# WARRIOR **IRON**

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# ATERLO

**ELECTIONS! ELECTIONS! ELECTIONS!** 

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## The 101 About the Fire in Fort McMurray





People flee taking nothing but the clothes on their backs, leaving behind the place they once called home, the sky filled with smoke and ash. This is not a scene you expect to hear about one of Canada's most notoriously well-off cities; looking at the images it seems like something from an apocalypse movie. The sky is literally a mass of smoke and flames. Cars line up by the hundreds to leave while the sides of the roads burn.

At this point, it's likely that you've heard about Fort McMurray. Just three weeks ago, most people equated Fort Mac to a hub in the oil industry. Flash forward to now and it's estimated about 19,280 houses have

been damaged. Whole neighbourhoods are now literally smoking foundations. The size of the blaze, which as of May 17 was 355,000 hectares, can be roughly equated to 60 percent of the size of P.E.I.

The fire has consumed huge sections of Fort McMurray and surrounding suburbs, displacing some 90,000 people. Now, the blaze has moved on to an oilsands camp north of the city. All workers were evacuated safely though, and no one was injured. The death toll of this fire remains at two indirect deaths; tragically, the daughter of a deputy police chief and her cousin were killed when their vehicle collided with a tractor trailer as they were fleeing the fire.

The unpredictable nature of forest fires makes them incredibly difficult to fight. It was thought initially that the fire would never reach the town of Fort Mac and that residents wouldn't have to evacuate at all. Unfortunately, all the elements were in place to create a truly unruly fire which managed to cross both the Athabasca and Hangingstone rivers, spreading north and through the city.

Meteorology is an incredibly important factor to any fire, and the conditions at the time the fire started were a recipe for disaster. The morning of the fire there was an inversion, a condition where warmer air is trapped above cooler air, trapping down the smoke. Later the inversion reversed, fanning the smoke and flames. The humidity also dropped while the temperature rose in a phenomenon called the Crossover, ideal for a fire. All this added to the winds which blew the flames north towards the city and

Alberta had been experiencing a dry period and the underbrush in the forests is very susceptible to fire. Not to mention the actual types of nearby trees (spruce and aspens) are contributing factors; the needles of the pines and spruce blowing easily in the wind, carrying the fire far afield. Even as planes and helicopters try to douse slow-burning forest fires from the air, the wind carries embers further away, starting fires elsewhere. Many of the neighbourhood fires started when roofs were ignited by airborne fire.

Three weeks in, the fire is still burning and fire-fighting efforts are hindered by poor air quality, hot temperatures, and a lack of rainfall in the area. Now it is also a matter of housing the displaced people and starting to look towards a future of rebuilding and the associated costs. Insurance losses alone are estimated to be around \$9 billion.

Aid has been pouring in from around the world and the province has been working to provide relief for displaced people. The nation is now just hoping that no one else is hurt and that it all ends soon.

## **Professor Carol Hulls Wins National Teaching Award**



Carol Hulls, a professor in the Mechanical and Mechatronics Engineering department here at UWaterloo, has recently won the 2016 Society for Teaching and Learning in Higher Education (STLHE)'s Brightspace Innovation Award in Teaching and Learning. This award, with its rather long and intimidating name, is awarded to instructors who develop "innovative approaches that promote student-centred teaching and learning."

Innovative approaches are certainly Professor Hulls' specialty. For one, she is one of the founders of the Engineering IDEAs Clinic, an initiative that aims to have undergraduate engineering students learn about real-life engineering applications. This is done through hands-on activities, such as an engine dissection

fond memories of), which allows students to see how the concepts they are learning in the classroom are applied to real engineering problems. Professor Hulls is also an advocate for experiential learning in the classroom, integrating open-ended projects into 1A course deliverables to have students thinking like engineers, starting from their first term on campus.

While Professor Hulls certainly deserves this award, I think it's also important to highlight how amazing she is at teaching. I've had the privilege of having Professor Hulls teach two of my courses: GENE 121 (which should be titled "Programming for people who may or may not have programmed before"), and this term, MTE 203 (Advanced Calculus). For both courses, she has always expressed a desire to really see her students understand the material that is presented in lectures, and I feel like the projects she assigns her students are great ways to reinforce that in-class learning. For instance, in GENE

(something I did in first year that I have 121 for Mechatronics students, students are required to choose a task and to build a Lego robot to perform this task; I remember that after every lab, she was always happy to stay for a while afterwards to address each group's robot problems, or just to discuss robots or programming in general.

> Each recipient of the Brightspace Innovation Award receives \$2,200 for registration and travel to attend the Brightspace FUSION and STLHE annual conferences, and a two year membership to STLHE. Professor Hulls' contributions to student-centred learning, as well as her research in real-time sensor fusion, make her a valuable member of the Engineering faculty. She is an especially great mentor to much of the undergraduate community. I know many of my peers are very thankful to have had her introduce them to programming in 1A, and we all wish her the best of luck with her research in experiential learning (even if we are the guinea pigs!)



**Professor Carol Hulls** 

## **Letter from the Editor**

### On Technology and Intellectual Laziness



Hi everyone, and welcome back to Waterloo for another term of great times with friends and wonderful summer weather! (Which also means sleeping in class, JobMine stress, and ubiquitous goose excrement, but that's not important.)

I'm really excited to be the Iron Warrior Editor-in-Chief this term, and so far it's been a blast! And I'm really glad it's been going smoothly, since 2B mechatronics, as upper-year Trons will attest to, is not 2B taken lightly. (Yes, I will include the occasional cringe-worthy pun.) I was a little apprehensive of taking on the responsibility of being EIC during my 2B term, but it's definitely proved to be much more fun than I thought it would be. All of the EICs in the past couple of terms have graduated or are on co-op (though being on co-op doesn't stop Cameron from coming in and helping with layout), but the writers and editors contributing this term are all fantastic and helpful people. Maybe I won't fail 2B after

Probably the biggest change to the *Iron Warrior* this term is that two of our familiar faces aren't coming out to meetings anymore: we're missing Leah and Nina, who both graduated last April. To both of you guys: all the best for the future! Otherwise, many of you readers will recognize our regular writers in this issue. We also want to welcome Tom, who is our new Photo Editor!

Our feature for this issue is Engineering Society Executive elections! Campaigning starts today, and elections are starting on June 3. Check out the centre spread for more info on each candidate's platforms and how to vote for them!

Many of the columns you know and love are back as well. *Prof Personalities* returns as Ashlyn interviews Professor Irene Goldthorpe. Elizabeth covers an exhilarating season for the Raptors in *The Benchwarmer Report*. Sarah highlights movies you should go see this summer in *Pop 101*. Finally, *Leafy Thoughts* is being taken over by Brigita, who is appropriately starting the column off this term with a step-by-step walkthrough of how to compost with worms. (Eww.)

Last but definitely not least, distractions haven't gone anywhere either: Kyle's Dwarven Science and Cameron's crossword and sudokus are still where you'd expect them to be!

Well, that's all the introductory stuff out of the way. Now on to the meat and potatoes of this editorial. Or, as my illustrious ancestor, Alex McGowan (*IW* EIC, Spring '86) put it, "Wow, my very own editorial!" So I want to take a second and talk about YouTube. I use YouTube for pretty much everything important—from listening to music (ok, you can't find all the music, but the composers to my music have died a long, long time ago), to entertainment (Computerphile and Numberphile!), to studying for class sometimes (there's a lot more than just Khan Academy). It's a fantastic service that lets me watch whatever I want, whenever I want. The problem, as many of you will know, is that it becomes way too easy to just sit there and keep watching videos.

Now here's another thing fellow co-op students might also be able to relate to. Know how you tell yourself that you're going to do side projects while on co-op? Perhaps build a cool robot, take an online course, make a website, or start a band with your friends? And then it goes well for about two weeks, but then work and your PD course catch up to you, and you're too exhausted to do anything after work so you end up wasting time on the Internet? Yeah, that was YouTube for me, and probably Netflix / Reddit / Facebook for some of the rest of you. Your nascent side project doesn't survive all that long after that.

I like to call those kinds of distractions "passive hobbies"—the ones where you sit there watching YouTube or Netflix, or mindlessly scrolling through Facebook, where stories don't have any intellectually stimulating content at all. (More often they have cats or something in them.) Contrast these with "active hobbies" like side projects, playing a musical instrument, or reading about what's going on in the world: You actively invest a part of your mental energy into doing them, but the returns on that investment help you build your skills and knowledge.

YouTube doesn't always have to be a source for passive hobbies, though. It can also be incredibly helpful for active hobbies, like side projects. Say you want to learn about basic electronic components and how to use them. YouTube videos are specially designed to present all the information you need to start building, within 15 short minutes of content. They gloss over why each of the components work (most videos come with a disclaimer like "This video will not make you an electrical engineer"), but they're fantastic at helping you get started.

So how do we capture the benefits of YouTube without getting distracted? Well, this term I decided to try something new. I made the conscious choice of not getting Internet in my apartment. (I can hear the collective \*gasp\* many of you just made.) Yup, I live without an Internet connection. I always have my phone around, which allows me to keep connected to my friends through my data plan, but otherwise I have very limited access to web pages through my laptop. This means that most of the passive hobbies I had around during co-op are now gone. Now I have plenty of time to spend doing more meaningful things.

But what happened to capturing the benefits of the Internet? These days, it's essential if you want to get started on something new. How would I connect to the web? For me, the answer is simple: I do my side projects (and most other work) on campus. I've always felt that the University campus is an environment where I can stay focused on active hobbies without trying too hard. I think it mostly comes down to the act of getting up off that couch you watch Netflix on and walking out the door to the outside world. At that point, you assume a different, "public" persona, which is motivated to be at its best, as opposed to your "private" persona, because your public persona is what you show off to the world. That simple act of walking out the door can inspire you to do things you would never have the motivation to do at home.

So what is the role of technology in this whole double-persona mess? I've hinted at what happens to YouTube in the two different situations: Either it becomes useful for active hobbies, when you're acting as your public persona, or it becomes a real time-waster when you're in private. Netflix isn't as applicable, as it is specifically geared towards being used in people's private lives, but content shown on Netflix does very often become a public forum for discussion and debate, and it becomes a part of people's public persona that they are proud to show off

The technology whose role I'm most intrigued about, with respect to public and private personas, is social media. Social media allows netizens to connect with others who live similar private lives. This goes both ways; on the one hand, social media helps those with, say, mental health problems, get in touch with others who have similar problems. Having a support community who understands your troubles is a huge help, and social media has made them far easier to reach out to. On the other hand, when people subscribe to social media they are exposed to so much information that there's no way to critically analyze all of it. And when that happens, certain radical ideas that should have stayed private begin to go publicly unquestioned (\*cough\* Donald Trump \*cough\*). People begin to listen to only what they want to hear, and when they act, they don't see that their actions have serious consequences for others.

Well, this is really starting to sound like a rant, so I'll leave it there. As engineers, it's incredibly important to make sure we understand what the societal implications of our technology might be. I hope you've gained some insight into why we should think critically about the information we are exposed to; you're welcome to start right here, with this newspaper! If you disagree with anything we publish, you're always welcome to send a letter to the editor at iwarrior@uwaterloo.ca. And with that, we invite you to sit back, relax, and enjoy!

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## The Separated States of America

### New Electoral Developments South of the Border



With only 5 states left in the Republican GOP primaries and under 100 seats left for Donald Trump to ensure victory, it is almost guaranteed that he will represent the Republicans in the upcoming general election. So, what's going to happen after the convention and in the lead-up to the election? Will the current Republican officials back him? All bets are off at this point, but from viewing interviews with elder members of the Republican Party, a significant number of the lead officials have chosen to stand against Trump or abstain from the convention entirely. This not just a stand of solidarity against the new party leader, but it goes to highlight much more than this. Since they can't publicly sabotage his campaign without splitting the party and losing even more face, it looks like they are willing to sacrifice the 2016 election in order to show the party that new and radical ideas are not what the Republicans are about. To have this new leader crash and burn by a lack of internal party support is the best outcome they can potentially have, as

anything near a victory shows a change in heart of the American people and will change the Republican Party as we know it.

On the Democratic side, things are just as exciting. With Sanders supporters throwing chairs during conventions and Hillary Clinton's civil case still on the rocks, who knows which runner has to put out more fires? With Hillary's lead of just under 300 pledged voters and 900 seats still up for grabs, the race is still closer than it seems. If we include the 500 super delegates that Clinton has over Sanders, the difference becomes quite large, but considering there are those changing their vote during convention, a swing is still possible—though a huge shift in those votes is very unlikely. Hillary is going into the last 10 states with an 800 seat lead, and there's not a lot of time for Bernie to catch up. So what should he do? Currently, his main shtick is to drive Hillary further right. Forcing her to match his ideals in a game of political catch up, all in order to ensure that if she wins the primary, he can hold her to these large promises she would have never made if running unopposed. But by doing this, he isn't gaining any more voters; instead, he is splitting the party further and further apart, the difference between the right-wing Democrats and the new "Socialist" Democrats is huge.

