THE IRON WARRIOR

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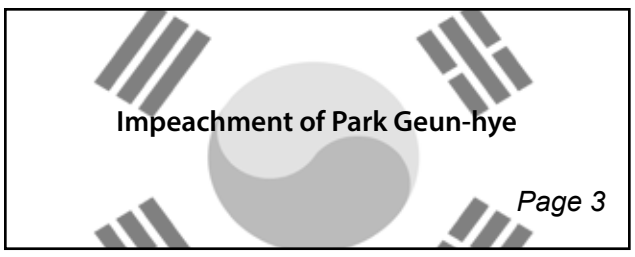

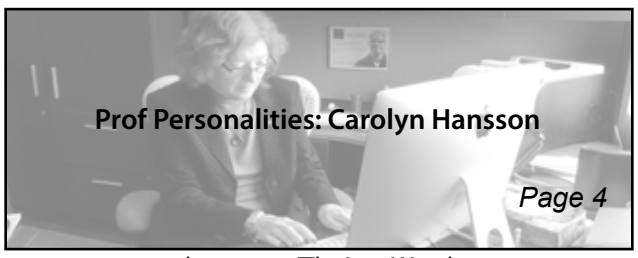

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International Women's Day

HIRA RAHMAN
1B NANOTECHNOLOGY

On March 8, people around the world celebrated International Women's day to bring light to the issues concerning women, commemorate the struggle for women's rights and to celebrate the political, social, economic, and cultural achievements of women throughout history. The theme of this year's International Women's Day, "Be Bold for Change", was indented to push people towards concrete action to help drive gender equality.

Here in Canada, Justin Trudeau emphasized his government's commitment to gender equality and announced Canada's plan to provide $650 million of funding for women's sexual and reproductive health rights around the world. The money will be used for sexuality education, reproductive health services, family planning and contraceptives, and will also go to programs to prevent and respond to sexual and gender-based violence.

This year, International Women's Day organizers came together for the "Day Without a Woman" strike which was organized by the same grassroots activists behind the Women's March that took place the day after President Trump's inauguration.

Women were encouraged to show solidarity with the movement by taking the day off, avoiding shopping for one day (with exceptions for small, women- and minority-owned businesses) and by wearing red in solidarity with A Day Without a Woman.

"The idea is to mobilize women, including trans women, and all who support them in an international day of struggle – a day of striking, marching, blocking roads, bridges, and squares, abstaining from domestic, care and sex work, boycotting, calling out misogynistic politicians and companies, striking in educational institutions," organizers and activists wrote in an op-ed calling for the women's strike. "These actions are aimed at making visible the needs and aspirations of those whom lean-in feminism ignored: women in the formal labor market, women working in the sphere of social reproduction and care, and unemployed and precarious working women."

Women play an essential role in the daily functions of life in society and so the goal of the strike, in brief, was to show what society looks like when women don't actively participate in it and to raise awareness around issues of civil liberties, reproductive rights, and economic inequality.

Around the world, Women's groups organized protests, rallies and strikes to bring awareness to the biggest issues impacting women, like income inequality, reproductive rights and violence against women.

In India, a march for the One Billion Rising campaign took place in the capital, New Delhi. The campaign was prompted by the gang rape and murder of Jyoti Singh, a medical student. The movement, which is supported by 30 women's groups, marched to challenge the culture of violence against women by helping victims find justice.

In Ireland, women's groups used International Women's Day to protest the country's restrictive abortion laws. The groups organized a strike and rally under the hashtag #Strike4Repeal, advocating for the repeal of the eighth amendment of the Constitution of Ireland, which prohibits abortion even in cases of rape, incest, or sickness of the mother, allowing it to be considered only when a woman's life is in immediate danger.

Activists in Beirut organized a march to protest the lack of female representatives in the Lebanese parliament, domestic abuse and the country's penal code that fails to adequately punish rape.

International Women's Day is about making the world a more inclusive place for everyone. Although a lot of progress has been made to improve the lives of women around the world, there are many issues concerning women that have yet to be resolved. To accomplish this, there needs to be awareness of problems exclusive to women in the world and that is why International Women's Day is relevant.

ECE Design Days

AARON PROPP
1B ELECTRICAL

Last week was the close of ECE Design days. After two days of Domino's pizza and two days of mystery wraps, the furious keyboard-pounding was over. It was a fun experience overall, filled with, well, designing ECE things.

To kick things off on the first night was President Hamdullahpur, who shared with the class a story grounding engineering in reality. It's not just formulas - it's practical considerations such as constructing a turbine to make sure it can go through all the underpasses.

The first night was spent designing a circuit to drive a motor using some MOSFETs. Unfortunately, the light bulbs we were given for this activity were out-of-spec. The circuit wouldn't work as the light bulbs were drawing on too much power. But overall, it was a fun first night.

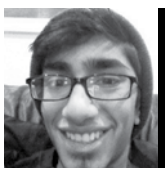
Programming a pitching machine using an Arduino was the featured activity on the next night. The pitching machine will be used in the future ECE 105 labs (read: mechanics but harder). It was basically a plastic pipe with slots cut in the side for wheels to spin the ball forwards. Programming the machine took some effort, but eventually ping-pong balls were flying all over the place. My team took the machine and turned it on its head (literally) and made a fan to suspend the ball in the air, as the wheels on the side had enough wind going to suspend the ball.

The third night was a dual-pronged opportunity. The first one was using either an Arduino Yun WiFi shield or a small Bluetooth module to communicate with the Arduino. The second opportunity was to use a TEXTRIX to build a robot to mount the pitching machine on. There were some hiccups with all the Bluetooth modules having the same name. Although this did not lead to total chaos, with everyone programming everyone else's Arduino, it did lead to some interesting problem-solving occurring. One solution was to change the name of the device, which was easier said than done. The other was to leave the room, which would mean being the only Bluetooth device in the vicinity.

The final night we were left to our own devices (pun intended). Some teams focused on improving their robot from last night. Some used various lighting displays and Arduino monitors to program cool and exciting projects. My time was spent building a battle bot. We succeeded in cutting off someone's power and we cut another robot's Arduino cord.

Oh, and there were prizes for all the nights, themed to the evening. The first night's prize was a soldering iron. The second night was a starter Arduino kit. The last two nights had loads of prizes including drones, multimeters, and more. The grand prize winners (an awesome drone) were Jonathan Chan, Benjamin Chapman-Kish, Allison Chow and Andrew Seto. Students had great things to say about the event, which may be a program for future 1B students. One student stated, "I thought this was a great and rewarding experience overall. I am truly glad I participated and would have definitely regretted it if I did not attend. This week was a great experience."

IBM Proves Concept: Stores Data on a Single Atom



HASAN AHMED
1B NANOTECHNOLOGY

Yeah, you read the title right. Now don't get excited just yet; it's not like you can store all your hard drive data on it or something. It's just a proof of concept. But I'm in nanotechnology engineering, so proof of concept to me is a very positive phrase with a lot of potential. Especially since it's actually on a nano scale. So how did these researchers do it?

Previous attempts with working on atomic structures resulted in hard drives that could be created on a nanoscale, but no information could actually be stored. It would just be readable. On the other hand, today's method uses a concept which stores atoms in a binary format, with 1s or 0s. Then the atoms could be read for their binary value. The question is, could we manipulate the atoms so that if we needed to change a 1 or 0 to the opposite value, could we? The answer is yes.

IBM researchers used a single Holmium atom (atomic number 67), which is set on top of magnesium oxide. This "single atom bit" represents "the ultimate limit of the classical approach to high density magnetic storage media." This was the first single-atom bistable magnetic bit, as others were 3-12 atoms. As technology gets smaller and smaller, the impact it can have gets larger. According to the Nature publication of this discovery, this setup of Ho and MgO particles can retain information for a relatively long time (a few hours). Using tunnel magnetoresistance, which basically reads information on small scale structures, as well as a scanning tunneling microscope (STM), the team was able to inscribe data on the Ho atom and read it, confirming that it can actually have "1" or "0" values. This STM applies a voltage to the atom, which is able to change its magnetic spin as a result. Since the atom only has two spins (hence bistability), the tunnel magnetoresistance was able to confirm that this atom indeed stored data.

The researchers also tested putting two atoms of Ho beside each other, and confirmed that all possible combinations (00,01,10,11) could be formed. They further proved their results by putting the Ho beside an iron sensor atom. The iron can detect nearby magnetic fields, and by testing this next to the Ho, they confirmed that the Ho had two discrete states which corresponded to two magnetic orientations. This is pretty good, as it means you can line up a bunch of Ho atoms without them affecting each other to an extent which would manipulate or potentially corrupt your data. Then again, more research probably has to be done on this to be absolutely sure. But think about it. Does this work with other atoms? How long before we implement this into computing that's consumer friendly? Will we ever have tiny USBs? Can this help robotics? I mean, I'm shaking up and down with excitement as I'm writing this.

Now unfortunately it is an experiment carried out under low temperatures, as it was tested at 4.3 K and can hold up to temperatures past 30 K. So is it realistic just yet? No. But again, proof of concept is just one step further into a world of ideas and innovation.

Letter from the Editor

I Didn't Stick With a Theme For This One...

DONOVAN MAUDSLEY
EDITOR-IN-CHIEF

What's up readers? Welcome to my fourth issue of *The Iron Warrior as editor*. I had my doubts about this one, but we got it done in the end. Production of this paper was largely fueled by Bryan's delicious marshmallow squares, the recipe for which you can find in *Half-Baked* this issue. This issue actually has some of the best articles we've had this term. I want to give a big shout out to everyone who made that possible.

