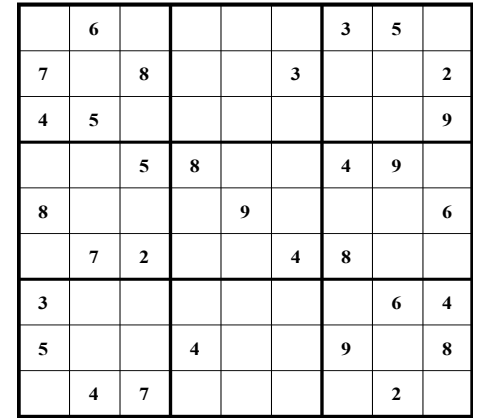
- 1: Medical scanner based around hydrogen and magnets
- 2: "Crocodile Dundee" or "The Man Who Sued God," for example
- 3: American skin care line
- 4: Once ___ a time
- 5: Self-controlled nations
- 6: Mathematical expression involving derivatives
- 8: European Youth Parliament (abbr)
- 9: Range Safety Officer (abbr)
- 10: Leaving _____? (2 words)
- 11: 3.26 light years
- 12: English Literary History academic journal (abbr)
- 13: American Concrete Institute (abbr)
- 18: Expel or exile
- 19: Person from the world's largest continent
- 21: Internet speak for a crowd-sourced interview
- 23: Graduates (informal)
- 24: Baby's first name for "Father"
- 26: A hoppy ale
- 27: Not crazy
- 28: Sleep
- 29: Upon a bed or chair, perhaps
- 35: Destroy
- 37: Consisting of positive and negative particles
- 40: Hit, especially with a run-up
- 41: Card game ending when someone shouts the name
- 42: Ontario organization for Engineers
- 45: Desire for wealth
- 47: Item that has value
- 48: American Psychiatric Institute for Research and Education (abbr)
- 51: Slow-moving shelled animal
- 52: Big glowing ball of glass
- 54: Clean and organized
- 57: Pasture
- 58: Filled with chemicals or specimens
- 59: French for "Island"
- 60: Power of Attorney (abbr)
- 61: Add

Sudoku

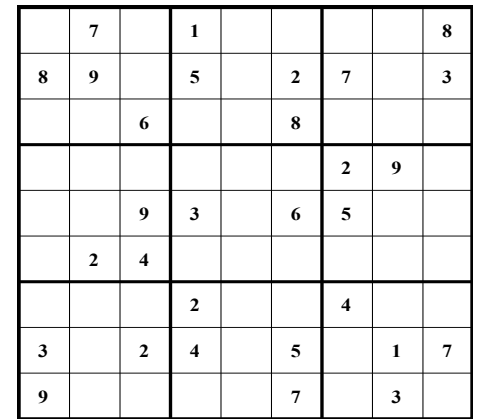
#2017-02

BRYAN MAILLOUX
3A MECHATRONICS

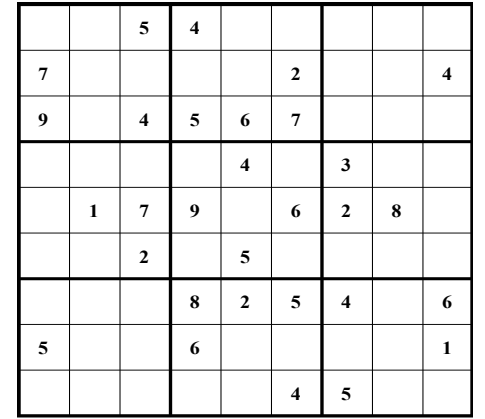
Medium



Hard



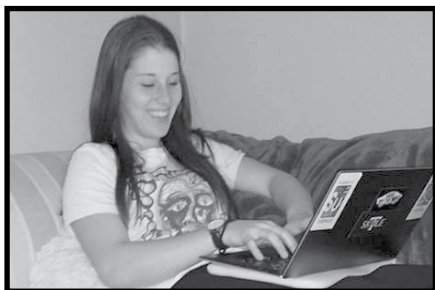
Very Hard



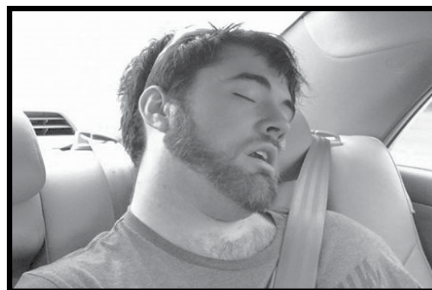
Solutions for previous crosswords can be found on *The Iron Warrior's* website at iwarrior.uwaterloo.ca/distractions.

THE IRON INQUISITION
Tom Willert, 3B Mechanical

"What's the weirdest thing you've written on a test when you didn't know the answer?"



"To lower Gibbs free energy? It's the answer to all things."
Robyn McNeil, 3B MSE



"I wrote about Transformers - the aliens, not the electrical converter."
Braeden Raftis, 3B Mechanical



"I drew a cat teaching Lin Alg to five other cats."
Christian MayMay, 2A Mechanical



"Ummm... pls don't fail me..."
Jamie Feldman, 3B Mechanical



"With an integral I wrote Serpent Math."
Brady Kieffer, 3B Systems Design



"I calculated how much I'd lose by not answering."
Johnny Normandeau, 2B Nanotechnology

rave

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- iOS/Android Devs
- Backend Devs
- VR Devs
- Audio Devs



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