Overall, as the GOP primaries are coming to a close, there are a few things that are certain. There is almost guaranteed to be another election as exciting as the one we are witnessing now. Here, we have the only two parties in the United States entirely divided. Half the Republicans love Donald Trump, while the other half can't stand him. And

again on the Democrat side, the split is huge between Sanders and Clinton-the Democrats have not been this segregated in ages. Is this the end of the two-party system in the United States? Do the people want a change? The old "American Dream" died 30 years ago, so what's the next step for our great



**Candidate for the Democratic Primary Bernie** 

Sanders at a 2015 rally in Phoenix, Arizona

# Can Victims of Terrorism Sue Foreign Governments?

### An Awkward Situation in US-Saudi Relations



CAITLIN MCLAREN **3T CHEMICAL** 

While terrorists are usually non-state actors, they are frequently sponsored by states who agree with them ideologically or want to take political advantage of the terrorist group's actions. In fact, many acts of terrorism would not have been possible without the assistance of various legitimate governments. For the most part, this is difficult to prove against a government, and they are rarely served justice.

This is partly due to the 1976 Foreign Sovereign Immunities Act, which limits the possibility of suing a foreign sovereign nation in United States courts. However, the U.S. Senate has now passed a bill circumventing this law, allowing victims and families of victims of the 9/11 terrorist attacks to sue the Saudi government. While the Saudis have strenuously denied any involvement in the attacks, fifteen of the nineteen attackers were from Saudi Arabia, and there has always been widespread suspicion that they were aided by Saudi government officials and members of the royal family. John F. Lehmann, a former member of the commission which investigated the 9/11 attacks, recently spoke out saying that there was an "awful lot of circumstantial evidence" implicating the Saudi government. While the 9/11 Commission's report stated that there was no evidence implicating Saudi Arabia, 28 pages of the report remain classified, leading to suspicions that those pages contain evidence that Saudi Arabia does bear some responsibility for the attacks. Considering Saudi Arabia's importance in the oil market and status as one of America's few allies in the Middle East, openly blaming the Saudis for 9/11 would have serious political implications. Some suggest that the American government has suppressed such evidence and refused to act against Saudi Arabia for economic and

The bill is called the "Justice Against Sponsors of Terrorism Act," and the Senate has now passed it, which means that it will now go before the U.S. House of Representatives. If it does become law, it will allow countries who are accused of sponsoring terrorist attacks on American soil to be sued in Federal Court. Many think that President Obama will veto the bill, but that remains to be seen.

Similarly, a month ago the U.S. Supreme Court ruled that families of victims of attacks sponsored by Iran should be allowed to sue Iran for damages. The most notable plaintiffs are the families of

Marines killed in the 1983 Beirut Barracks bombings, carried out by a precursor to Hezbollah. A federal district court had ruled several years ago that the Iranian government was responsible, and that the Central Bank of Iran needed to hand over nearly 2 billion dollars in frozen assets to the plaintiffs. The bank appealed to the Supreme Court, which in a 6-2 ruling sided with the plaintiffs.

Of course, neither Saudi Arabia nor Iran is pleased with these recent decisions. Saudi Arabia claims that they were "wrongfully and morbidly accused" and threatens to sell 750 billion dollars' worth of assets they hold in the U.S. if the bill becomes law. Many American officials are not eager to jeopardize their relationship with Saudi Arabia.

Meanwhile, Iranian President Rouhani has said that Iran will challenge the ruling in international courts. Furthermore, Iran's outgoing Parliament has passed a bill in response, demanding compensation for various American actions in Iran, especially the CIA-backed coup against the democratically elected Prime Minister Mohammad Mossadegh in 1953, American support of Saddam Hussein in the 1980-1988 Iran-Iraq war, and the destruction of Iranian oil platforms in 1988. This is the outgoing Parliament; a new Parliament has already been elected and will take

office on May 28. The composition of the Parliament will change significantly, with the conservatives who currently dominate going down to fewer than half of the seats. Thus, it is difficult to predict how they will act on this. Because Iran does not hold significant frozen American assets, though America does hold Iran's, the bill seems mainly to make a stance, as Iran does not have a great ability to seize any

However, there is controversy in America over both issues. Many feel that it might start a dangerous precedent that will be detrimental to the U.S., which has its own checkered history of interfering with other countries. These naysayers believe that such cases may backfire against America in the future, and America may be forced to pay compensation for some of their less savoury historical actions.

To the families of terror victims, however, both of these come as a relief. Many have been fighting a legal battle for many years, and believe that they will soon see justice for their deceased loved ones. Still, even for that goal there is a great deal more work still to be done, and the final results of these cases are uncertain. The far-reaching political implications in both situations mean that, in one way or another, the entire world will be affected by these events.



## Fique Tranquilo! - Brazil's Current Challenges

### An Olympic Update

## GABRIELLE KLEMT 1B GEOLOGICAL

Like many other people, I am looking forward to the upcoming Summer Olympics in Rio de Janeiro with antici---pation. I love the hype, I love the ceremony, I love the athletes becoming superheroes; it's an awesome time to be alive. Unfortunately, Brazil is not really the same country it was in 2009 when it was awarded this year's Olympics. With only four months until the games begin, how does Rio look in the face of its worst competition – itself?

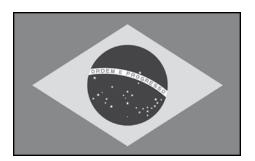
To start with, there's the budget cuts. In 2009, Brazil's economy was booming, now, facing its worst recession since the 1930's, the country is pulling major funding from the Olympic budget. Inevitably, athletes coming to the games will be facing extra fees when it comes to comfort – according to officials, all the added "fat" is being taken out of the budget. Thus far, talk is that 30% of the original budget has been cut. While they say it's all "behind-the-scenes" cuts, which presumably just means the consumer at home won't be able to notice them, no doubt those actually in Brazil will.

Then, there's the water situation. Rio's waterways and shorelines are a mass of trash and dead fish, and the water itself is totally unhygienic. Basically, raw sewage is allowed to flow directly into streams and rivers which feed Olympic water sites. The officials are trying hard to find solutions to their current water issues, even as athletes training in the waters fall ill with fevers, vomiting and diarrhea. Currently, the country's top experts are working on multiple projects, which in combination may be able to find some short-term and perhaps even long-term solutions.

All of this comes on top of the current political upheavals and concerns surrounding the Zika virus; is it any wonder that people are concerned about the 2016 Games? Every time a country decides to host the Games, the stories come out about corruption, doping, bad infrastructure, schedule delays, you name it. Remember all the stories coming out of Russia ahead of the Sochi Games? Nevertheless, they were a success... if somewhat rushed near the deadline. That said, in spite of all the setbacks, do I think

Brazil will get it together in time?

Put it this way: when it's four days before an exam and you're having a fight with your housemates and you used your grocery money on something other than groceries last week and you have a final project to hand in tomorrow (s\*\*t happens), what are you going to worry about first? Brazil, like any good engineering student, will pull the rabbit out of the hat at the last minute, give it all it's got, and probably put on a great show. I know I'll be watching!



### Presidential Impeachment

## **SEAMUS BANNON**1B NANOTECHNOLOGY

With the Olympic Games just around the corner, accompanied by the pressures of global attention, Brazil is only garnering more and more negative press. Public safety concerns and the outbreak of Zika virus are two of the major issues in this seemingly unrelenting storm of catastrophe. In trying times such as these, a country can look to its leaders to make strong decisions and help manage the pressure of being on the world stage. Well, it seems as if Brazil won't even have this small luxury. Last Thursday, on May 12th, Brazilian president Dilma Rousseff was voted 55-22 to be impeached. This trial is a result of various accusations of fiscal shortfallings and dishonesty, one of which being attempts to hide the magnitude of the public debt. Thus, vice president Michael Temer has assumed presidential duties while Rousseff will be phased out. With only 78 days till the Olympics, such an abrupt change of leadership spells only further turbulence - whether they are for better or for worse will soon be determined.

### What's App in Brazil

#### TRISTAN KUEHN 3A SYSTEMS DESIGN

Back on Monday, May 2, Brazilians were denied access to popular messaging app WhatsApp for about 24 hours. A Brazilian judge ordered the country's main wireless operators to block access to the service for 72 hours for reasons that were not made public, but the block was cancelled by another judge after WhatsApp appealed the original decision.

WhatsApp claims that more than 100 million Brazilians use the service, and the outage spurred an outcry on social media such as Twitter. WhatsApp characterized the outage as a punishment of the millions of users who "depend on [WhatsApp] to communicate".

This outage is one of a series of dramatic instances of a rocky relationship between WhatsApp and the government of Brazil. In December, a similar ruling forced a 48 hour ban, which was ended by after a second judge deemed it unreasonable. In March, the regional vice-president of Facebook, which owns WhatsApp, was jailed after the company failed to provide information as part of a criminal investigation.

Encryption features, which prevent WhatsApp from viewing private conversations and information about its users, are the apparent reason for Brazil's interventions in WhatsApps service. While information about WhatsApp conversations, including messages themselves, might be related to a criminal investigation, WhatsApp's encryption prevents the company from accessing such information. This causes conflict with Brazilian law enforcement, which insists that the company should be able to provide relevant information on request.

The outage represents just one more incident in the ongoing conflict between governments and private companies and activist groups over encryption. Governments claim that encryption has the potential to protect criminals and impeded criminal investigations, while companies and activists claim that encryption serves as an important protector of civil liberties.

## A Hindered Economy

### **DONOVAN MAUDSLEY**

3A MECHANICAL

Brazil had been a center of unprecedented economic growth in the last ten years up until 2014. Between 2002 and 2013 the national GDP had grown by an average of 3.6% per year. This even takes into account the slightly negative GDP growth in 2009, immediately after the global financial crisis. Brazil's economy rebounded the most out of the larger economic powers after the worst of the financial crisis had past. From 2011 till 2014, during President Dilma Rousseff's first term in office, the economy slowed in comparison to its neighbours and especially compared to those with whom it was competing with in the past decade. Rousseff's government has greatly increased public spending, and in her re-election year they ran a deficit which was around 6.75% of their GDP. As the government spending has increased the unemployment rate has dropped, which caused increases in labour rates.

Brazil had many years as a macroeconomic powerhouse, but the government meddled in the nation's microeconomic sectors. The national infrastructure is also weak, making outside investment unappealing. Investment was also slowed by the strength of their currency. Corporations don't want to spend more money to make products away from home. A counter example of this is Canada's film industry, which has been booming since our dollar slipped.

As their finances began to take a turn for the worse, the Brazilian government started to take action. Spending was cut on unemployment insurance and other benefits, taxes have gone up, water rates have increased and so has electricity. These changed have all stoked inflation and hurt disposable incomes. Sadly, the country has had its investment-grade rating revoked by all three of the major rating agencies. The policies put in place by Rouseff's government are still standing and now are doing more harm than good. Overall it's not a great place to be in right now.

# The Wriggling Menace



Welcome to the new Leafy Thoughts column! The new author has a few more years until graduating, and a guilty conscience for not doing more to minimize environmental damage. And so I have started the transformation from city-slicker to filthy hippy. I crossed that line when I started making my own deodorant.

It's funny, but also a little sad, that really simple things like sniffling into a collection of cloth handkerchiefs are met with such strong resistance. Asking for your to-go pad thai in the Tupperware you brought with you is greeted with such bewilderment, and on more than one occasion I've been told I can't use my own containers at certain bulk retailers; it must be in their store-brand plastic bags. One can try their best to avoid packaging waste altogether, but our disposable culture makes that far more difficult

than it should be. Even when you've successfully carried your groceries home in a collection of Mason jars, canvas bags, and Tupperware, the kitchen garbage bin still sits full of carrot peelings, apple cores, and all the other junk that can't be recycled, eaten, or otherwise used up.

The ultimate goal is to generate zero waste, but it's going to be a while before that will be feasible. The easiest way to start small, like figuring out what to do with carrot peelings and egg shells besides throwing them in the garbage. If you, like me, live in a 6th floor apartment in a building with no organic waste collection, it's not so easy to start a compost heap.

There has always been a solution to this, vermicomposting, but I avoided it because of the vermi part of that composting. Essentially, it's a box full of soil, worms, and food scraps. It doesn't stink, the worms eat the scraps, poop out top-quality compost, and your garbage sits devoid of food scraps. Unfortunately, this involves having to acquire and touch earthworms, which is an irrational phobia of many people—including myself.

After months of looking for any other solutions to apartment composting,

I went and ordered worms anyway. I wasn't going to die because of touching a worm, and reading about the insane amount of pollutants from landfills definitely helped guilt me into getting over it. \$15 and 80 red wigglers later, I had an apartment composting system. Making a vermicomposting bin is simple; you get some sturdy container, punch air holes in the lid for ventilation, put down a layer of paper scraps like cardboard and newspaper, add organic waste, more shredded paper, then move your slimy new friends into the bin, spray a bit a water over the surface, and leave it alone. Maybe spray more water every few days if the air is very dry. That's it. After a few weeks, you can begin to sift out the

Like toddlers, worms are picky eaters, so they won't eat everything you put into their bin. The great oracle of the Internet has said they're not huge fans of ginger, onions, food that's too big (tear it into smaller chunks,) or food that's too warm/cold (should be approximately room temperature; no boiling hot tea bags or freezer-burned pierogi.) There is also a variety of foods that will kill your worms, citrus fruit being the most commonly

cited, (one reliable-looking blog said that the limonene in the peels is what does it,) and the second being a worm bin with too many acidic additions—like coffee grounds

Maintaining it is honestly even less work than taking out the garbage every other week—it doesn't mould as quickly, doesn't smell bad, and no gross garbage juice accumulates in the bottom of the container. There's a list on my fridge that's titled "Worm Bin: Yes/No" with a super-complex two column system of items that can and cannot be composted, highlighted correspondingly in green and red. Worms don't like too much acid, fatty/oily stuff isn't great for them, and dairy/meats tend to attract rodents and other pests, but they're not toxic to the worms and in moderation should be fine.