Please excuse the lack of an overall theme for this editorial. For a while I honestly just wanted to make it a 1700 word walkthrough for *The Legend of Zelda: The Wind Waker*, my favourite videogame.

People often say that if you find a job you love you'll never work a day in your life. A lot of people equate this to something a little out there, like reviewing pizza in Chicago as a full time job or being the camera-person at the Air Canada Center for the Leafs (which are both completely legitimate career choices), but it can also apply to things that we do right here at the University of Waterloo. I didn't enjoy the work that I did at my first two co-op positions. The terms were good, I learned a lot and I regard them as time well spent, but I couldn't see myself working in a manufacturing environment forever. My third co-op term I spent doing mechanical design, which I greatly enjoyed. I had a terrific mentor and I learned an incredible amount about design, but I couldn't see myself working there forever. The scope of the projects was too small. My most recent co-op term was where I started working with robotics, and really fell into my own.

Should I have gone into Mechatronics Engineering? Probably. Should I have paid attention during that prof hour when they explained the Mechatronics option to us? Definitely, but I didn't. So my introduction to industrial robotics came a little late, but was still very welcome. Working with and learning about different types of arms was an awesome experience. Co-op experiences show you what you want to do and where you want to live, but also what you don't want to do. Before I came to Waterloo my grandfather was convinced I was going to end up running an automotive parts plant someday, and that seemed like a reasonable possibility. Now though, it seems almost impossible.

That brings me back to my point though. I didn't mind working at my last co-op. Some of the tasks that got passed to me weren't quite as enjoyable as others, but on the whole I enjoyed getting to work in the morning and settling for a day of robot-related stuff. I was always asking questions of the more experienced engineers, and trying to fill my brain with as much as possible in four months. I'm returning to the same position in the summer and I'm beyond excited about it. If you find a job you love you'll never work a day in your life. Sure, working for *Loudwire* magazine reviewing the newest heavy metal albums all day would be pretty amazing (I'm hyped up for Mastodon's new album at the end of this month), but robots are cool too.

Alright, on to my next topic: interview skills. I take a very relaxed approach to interviewing. This works out sometimes, and sometimes it doesn't. I think I mentioned in an earlier editorial this term that I look at interviews as just regular conversations, which in a sense they are. Interviewers are just regular people like you and I. Sure, they might have 30+ years of experience at this company and they might even be the founder of the company, but they're still people. Conversing with people is starting to become a lost art form; today we instant-message people so often that direct human contact intimidates us.

First of all sit up straight in your chair. This might seem like a silly thing to start with but it really makes a difference. If you sit up to your full height in your chair your posture will be better and you'll seem more confident. You're going to start slouching after a minute or two, so try and catch yourself. Interviews aren't time for relaxing. Continuing down the same vein is body language. I'm constantly tapping my fingers or toes, but try not to during interviews. This habit makes you appear fidgety or bored, which is something you need to actively avoid during an interview. Hand placement is also important. Wringing your hands is also as bad as constantly tapping them. To combat both of these I started taking notes during interviews in second year, which is something I'm going to come back to in a minute. Having something to hold in your hands helps combat fidgeting and taking notes will help keep you engaged throughout the interview.

Moving upward, I want to talk about what to do with your face during an interview. Smiling goes a long way. It makes you seem more approachable and will actually change the tone of your voice a little bit. A full Heath Ledger-style Joker grin isn't the best idea though, just a little smile. Looking eager in a job interview is never really a bad thing. Eye contact is also very important. You can use eye contact to really drive a point home near the end of an interview, or to show that you are actively listening to the interviewer. Be careful not to get too intense with the eye contact though, as finding yourself in a starting contest can be a little unnerving.

Too many interviewers think that it's their job to outline every single detail of the job in the first half of the interview, which isn't very productive for you. When this happens I try to cut them off as early as I can, and actually have a conversation. Don't be rude about this, just try to relate that you have read the job description and know what the position entails. I have literally asked for the "Coles' Notes" of the position before instead of all the details. By spending more time talking about what you bring to the position you can make a lasting impression and separate yourself from the pack.

Now, on to what to actually do during an interview: talking is the most important part. You need to have an active conversation with the interviewer, and explain to them why you are THE best fit for the position. I've gotten positions which I haven't been the most experienced or qualified for, and I'm almost positive it was because I did a better job of expressing myself. Talk about the required skills that the employer listed, highlighting the ones you already possess, and talk about the ones that you know you can acquire. Try to make a personal connection with the interviewer. I spent about five minutes during one interview talking about my hockey and softball teams, trading anecdotes with the interviewer who would go on to become my supervisor, and eventually my friend.

I also want to come back to my notes. It seems like everyone has one of those University of Waterloo clipboards, so put it to work. I usually print out a copy of the resume I used to apply to the position (I have a system for customizing my resume for every position I apply to, but that's a different story) so that I remember exactly what it says. I also print out the job posting, and highlight items that I think might be important. This is the page I make notes on. I write down anything that they tell me about the actual position, as well as my impression of the interviewer(s). Once the interview is over I even rate the position out of five stars at the top of the page. Once rankings come out I use these notes and my rating to determine whether or not I really want the job.

I want to end this editorial with a small anecdote. I wish I had a video of one interview I did last term, to show people how much of a difference body language can make. The position was working in a research laboratory in Ottawa - I don't remember which one - and the posting made it seem like the position involved research into high tech polymers. As the interview went along though it became clear that the position was more or less just about running tests and data collection, so I asked if it was more or less a lab assistant position. I was hoping for an answer like "No, you'll be doing a variety of research tasks," but they said "Yes, it's more or less an assistant position." I felt my posture crumple and my eyes glaze over. I wasn't going back to being a lab assistant at this point in my university career. At the end of the interview when they asked if I had any questions, which I pretty much always do, I flat out said no and left as quickly as I could. One out of five stars.

So yeah, that does it for me this issue. If you want to holla at me for any reason, you can write me at *iwarrior@uwaterloo.ca*. You stay classy San Diego.

Send your submissions for the next issue to *iwarrior@uwaterloo.ca*.
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South Korean President Impeached

Constituional Court Upholds National Assembly Ruling

BRYAN MAILLOUX
3A MECHATRONICS

On March 10th, South Korea's Constitutional Court upheld an earlier decision to impeach the Korean President, Park Geun-hye, effectively ousting her from office. The December 2016 parliamentary decision to impeach President Park came after a corruption scandal surrounding Park's close friend, Choi Soon-sil, came to light. After the decision, waves of pro- and anti-Park protesters took to the streets, in what was a very divisive couple of days for the nation.

Scandal

Choi Soon-sil's position and relationship with Park have been a source of controversy in Korea since the 1970's, when Choi's father, Choi Tae-min, founded the Eternal Life Church, which incorporates elements of Christianity, Buddhism, and Cheondism, an shamanic religion native to Korea. Tae-min became a mentor figure to Park when her mother was assassinated by a North Korean sympathizer attempting to kill her father, the then president/dictator Park Chung-hee. Later on, in 1994, Choi Soon-sil succeeded her father as spiritual leader of the Eternal Life Church, while remaining a spiritual mentor and close friend to Park as her political career was kicking off.

This relationship continued through Park's presidency, despite Choi not having any official government titles. Choi's standing within government circles eventually came under journalistic investigation, as the result of a string of implications dating from even before Park became president. The uncovering of the chain of corruption within the government and the Korean Prosecution Service, a branch of the Ministry of Justice, reads almost like the script to a TV show: investigations into an illegal gambling ring in Macao uncover evidence that the CEO of a popular cosmetics brand was guilty of tax evasion; after his arrest, said CEO pays his lawyer over $5 million in fees to try to obtain a lighter sentence, prompting another investigation into the enormous sum paid; this new investigation reveals evidence into even more lobbying going on throughout the Prosecution Service, and implicates a government official; media reporting on this government official eventually points to institutions later proven to be a front for Choi Soon-sil's bribery operations, prompting government backlash towards the media and the resignation of at least one high-ranking journalist; apparently taking the hint, most media outlets back off, but some others decide to conduct a more thorough investigation into Choi Soon-sil and her operations.

Over the course of their snooping, the media came up with a tablet owned by Choi showing evidence that some of President Park's speeches had been directly edited on it, and other sensitive government information that shouldn't have been in the hands of a civilian. Choi, who had been in Germany at the time, fled back to Korea once she caught wind that German police wanted her for questioning over illicit business practices. The Prosecution Service seemingly tried to protect Choi at every turn, for example by delaying the investigation into her affiliated institutions for almost a month; eventually the public had had enough of the Prosecution Service dragging its heels and took to the streets in protest.

As it turns out, Choi was using her influence on Park to force bribes from some of the largest Korean companies, who gave substantial amounts of money to foundations affiliated with Choi. Of course, everyone implicated was profiting from this arrangement – for instance, Samsung Group chief Jay Y. Lee was accused of paying $36.4 million to Choi's organizations to gain government support for a 2015 merger between Samsung and Cheil Industries. Other conglomerates tangled in the web of corruption included Hyundai, SK Group, and Lotte.

Prosecution

Park's close friendship with Choi, and very obvious implication in Choi's dealings, lowered public opinion of her, and by the end of November 2016 her public approval rating was at 4%. With the now two million protesters bringing the country to a standstill, in December 2016 South Korea's National Assembly voted 234-56 to impeach the president. Park was suspended from office, with Prime Minister Hwang Kyo-ahn assuming presidential powers. However, from December until last Friday's ruling, Park has enjoyed political immunity as President.