This total endeavour cost me less than \$20. I didn't die when I had to touch the worms, and now they don't freak me out anymore. As much. The amount of food waste from my kitchen has gone down by a drastic amount, and the worm bin means not having to wash gross garbage-juice from the bottom of the bin. The worms are happy, I'm happy, and my houseplants are happy with the compost.

THE IRON WARRIOR WEDNESDAY, MAY 25, 2016

## Point Vs. Counterpoint

### Should the United Kingdom leave the **European Union?**

**POINT** 



The European Union (EU) is a group of 28 countries that came together after WWII to create a unified government, with the idea that if the countries are unified by trade, there is less of a chance they will go to war against each other again. This unified government, composed of four bodies, has become something of an issue within Europe in recent years. The European Commission, a group of 28 commissioners, is the powerhouse of the EU and they create most laws and allocate most of the money. However, these people are not actually elected by democratic process and are considered by many to be corrupt and power-hungry. Three of the main issues in the official Brexit debate center around trade, immigration, and effects "at home" (in the UK).

As an observer on the other side of the Pond, I have to rely on the opinions of those I actually know in Britain, in addition to research, to help form an opinion on whether or not they should leave. Now, as my friends happen to be of the military persuasion, their opinions are probably biased, but I figured that it was as good a place as any to start.

Recently, the EU decided that should Britain stay in the EU, they could amalgamate the armies of all 28 member countries. If the goal of the EU is to avoid another European World War, then amalgamating armed forces might be a pretty solid way to go about it. Unfortunately, this is not a pill most are willing to swallow. The British military has long been considered one of the world's foremost military powerhouses, a point of pride to citizens, and a point to note to any invaders (not so much in recent years, but going back a few centuries; British people have good memories.)

The EU would be asking the British military to contribute sensitive weapons technology developed using billions of tax dollars, as well as asking for all service personnel to take an oath swearing allegiance to the EU first and country second. Truly this is not a good idea and is more likely to anger the populace than anything else. When has unifying anything among European countries really done any good? Take the Euro if you need any proof,

On the economic front, the UK contributes about 12.57% of the EU's budget, making them the third-largest contributor. However, it was one of the first to decide against adopting the Euro and has tried to maintain some economic distance from the EU from the start. Although the EU has done some good things for the UK, as well as the other 27 member countries, more recently it has proven a hindrance to development. The EU takes power away from the UK government and creates costly regulations, without which Britain would be able to sign trade deals with the BRIC (Brazil, Russia, India, China) countries.

After years of trade between European countries, it would be unreasonable to assume that leaving the EU would ruin trade for the UK with those countries, and dissolve the current peace it is experiencing. Not only would it still benefit from current trade, (although no doubt it would need to set up some kind of free trade deal, similar to NAFTA with the EU,) it would be able to control with whom they were to trade outside Europe and on what terms.

Many argue that there are plenty of models the UK could follow upon leaving the Union, from the Nor model to the Swiss model to the Canadian model (yup, we made the list!) All of these models have an underlying theme of access to the free market and freedom from many of the regulations on agriculture, home affairs and more. It's true that it's impossible to know if any of these models will work in Britain's case since no one has left the EU before, but Britain has a very strong pre-EU economic history that begs consideration. In fact, given their stance in the world, I think that they will prosper rather than suffer economically in leaving. It's a much "brighter future" as Boris Johnson, the leader of the Brexit campaign, has said.



Finally, there is one of the most contentious issues: immigration. The UK wants to take back control over their borders, something they virtually gave up when signing on to the EU. One of the main principles of the EU is free trade and free movement, be it of goods or people, and this has been good for vacationing Europeans but bad when it comes to work. Having an EU passport automatically gives anyone holding one the right to work anywhere in the EU which may seem like a good idea in theory, but it has led to problems. The amount of people coming in to the UK, from eastern and southern Europe especially, is overwhelmingly more than the British who leave to work elsewhere. The net effect of this has led to housing shortages and service provision problems. One of the many disputes has arisen over legislation to give all EU citizens living and working in Britain access to the British medical services, a service which costs the British public billions every year.

In addition, the ease for anyone from the EU to work in the UK is disproportionate to people from other countries. Take, for instance, us in the commonwealth countries. It is very hard to get a visa to work in the UK if you're from Canada, even if you have relatives who live there or a job lined up, while people who have no connection to the UK can simply go and work there with no

The European Union certainly has done a good job unifying Europe and preventing war, but now it's time they loosed their stranglehold on member countries. The UK should be free to trade where and how it wants, have its own laws and regulations, a degree of separation from the rest of Europe if it so chooses, and the ability to choose who can immigrate to their country. It's time for the UK to make its Brexit.

### **Editor's Note:**

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



**DONOVAN** MAUDSLEY 3A MECHANICAL

There are some in Britain who aren't at all happy with their commitment to the European Union. So much so, in fact, that the British government is holding a referendum next month, known as Brexit, where the population will vote to decide whether or not they will stay in the Bloc. I'm going to outline a few of the many reasons why the UK should stay with the

Mainland Europe has always been a primary trading partner for the UK. Today the EU makes up just over 50% of all of Britain's imports and exports. Companies dealing with partners in the Union today benefit from the EU Single Market, meaning that no tariffs are placed on products moving between Britain and



other member states. This is one of the greatest benefits of being part of the Bloc. The Single Market encourages growth at home by allowing for cheaper access to parts and materials made elsewhere, and allowing easier competition with mainland companies. There are even rumblings that the United States may enter into the Single Market, which would open up even more trade opportunities for British exporters.

One of the other major aspects of EU membership is the open borders policy between member states. As it stands now, any citizen of any member state can live and work in any other state they choose. There are many mainland citizens working in Britain, especially from eastern and southern Europe. The ability to draw from this immigrant work force is terrific for companies desiring excess labour. It is not affecting the unemployment rate in Britain, which has been standing at around 5.1% since the start of 2016. This is the lowest it's been in over a decade. The open border of course works both ways and also allows Britons to work anywhere they want in the EU. There are fears that by closing this border that talented mainlanders will choose not to work in Britain.

Stalling EU based investment in Britain is also an area of concern. Foreign investment is already slowing in the UK simply because companies can't know what will happen at the referendum. By withdrawing from the Bloc, Britain could also be forcing multinational corporations to move their headquarters back to the EU, where the majority of their business is based. This is even true of US banks, which have opened for business in the UK. Auto manufacturers like Rolls-Royce and BMW have also reminded Britain of the benefits that EU membership plays in their

An important aspect to remember is that even if Britain leaves the Bloc, they still have to deal with EU regulations. Being on the other side of the fence means that if they don't pay the EU membership fees, they will lose money on trade tariffs. By



gaining power over their fisheries again Britain would also have to monitor their seas. This would mean naval patrols and additional bureaucracy. British fishing companies would also be restricted from fishing in EU waters, which could result in further monetary loss to Britain.

Bloc regulations allow for member states to establish their own free trade agreements with outside countries, but the likeliness of this happening for Britain would be low. If they leave, Bloc countries will see the UK as an unappreciative outsider. The powers within the Union will likely try to make an example of Britain to try to dissuade other member states from leaving. A large part of this could be discouraging member states from signing trade deals with Britain. The French government in particular has made it clear that if Britain withdraws, they will not make life easy for them. A combined coldshoulder like effect from the Union could have a disastrous effect on the British economy. What do you do when all your enemies are friends?

Supporters of Brexit have noted that there is a possibility to establish a relationship with the EU similar to what Norway has. While not a part of the Bloc, Norway is a part of the Single Market and has good relations with the European Union councils and courts. Norway never had any interest in joining the Union though, which is why they were able to come to this kind of deal. By agreeing to this instead of joining the Bloc the Norwegian government were essentially able to have their cake and eat it too. Britain, on the other hand, wants to essentially divorce the EU. By committing to be part of the Bloc, they established norms, which would be shattered if Brexit passes. The governing councils of the Union will take this into account while dealing with the Brits in the future.

Brexit has implications outside of Europe as well. Britain has many allies around the world, including many of its former colonies like Australia, Canada and even the United States. An exit by Britain from the European Union will have residual effects on its allies. As long as Britain remains a member, it will have a strong influence on the decisions of Europe as a whole, which means that its allies will have a voice fighting for their interests. As Canadians, it would be in our national best interests for Britain to remain with the EU. The UK also holds a seat in the United Nations and is a permanent member of the UN Security Council. These organizations may give less heed to the UK's interests and strengths if they withdraw from the

We live in a time of international turmoil, and recently, this has been widespread in Europe. Further divides will only cause more damage. If Europe stands as a united front against terrorism and conflict, it will give people hope. As it stands, national police forces are able to readily pass information through the EU, but if borders are closed again, red tape will be put up against this. There is also the chance that Brexit, if successful, would sway other nations to leave the Bloc. If this happens, there is a chance the the entire Union might collapse. This could create a period of complete disarray on the continent. Russia is also acting more aggressively recently, and showing signs of weakness like Brexit might invite more action by the Kremlin. All in all, a free and sovereign Britain sounds great but could have far reaching consequences.

## **Prof Personalities: Irene Goldthorpe**



Have you ever known a professor cool enough to do a polar bear swim or daring enough to conquer the CN Tower Edge-Walk? Well, those students lucky enough to have Professor Irene Goldthorpe can now answer "yes" to this question! A member of the Electrical and Computer Engineering Department, Professor Goldthorpe came to the University of Waterloo in 2011 after receiving her undergraduate degree from the University of Toronto in Engineering Science, and completing her Masters and PhD at Stanford University in Ma-

This issue, The Iron Warrior took some time to get to know this amazing professor a little more personally.

### Which courses do you teach?

terials Science and Engineering.

I teach Electronic Devices to undergraduate Nanos, and an ECE Semiconductor Devices graduate course. I also teach two other Nano graduate courses: Microscopy, and Solid State Physics and Chemistry.

## Why did you choose to pursue a career in Engineering?

It was pretty clear that I would do something related to science because I loved science even from a kid. I was totally nerdy and went to the science centre for camps. I was going to go into physics and then someone let me know about what engineering was in my last year of high school—it was the more applications-based of science in engineering that appealed to me.

# What was your most memorable experience as an undergraduate student?

I did my undergrad at the University of Toronto in the Engineering Science program with the nano-engineering option. It was such a hard program, but the good thing about that was that you really bond with your classmates when doing something so difficult. So just hanging out with friends during late nights, laughing, and

going out—all that bonding time is definitely my favourite memory.

### What are your research interests?

I am really a materials engineer, but there's no materials department. My expertise is in electronics materials, so that's why I'm in the Electrical Engineering department. I design materials for electronic devices, and there are two of the major themes of my research right now. One is on transparent electrodes, so that's an electrode that's both optically transparent and conductive. Normally a material that's conductive, like a metal, is not transparent. And most materials that are transparent are not conductive. So you have to use nanomaterials to blend those two characteristics together. The other part of my research that I'm really excited about right now is e-textile, and focusing on engineering materials for e-textile devices. Most electronic materials are made on rigid wafers, but textiles have to be flexible, able to be crumpled, bent, and washable. So there's a lot of challenges in designing materials that can be used for devices and that are compatible with textiles.

## What is your favourite part about teaching?

I've always loved school and taking classes, which is why I went to grad school after undergrad. Now it's like I still get to take classes but along with students, because even though I'm only teaching a second year undergrad course, you really get into it and it can get very difficult. So sometimes I feel like I'm taking the class along with the students and I still get to learn new things every year, which is surprising.

## Can you describe your teaching philosophy?

I would say that I am more of a classic lecturer, so I teach on the board—I don't use PowerPoint. PowerPoint is really hard to teach on, and I'm not good at it, so I just leave that aside. I mean, writing on the board is not the most exciting way, but when I think back to my undergrad those are the courses that I learned best from. And even though it's not that exciting, I think there's a reason as to why that style has continued on through the years.



Professor Goldthorpe has a passion for travelling and the outdoors - here she is climbing an Icelandic glacier.

## What is the most challenging part about teaching?

It's not as much of a challenge anymore, but professors don't get any training for teaching. People take one or two years to learn to become a teacher for high school or primary school, whereas I had never given a lecture in my life when I started working here. So there was definitely things to learn when I started.

## Do you have any advice for your students?

Try not to stress out too much; your marks probably aren't that important. It's important to work hard, but you shouldn't get too stressed about it because there's going to be harder things that come in your life afterwards. And make sure to find time

for fun.

### Do you have any hobbies?

I like the outdoors and being active, so I like hiking, cross country skiing, and downhill skiing. I also love to travel, so over the last several years my husband and I have been to Australia, Brazil, Argentina, Iceland and Chile. People ask me a lot what my favourite place to travel is, but I love them all; I love travelling anywhere even if it's to some no-name town. I also like trying new and random things. I've been dog sledding, jumped into Lake Ontario on January 1 for the polar bear swim, and I did the Edgewalk on the CN tower. There are many other things on my bucket list too, like recently I found a blacksmithing course that I want to do, and a falconry



## **Sandford Fleming Foundation**

Professionalism.
Leadership.
Communication.

There's more to an engineering education than engineering.

## The SFF Memorial Leadership Award Nominations

In recognition of the late Professors Saip Alpay and Wm. C. Nichol, and Sam Ceccerallo, Robert Elligsen, later former students of the Faculty of Engineering

The Leadership Award is granted to an intermediate-level undergraduate student in the Faculty of Engineering who has demonstrated outstanding contributions to the Faculty in the promotion of extra-curricular activities, including, but not limited to: Intramural Athletics, promotion of Engineering Society and Sandford Fleming Foundation events, competitions, etc., and for the support of associations, both on and off campus.

Nominations for the Memorial Leadership Award can originate from student groups, faculty members, or other individuals. A Letter of Nomination and Letters of Support from colleagues, faculty, and others familiar with the nominee's accomplishments are extremely important and form the major basis upon which the Executive Committee of the Sandford Fleming Foundation will form its decision. Nominations must be submitted to the Foundation by August 31, 2016 and/or before the last day of the student's 3A term.

The Memorial Leadership Award consists of a Certificate plus a citation, and an honorarium of \$1,000.

### Nominations Must be Submitted to SFF Office Manager by August 31, 2016

## Stuff Dies, It's Natural

A History of Extinction



**DONOVAN MAUDSLEY** 3A MECHANICAL

First-year is full of professors quoting famous designers and philosophers, but one that really stuck with me was that "failures lead to successes and successes lead to failures." He was referring to the Tacoma Narrows bridge collapse of 1940, in which advancements to modern bridge building failed spectacularly. Every process has its natural limit. Extinction events are the bridge collapses of evolution, and they typically happen once every 26-30 million years. These are truly catastrophic events that shape the face of the Earth for the next period of life. Extinction events occur gradually, happening when the overall rate of species extinction exceeds the rate of speciation. Fossil records are used to establish this, but these are not totally accurate. A large amount of the life on Earth is microbial in nature and does not leave traces behind in the fossil record. There are five major events that have been classified as the "Mass Extinctions".

At the end of the Ordovician Era. 443 million years ago, most life was confined to the seas. The Ordovician-Silurian mass extinction took place when an ice age covered over the majority of the Southern Hemisphere. This dropped the sea levels and severely altered the chemical composition within them. After everything was said and done, around 85% of animal life had gone extinct. Around 80 million years later, the cycle was ready to repeat. The Devonian extinction was likely the effects of many events combined together. The seabeds in this era became devoid of oxygen, meaning that—except for bacteria—it was largely uninhabitable.

The worst extinction, colloquially as "The Great Dying" occurred at the end of the Permian era. Sea creatures were the most badly affected group in this event, and insects, a group that is usually unscathed by extinctions, suffered badly as well. A multitude of catastrophic events, including sea level fluctuations, a drop in worldwide oxygen levels, as well as multiple meteor impact, led to around 96% of species becoming extinct. For anyone who's counting, that means that all present day life evolved from the remaining 4% of species left. The Great Dying also marked the dawn of the dinosaurs and the Triassic Era.

The Triassic Era was bookended by another mass extinction, which lasted about 18 million years. Plants in this era were largely unaffected throughout the catastrophe, which is strange as they typically follow the trends of animals closely.

This brings us to the main event, the K/T extinction. By far the most famous extinction event, the Creataceous-Tertiary extinction—known as the K/T extinction—was also the most rapid of the mass extinctions. Rapid is a relative term though, and one heavily debated. Some theories require the extinction to take place in dozens of years, but the more widely accepted time frame is around ten thousand years. This is a far cry from what pop culture would have you believe. Many dramatisations of this event make it seem that a single event, the impact of the meteor known as the Chicxulub impactor, triggered an hourslong mass extinction. Palaeontologists now believe that the impact was the catalyst of an event that had been a long time coming.

Evidence of basalt eruptions around the world, intense climate change, and rapidly-dropping sea levels are all visible before the impact. Many special families had been on the road to extinction for many millions of years before the impact, and some actually continued to speciate for periods of time after it. Around three-quarters of life went extinct, including all non-avian dinosaurs. Various types of sea life was affected differently, with crocodiles surviving essentially unscathed and ammonites becoming extinct.

These are the five mass extinctions. There are of course many other smaller extinction events that have occurred in the lifetime of our big blue planet, but many of these are small-scale extinctions where the majority of life is unaffected. Extinction is a natural part of life, just like dying. We live in a period of climate change, mostly caused by our own species. This climate change is believed to have led to a large loss of global biodiversity, and many experts claim that even under conservative viewpoints we are in the midst of an extinction event. It is difficult for us to objectively view our own environment though, so skeptics claim that we can't be sure of anything. Speciation in the wild is very difficult to track, and most species deemed extinct may yet survive in remote areas of the world. One example that hits close to home is the loss of honey bees in North America. Many would say that the bees are pests and unwanted, but bees contribute an enormous amount to pollination and the natural spreading of plant species. Newsweek estimates that with the lack of bees, the United States will produce \$30 million less in produce this year.

This article may be an examination of extinctions, but extinctions also show how resilient life is. The measly 4% of all species that were left after the great dying evolved to survive and became the dinosaurs, who evolved and became today's animal life. The world is going to keep spinning, and the cycle is going to keep turning over.

## **Captain Cook's Ship Found**



The shipwreck of the historic HMS Endeavour may have been recently found in Rhode Island's Newport Harbor.

The 100 foot long oak ship was sailed by Captain James Cook during his first voyage to Australia. During that journey he wrecked it upon a coral reef. Cook and his crew were able to return the Endeavour to England with great difficulty. For his later Pacific journeys Cook was granted a new ship, the HMS Resolution. The Endeavour, meanwhile, took on something of a second life. It was refitted as a naval transport and deployed to the Falkland Islands in 1772, sold in 1775, and renamed the Lord Sandwich. During 1778 in the heat of the American Revolutionary War, the Sandwich was scuttled along with 13 other ships in an effort to block French ships from reaching

Rhode Island to assist the Americans.

Of those 13 ships, five have recently been found by the Rhode Island Marine Archaeology Project (RIMAP). One of the five is the Endeavour, but it remains unclear exactly which of them it may be. RIMAP requires more funding to find and store waterlogged artifacts from the ship which could help in identifying them. The work is extremely difficult; according to lead investigator Dr Kathy Abbass, "Divers battle very poor visibility and lots of silt, which is hard to remove and risky to do, because it has essentially been protecting the wood of these ships for hundreds of years." Actually raising the ships from the water is even more expensive, and is unlikely to happen.

The connection to Cook means that this find has special significance for Australian history. In fact, the Australian government has been helping fund this investigation. RI-MAP is not currently accepting donations over the internet; as of May 19th, they are working on it.



A painting of the HMS Endeavour setting sail

## R.I.P. Boaty McBoatface



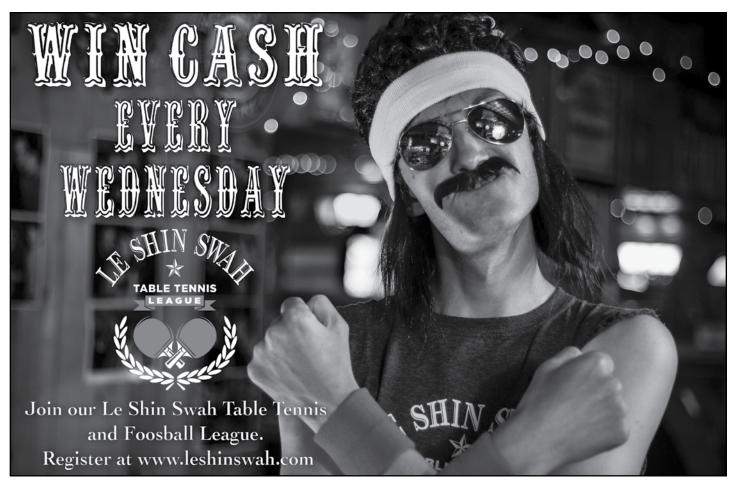
**RATAN VARGHESE** 1B ELECTRICAL

In an effort to get the public more engaged in its work, the British Natural Environment Research Council set up an online poll to name their new research vessel. However, they were not too impressed with the resulting name: Boaty McBoatface.

While most online naming polls would be lucky to converge on such a charming name, the Council would have none of it. In the words of Jo Johnson, UK science minister,

"We want a name at lasts longer than a social media news cycle." The ship will instead be named the RRS David Attenborough, after the famed naturalist and broadcaster. While Sir Attenborough is widely loved the world over, it is still a shame to see democracy

The people's name has been passed on to a remotely operated undersea vessel that will be travelling with the RRS David Attenborough. This token gesture not only seriously misnamed a submarine, but has done very little to sustain interest in the project. Which is the best that the NERC could hope for, given that they had no clear plan of how to harness the attention their naming poll had attracted.



### 1

## It's Election Season!

#### BRYAN MAILLOUX EDITOR-IN-CHIEF

It's election season for the Engineering Society! This time, the EngSoc Executive structure has completely changed, with four new and improved VP positions.

The Society President will retain many of the same responsibilities as before, such as acting as the public face of the Society in external situations and administering the Engineering Society Council and the Board of Directors.

The new VP Communications will be mainly responsible for the external marketing and branding of the Society, internal advertising, and online presence.

The new VP Operations and Finance will be responsible for managing the Society's finances and establishing external sponsorship and student deals. They will also manage the day-to-day operations of the Society, including Novelties, RidgidWare, POETS, the C&D, and the Orifice.

The VP Student Life will run the internal events and services for the Society with the Student Life and Student Services Commissioner, as well as certain external events such as Outreach and the Waterloo Engineering Competition.

Finally, the VP Academic will issue and collect Course Critiques, and promote changes to improve the quality of education for Engineering students.

As always, the WEEF Director reviews proposals for WEEF funding and spreads

the word about how students can apply for and receive funding.

For more information on each of the new Executive positions and how they benefit you as a student, visit https://www.engsoc.uwaterloo.ca/society/elections/, or read the full report on why these positions were created at https://www.engsoc.uwaterloo.ca/wp-content/uploads/2015/06/ERC-Report-Final-Report.pdf.

Be sure to support your candidates during the election period from June 3rd to 7th!

### **Presidential Candidates**

## THOMAS WILLERT PRESIDENTIAL CANDIDATE

Hi all! I'm Thomas Willert, and I'm running for EngSoc President. I have been invested in the Engineering Society since my 1A term. In my time, I have been very externally oriented by making great connections with other universities and organizing multiple events with Ryerson, U of T, and McMaster. Through working with these schools, I have learned of many issues, not just faced by our school, but as engineers in general. As well as this, this past winter I organized and hosted the ESSCO annual interschool hockey tournament, which was a great success.

I'm running for the position of EngSoc President as an opportunity to make the events and outreach of the society better match the interests of the students. As president, I am aiming to look internally and research the way events are chosen and run, as well as research an actual target demographic for the Society. With this, we can shift our focus to find a better way to bring events that interest larger groups of students. With this, a big goal of mine is to introduce a winter and spring 'welcome back week' in order to maintain the momentum our student body has after Orientation Week. With a shortened Orientation Week, it gives the Society a better chance to engage

### RACHEL MALEVICH PRESIDENTIAL CANDIDATE

Healthier Minds, Better Opportunities. Intrigued?

I'm Rachel Malevich, from 2B Chemical and I am campaigning to be your next President! I'm really passionate about the role of President since the ideas I have to improve EngSoc do not fit the portfolio of just one VP position. I understand the professionalism and leadership required to be President and I feel that my experience as an Academic Rep, Professional Skills Director, and Huge would be an asset to this role.

As President, my first goal would be to increase the importance of mental health in the Engineering Faculty by introducing class representatives through MATES, a FEDS run program. My next initiative would be to start collaboration between department societies in the Engineering Faculty. I hope that under my Presidency, EngSoc and the department societies could work together on certain services, like professional skills and social events.

As a Director, I worked with CECA and Co-op Living and Learning to create a more realistic and useful interview skills workshop. In doing so, I realized how I could improve the EngSoc professional skills system as a whole. If elected, I intend to implement a full-time professional skills committee to critique resumes and cover letters, share interview techniques, and help with LinkedIn profiles. My full platform includes improving communication, the director handbook, and strategy workshops for

both the first-years and the Orientation Leaders throughout the year. Being able to combine BOT, Scunt, and other events during both of these weeks makes up for the reduced time and maintains timehonoured traditions.

Overall, the Engineering Society has just undergone major political restructuring. So now it's time to test these new roles and make the system work for the students.



Thomas Willert, Presidential Candidate

Academic Reps. I also hope to increase student deals advertising and to conduct a review on the current policies and bylaws governing EngSoc.