The Constitutional Court's 8-0 unanimous decision to uphold the decision to impeach Park means that she is effectively ousted from the office of President, and can now be prosecuted as a common citizen. All eyes are now on potential candidates to succeed Park as president – the country is to hold a snap election within the next 60 days.

Protests

Park's impeachment has polarized South Korea – despite the waves of anti-Park protesters celebrating the decision, Park still enjoyed a relatively high approval rating among the elderly, and pro-Park protesters took to the streets as well. Amid the demonstrations, three people have died and dozens more were injured.

The division within South Korea comes at a pivotal moment – this past week, North Korea has been flaring up tensions by continuing to test ballistic and nuclear missiles. Many are worried that North Korea will take advantage of the turmoil farther south; Acting President Hwang called for South Koreans to stand unified during the chaos.

North Korean Missile Test

Unease Brews In Asia

GABRIELLE KLEMT
2A GEOLOGICAL

In a world dominated by Trump and his cabinet's shenanigans, we sometimes need news to lighten up the mood and give us hope for our future on this planet. Unfortunately, if you want to read an article about that, you should not read this article. The type of lightening up in this article is the kind where a missile lights up the sky, not exactly cheery.

The history of North Korea's missile launches is one that paints a worrisome picture for the future. Since the 1980s, North Korea has seriously ramped up its missile research and development. In 2016 alone, Kim Jong-un ordered the launch of more than 15 ballistic missile tests and 2 nuclear tests, topping off their nuclear tests at a total of 5. If you're looking at that number thinking it's higher than you thought, you're not alone. The ballistic missile launched in August of 2016 was the first to land off the coast of Japan, causing Prime Minister Shinzo Abe to call North Korea a "grave threat" to Japan.

North Korea's refusal to accept sanctions being placed on it from the UN, United States and South Korea has given the communist republic the title of "rogue nation". It's pretty much agreed at this point that North Korea will do what it wants, when it wants, which we should definitely be scared about. North Korea's apparent goal is to create a missile capable of hitting the US. Though they have not done it yet, the latest missile test on March 6 landed four missiles into the Sea of Japan sending ripples of concern across the world. The missiles travelled 1,000 km and have been deemed collectively by the offices of PM Abe and President Trump to be "a clear violation of UN Security Council resolutions".

Unfortunately, apart from continuing military drills at their bases in the States and imposing sanctions, there is not much the US, or Canada for that matter, can really do to help. Last year, the South Korean military, in collaboration with the Pentagon, agreed to equip South Korea with the Terminal High Altitude Area Defense (THAAD) battery, America's most advanced missile detection system. Although this decision was considered contentious at the time with many South Koreans protesting by shaving their heads, plans have continued to proceed to have THAAD in place in Seongju by the end of 2017.

So could North Korea be within missile reach of North America in the near future? Well, it's certain that they have inter-continental range arms in development that could travel over 5,500 km. In fact, Canada is closer than the States if we're looking at missile reach. Additionally, in February of this year, North Korea successfully used a carrier version of their longest range missile, the Taepodong-2, to launch a satellite, increasing their reach to possible space launches.

Should you be worried? Well I'd say generally not yet, and who knows, maybe Trump and Kim will get friendly. I feel like if any one man could solve the inter-continental animosity, it would be that guy! I guess we just have to wait and see, but this isn't really the kind of waiting game I like.

Oscars Wrap Up

Snubs and Flubs

TAHREEM FAROOQI
1B PLANNING

From announcement mess-ups to Nicole Kidman's awkward clapping, the 2017 Oscars proved to be as entertaining as the nominees that evening were throughout 2016.

The biggest highlight of the evening, as well as the biggest mishap, was in the final Oscar announcement of the night. The winner of the Best Picture Academy Award, originally announced as La La Land, was met with joy, quickly turning into shock, confusion, and joy once again, once it was announced that Moonlight had actually won the Oscar for Best Picture. This win by Moonlight was not only shocking, but powerful, as it is the first Academy Award for Best Picture awarded to a film characterised as both black- and LGBTQ-related in content.

Along with that win, there had been an increasingly ethnically diverse set of winners this year, contrasting with the all-white nominees who have dominated the past two years' Oscars celebrations. In this respect, one of the most memorable wins of the night was that of Viola Davis for Best Supporting Actress for the film Fences. This was mainly due to her captivating acceptance speech, appreciating the arts as a whole and her place in it, stating, "People ask me all the time – what kind of stories do you want to tell, Viola? And I say exhume those bodies. Exhume those stories – the stories of the people who dreamed big and never saw those stories to fruition, people who fell in love and lost. I became an artist and thank God I did, because we are the only people and profession that celebrate what it means to live a life. So, here's to August Wilson who exhumed and exalted the ordinary people."

Meeting that same memorable effect, the winner for Best Supporting Actor, Mahershala Ali, was the first Muslim actor to win an Academy Award for the movie Moonlight, continuing the incredible influence this one movie has had within the industry during the past year.

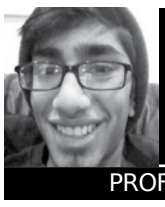
Moving on from the pleasant surprises of the night, a win that was not met with the same degree of joy, but rather the exact opposite, was that of Casey Affleck for Best Actor. This win was disappointing and appalling to many, as the actor had previously been previously charged with sexual harassment. Although the case was settled in 2010, the response was not one anyone would have wanted, especially considering he had beaten out Denzel Washington for the award.

What garnered no surprise were the wins for Best Actress and Best Animated Picture. Emma Stone, bringing in the Academy Award for best actress in a leading role, won the award for her brilliant role in the movie La La Land, winning that movie one of six Academy Awards. Similarly, the movie Zootopia won Walt Disney Pictures an Academy Award for Best Animated Feature, though this comes as no surprise considering Walt Disney Pictures has been dominating this category since 2007.

Despite the outrageous and wonderful surprises, next year's Oscars are bound to be as entertaining as the last.

Carolyn Hansson

We Catch Up With The Beloved Mech Prof



HASAN AHMED
1B NANOTECHNOLOGY

PROF PERSONALITIES

Funny, sarcastic, and an overall wonderful person. Carolyn Hansson is a professor who teaches both graduate and undergraduate students and I got to sit down in her office to ask her questions. Learn more about her extensive background in this issue's Prof Personalities.

How long have you been teaching at Waterloo?

21 years.

What courses do you teach?

Currently, I'm only teaching one undergrad course: BME 282 (materials science for biomedical engineers). I also teach a grad course, ME 731 (corrosion and oxidation).

Favourite course to teach?

I've only taught the BME course once, and it was delightful. There were only 35 students in my class. Prior to that, I've been teaching ME 230, where there were typically 120. Teaching 35 is a lot easier, especially for the labs. It was great fun, and I got to learn something new, which is always good.

How'd you end up as professor?

Long story. I was teaching at Queen's University, where I was head of a department. I got a phone call from friend at UBC saying, "I think you should apply for this job at Waterloo." I replied, "What job and why?" He said "Because you'd be good at it and it's your kind of university." The position was for the vice president research position. I got the job, did a 5 year term, and then reverted to being a professor. That position gave me a window on research across the university. I had no idea how to do research without a lab, but now I do. However, I couldn't see my being in administration for the rest of my life.

Favourite part of being a professor?

Trying to find out what research results mean, especially when you don't get expected results. When students come for undergrad, all the labs they're doing have been done before. They know what to expect. In grad school, students are not used to not knowing what the answer should be. That's really fun, because they get to figure things out and question results. Another thing which is great fun is when a student is struggling, then you explain it in a few ways and they suddenly get it. I love when students come into my office saying, "I'm going to do materials in the future." That's a good feeling.

Hardest part?

Least favourite is bureaucracy. Let me give one example. We now have a software program called concur for dealing with expenses (eg. for conferences, trips, etc.). I have to fill in a form. It goes to an administrator, who checks it to make sure things are reasonable, fair and allowed. It then goes to an admin assistant, then to a department chair, then the office of research, then the finances department. So many people getting paid to check bureaucracy. I'll give an example. I went to a conference in Germany, took a taxi to the train station, to go to the airport. When I came back and filed receipts, the date on taxi receipt was not the same as on the form. Apparently, the taxi driver wrote the wrong date. I had to fix it, change it, and resubmit the documents which then had to be approved by all five levels again. That is not a way I want my tax money to be spent. The software's supposed to be helpful…it isn't. Similarly, when I write a research proposal it's not the hard part. The forms I have to submit along with them are. When I was a young professor, there were just secretaries, no computers. She typed, I checked, she retyped, and the paper was submitted and the publisher did the rest. Now, the journal publisher expects you to do everything and format it all specifically for that journal: graphs have to be in this format, photographs need this DPI at this specific size, etc. Formatting used to be done by the publisher. Now I have to market my expertise to get research funds; I need to be an administrator, accountant, etc. and, most of all, a good communicator. It's gotten worse and worse over the years.

Teaching philosophy?

I was a professor before they taught you how to be a professor, so I don't really have a philosophy, but there are a few things I've picked up. I was talking to grad students who wanted to be profs, and told them they need to be an actor when they've got to keep a class of 120 awake. I have a bit of a problem:

Hasan Ahmed

Professor Hansson Hard At Work

I was born in England, where the sense of humour tends to be playing on words and sarcasm; it's not slapstick. I often make what are meant to be humourous comments. Half the class thinks they are hilarious, half think I'm being sarcastic. This is all because of different cultures in the classroom. It's hard to be funny when someone's sense of humour doesn't match yours. But I - and the students - will survive.