Thank you for taking the time to read about my platform and experience. Please visit my website at www. rachelforengsocpresident.weebly.com for my full platform and to learn more about me. If you have any questions, you can contact me through my website, by email at rachelforengsocpresident@gmail.com, or just approach me on campus! I hope you'll support my initiatives and vote Rachel Malevich as your next President!



Rachel Malevich, Presidential Candidate

## DAN ROBERTSON AND MELISSA BUCKLEY

**VP Communications Candidates** 

VP COMMUNICATIONS CANDIDATES

We're Dan Robertson and Melissa Buckley, and we are running as a pair to be the next VP Communications for your Engineering Society!

The Waterloo Engineering Society has gone through some restructuring, and VP Communications is a new position in charge of the Society's internal advertising and external representation. Between the two of us, we think we have the perfect skill set to represent you in both of these aspects. We hope you follow our campaign and vote for us to be your next VP Communications! Meanwhile, here is a little bit more about us:

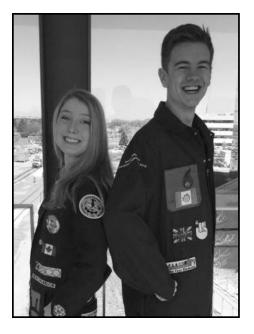
Melissa is in 2B Chemical Engineering, and has been involved with the engineering community as an EngSoc Commissioner and Director. She has also been involved on the provincial level, attending numerous conferences as a Waterloo delegate and the VP Communications for ESSCO. Dan is in 2B Computer Engineering and is the current Communications Commissioner for EngSoc. He has also been involved on a national level as a delegate at CFES Congress.

We both have experience managing similar Communications roles, and will be able to provide you with all the information that is important to you about your Engineering Society without getting annoying. We hope to continuously improve this process by taking your feedback regularly! Between the two of us, we have represented the Waterloo Engineering Society on the provincial and national level, and have participated in many plenary sessions. We are confident we will be able to vote effectively on your be-

half at these meetings, and promised to keep you informed in the process.

Some highlights of our platform include: providing you with clear, effective communications, increasing conference transparency & take back, better society representation in the community, and improving EngSoc with your feedback.

We are both passionate about the Engineering Society and would take this role seriously, while helping make EngSoc as



Melissa Buckley and Dan Robertson, VP Communications Candidates

useful and fun for you as possible! We hope you take the time to review our platform points in more detail on our Facebook page @VoteDanAndMelissa, and don't forget to yote between June 3rd and June 7th.

### **VP Operations and Finance Candidates**

### **KATIE ARNOLD**VP OPERATIONS AND

FINANCE CANDIDATE

My name is Katie Arnold, and I'm running to be the next Vice-President of Operations and Finance for the Waterloo Engineering Society "B"!

I'm in 1B Mechanical Engineering, and I have been involved with the Waterloo Engineering Society ever since my first week at the University of Waterloo. I have held directorships for Novelties, Course Critiques, Canada Day, Educational Outreach, as well as the Engineering Student Societies' Council of Ontario Directorship for Wonderland Math and Physics Day. I've attended several engineering conferences, as both a delegate and volunteer.

As Vice-President of Operations and Finance, my goals include the development of Novelties through new inventory and advertising, facilitating the relocation and expansion of RidgidWare in the new E7 building, raising awareness of the sponsorship opportunities we have available in the Waterloo Engineering Society, making applications for sponsorship easier and clearer, as well as expanding student deals in more directions to areas in which students are interested. I'm very open to

hearing what you think we can introduce into Novelties or Student Deals. Please feel free to let me know what YOU want!

For more information about my campaign and platform, please visit *bit.ly/katie4vpof*.

Thank you, and please vote Katie Arnold for Vice-President Operations and Finance!



Katie Arnold, VP Operations and Finance Candidate

#### **SABRINA HUSTON AND** CHELSEA VANDERMEER

VP STUDENT LIFE CANDIDATES

Hello engineers, we're Sabrina and Chelsea, and we are running for your co-Vice Presidents of Student Life! Look at your schedule, now back to us. Sadly, we are not in your schedule. You have too much class and too many assignments! Look down; back up; where are you? You're still in class because you're a great student. What's in your hand? Back at me. We have them, all of the events, outings, activities, socials, charity outreach, free food, and free friends that you

#### **TIFFANY CHANG** VP STUDENT LIFE CANDIDATE

Hi everyone! My name is Tiffany Chang, and I am running for VP Student Life of the Engineering Society.

As the current Student Services Commissioner, I'm collaborating with our technical workshop directors to ensure that they run successful events. My first co-op was with the Engineering Outreach Office, so I would love to get EngSoc more involved with the community outreach that Waterloo Engineering already has in place. Besides Days at The MUSEUM, it would be awesome to see some of us mentoring

### THERESA DECOLA

VP STUDENT LIFE CANDIDATE

Hello! My name is Theresa, I am in my 1B term of Computer Engineering, and I would love to be your VP Student Life! In the past, I have been my class's EngSoc rep, and I represented the University of

### **VP Student Life Candidates**

Both of us have been directors for several terms and have experience running, planning, and executing fun events for you. Sabrina is also currently Student Life Commissioner and is well-prepared to attack your boredom woes! Chelsea is a super keyholder and attends all PO-ETS events, so she enthusiastically sets up, cleans up, and makes sure that everyone has a great time! We are experienced when tackling details such as booking, budget, and scheduling; so you don't have to worry about a thang.

For real, having a balance between school and fun is important for everyone. Meeting new people, trying new things, and making friends integrates your engi-

young campers. Community outreach is a rewarding experience for both yourself and the students that you impact, so I would love to give everybody a chance to experience it!

Working in outreach has also trained me to represent UW and Waterloo Engineering conscientiously positively, so I would represent our school and our faculty in the same manner.

As a student who's still figuring out how to balance academics and the rest of life, I would implement year-round first-year support. Even though a lot of responsibility is on ourselves to adjust to university life, I want future incoming first-years to have access to and be aware

Waterloo at the First Year Integration Conference. I am Currently on both the Council Review Committee, as well as the Leadership Award Committee. Beyond my involvement with EngSoc, I have had a lot of experience planning large events and workshops. In high school, I organized my school's Relay for Lifeevent

neering experience with energy and creative outlets that improve your academic outlook. We promise to be have a diverse selection of events, such as nights for board games, video games, movies, music, art, Frisbee, laser quest, or even just hanging out... with benefits! Benefits being snacks. And we are going to keep you informed with posters, announcements, Facebook, and MySpace, to make sure you don't miss out. We are open to all ideas and will fight for you to have more fun than you already do, with other engineers who understand the struggle of eternal class, JobMine and geese.

Anything is possible if we become your Vice-Presidents of Student Life!

of the resources that EngSoc provides to help them adapt.

If my ideas have piqued your interest, you can read my full platform and profile at http://bit.do/tchangforvpsl. If elected as VP Student Life, I would strive to make EngSoc the go-to place where engineering students seek help or have

Thank you so much for having taken the time to read my #MeToWE vision. I hope that I will have your support once the polls open. If you have any questions, feel free to email me at tiffanyyhchang@ gmail.com; or if you see me on campus, stop and ask—I will be more than happy to answer them.

for over 100 individuals. I was also one of Microsoft's YouthSpark advocates and had the opportunity to put together and present computer science and coding workshops for youth. If I were elected to be VP Student Life, I would love to work with you to create more of the events and workshops that people want to attend. While maintaining the current number of AutoCAD and programming-based workshops, I want to expand the number of workshops that focus on chemical, environmental, civil, and geological engineering topics, so that there is a more equal representation of all programs within the workshops. I also want to take feedback from students in all types of engineering to ensure that the events and workshops being put on are interesting and relevant. In conclusion, I love organizing events, I'm super enthusiastic, and I would love to be your VP Student Life!

### **WEEF Director Candidates**

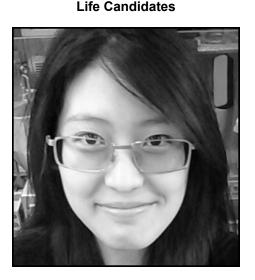
**JORDAN NICKEL** WEEF DIRECTOR CANDIDATE

Hello Everyone, my name is Jordan lickel, and I'm a 3A Mechanical. I am running for the position of WEEF Director for B-stream. I have been involved with EngSoc since my 1B term as a class rep, as well as involvement with several student design teams. I want to run for this position because I have seen the extraordinary impact WEEF has had on student teams and engineering labs.

I want to help contribute to the continuing impact of WEEF. I also want to reinstitute the annual general meetings held by WEEF. I want to do this in order to facilitate communication between engineering students and WEEF, so they can make their voices heard. Another thing I am interested in pursuing is updating and improving the website in order to better communicate where funds are being allocated, how to apply for funding, who WEEF is, and streamlining online proposal submissions. I would also like to increase the visibility of WEEF's contributions, so that the students can



Sabrina Huston and Chelsea VanderMeer, VP Student



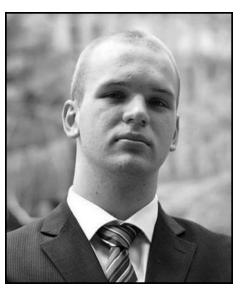
Tiffany Chang, VP Student Life Candidate



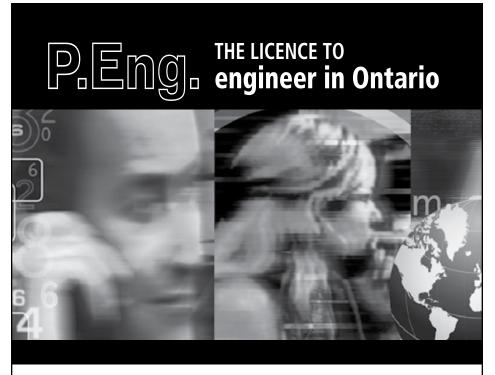
Theresa DeCola, VP **Student Life Candidate** 

better understand what WEEF provides them in labs, classrooms and student design teams.

WEEF here undergraduate engineering education", and I believe that its impact in this area is an important facet of being a Waterloo Engineering student. Vote for me to continue this tradition of excellence while striving to improve and streamline the processes.



Jordan Nickel, WEEF **Director Candidate** 



To practise as a professional engineer in Ontario, you must be licensed by Professional Engineers Ontario. It's the law.

### Take your professional career into your own hands.

For information on licensing—and how the PEO Student Membership (SMP) and Engineering Intern Training (EIT) programs can help you get there visit www.peo.on.ca or www.engineeringstudents.peo.on.ca



...regulating the profession ...serving the public

# Aaaand We're Back! (Part 1) Aaaand We're Back! (Part 2)

### President's Update



HANNAH GAUTREAU PRESIDENT

For those of you I have not met yet, my name is Hannah Gautreau, and I am your Engineering Society President this summer. I am in my 4A term of Management Engineering, and I'm so happy to be back on campus! My executive team and I are wrapping up our terms in office, and we want to make this summer amazing!

This term will be very exciting! The biggest thing that will be happening is the election of a new executive team. Last year at our Joint Annual General Meeting (JAGM), we passed a motion to adopt a new executive structure, and this is the first team that will be working with it! The new roles are President, VP Student Life, VP Academic, VP Communications, and VP Operations and Finance. For more information on these roles, you can check out our governing documents or the Executive Review Committee report on the website! We are in the middle of campaigning, so make sure to take the time to talk to the candidates and read about their platforms.

#### **Leadership Award**

Make sure to apply for the Engineering Society Leadership Excellence Award! This is a \$1000 award given out every term to a student who has demonstrated exceptional leadership and improvement to engineering student life. You can find the criteria for this award on the Student Awards and Financial Aid website, and you can hand in your application to the EngSoc Office (CPH 3607) or email it to awards@engsoc.uwaterloo.ca.

#### **Council Review Committee**

I have been spending the last nine months working with the Council Review Committee to evaluate the effectiveness of our Council. This was mandated at last year's JAGM, and we will be proposing our changes at this year's JAGM. Check out the website to review the proposed changes, and make sure to attend JAGM on June 26th at 11 am to voice your opinion and to vote on these changes.

#### First Council Meeting

We had our first council meeting on Wednesday May 11th. Deanna Priori and Brian Schwan came to introduce themselves on behalf of the new Federation of Students Executive Team. Council passed the termly operating budget, as well as a number of policy changes. With these new changes, people who are planning to go on exchange can now run for executive positions in pairs, which will let a lot more great candidates run for exec positions.

Council also mandated the executive to push the faculty to improve course selection, to actively push the University to improve mental health services on campus, to investigate the implications of the new ranking system, and to take an official stance against increasing international student tuition.

For more information about council meetings, make sure to check the EngSoc website, and subscribe to the mailing list! If you have any questions about our council meetings please contact *executive.b@engsoc.uwaterloo.ca* and we would be more than happy to answer your questions. The next meeting will be held on Wednesday, May 25th at 5:30 in CPH 3607.

If you have any questions, or you just want to say hi, I am (almost) always in the EngSoc office and would love to chat!

### VP Education Update



VP EDUCATION

**ANSON CHEN** 

Hey everyone and welcome back! I've been super busy this co-op term working on co-op things!