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

I've spent ~40% of my life in the non-academic world (industrial research, consulting) so I'd probably be doing that. Advantage of that is you're doing one thing. Theoretically, our job now is 40% teaching, 40% research, 20% professional service. Each could easily be full time. And you're trying to do them well and efficiently. Compared to doing things in industry, where you have one job, and that's it, it's a challenge to be good at all of this.

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

Show enthusiasm. Also, nothing is worse than interviewing someone who didn't do their homework. I'm astounded that some don't do it. Don't spend a huge amount of time on it, but figure out the basics. What do they do? What position are you applying for? Be enthusiastic! Sell yourself. Think of some questions you want to ask them. E.g. have you had co-op students before? Can you tell me what kind of job they had? Show some interest, show you care, show you looked them up. Be interested in that job, not just any co-op job.

3 tips for undergrads?

People skills are something people are looking for. I'm not talking English, just being able to talk and the ABILITY TO LISTEN. Listen to the full question of your interviewer. It's better to ask, "Could you give me some time to think about that?", rather than answering a question they didn't ask.

Study together for exams. Discussing a problem makes it go in better. Secondly, I use clickers. I ask the students to discuss the answers with each other, and explain why this is the answer, and why this isn't the answer. You're a generation younger than most profs. Your language is different. Therefore, expressing is different. I may explain something some way, and another guy in class may get it, but you may not. If he/she explains it to you, in a way you normally communicate, then it's a way you can get it too. When you're studying, "hey do you know what this means?" is a good question. Discuss it! You'll remember on the day of the exam better. If you just read it, you probably won't remember.

Do NOT trash all the information after the exam. You'll need to remember that for your future as an engineer.

Favourite memory of undergrad?

I was in a situation which was different. I went to Imperial College, where I was the first woman in that faculty ever, but I didn't know that at the time I applied. Schools were still segregated in UK, so I went to an all-girls school. I didn't know how to deal with men, and the men didn't know how to deal with women, because they went to all-boys schools. The first 6 months were terrible, but I actually had a good time overall. It was hard at first though. They told me if I didn't succeed, they wouldn't hire any more women.

Be proud of being an engineer.

WaterlooWorks in the Spotlight

BRYAN MAILLOUX
3A MECHATRONICS

Co-op rankings for first round are finally over, and hopefully most of you have a job lined up for the next co-op term. If you don't, don't be discouraged! There's still plenty of time to get employed. I didn't get my first job until the beginning of May – I guess the good thing about getting a job really late in the term is that you can be completely committed to finding a job after finals finish up.

One of the things that can be frustrating with the job search is when the WaterlooWorks interface doesn't work the way you expect it to. We've previously written about some of the things that we didn't like with the new system, such as the search options that are not quite as user-friendly as Jobmine was, and some things we did enjoy, like the option to not rank a job if during the interview if you found out that the job wasn't quite what you expected. I've never used it, but the Send A Message functionality seems pretty useful too – you can send a message to other people interviewing for a job if you have a conflict, or to your co-op advisor if you have any issues. It is definitely easier than finding out who these people are and searching the Waterloo White Pages to find their email addresses.

The latest issue seems to be with the ranking display page: the first thing I noticed was, though there is a link to show your rankings on the WaterlooWorks dashboard, it seems like that link is the only place on the site where you can access your rankings. I feel like it should be a link in the sidebar, like the Jobs / Applications and Interviews links. Also, anyone who interviewed during the main round but who didn't get ranked by any jobs was not allowed access to the rankings page. This caused a lot of confusion among students, who weren't sure whether WaterlooWorks was just glitching or whether it was meant to work that way. Word got around quickly that this was in fact the intended behaviour of the site, but a lot of students felt that this was an issue that should have been foreseen by the website designers.

It isn't all that hard to find someone who has some criticisms to make about WaterlooWorks – if you have something you think could be improved on, you should let CECA know by filling out their feedback survey, which can be found on the WaterlooWorks dashboard. CECA is actually starting to outline some of the WaterlooWorks design decisions they had originally taken which students didn't agree with, and what they're doing to change that functionality, on their WaterlooWorks Functionality Spotlight page, available here: https://uwaterloo.ca/co-operative-education/waterlooworks-news/waterlooworks-functionality-spotlight. Currently, the page only talks about the application status and job status fields and what those mean, and changes to the job application limit (you're allowed up to 250 applications in the continuous round!), but hopefully there will be more information up there soon. Providing CECA keeps the page updated, it should answer a lot of questions about WaterlooWorks design decisions that didn't make sense to students.

In other news, WaterlooWorks cost almost 3 million dollars to develop and has been in progress since Fall 2011. On March 1st, CECA released data (https://uwaterloo.ca/co-operative-education/news/data-released-cost-waterlooworks) on the cost of WaterlooWorks, including a high-level breakdown of what the $3 million was used for. Also mentioned on the page is that the "second phase" of the WaterlooWorks project will feature additional functionality and continuous improvements, though what these entail isn't specified. Though $3 million isn't a pleasant number to look at when considering all the frustrations we've had with the final product, it's great to see that CECA has actually published the data, as unflattering as it might be. I'm hoping this transparency will translate over to updates to the Spotlight page, giving the student body a little more information about why WaterlooWorks' quirks are the way they are.

Point Vs. Counterpoint

Should the United States Government Repeal and Replace ObamaCare?

POINT

CAITLIN MCLAREN
4B CHEMICAL

Obamacare, a.k.a. the Affordable Care Act (ACA). From the name to the content to its effects, there is probably no piece of legislation more divisive or more generally misunderstood. Arguments range from conspiracy theorists raving about non-existent "death panels" to dry economic breakdowns. Why do Republicans seem to hate Obamacare so much?

Well, in the first place, it might be because Obama used their idea: the ACA was based largely on a health care law Mitt Romney signed when he was governor of Massachusetts, though Romney maintained afterwards that he did not support Obamacare and thought it had failed as a federal law. That the Republican party was so adamantly opposed to everything Obama and the Democrats did that they came out so vehemently against their own idea when he suggested it says a great deal.

Certainly, the ACA is not perfect. Some people lost their insurance due to their plans not meeting the requirements laid out by the ACA, and many others found that their premiums went up. Some businesses, unable to cover their employees' health insurance, reduced full-time employees to part-time to avoid needing to cover them. New taxes introduced by the ACA can also be problematic. However, the benefits of Obamacare outweigh the drawbacks, and it is certainly not helpful to demolish a partial solution to a problem before finding a complete solution.

For a long time, lack of health insurance has been a serious issue in America. While estimates vary, the ACA brought insurance to between ten and twenty million Americans, and pulling out the rug from under all these people could be catastrophic. The extension of Medicaid under the ACA meant that health care became more available to low-income individuals (those making under 133% of the Federal Poverty Level). Those making between 133% and 400% of the Federal Poverty Level qualified for various tax credits and subsidies, making health insurance up to 60% cheaper for them. Small businesses (those with less than 25 employees) received tax credits to pay for up to 50% of the employer health insurance they offer. Overall, Obamacare is good for low-income and middle-class Americans - those the Republican party claims to be concerned about.

One controversial issue was the effects of the ACA on women. The ACA banned women from being charged more than men for health insurance, which is important considering that childbirth requires considerable medical attention. Some male Republicans stated that men should not have to subsidize women's health care, which is absurd: everyone's mother required health and maternity care, and better maternal health care is incredibly important for the long-term health of a population. Issues which ultimately stem from poor maternal health care can affect both mother and child for years to come, putting more costs onto society. Another source of controversy comes from conservative or religious groups who do not wish to offer their female employees insurance that covers contraception. As these are usually the same groups who decry single mothers and out-of-wedlock pregnancies, their objections seem hypocritical.

Overall, most aspects of Obamacare are popular with Americans. One of the biggest problems with health insurance prior to the ACA was individuals being denied health insurance due to pre-existing conditions. Sometimes this denial was unjust, and it always caused serious financial issues when these people became sick. The ACA banned this practice, a move supported by nearly 70% of Americans. According to a 2012 Kaiser Health survey, 51% of Americans support the government requirements for a basic healthcare package, 70% support the Medicare expansions, and 54% support the Employer Mandate requiring employers of more than 50 employees to provide health insurance for at least 95% of their employees and dependents up to the age of 26. 80% of Americans support tax credits for small businesses being used to help them pay for employee insurance. Over 70% support Obamacare's financial help for middle and low-income uninsured Americans, with 53% supporting the increased tax on upper-income individuals to pay for Medicare.

These numbers mean that, overall, many aspects of the ACA are supported by the American people. So why is it so controversial? For a lot of average people, their issue is the individual mandate, which requires individuals to have health insurance. Some people who don't feel that they need health insurance feel that this is unduly burdensome. Others simply bristle at the thought of the government telling them what to do regarding their healthcare. However, the individual mandate is necessary in order for the other, more popular, parts of the ACA to function. That is basically how insurance works: premiums from customers who do not need payouts pay for those who do. If the ACA only made health care more accessible to the sick without mandating that everyone have insurance, it would not be financially viable.

Currently, many Republicans are arguing that Obamacare is not financially viable even as is. If that is the case, they should find the problems and fix them, not eliminate the entire law in order to lower taxes for the rich while throwing all the people who need it under a bus. Millions have benefited from the ACA, and repealing it without guaranteeing that all those people will still be able to afford the health care they need is unconscionable.

COUNTERPOINT

ALEXA GRITTANI
3B MECHANICAL

Donald Trump made his opinion of Obamacare clear when he was running for President of the United States. In the second presidential debate he stated, "Obamacare is a disaster. You know it. We all know it. We have to repeal it and replace it with something absolutely, much less expensive, and something that works."

He continued with, "Obamacare will never work. It's very bad, very bad health insurance. Far too expensive. And not only expensive for the person that has it, unbelievably expensive for our country. It's going to be one of the biggest line items very shortly." He then turned his focus to why he thought Hillary Clinton's plan to improve Obamacare wouldn't work, "she wants to go to a single-payer plan, which would be a disaster, somewhat similar to Canada. And if you haven't noticed the Canadians, when they need a big operation, when something happens, they come into the United States in many cases because their system is so slow. It's catastrophic in certain ways."

During the second debate, Donald Trump's explanation of better healthcare was, "You're going to have plans that are so good, because we're going to have so much competition in the insurance industry. Once we break out – once we break out the lines and allow the competition to come… President Obama, by keeping those lines, the boundary lines around each state, it was almost gone until just very toward the end of the passage of Obamacare, which, by the way, was a fraud. You know that, because Jonathan Gruber, the architect of Obamacare, was said – he said it was a great lie, it was a big lie. President Obama said you keep your doctor, you keep your plan. The whole thing was a fraud, and it doesn't work. But when we get rid of those lines, you will have competition, and we will be able to keep pre-existing, we'll also be able to help people that can't get – don't have money because we are going to have people protected. And Republicans feel this way, believe it or not, and strongly this way. We're going to block grant into the states. We're going to block grant into Medicaid into the states so that we will be able to take care of people without the necessary funds to take care of themselves."

During the second presidential debate, Donald Trump stated, "Nobody's ever seen numbers like this for health care." But Donald Trump doesn't seem to know what these numbers are, "when I watch the deals being made, when I watch what's happening with some horrible things like Obamacare, where your health insurance and health care is going up by numbers that are astronomical, 68 percent, 59 percent, 71 percent…" None of these numbers match the ones he later stated in the third presidential debate, "You take a look at the kind of numbers that that will cost us in the year [2017]. It is a disaster if we don't repeal and replace. It is probably going to die of its own weight, but Obamacare has to go. The premiums are going up 60%, 70%, 80%. Next year, they're going to go up over 100%."

In his congressional address after being elected president, Donald Trump broached the issue of healthcare, "Here are the principles that should guide the Congress as we move to create a better healthcare system for all Americans: First, we should ensure that Americans with pre-existing conditions have access to coverage, and that we have a stable transition for Americans currently enrolled in the health-care exchanges. Secondly, we should help Americans purchase their own coverage, through the use of tax credits and expanded health savings accounts, but it must be the plan they want, not the plan forced on them by our government. Thirdly, we should give our great state governors the resources and flexibility they need with Medicaid to make sure no one is left out. Fourth, we should implement legal reforms that protect patients and doctors from unnecessary costs that drive up the price of insurance – and work to bring down the artificially high price of drugs and bring them down immediately. And finally, the time has come to give Americans the freedom to purchase health insurance across state lines –- which will create a truly competitive national marketplace that will bring cost way down and provide far better care."

Since then a new bill has made it to the House floor. The official title of the replacement plan is the "World's Greatest Healthcare Plan of 2017", introduced by Texas Representative Pete Sessions. Trump supported it when addressing House Republicans, "I'm proud to support the replacement plan, released by the House of Representatives, and encouraged by members of both parties. I think, really, that we are going to have something that's going to be much more understood and much more popular than people can even imagine. It follows the guidelines I laid out in my congressional address. A plan that will lower costs, expand choices, increase competition, and ensure healthcare access for all Americans. This will be a plan where you can choose your doctor. This will be a plan where you can choose your plan. And you know what the plan is, this is the plan. And we're gonna have a-a tremendous- I think we're gonna have a tremendous success. It's a complicated process, but actually it's very simple. It's called good healthcare."

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

Sick of Us Already?

Actually Though, Let's Talk Elections

RACHEL MALEVICH
PRESIDENT

Hey readers! I remember thinking that March would be relatively chill. If your March has been more like running across hot coals than relatively chill, you're not alone, and we'll all get through this together! On the topic of March, I realized at the last Council meeting that we are already preparing to be replaced! On March 1st, Council elected Sarah Martin to be the Fall 2017 Chief Returning Officer (CRO). The CRO is responsible for running the Executive elections. In December 2017, my team will be passing on the reigns to a new team to run Engineering Society B. What does this mean? Why am I telling you now? Good question!

As an Engineering Society Executive, you dedicate 16 months to running an organization that represents all undergraduate engineering students. 16 months might seem a little overwhelming, but to someone who is already 6 and a half months in, it doesn't feel like enough. If you're someone who gets passionate about improvement (this is engineering, I know there are a lot of you), running for an Executive position could be really rewarding for you. Before considering the role of President, I remember thinking of Engineering Society Executives as these superhumans who were smarter, more motivated, and more passionate than me. Listen up friends, we're just regular people. School is still really hard and managing all of these commitments is even harder. But at the end of the day, I know that I have my team to support me through this term, and that together, we're making a huge difference for students.

I'd also like to point out that you don't need to be an Engineering Society sage (fancy, I know) to run for an Executive position. You don't need to be the perfect candidate to do a great job! And that's where we (Executive B) come in. If running for an Executive position is something that you might be interested in, send an email to one us, or email executive.b@engsoc.uwaterloo.ca to ask us about our experiences. However, our roles and experiences can all be best expressed in person - so I'd highly recommend inviting one of us for lunch one day to chat (we're not JUST looking for friends I swear)!

The general descriptions for each of the Executive roles (President, VP Communications, VP Academic, VP Student Life, and VP Operations and Finance) can be found on the EngSoc website under Governance>Executive if you want to start somewhere. If you'd rather dip your feet with the Engineering Society before jumping in, check out Melissa's article in this issue for information on Commissioners and Directors! You can also email Sarah Martin at cro.b@engsoc.uwaterloo.ca to learn more about the election process. Good luck with "March" everyone, don't forget to de-stress with some of the awesome events EngSoc has planned for this month!

A Guide to Engineering Sponsorship

Insights From the VP Finance

KATIE ARNOLD
VP OPERATIONS AND FINANCE

The Waterloo Engineering Society runs a Sponsorship Committee every term to allocate a percentage of our student fees back into the hands of the students. Our sponsorship funding is available to any student team or organization to apply and present their proposal. As our sponsorship committee wraps up, I wanted to offer my insight to candidates for funding in future terms. As I've had experience twice as a voting member and twice as chair of this committee, I have seen what can make or break a proposal.

Engineering Involvement

We want to know how many engineering students are affected by this sponsorship. Don't lie to us. We are much more inclined to sponsor teams with a large student involvement or we are more inclined to sponsor items that benefit multiple teams as this means our contribution has the greatest impact on the greatest number of students. I'm not saying if you're a small team not to apply for funding; by all means please do! It is of benefit to your application however, to include the engineering student involvement.

Items to Ask For

Our committee has historically favoured sponsoring items that have a longevity to them. We like to sponsor things that will survive year after year like tools. We also love to fund safety supplies. We have funded flame retardant suits, gloves, face masks, and all sorts of helmets. Safety First!

Items to Not Ask For

Our sponsorship committee historically doesn't like to fund disposables. We don't like funding things that benefit small numbers of people like travel to competition, raffle prizes, or swag items for your team. We also don't like funding student fees or registration fees. Our goal is to bring the most benefit to the most people. We also cannot fund things that have already been purchased.

I want to thank the 7 people, my six committee members, Ben Beelen, Bryn Cummings, Corbin McElhanney, Julia Reinstein, Olivia Baker and Quin Millard, and the off-term VP Operations and Finance, Michael Beauchemin, for sitting with me during the proposals on March 4th this term. I also want to thank the 20 student teams and groups that presented. I encourage all engineering student teams and groups to approach the engineering society in the Spring term and again in the Fall term. I always look forwards to our Sponsorship Committee, as I have been involved with it since my 1A term, and I love seeing the benefit we can bring to our student groups outside of the Engineering Society.

Upcoming Events Calendar

Wednesday Mar 15	Thursday Mar 16	Friday Mar 17	Saturday Mar 18	Sunday Mar 19	Monday Mar 20	Tuesday Mar 21	
Change for Charity Ongoing until March 31	Change for Charity Ongoing until March 31	Change for Charity Ongoing until March 31	Change for Charity Ongoing until March 31	Change for Charity Ongoing until March 31	Change for Charity Ongoing until March 31	Charity Green Pancakes 11:30 AM - 2:30PM CPH Foyer	**Check out up-to-the-day event postings on the EngSoc website at *engsoc.uwaterloo.ca/event-calendar/***
Council Meeting 5:30PM - 7:30PM CPH 3607	Metal Club 5:00PM - 7:00PM POETS		Trip to See MacEng Musical! 6:00PM - 10:00PM McMaster University		EngiQueers 6:00PM - 9:00PM POETS	Board Games & Metal Club & De-stress Events 4:30PM - 7:30PM POETS	
EngPlay 7:00PM - 11:00PM Hagey Hall Ongoing Until March 18	EngPlay 7:00PM - 11:00PM Hagey Hall Ongoing Until March 18		EngPlay 7:00PM - 11:00PM Hagey Hall Ongoing Until March 18			Winter 2017 Raffle 12:30PM - 2:30 PM CPH 1327	
Wednesday Mar 22	**Thursday Mar 23**	**Friday Mar 24**	**Saturday Mar 25**	**Sunday Mar 26**	**Monday Mar 27**	**Tuesday Mar 28**	
Change for Charity Ongoing until March 31	Change for Charity Ongoing until March 31	Change for Charity Ongoing until March 31	Change for Charity Ongoing until March 31	Change for Charity Ongoing until March 31	Change for Charity Ongoing until March 31	Change for Charity Ongoing until March 31	
Course Critique Screening Party! 11:30AM - 3:30PM CPH 1320	Director Appreciation 5:30PM - 7:00PM POETS	Arts - Stress Balls 11:30AM - 2:30PM	Dungeons & Dragons 12:00PM - 2:00PM		EngiQueers 6:00PM - 9:00PM POETS	Charity Grilled Cheese 11:30 AM - 1:30PM CPH Foyer	
Metal Club 5:00PM - 7:00PM POETS		Rube Goldberg Screening 5:00PM - 7:00PM POETS			Distractingly Honest Exhibit Ongoing until March 31	Metal Club & Board Games 5:00PM - 7:30PM POETS	
WiE GE Workshop 5:30PM - 7:30PM							

National Engineering Month

I Spend All of my Nights Writing Labs, But it's Fine, I Think

CHELSEA VANDERMEER
VP STUDENT LIFE

Hej til mine intelligente venner!