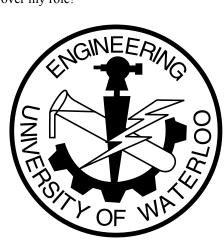
First off, for those who don't remember, last Fall I proposed starting an online tool for engineering students to rate their work terms. Over the winter, I started building this tool, with the help of some amazing EngSoc volunteers. CECA heard that we were building it, and reached out to myself and Jeff, the A-Soc VP. CECA proposed to collaborate with us on Rate My Work Term, which is the official work term rating tool that will be on WaterlooWorks. I decided it was in EngSoc's best interest to work on the official tool, as it would be linked directly to WaterlooWorks. We're currently waiting for the next steps while the other faculty societies are getting the same invitation. Rate My Work Term will launch to architecture in Fall 2016, and to all students in Winter 2017. I'm sure that we will be needing student input in the near future. I am super excited and will keep you posted on things as they happen!

Second, Exam Bank raffles are back! For those who don't remember, last fall we gave away \$100 worth of movie tickets to people who submitted exams to the exam bank. This Spring we have more prizes to give away! Date of the first raffle is TBD, but it will be soon. Anything submitted since the start of term to then will count as an entry so tell your class to upload exams!

Third, as part of my role, I attend university, faculty and CECA meetings to speak on items on your behalf. Recently, the Senate Undergraduate Council discussed whether students should be allowed to share course materials. Last term

the university had issues with an external tutoring agency, on Jobmine, making profit off of exam questions that they got from a hired Waterloo co-op student. To counter this, the university wanted to add a clause to Policy 71 and to course outlines that restricts students from sharing the "intellectual property" of their professors with external organizations and other students, unless they have consent from the professors. Intellectual property includes everything from lecture content to course outlines to exam questions. Myself and others expressed concern that this restriction would do more harm than good for those who share the material in order to learn better, and/or to help younger year students who may not have the same quality of content in their own courses. The discussion lasted an hour; ultimately, everyone realized that UW's goal was to deal with the tutoring agencies, not to make things hard for students. Therefore, the part of the policy relating to sharing course content with students was put on hold for reconsideration, and the policy relating to external agencies passed to Senate.

Super excited to be back and looking forward to another great term! Also send me an email at *vpeducation.b@engsoc. uwaterloo.ca* if you're interested in taking over my role!



					Upcomii	ng Events	Calendar
Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	
May 25 EngSoc Council Meeting #2 5:30 PM - 7:00 PM Coffee House #1 8:00 PM - 11:00 PM	May 26 EngSoc Executive Campaign Period Begins Let's Talk Mental Health 5:30 PM - 7:30 PM	May 27 Professional Photoshoot 1:30 PM - 3:00 PM	May 28  Waterloo Engineering Competition Starting at 3:00 PM	May 29 Waterloo Engineering Competition	May 30 Waterloo Engineering Competition Ends at 4:00 PM WebDev Workshop 5:00 PM - 7:00 PM	May 31  Eat Grilled Cheese 11:30 AM - 12:30 PM  Arduino Workshop 6:00 PM - 8:00 PM	Check out up-to- the-day event postings on the EngSoc website at engsoc.uwaterloo. ca/event-calendar/
Wednesday June 1	Thursday June 2	Friday June 3	Saturday June 4	Sunday June 5	Monday June 6	Tuesday June 7	
EngSoc Executive Campaign Period Ends Laser Cut Keychain Workshop 6:00 PM - 8:30 PM	SSO Study Skills Workshop #1 6:00 PM - 8:00 PM	EngSoc Executive Voting Period Begins Sleepover in POETS 7:00 PM - 7:00 AM	Everything is Better When You're Archineering 10:30 AM - 4:00 PM  Dungeons and Dragons 12:00 PM - 3:00 PM		Magic the Gathering: Booster Draft 5:30 PM - 9:30 PM	EngSoc Executive Voting Period Ends Eat Grilled Cheese 11:30 AM - 12:30 PM	UNIVERSITY OF WAR

### **Aaaand We're Back (Part 3)** Aaaand We're Back (Part 4)

**VP Internal Update** 



It's your friendly, neighbourhood VP Internal with news on the word of engineering social events! When I began campaigning over a year ago, one of my major initiatives was to bring back licensing to some of our events, and I'm proud to say that we have done just that. This term, BOT was licensed for a classy wine and cheese night, and EOT will be less classy but also licensed! But we're not stopping there, no sir. Both Coffee Houses this term will also be licensed and we are looking into more events so you can enjoy a beer in POETS and socialize.

Speaking of things that we're bringing back, be on the look out for SCUNT!

Remember that super fun scavenger hunt type event from O-Week? Well it has been a long time, but this event used to run during the term as well; this is the term we are bringing it back! It won't be quite the same, as EdCom will not be making an appearance, but it is sure to be one fun night!

We have some new technical workshops that are running this term, including Web Development Series which has been very successful so far and will continue to run throughout the term. The first and ever-sopopular Let's Talk Mental Health sessions kick off on May 26th, so please come by and feel free to vent about your day and whatever is bothering you, or just listen and remember you are not alone.

There isn't much for me to update you on except to keep an eye out for some awesome events coming up in the next couple weeks and remind you that even though school is important, don't forget to have a little fun every once in a while.

**KIERAN BROEKHOVEN** VP EXTERNAL

**VP External Update** 

Hey everyone! Back again for our last term as EngSoc exec. I've been busy as your VP External. I'll give you a quick update as to what I've been up to, and what's coming.

Let's start with conferences. Part of my portfolio is to attend various provincial and national engineering conferences throughout the year. Two of them happened in the winter term. The first was the Canadian Federation of Engineering Students (CFES) Congress. Seven other delegates and I headed to Calgary for this one, voting on various CFES issues on behalf of Waterloo. Some of the important things happening included the CFES fighting to get a vote on the Canadian Engineering Accreditation Board, as well as mandating the CFES executives to look into ways

to improve employment opportunities for engineering students. Secondly, the VP External of ASoc and I also brought 12 first years to the First Year Integration Conference at Ryerson University! It was a great leadership and professional development experience for all the delegates. On May 26th our delegation will be attending the Annual General Meeting of the Engineering Student Societies' Council of Ontario, my last conference as VP Ex. Keep an eye out for future conference applications! They are an amazing experience.

In terms of the rest of my portfolio, things are running pretty similarly to fall term. Upcoming things include our involvement in Pride Parade on July 3rd (keep an eye out for signups) and the Waterloo Engineering Competition! WEC is happening May 28-29 and will be a fantastic competition. Students can compete in Junior Design, Senior Design, Consulting, or Programming. Check out the Facebook event! A new initiative that the education outreach directors are putting together is a design competition for grade school students in the area. It's proving to be challenging to plan so the launch is planned for Winter 2017. Otherwise, check out the EngSoc calendar to see what's going on.

Come by the EngSoc office to chat anytime! I'm pretty much always there.

be open soon! Similarly, the proposal period for the Engineering Capital Improvement Fund is open too! Go online to the Engineering Society website and submit a proposal if you have an idea that would make life easier

for your fellow engineering students. That's all I have for this update. As always, thank you for reading! If you want to reach out to me, you can always do so at *vpfinance.b*@ engsoc.waterloo.ca. Until next time!

### A Toast Tu a New Term



**DON TU** VP FINANCE

The sun is shining, flowers are blooming, and every other kilometre between Toronto and Waterloo is bustling with construction workers, determined to make sure that no one can make it anywhere ever again. What do these things mean? Spring term, obviously!

After spending a great four months working in a chocolate factory for my co-op term, I'm back for my second academic term as VP

Finance! Oh, how exciting. What kind of fiscal adventures await? What kinds of budgetdefying tricks do I have up my sleeve? What kind of hijinks will I get up to next?

None. There will be no budget-defying or financial hijinks under my watch. But nevertheless, I do have news for you all!

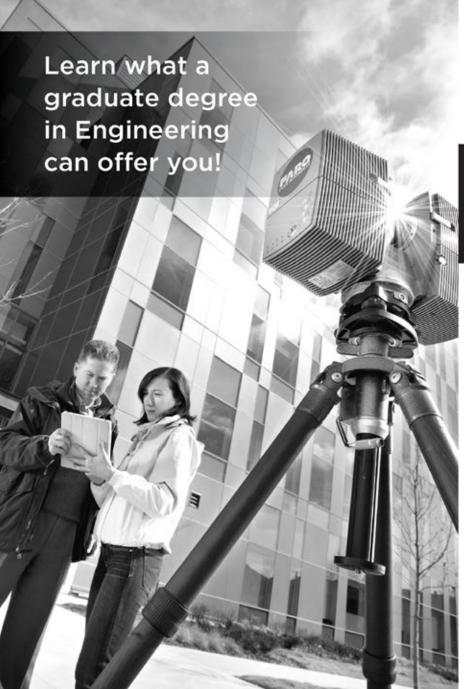
First off, a big focus for me this term will be moving new merchandise into Novelties. If you've stepped into Novelties lately, you'll notice that the shelves are pretty bare. That's because we had stock just flying out of there last term! So, I will be working to refill the store with sweet swag. We already have some new patches on order, and we've got some

other designs in the works. Keep your eyes peeled for announcements upon their arrival!

Furthermore, RidgidWare is also open! As

part of a shift in design that started last term, we are trying to offer RidgidWare more as a service rather than a store. Feel free to drop in if you need someone to bounce ideas or discuss pet projects with! With that said, we are still trying to expand our physical offerings in the store. We have a lot of parts on order right now that we will be using to create small kits. Stay tuned for those as well! Beyond that, also be aware that the Engineering Society Sponsorship Committee will be chosen soon and that the sponsorship proposal period will

WATERLOC NGINEERING



WEDNESDAY, JUNE 8, 2016 5:00 - 6:00 P.M. E5, Sedra Student Design Centre

## **GRAD STUDIES** INFO RECEPTION

Speak with faculty members and current grad students about the benefits of a graduate studies degree. All engineering departments will be represented.

- » Food and beverages provided.
- » All undergrads welcome!

uwaterloo.ca/engineering



## We The North

### **Raptors Show Their Mettle**



**ELIZABETH** SALSBERG **3B NANOTECHNOLOGY** 

HE BENCHWARMER REPORT

Basketball fans new and old, the North side finally has a great basketball team with everything to show for it. In a season of ups, downs, injuries, record setting, and exhilarating playoff basketball, the Toronto Raptors have shown they have what it takes to be a true contender in the NBA. Here we stand, in the Eastern Conference Finals for the first time in Raptors

The second-seeded Raptors squared off with the Cleveland Cavaliers [LeBron James et. al.] for Games 3 and 4 this weekend at the Air Canada Centre. Despite being down two games to none in their best-of-seven series, fans flocked to Jurassic Park to cheer on Canada's team. Indeed, what a run it has been—and yes, there is more excitement to come. The Raptors are quite capable of re-energizing at home and stealing a game or two away from the playoff-dominant Cavs.

LeBron et. al have swept both of their previous two series en route to their meeting with the Raptors. Detroit gave them as close to a contest as it's come in games one and two of the first round, but ever since it's been all smooth sailing. If there was any doubt that this is the best Cleveland's done supporting their superstar, it's definitely gone. They are unstoppably fast on the transition game; if they can't drive to the hole they make three pointers... all the while staying out of foul trouble and playing stifling defense at the other end. With LeBron James, Kevin Love, and Kyrie Irving out on the floor they have not lost the lead dating back to the 2015 playoffs.

While this does not bode well for the Raptors' chances, there is a silver lining: the Raptors managed to take 2 of 3 regular-season games against the Cavs (both at the ACC). If the all-star duo of Lowry and DeRozan can light it up offensively, the Raptors have a good chance of heading back to Cleveland with at least one game in hand.

However, the absence of starting centre Jonas Valanciunas is a severe body blow to the Raptors offense. The 23-yearold big man has been huge, averaging a double-double in all 2016 playoff games in which he has appeared. His absence is really hurting the Raptors because their three-point shooting and perimeter play offensively has been poor. Though Bismack Biyombo has been great filling in, he simply does not have soft enough hands beneath basket, nor the ability to shoot free throws particularly well. As a result, teams haven't had a problem foul-

ing him hard under the rim to make sure he can't get an easy put-back. Nevertheless, Biyombo's incredible efforts defensively entitle him to a substantial raise at the end of the season.

Speaking of big men, power forward Patrick Patterson has been sensational these playoffs. Despite not making anywhere close to his usual quota of threepointers this year, he has done two nice things: first, he has been a force defensively, moving his feet and even boxing out the other team's bigs (a phrase seemingly unknown to the Raptors for well... ever). Second, he has set good screens and has not hesitated to drive to the bucket to get an easy two points. He has done all this despite suddenly moving into a starting role after coming off the bench as a reserve all season long.

Did I already say something about defense? Well, I'm going to talk about it again. Most of the Raptors playoff games in the first two rounds had each team scoring less than 100 points. This is a sign of good defense from both teams. During the regular season, the Raptors only lost a mere fraction of games when they held the opposing team to under 100 or fewer.