So, March is NEM – National Engineering Month! For all of us, every month is an engineering month, but specifically in the March of 1992, Engineers Canada decided that engineering deserved some real recognition and celebration! I mean, are you really a real thing if you don't have your own 'month'? (Note: March is also the national month of Reading, Noodles, Peanuts, Irish-American heritages, Women's History, and Youth Art, apparently). Hopefully we're all proud to be a part of this respectable group; I know I am, despite my countless all-nighters spent writing difficult labs.

How many times have you heard the question "what's an engineer?" I've stumbled myself through many explanations, often accidentally saying "efficient" at least several times. The word itself shares its roots with obvious words like engine, and ingenuity. The Latin word 'ingenium' refers to an innate disposition or ability, which turned into ingenuity; in our modern English, ingenuity refers to quick and effective problem solving, clever design, and skill in creation.

And this shows greatly what engineering is about, and what we spend our time doing everyday: finding efficient solutions to various problems. According to Pietro Boselli on his online blog, the key difference between an engineer's answer and anybody else's… lies in the word efficient. It is not just about devising a solution, but one that requires the least amount of resources, time and effort. If that's not something to be proud of, then I don't know what is. Waterloo engineers? Yeah, we get shit done.

Why do we love engineering? For NEM, our two presidents have this to say!

"I love engineering because it blends creativity and logic in the perfect way. I thought that I'd be sacrificing my creative side by coming to UW for Engineering - but I was wrong. I've had the opportunity to explore my creativity in different ways - particularly in a manufacturing environment (something I never predicted I would like)." –Rachel Malevich, B-Soc President

"As future engineers, we will all play a vital role in shaping the future of our society in one way or another. I love engineering because being an engineer means that you get to use your smarts, creativity, and ingenuity to make the world a better place. Being an engineer means that you will find the easiest ways to solve the most complex problems, so if you're lazy like I am, it's a perfect fit. Being an engineer means working in teams on initiatives including improving quality of life, reducing our carbon footprint, or utilizing our current resources as efficiently as possible … [a]lso, not gonna lie, the iron rings are pretty sweet! All of these reasons and much more are why I love engineering." –Abdullah Barakat, A-Soc President

As some last engineering event plugs, come see Engplay March 15th 8-10 pm in AL 116, March 16th 8-10 pm in AL 113, and/or March 18th 8-10 pm in AL 116! We have so many talents! Wow!

One NEM event we participated in last month was creating a Rube Goldberg Machine, which involved devising a complicated way for a simple event to occur – shoutout to Gabrielle Klemt and Liam Yeates for being our lovely NEM directors. On March 24th from 5-9pm in PO-ETS we will be watching this video, and other schools' delicious video creations as well. Woo! Come see!

Am I Good Enough to Make It?

Overcoming the Feelings of Inadequacy in the Co-op Process

ANDREW MCBURNEY
VP ACADEMIC

Hey engineering students! I hope the term has been progressing well since I last wrote you.

I wanted to say briefly that for this edition, my IW article is geared more towards first year engineering students. That being said, I feel the implications of this article are valuable to all engineering students. Without further ado, I'll jump right in.

We recently finished the 'Main-Matching' period of the co-op process. To recap, this is the period of time after the main interviewing stage where you see what employers ranked you on WaterlooWorks, and you rank them. After this ranking period transpires, WaterlooWorks runs a matching algorithm to determine what companies students will be matched with. After the 'Main-Matching' process, some of you will be matched with employers - but a large portion of students (especially first years) will not have jobs yet. To those students who've gotten jobs - I'd like to extend my congratulations to you. If you're in first year, you're past one of the biggest hurdles of co-op in my opinion: landing the first job.

However, to the majority of first year students who are still looking for work (I'll say from experience): it's easy to think less of yourself for not having a job at this stage of the process. It's easy to look at other people's job success and compare yourself with them. It's easy to let these things affect your self-esteem. Here's my advice for you: don't.

When I was in 1B looking for my first co-op job, I didn't land my first interview until two weeks into the continuous round. I didn't have any interviews in the main round. I didn't get ranked by any companies. I didn't rank any companies. By the time I received my first interview, I had applied to over 100 jobs. It wasn't until after final exams (a week into the Spring term) that I landed my first co-op job.

So, if you're a first year student who is still looking for work - here's my advice to you: don't be discouraged. Keep applying to jobs, keep refining your résumé, and keep being persistent. There are services that exist to help you in the job hunt process. If you're looking to get your résumé critiqued during the continuous round, EngSoc will be holding another Résumé Critique workshop in the immediate future (stay tuned for an update on our Facebook page). Furthermore, we have resources available on our website (https://www.engsoc.uwaterloo.ca) for résumé writing (such as templates and general tips), as well as an online résumé critique service called 'résumé rescue'.

As always, I wish you all the best in your studies, and the co-op process. If you ever need to talk to me about anything, you can reach me at vpacademic.b@engsoc.uwaterloo.ca, or find me in the Orifice (CPH 1327).

We Want YOU to do (EngSoc) Things!

Fall 2017 Commissioners and Directors Wanted

MELISSA BUCKLEY
VP COMMUNICATIONS

Hello there reader! Thank you for once again directing your attention to my article, I hope your procrastination is going well. For this article, I'd like to talk to you about how you (yes, YOU!) can be involved in with the Waterloo Engineering Society through a directorship or commissioner position in Fall 2017. So, here's the down low:

EngSoc employs Commissioners to assist the executive with the day to day operations of the Society, as well as exploring the growth of certain portfolios. Commissioners work closely with Directors and Executives to host the events and services you have come to know and love. Currently (although it depends on the time you read this article) we are looking to hire 8 commissioners. These positions are: Socials & Events Commissioner, MATES Commissioner, Advertising Commissioner, First-Year Commissioner, Waterloo Engineering Competition Commissioner, Student Services Commissioner and Speaker. You can find more information on what each position is responsible for on the EngSoc website (see the March 3rd blog post). Commissioner positions are perfect for anyone who is looking to take on a greater role within EngSoc. If you're thinking of running to be an EngSoc Executive in the future, this could be some pretty ideal training – I'd recommend applying for a commissioner position under the executive you'd like to be in the future, so that you can work closely with them and learn what the position is like.

Don't think a commissioner position is for you but still want to help run the Engineering Society? Time to consider an EngSoc Directorship! EngSoc directors are responsible for specific events and services that the society runs. If you've attended a fantastic EngSoc event, there is a director to thank for that. Directorship applications will open at the end of March, and I encourage you to take a gander at the options. You could direct anything from Hackathon to Resume Critiques to Semi Formal. Don't think a directorship is for you but still want to help run the Engineering Society? Fear not, directors still need volunteers to help out at their events and you can sign up to volunteer throughout the term!

The Engineering Society could not offer the services and events it does without Commissioners, Directors and Volunteers! In addition to helping others, any of these positions are a great opportunity to develop your organizational and leadership skills. Plus, they can be a lot of fun, and a great way to meet people!

Questions about any of these roles or becoming involved with EngSoc in general? Send us an email at executive.b@engsoc.uwaterloo.ca.

So You Think You Can Critique?

MEGAN TOWN, ANDREW MCBURNEY, GORDON STUBLEY
COURSE CRITIQUE DIRECTOR, VP ACADEMIC, ASSOCIATE DEAN TEACHING

Hey engineers, it's that time of the term again! With faculty course critiques around the corner, here are some things to get you up to date. Engineering will again be using UW's course evaluation platform, Evaluate (https://evaluate.uwaterloo.ca), for the majority of your course evaluations. Of the 20,854 questionnaires being generated this term, only 822 are paper; that's just over twenty thousand sheets of paper that we don't have to consume, and that's amazing!

There are other good reasons for electronic evaluations besides just saving paper. Moving to electronic delivery is the first step toward a new comprehensive evaluation system that will provide instructors of varied course components – labs, projects, seminars, lectures, team-taught, online and other types of courses – with meaningful student feedback. We anticipate the introduction of a new set of core questions that are applicable to all course experiences plus additional question sets that are specific to different teaching modes. This will give instructors of all types of access to your feedback.

In the fall, A-Soc achieved an incredible overall response rate of 66%, which is higher than the average rate for the past 13 years! We'd love to see that momentum continue – if we can maintain these high response rates, paper evaluations will remain a thing of the past.

Between March 13 and 24, students will be given class time to complete Course Critiques electronically. Make sure you find out from your professors when you'll be given class time so that you can bring your web-enabled phone, tablet or laptop to class, and take Evaluate for a spin.