Toronto's successes and failures these playoffs are easily explained by their ability (or lack thereof) to play 48 minutes of shut-down defense. Back in the first round, they faced the Paul George Indiana Pacers. It took the Raptors seven games to knock off the seventh seed. Why? Because they simply could not contain Indiana's offense on a consistent basis. If George wasn't killing us offensively (thank JYD 2.0, aka DeMarre Carroll for quality D here,) the rest of Indiana was. Yet when George came off the court, the Raptors were easily able to reclaim or extend leads. Toronto certainly improved as the series wore on. That being said, they did not assert themselves early and did not step on Indiana's soft underbelly when it was exposed. Instead, they would let them back into it, giving up 10 point+ leads towards the end of the game, making their lives unnecessarily difficult.

With the so-called "first-round curse" finally shaken off, it was time to face the Miami Heat. Duane Wade et. al. certainly gave us a run for our money, as it once again, took seven games to finally go through. How did we finally win it? Defense and timely offense. Cory Joseph, spectacular throughout the playoffs, along with DeMarre Carroll handled Wade nicely towards the end of the series. Heat point guard Goran Dragic became the main issue thereafter. But again, solid defense down low in the paint forced the Heat to take bad jumpers and a lot of threes. They also made a lot of those threes—Raptors' perimeter defense has been and continues to be a real drag—yet the Raptors cleaned up the garbage on the rebounding side of

## **Broskies on Brewskies**

### Captain's Log, Ambear, and Cosmic Cream



**DONOVAN MAUDSLEY** TRISTAN KUEHN **3A MECHANICAL** 3A SYSTEMS

BROSKIES ON BREWSKIES

Tristan and Donovan are off again-on again roommates and good friends from London Ontario. Good, local food and beer are just some of the common interests these two share. While they realize that they don't know everything there is to know about craft beer (and cider) (and mead), they're always willing to try something new for the greater good. Neither is a beer snob, and both have been known to drink beer store favourites such as Molson Canadian, Budweiser, and their old friend James Ready. They also encourage any readers to recommend their favourite craft beers for review, just email the Iron Warrior!

We wanted to kick off this season of BoB with a special edition, so we picked up 3 different brews from Cameron's Brewing Company in Oakville Ontario. The three that we picked up are Captain's Log lager, Ambear red ale, and Cosmic cream ale. We were initially drawn to Cameron's Cosmic by the bright and cool pastel can design, and when we saw that there were three brews by Cameron's it seemed our mind had been made up for us.

The Captain's Log is an everyman's kind of craft beer. Mellow and smooth, it tastes similar to a craft beer analogy of Canadian. This is one of the more widely accessible beers we've had, similar to the Block 3 King Street Saison from last term. It would pair well with a nicely barbequed burger and potato salad. There are no obvious faults with it as a beer, besides not standing out from the crowd. We gave this a unanimous three out of five for being good, but sticking too closely to a popular macro brew formula.

Donovan was particularly excited to try the Ambear, being a big fan of other Red ales like the Sparkhouse from last fall. Hops are pretty much essential to making a craft beer, but the Ambear takes this too far. There isn't a whole lot to the Ambear besides being bitter. It is able to retain the lightness of an ale without morphing closer to a stout, but this is really the only thing it has going for it. Overall it's a boring experience and we settled on two out of five.

Cream ales have given us some of the tastier brews that we've tried in the past, but the Cosmic doesn't live up to the reputation. At first taste it was almost like diving right back into the Ambear. Over time, the inner flavour began to reveal itself, but it was too little and too late. Too often we've come across ales that just try to push hops into a nice flavour but that can't find the right balance. For the Cosmic and the Ambear we can taste the beers that the brewmasters at Cameron's were trying to make, but just couldn't. We gave this one two and half out of five, and were utterly disappointed with Cameron's.

Overall we weren't thrilled with the Cameron's brews. The taste pallets just didn't line up right for a terrific tasting craft beer experience. The latter two beers were overly bitter and hoppy, and this is coming half from Donovan, who appreciates the hell out of a bitter beer when done right. If you're a newcomer to the craft beer game though, give the Captain's Log a try. Once again, please taste responsibly and don't forget the cheese and crackers between

Next issue will be our tenth tasting so keep your eyes peeled! Till next time Bro-



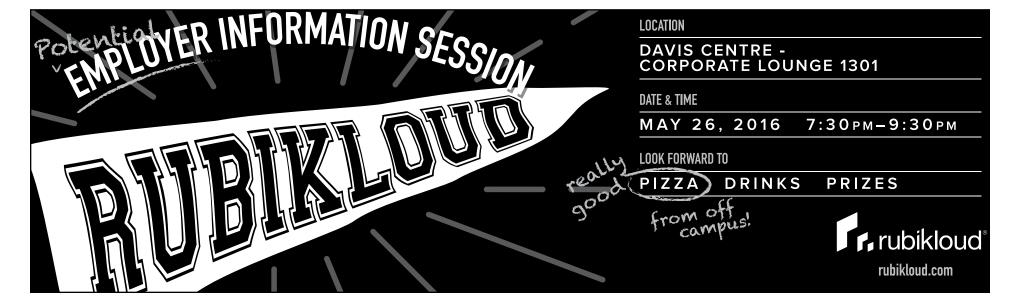
mrteedot.com

things well enough to advance.

Defense and rebounding, defense and rebounding... they allow you to shoot 30% in a quarter while maintaining a cord. With GM Masai Ujiri adding the lead. Head coach Dwane Casey has em- right pieces in the form of DeMarre Carphasized it all year, and in the playoffs, we are finally seeing some real, concrete results.

Though it is unlikely that the Raptors will get past the stacked Cavs, there is

much to be proud of. Coach Casey is the only coach in the last five years to boast an improved regular season win-loss reroll and Cory Joseph (free-agent signings 2015,) along with shrewd pickups in Bismack Biyombo and second round draft choice Norman Powell, these Raptors are the best yet. And the best is yet to come.



## **Eurovision 2016!**



SARAH CHAN 2B NANOTECHNOLOGY

This past weekend, on May 14, 2016, the world was blessed with the 61st Eurovision Song Competition held in Sweden and it was simply out of this world. It was amazing yet awful but brilliant all at the same time. Anyway, for those of you who don't know Eurovision is an annual song competition in Europe where European countries (and special, now seemingly permanent, guest, Australia) send a song that best represents their country. It's always filled with awkward and lame sobad-it's-good jokes, outlandish costumes, pyrotechnics, water works, and wind machines to keep the hair blowing. So many memes have come out of Eurovision, one of the most iconic being Epic Sax Guy. This year was slightly disappointing since there were less fireworks and actually decent songs. However, Justin Timberlake made an appearance and it was still a great show full of laughs and WTF moments, and I am here to share some of the highlights of the show.

Opening Ceremonies: So the Opening Ceremonies were interesting... Each country came out waving little flags, which was cute. But then there were these models dressed in; I don't even know how to describe their costumes so you can just look at the photo. I guess the best way to describe it would be the lamp section of IKEA with those modernist, minimalistic white lampshades?

After the Opening Ceremonies, the competition began. Here are the winners and losers, according to Europe and then the winners and losers according to me.

In Last Place: Germany finished last, getting 1 point in the jury vote and 10 in the televote, which confused me a bit because I didn't think the song was that bad. Sure her outfit was a bit off but I keep insisting that she was going for an Alice in Wonderland lost in the woods kind of vibe.

My Worst: Sweden was the only Scandinavian country that made it to the Grand Final and that's only because they were hosting this year. Sweden's Frans performed 'If I Were Sorry,' and was trying to go for a young Justin Bieber on acoustic guitar kind of feel but he was actually even worse than the Biebs and I can't stand him. I have no idea how he finished 5th with 261 points. He must have charmed voters with his cute half smile whenever he would start the chorus. This also leads to a big

question: Why didn't Sweden just send Avicii to Eurovision?

The Winner: Ukraine won with a grand total of 534 points. I wasn't really a fan of the song, which was '1944' by Jamala. It was bizarre and not really in a good way. There was some chanting going on and her outfit was a dress on top of a jumpsuit with a cape over her and it was all the same colour. All I could think was why? Another notable part of her performance was when she held out the last note and a tree grew out of her. That was kind of cool but I still don't understand how she won. I can understand why over 300 000 people have requested a recount of the televotes...

My Favourite: Which leads me to Australia! Australia came in second place. Dami Im was actually really good and I actually enjoyed her song "Sound of Silence." After the jury votes, it actually looked like Australia was going to win. And she deserved to win. But then Australia isn't actually in Europe so there was no way a non-European country could win Eurovision. Eurovision is always held in the country that won the competition the year before. So if Australia won, Eurovision would have to be held in Australia, which isn't actually Europe. Which leads to the question most people have: Why is Australia in Eurovision?

Who Should Have Been There: San Marino should have been there. It was a huge disappointment that San Marino's Serhat didn't make it to the Grand Final with his song "I Didn't Know." It's too difficult to explain how great this song is. You need to experience the majesty yourself. Do yourself a favour and go on YouTube and watch the music video for "I Didn't Know – Extended Disco Version." You know it's going to be good when it's an extended disco version.

Love Love Peace Peace: Actually, I lied when I said Australia was the best act of the night and deserved to win. The song "Love Love Peace Peace" performed by the hosts Måns Zelmerlöw, (Eurovision Winner 2015) and Petra Mede. The song was performed during the interval break and was about how to make the perfect Eurovision song. It referenced so many glorious moments in Eurovision history as well as poked fun of its stereotypes. Previous Eurovision winners Lordi and Alexander Rybak made cameos, as did many other contestants. If you've never seen Eurovision before, I highly recommend you watch this video to understand what you've been missing your whole life.

And that wraps up Eurovision 2016! Can't wait for next year in Ukraine!

## **Summer Movies!**



SARAH CHAN 2B NANOTECHNOLOGY

POP 101

Summer is always a wonderful time for movies, especially blockbuster and action movies. Here are five upcoming movies that you can look forward to seeing (in chronological order):

### 1. X-Men: Apocalypse

Who? Directed by Brian Singer, director of the original X-Men trilogy; and starring Jennifer Lawrence, James McAvoy, Michael Fassbender, Nicholas Hoult, and Sophie Turner

What? The ninth movie in the X-Men franchise! This time Professor X and Mystique lead a team of young X-Men to stop Apocalypse, the first—and most powerful—mutant. A godlike foe!

When? May 27, 2016

## 2. Alice Through the Looking Glass

Who? Directed by James Bobin, and starring Mia Wasikowska, Johnny Depp, Helena Bonham Carter, Sacha Baron Cohen, Anne Hathaway and Alan Rickman

What? The sequel to 2010's Alice in Wonderland in which Alice returns to Wonderland through a magical looking glass and must save the Mad Hatter. To save the Hatter, Alive must race against time, and come across friends and enemies from her previous visit in Wonderland.

When? May 27, 2016

### 3. Finding Dory

Who? Directed by Andrew Stanton, starring Ellen DeGeneres, Albert Brooks, Eugene Levy, and Diane Keaton

What? In the long-awaited sequel to Finding Nemo, Dory recalls her childhood memories and sets out to find her family with the help of Nemo and Marlin, meeting new friends along the way.

When? June 17, 2016

#### 4. Star Trek Beyond

Who? Directed by Justin Lin, starring Chris Pine, Zachary Quinto, Simon Pegg, Karl Urban, John Cho, Anton Yelchin, and Idris Elba

What? The USS Enterprise is destroyed during its 5-year mission by powerful aliens, stranding the crew on an unknown planet. With no means of rescue, the crew finds themselves in conflict with a new enemy who has a great hatred of the Federation.

When? July 22, 2016

### 5. Suicide Squad

Who? Directed by Daivd Ayer, starring Will Smith, Jared Leto, Margot Robbie, Joel Kinnaman, Viola Davis, and Cara Delevigne

What? A DC universe movie in which imprisoned super villains are recruited for a secret task force to save the world from an unknown but powerful and dangerous threat in exchange for clemency.

When? August 5, 2016

# Canada Continues Plans for Space-Age Domination

SEAMUS BANNON 1B NANOTECHNOLOGY

Canada is now one step closer in our plans of implementing our very own galactic manifest destiny. To date, Canada has already put 11 astronauts into space, and as of 2009 has had active missions on the international space station. Of these great pioneers, the most recent and memorable has been Chris Hadfield.

Capping off a grand total of 166 days in space, Chris Hadfield has done much to extend Canada's claim to the great unknown. For 5 months of those 166

days he was commander of the ISS before strategically relinquishing command to Pavel Vinogradov. During his time in space, Commander Hadfield was able to become the first Canadian to perform a spacewalk. However his primary mission, in hopes of winning the hearts and minds of the Canadian population, was to make the perfect music video for David Bowie's "Space Oddity".

Regrettably, all great heroes must fall, and Commander Hadfield is no exception. After returning to Earth, the 53 year old Commander Hadfield promptly retired, marking an end to a near perfectly executed propaganda campaign.

Just this week, the Canadian Space Agency announced their new tribune in the effort of expansion, David Saint-Jacques. Born in Quebec City, Saint-Jacques is a multitalented, decorated, and highly educated individual. Saint-Jacques has his B.Eng. in engineering physics from Ecole Polytechnique de Montreal, Ph.D. in astrophysics from Cambridge University, and finally a M.D. from Université Laval. In addition to this, Saint-Jacques is fluent in English and French and can also converse in Russian, Spanish, and Japanese.