Your active participation in course evaluations provides course instructors with valuable feedback on their teaching. Your feedback is important, as it helps guide teaching development efforts at the individual, program and faculty levels. So please complete all of your course critiques – future engineers are counting on you!

CAN-do Attitude

GABRIELLE KLEMT
2A GEOLOGICAL

ENGSOC EVENTS

Although I, like most other engineering humans, love being on co-op for the independence and freedom from school it gives me, there is one major thing that I love about school that seems to be lacking in the "Real World". The great thing about actually being on-term is the plethora of extra activities that are offered, in many cases for free, when you need a break from school.

One such event that I got to go to lately was Karate and Self-Defense De-Stress. As a huge fan of trying new things and also someone who has been interested in karate ever since I didn't do it as a child, I was super psyched about the chance to hit some things and relax in the middle of a personal Hell Week. The event was organized by the Mental Health Awareness directors, who organize all your exciting de-stress events throughout the term and also compile a blog of posts from Waterloo Eng students dealing with MH issues.

The class was only about an hour on a rainy Tuesday night, but boy was it satisfying to hit the bags and move around trying to punch things. We even got to do this leaping elbow punch thing that was immensely rewarding and that really took the edge off. As one person said, "It felt really good". I think the general feeling as we all left the room was that we all felt lighter, de-stressed, and more energized to take on the rest of our evenings' work.

If you're interested in checking out the UW Karate & Jujitsu Club, they offer a few classes for free for first-timers and they meet Monday, Wednesday, Thursday, and Saturday. Check them out at www.hogosha.com if you want to see what they're all about.

The next event that I attended (but also organized) was a bowling night! On March 3rd, at the end of what was for me a very long week, myself and some other fun-loving engineers headed to Victoria Bowling Lanes in Kitchener. I was given to understand before going that at Victoria Bowling you get what you pay for, which is a very reasonable amount in my opinion. I thought that the venue was very nice, they had glow-in-the dark bowling and it was only 5-pin, which made my life much less embarrassing!

Everyone involved had a great time and Theresa even showed off her mad juggling skills. No bowling balls were dropped in the taking of these photos. At the end of an evening of stiff competition, one lucky person even went home with the ultimate bowling prize: a shiny new EngSoc mug!

So this next one I also organized, but I definitely would have gone to it no matter what because not only was it a super fun event, it was also for two great causes: celebrating engineering and raising awareness for the Waterloo Food Bank! Canstruction is an event organized every year at Conestoga Mall. Companies, and really anyone who wants to, can come compete to build the best structure made entirely out of non-perishable food items!

The Engineering Society has been participating in Canstruction for a few years now and this year our theme was "Sinking Hunger". To symbolize this, we built a canoe hitting rocks with an engineer inside it (see pics). And surprisingly it turned out pretty great.

We started building at 1 pm with a general idea of what we wanted and after 6 hours, several trips to Zehrs for more food and a celebration at Cinnabon we were ready to call it a day on our fabulous canoe & Horatio. Yes, we named the engineer Horatio. If you're in the area, come check out our structure before March 19!! And don't forget to vote for ours because clearly, it's the best. Kindly ignore the one with the functioning drawbridge and moving dragon.

Gabrielle Klemt

Horatio the CANstruction Engineer, mid CANpetition

Logan: Jackman and Stewart Bid Farewell

DONOVAN MAUDSLEY
3B MECHANICAL

Crafting Hugh Jackman's last appearance as Wolverine was no small order. Jackman has become heavily associated with the role over his 17 years playing the mutant brawler. He was one of the highlights of the original *X-Men*. The second movie's plot largely grew out of his mythos. He's appeared in or been alluded to in every single movie in the franchise. The comic character's appearance has even been slightly altered to reflect Jackman over the years. Jackman and Wolverine are largely inseparable in the eyes of fans around the world. This makes the fact that Logan is an absolute triumph even more impressive.

Director James Mangold, a veteran of the western *3:10 to Yuma*, and Johnny Cash biopic *Walk the Line*, created an intimate and heart wrenching experience. Based on the gritty Old Man Logan comic series, and taking cues from many classics, Logan is essentially a Western featuring superheroes. Set in the "not so distant future," as with most *X-Men* titles, *Logan* kicks off close to the Texas-Mexico border (where there is no wall) and paints a bleak future for mutant-kind; there aren't any. The *X-Men* franchise, and superhero movies as a whole, are typically filled with many larger than life heroes and villains, but Mangold chooses to tell a more intimate story.

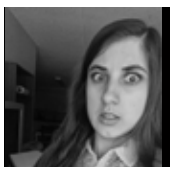
The story centers around three mutants in an unforgiving world. Hugh Jackman's Wolverine is joined by Patrick Stewart as Charles Xavier. Stewart has also been tied to his X-role since 2000. Stewart was the original choice for Xavier, going all the way back to 1997, and doesn't disappoint in his final outing. Time has taken its toll on Charles; his mind isn't what it used to be but his gifts are as powerful as ever, which is a dangerous combination. Stewart's dual portrayal of the character, half raving lunatic/half wise and determined mentor, is commendable.

The true show-stopping performance, however, is given by Dafne Keen as Laura. A willful young girl bearing a striking resemblance to Wolverine, Laura essentially hires Wolverine to take her to North Dakota (which is a long way from Southern Texas). Keen is only 11 years old but delivers an amazingly nuanced performance in her first feature-length role. She continually holds her own in scenes with Jackman and Stewart, and really steals the show in the movie's final act. It's a real risk for a studio to invest so much in someone so young (anybody remember a little movie called *The Phantom Menace*?), but Keen delivers on every conceivable level. She's not even old enough to watch the majority of the movie!

I have a soft spot for westerns, mostly from watching classics with my grandfather when I was a kid. Like I said before, *Logan* is really just a western masquerading as a superhero movie. 2014's *Captain America: The Winter Soldier* was really proof of this concept; a superhero spy thriller. With comic-inspired movies dominating the box office more and more every year, there needs to be some sort of evolution beyond "good guy fights bad guy and wins." By expanding their stories into difference genres and crafting exceptional stories to go along with their amazing effects and big budget set pieces, superhero movies can escape the formulaic descent that many critics and audience members are predicting.

Coming back to *Logan* though, the movie really delivers on many levels. Those looking for an all-out action flick won't be disappointed. Others seeking a deeper story and a more emotional experience will not be disappointed either. *Logan* is a true triumph and a terrific send-off for both Patrick Stewart and Hugh Jackman. I think that we can expect big things from Keen in the future. As a final note, I truly enjoyed how they created a worthy nemesis for Wolverine. The newer *X-Men* series has yet to find their centering force the way that Jackman has been for 17 years, although I'm hoping for big things from Tye Sheridan's Cyclops in their next outing.

TRAPPIST-1 Exoplanets



ALEXA GRITTANI
3B MECHANICAL

NASA's Spitzer Space Telescope has revealed the largest batch of Earth-size, habitable-zone exoplanets around a single star. An exoplanet is just a term to describe a planet that orbits a star other than the Sun. Seven planets were found orbiting in the TRAPPIST-1 system, named for The Transiting Planets and Planetesimals Small Telescope (TRAPPIST) in Chile.

Three of them are located in the habitable zone. Now it is important to understand what "habitable zone" means. Being located in the habitable zone is not the same as being habitable, or fit for human life. The habitable zone refers to a band of potential habitability surrounding a star. So, if planets are found there, they are at the right distance and temperature for liquid water to possibly exist on the surface. To further point out how little the habitable zone tells us about the planets, in our own solar system Earth, Venus and Mars are in or near the habitable zone, but they are so different.

The habitable zone in the TRAPPIST-1 system is much closer to the star because its star is classified as an ultra-cool dwarf (I'm picturing a dwarf wearing sunglasses looking ultra-cool, surrounded by seven Snow Whites). Since it is an ultra-cool dwarf star, all seven planets orbit closer than Mercury does around our sun. Also, all of the planets are much closer together, meaning that to someone standing on one planet, the other planets in the sky could appear larger than the moon does in our own sky.

Still the seven exoplanets are an important discovery because they are, "the best target yet for studying the atmospheres of potentially habitable, Earth-size worlds" explained Michael Gillon, the principal investigator of the TRAPPIST exoplanet survey at the University of Liège, Belgium.

The properties of the planets' surfaces and atmospheres are yet unknown. While there is still a possibility that all seven planets have liquid water, even if they did, it is only under the right atmospheric conditions that they would be habitable. Based on calculations performed using Spitzer data the densities of the planets are likely to be rocky. This is important because Earth is rocky and is, therefore, the type of planet that we have the most knowledge about.

The TRAPPIST-1 system is about 40 light-years (235 trillion miles) from Earth. This is relatively close, but it would take NASA's space shuttle 1.5 million years to get there. Still, they are close enough that scientists are able to study them, and will be better able to study them when the James Webb Space Telescope launches in October 2018. The new telescope is a collaboration between NASA, the European Space Agency, and the Canadian Space Agency, and will be an infrared telescope with a 6.5 meter primary mirror.

The TRAPPIST-1 system is a great way for the James Webb Telescope to start its career off. "This discovery could be a significant piece in the puzzle of finding habitable environments, places that are conducive to life," said Thomas Zurbuchen, associate administrator of the agency's Science Mission Directorate in Washington. "Answering the question 'are we alone' is a top science priority and finding so many planets like these for the first time in the habitable zone is a remarkable step forward toward that goal." Do not fret. The scientists are looking for aliens.