In his acceptance speech, Saint-Jacques is quoted in saying "Today, I stand on the shoulders of all the astronauts who came before me. They inspired me—they were my role models. They sparked my curiosity about space and made me want to experience spaceflight for myself. Space exploration is the next step for humanity, and I am proud to be part of it.".

All in all, it seems as Canada's plans for space-age domination are progressing nicely. Excellent.



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## **Captain America: Civil War**



Captain America: Civil War is the follow-up to 2014's The Winter Soldier. Or 2015's Age of *Ultron,* depending on how you look at things. I had heard that when making Civil War, the creative team did something controversial ignoring new coming movie goers. While this might cut down the accessibility of this movie, I think it was a great call. Civil War is Steve Rogers' fifth outing, and if the writers' room had to keep reintroducing him and his comrades-in-arms in every film, then a significant amount of time and energy would be wasted. Civil War kicks it off with the new roster of the Avengers on a fast, high-intensity mission. The prep time needed to explain the change in rosters which occurred during Age of Ultron, or who these characters are would have taken the punch out of this sequence.

This sequence brought back Brock RUMLO, having undergone transformation from sleek hydra agent to the villainous Crossbones. Crossbones is a simple villain just trying to steal a biochemical weapon, but his enhanced gauntlets and brutal methods leave a lasting impression. The fallout from this confrontation kick starts the main conflict. Many governments around the world take issue with the Avengers, a privately funded American super-team, operating covertly with impunity on their sovereign soil. This seems like a reasonable enough stance to me, but when global legislature is proposed to take the decision making process away from the Avengers, Divides start to form.

There is very little outright hero vs. villain conflict in *Civil War*, although many

characters are not aware of this. Misdirection and deceit are the primary tools of the story's antagonist, Zemo. Adapted from the comic's Baron Zemo, a high-level Hydra member, Zemo brings something new and different to the MCU. He, like so many before him, wants to destroy the Avengers, but he realizes that he can use their own power against them. Iron Man and Captain America themselves haven't really come across an adversary that they can't defeat, so why should he even try? After a great deal of scheming and digging into the past, Zemo is able to find the perfect issue to wedge between the two top-tier Avengers. Daniel Bruhl doesn't get a whole lot of screen time, but terrific writing and delivery craft an excellent performance.

Other new characters also had massive break out performances in *Civil War*: The Black Panther and your friendly neighbourhood Spider-Man. Finally getting to see Peter Parker suit up along with the Avengers was amazing. You might have read last fall that the first comic I ever bought was Ultimate Spider-Man #1, and it is still one of my favourite series. Tom Holland gave a pitch perfect, quipping performance while suited up and an even better one while just being an awkward, teenage Peter Parker. Spider-Man had a limited performance though, so the title of true break out character goes to Black Panther.

A scientist, ruler, ambassador, and allaround good guy, the Black Panther's inclusion in *Civil War* was expertly done. Seeking revenge on the Winter Soldier for a crime he didn't commit, the warrior prince of Wakanda shows off his speed and ferocity to the Avengers and the world. Siding with Iron Man out of the classic enemy-of-my-enemy rationale he gets dragged right into middle of the fight. Chadwick Boseman gets some of the more emotional and intimate moments, when T'Challa interacts with his father as well as Zemo.

The core Avengers are showcased throughout *Civil War*, and it's very clear that they are a family. They really care for each other, even when they're going head-to-head at full steam. After the dust settles, they all know that they can count on one another. Different relationships are explored in detail throughout the film, and I enjoyed watching the dynamic between Hawkeye and the Scarlet Witch. After their heart to heart during the climactic battle of *Age of Ultron* ("... and I have a bow and arrow. Nothing makes sense."), Hawkeye seems to have taken Wanda under his wing. Civil War also contains some of the best action sequences the

MCU has seen, not counting Daredevil's one-take beat down sequences. Along with the highly-publicised airport sequence, the Winter Soldier's escape sequence, and the third act showdown between Iron Man, the Winter Solider and Cap feature the most intense hand-to-hand choreography to date. Despite all the violence, suspense, and big revelations, *Civil War* is still able to serve up Marvel's almost patented brand of comic relief (ha, get it? COMIC relief) and even a bit of romance along the way.

Overall I thought it was best Marvel movie yet, 9.5/10 only because the third act could have been longer and some dramatic irony around the third act reveal would have been cool. The Russo brothers score another hit, and I can't wait for the *Infinity War*.

## Hamilton, The Musical

A New Genre of Broadway



hamiltonbroadway.con













If you've ever wondered what the Twitter hashtags #Ham4Ham and #RiseUp were, I might be able to provide you with some insight

These hashtags are references to *Hamilton*, a musical that has been running on Broadway for over nine months at the Richard Rodgers Theatre. The master behind the music, lyrics, and book are none other than Lin-Manuel Miranda—you may already be familiar with his past work *In the Heights* (2008). Coincidentally, this musical also opened on Broadway at the Richard Rodgers Theatre. Miranda's inspiration behind this show came from historian Ron Chernow, who authored the biography *Alexander Hamilton* in 2004 and became a historical consultant for the show

The show's protagonist is Alexander Hamilton, one of the seven key Founding Fathers of America. It follows his humble beginnings as an orphan living in the Caribbean, his dreams of seeing an America free from Great Britain's firm grasp—all the way to his ultimate demise by his once-best friend.

As a loyal fan of the Broadway genre, this show certainly distinguishes itself from the rest of the pack. It retains some classic Broadway elements, such as wicked ensemble numbers, amazing orchestrations, and a rich story line. But its relentless beat, powerful lyrics, and infusion of 21st-century rap music makes it a gem. In fact, critics have claimed that the only musical that can compete with Hamilton for "The Greatest of Our Generation" status is *RENT*—Miranda himself accredited *RENT* as a major influence in his conception of *Hamilton*.

Personally, I believe that there are many other musicals that are contenders for this title aside from *RENT*—all for different reasons. During the early 1980s, Broadway was in its worst financial decline, yet it was revived in

1982 when Andrew Lloyd Webber's *Cats* opened in London's West End and ran for 19 years. Also by Webber, *The Phantom of the Opera* (1986, West End) is the longestrunning musical in music theatre history and is arguably the most widely-known musical in the entire world. Another show that cannot be forgotten is *Les Misérables*, the touching story of love, redemption, and tragedy set during a revolutionary period in France. Another lesser known but equally qualified musical is *Chess*, a story revolving around a politically-charged chess tournament between an American and a Soviet grandmaster during the Cold War era.

Similar to the aforementioned musicals, there is love, hate, revenge, rivalry, compassion, greed, lust, and jealousy—all of the essential ingredients to a great musical. However, *Hamilton* ups its game by reaching out to a broader audience—a younger audience.

This younger audience is not only falling in love with the Broadway genre; they are also benefitting from the show academically! History teachers in the U.S. are using the show's cast recording to pique their students' interest in the subject and as an aid to highlight important historical details during the American Revolution. Essentially, the musical brings to life stories from 18th century America.

Another Broadway culture-changing aspect of *Hamilton* is its diverse cast—the only Caucasian playing a major role in the musical is Rory O'Malley, who plays King George III. Not only does this market the musical to a more diverse audience, but it also reflects modern American society and gives aspiring performers the hope to persevere through the challenges that comes with working in an industry that consists of a Caucasian majority.

It's time for you to take your shot now—a listen of *Hamilton*'s mind-blowing cast recording. If you're in the mood for something sassy, give "Guns and Ships" a listen. If you need some motivating jams, go for "My Shot." If you prefer something more sentimental, I highly recommend "Satisfied"—it may turn on the waterworks, especially if you follow along with the lyrics.



## The Iron Crossword

Fun in the Sun

**CAMERON SOLTYS** 

3N MECHANICAL

1	2	3		4	5	6	7			8	9	10	11	12
13				14						15				
16				17				18		19				
20			21					22	23					
24						25	26					27	28	29
			30						31					
		32				33		34				35		
36	37			38	39			40				41		
42				43			44			45	46			
47			48				49		50					
51						52						53	54	55
			56						57					
58	59	60				61	62	63				64		
65							66					67		
68							69					70		

#### **ACROSS**

- 1: Everything
- **4:** The lowest level of a house (abbr)
- 8: Warm but pleasant
- 13: Eggs of a fish
- **14:** Long skinny water fish
- **15:** Bright sky blue
- 16: Stuck in a

ON INQUISI

- 17: Leg equivalent of a wrist
- 19: Mathematics concerned with the analy-
- 20: Study of the behaviour of light
- 22: Create, for instance a cake
- **24:** Sunny or rainy, perhaps
- **30:** A room with (2 wd)
- **31:** A video game that has both real-time strategy and large-person multiplayer ele-
- **32:** Ontario body for registered nurses
- 33: South Africa costal desert
- **35:** Money used down under (abbr)
- **36:** Contract that prevents someone from

- sharing company secrets **38:** Basic substance used in making soap
- **40:** Aspirin (abbr)
- **41:** A disease transmitted through intimate contact
- **42:** Yes, to a pirate
- **43:** Used in CD and Blu-ray players
- **45:** the Lovely, Game of Thrones city
- **47:** Cause to move
- **49:** of incidence or repose
- 51: A response that comes well after an event occurs
- **56:** Larger than a teaspoon (abbr)
- 57: Shoes used by a ballet dancer
- 58: Crimean city where a WWII conference took place
- **61:** "River rat" or "little beaver"
- **64:** Definite article
- **65:** "Do you feel what ?" (2 wd)
- **66:** Move off course
- **67:** Colour of a maple leaf
- **68:** Hidden treasure in an oyster
- **69:** Amendment (abbr)

70: Suffix indicating a place of or for

- 1: Ammunition used in a bow
- 2: Jeweller's magnifying glass
- 3: 2013-2014 Italian Prime Minister Enrico
- 4: Sport played in a sand pit with a net
- 5: Martial arts teacher
- **6:** "I have a dream" civil rights leader
- 7: Internet abbreviation for "That's so lame"
- 8: Field on which a bouncy-ball is dribbled and dunked
- **9:** Pre-Spanish Mexican empire
- 10: Portuguese for "moon", also a programming language
- 11: "I pity the fool" wrestler
- **12:** As opposed to no
- 18: Emotional hardcore, a genera of music 21: " quickly" reason for using sun-
- screen (2 wd) 23: In architecture, the intersection of two
- 25: Inventor of the Cartesian coordinate
- **26:** Initials of the protagonist in "Catch Me If You Can"
- 27: Gather together
- 28: Scandalous or profane media
- **29:** Dr. Quinlan, character in "Scrubs"
- **32:** A Christmas traditional fable
- **34:** Battle of the , WWI battle where Taxis were famously used
- 36: Police department of the largest US city
- **37:** Truth or
- 39: Possessive form of a Connecticut university
- **44:** Organ used for hearing
- **46:** Abominable snowman
- 48: Sound made by rodent's feet
- **50:** A break or opening
- 52: Used when discussing the age of an embryo (abbr)
- 53: Beginning
- **54:** additional, distinct
- **55:** Seeking attention
- **58:** Sound of a small dog
- 59: US Government agency that provides entertainment to overseas troops
- **60:** Land used for grazing
- **62:** Female reproduction cells
- 63: Yemen (abbr)

## Sudoku

#2016-06

**CAMERON SOLTYS** 3N MECHANICAL

#### Easy

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

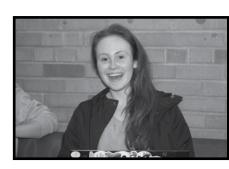
### Medium

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

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

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

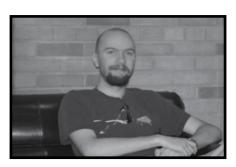
## "What's the coolest thing you've bought online?"



"Messed with my friend's Amazon account and filled their cart with hander pants and 1,500 live ladybugs." Liz Morrow, 3A Tron



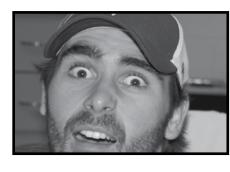
"Textbooks! They're like a third of the price!" Ania Polak, 4C Mech



"My roommate bought 5 free posters of Queen Elizabeth." Tim Woerle, 5A Arts



"A bottle opener cap launcher, great for party fights!" Teresa Lumini, 4A Mech



"My whirling sirens for Frosh week." Scott Wood, 4A Mech



"Surprise Lingerie!" Shavaughn Soraine, 3A Mech

THE IRON WARRIOR WEDNESDAY, MAY 25, 2016



Waterloo Engineering has partnered with Spectrum 28, a Silicon Valley venture capital firm to establish a student venture program for engineering undergraduate and graduates students who are seeking ideas or have an idea for an entrepreneurial venture and need cash, mentoring and resources to make it happen.

June 10 & 11, 2016

Pop Up Classes Fast Feedback Day **July 13, 2016** 

**Demo Day April 2017** 

If you're successful at the Fast Feedback Day you move on to further idea development with mentoring opportunities until Demo Day in April 2017. At that time winning companies are awarded funding by Spectrum 28, founded by Waterloo alumnus Lyon Wong, Systems Design Engineering '03.



**SPECTRUM 28** STUDENT VENTURE PROGRAM

For more information and deadlines visit: https://uwaterloo.ca/engineering/entrepreneurship/funding