The Story Collider

RATAN VARGHESE
2A ELECTRICAL

RA(TAN) LINES

The Story Collider is a podcast featuring personal stories about science. These do not always revolve around laboratory work and writing theses. A few weeks ago, there was an episode which included a comedian getting over his fear of flying. Like most recent episodes, it was a twofer: the second speaker talked about performing surgery on a soldier during the invasion of Iraq.

That is not the only episode with a major mood whiplash. The one-word (or one-phrase) themes in the title of each episode are broad enough to accept a wide range of stories. The episode "Predators" features a story about sharks and a story about the psychology of sex offenders. "Research" (yes, this science podcast had an episode with the theme of research) features both eating disorders and the possibility of nuclear winter. These are mentioned right near the start of the episode.

Speaking of the start of the episode, that is one of the few moments where the organizers actually say anything. The guest speakers on the podcast dominate the limelight: no interaction with the *Story Collider* team is audible to the audience. This is not an "interview podcast" or a "two (or more) guys talking" podcast: this is a series of anecdotes and monologues from the science community, and sometimes the wider intelligentsia.

It might surprise you that random scientists would even be capable of making engaging narratives. This is another sign of the team's influence, as explained on episode 146 of *TALK NERDY* with Cara Santa Maria (another good podcast). The speakers aren't improvising: the *Story Collider* team coaches them on speaking and ensures that their emotions aren't drowned in a sea of technical jargon. They also offer communication workshops for scientists as a service separate from the podcast.

This brings us to the fundamental purpose of *The Story Collider*: science communication. The ultimate point is to increase laypeople's engagement with science, using anecdotes depicting scientists as ordinary people with human emotions is a means to that end. This is all well and good for holding people's interest, but also means that science facts are few and far in between.

The Story Collider updates weekly and the recent episodes (with 2 stories) are 30 minutes each. Older episodes (with just 1 story each) are all between 10 and 20 minutes long. This is extremely short. Consider that the *Freakonomics* podcast recently spent 30 minutes talking about the effects of price theory on Chuck E Cheese's. Are the scientists themselves not too talkative, or does the inaudible voice of *The Story Collider* team really appreciate brevity?

New Finds From Ancient History

DONOVAN MAUDSLEY
3B MECHANICAL

OLD NEWS

I'm going to break from tradition this issue and talk about recent finds in early human history rather than beasts of prehistory. There have been multiple significant archaeological discoveries in the past few weeks. American archaeologists recently published a report on evidence of human life in Arkansas intermittently dating back 10,000 years. A cave system in Britain is now believed to be a refuge for the Knights Templar. Even more recently a team in Cairo pulled a new (old) statue out of a Cairo slum. I'm going to talk about the latter two discoveries.

In a very Alice In Wonderland-ian turn of events, an unassuming rabbit hole has turned out to be much more. Less than a metre below the surface of a farmer's field in England lies a recently discovered temple which has been connected to the legendary Knights Templar. An ancient monastic order of knights, the Templars fought crusades in the Holy Land and are largely considered one of the first international organizations. The Knights Templar had centers in many major European countries in the 1100s to the 1300s, with each region having its own Master of the Order. These Masters reported only to the Grand Master of the Templars, who was appointed for life.

The rabbit hole in question lies in a farmer's field in Shropshire, which is near the England-Wales border. The cave system underneath the field is very obviously man made, and historians have actually dated it to the 18th or 19th century. The cave system is currently open to the public, and definitely worth the visit if you're over there. The ceiling of the temple is around 6 feet in height making it a little snug for most people, but it's extremely well preserved. Local authorities also think that the cave system has been used recently for "black magic" ceremonies, which is why they were closed in recent years.

On to the Egyptian statue: the team who made the discovery think that the colossal quartzite work of art depicts Pharaoh Ramses the Second. Ramses II was a fairly prototypical Pharaoh; he had about 162 children (no, not all from the same wife), waged a bunch of wars, and founded the temple city of Heliopolis which stood for many, many years. Heliopolis was eventually absorbed by Cairo's expansion, and the site where the statue was found used to lie within its limits. The location and general features of the statue lead the team to their decision about its origins. Ramses II is often lauded as the most powerful ruler of Ancient Egypt.

Ramses II, also known as Ramses the Great or Ozymandias, was one of the longest reigning Pharaohs of Egypt. He ascended to power around age 30 and ruled for 66 years, which was around twice the average lifespan of his citizens. Grandparents would likely have told stories of his ascension to power. Ramses the Great would have appeared to be a god to his people, similar to Augustus Caesar of Rome. Historians and archaeologists actually have a pretty good idea of what Ozymandias looked like (or at least his ideal version of himself). When you're the most powerful man on the continent for over 60 years you end up with a lot of depictions of yourself just hanging around.

Like I touched on earlier, Ramses fought his fair share of wars. Other kingdoms typically tried to capitalize on the first few years of a new King's reign and snag some primo Egyptian land, but the King of Kings wasn't having any of that. Within the first five years of his reign he was off fighting the Hittites in modern day Syria as a display of force. Unfortunately Ramses' skills as a military leader weren't fully developed yet, and he fell into what Wikipedia has titled "The First Ever Military Ambush." Poor guy. Fortunately the Egyptian forces were considerably larger than the Hittites'. The two sides fought to a standstill, signed a peace treaty and exchanged no land. So much for that display of force...

Back to his enormous statue though. A full reconstruction has not been completed yet, but the team believes the colossus will stand around 8 metres tall. So far the team has recovered the majority of the head, the crown and the bust of the statue. They are still digging deeper to try and locate the rest of the statue. Along with the colossal statue they found the upper half of a smaller statue of Ozymandias' grandson, the Pharaoh Seti II. This statue appears to be life sized. Egypt's ministers of tourism are hopeful that these discoveries will help restart the currently sluggish industry once they are fully excavated and displayed.

So there you have it. Archaeology is still advancing in leaps and bounds, and we're still learning more and more about the societies which lead to our own. I'm hopeful that one day I can see one, if not both, of these recent discoveries.

Prospectors and Developers Association of Canada

My Experience Volunteering at the 2017 Conference

GABRIELLE KLEMT
2A GEOLOGICAL

How can I describe my feelings over the course of three days I spent at the PDAC (Prospectors and Developers Association of Canada) convention in Toronto? Well let's start with overwhelmed, excited, terrified, psyched, and exhausted. It was a full-on, non-stop four days that started with my volunteer training on Saturday, and ended when I passed out on the bus back to Waterloo on Tuesday evening.

One thing that definitely struck me as I wandered around listening to conversations and psyching myself up to engage people in conversations was that I had found my people. At last, I had discovered the elusive group I will one day become a part of, a group that had seemed so mystical and far-off here in Waterloo where I am one of a class of 37.

At last, I could see with my own eyes companies I could only dream of working for a week before. And now, with a business card in my pocket and a pen in my hand, that job was still just a dream but it was looking more attainable.

Given what a fantastic opportunity this was to meet company representatives, get free swag and mingle with the most important people in the mining and geology industry, I am incredibly disappointed that our university does not do for its students what so many other schools across the country do. Not only do those schools help fundraise so that students from as far away as Memorial University could come to PDAC, they get time off school as well. Here I was overwhelmed by the sheer size of an industry I had imagined was as small as my program, and I had to also stress about missing school and handing in assignments!

To give you some back story, PDAC is divided into the Investor's Exchange and the Trade Show. The former is where all the junior mining companies and prospectors come to show off the latest finds they've made and hopefully secure financial backing to further develop their projects. You'll also find more senior, well-known mining and mineral companies here, because everyone needs a little bit more investment sometimes. This is where the money is. Literally and figuratively, because I actually got to hold a gold bar at one point that weighed more than a baby. In the Core Shack, where prospectors bring their best core to show off what a fantastic investment they would be, you can literally sense the hundreds of thousands of dollars trading "hands" by the second all around you!

The Trade Show encompasses all the mining support companies, like the people who do aerologic surveys or the companies that make drill rigs. And yes, there were full drill rigs there that you could pretend to operate and feel like a boss. Yup, I realize how nerdy that sounds. This is also where you find any university representation (turns out Waterloo had a booth!) and also governments. There's the geological surveys of the US, Canada, Ontario, BC, Quebec, etc. as well as representatives from the mining departments of federal governments from Afghanistan to Australia to Peru to Russia and everywhere in between. This convention is not only international, it's the biggest of its kind in the world! Over 23,000 people walked through the buildings over the course of four days - the next biggest one is in South Africa and hosts only about 5,000!

Ignoring the responsibilities that waited for me back in Waterloo and reality, I threw myself wholeheartedly into the frenzy that is PDAC. Luckily, as a volunteer, I had access to all sorts of extra things from free luncheons to first choice of company tours and resume critiques. Additionally, since I was answering everyone's questions, I became very comfortable with the layout of the massive convention which held over 800 booths, as well as the daily schedule of talks, tours, and after-hours receptions.

On Sunday, the first day of the convention, I spent the morning dressed like a bumblebee in a bright gold shirt and hat and black pants, very hard to miss. My volunteer shift consisted mostly of helping people find the companies they were looking for and directing people to the washroom. Occasionally someone would stop and talk, but most people at PDAC are on a mission. When my shift was done, I spent the time between lunch and a PDAC Survival Skills seminar wandering around the North building trade show collecting free samples of everything from buttons and stickers to rock-shaped stress balls.

The next day I arrived bright and early once more, ready to put in practice the skills I had dutifully taken notes on the day before and get my resume critiqued: it's all about the networking and putting yourself out there. Just a disclaimer, I did not come to PDAC with the intention of finding a job or scouting future employers. I came because when my sister's friend told me it was a good time and a cool way to meet people in the industry back in October, I signed up and forgot about my commitment until late December when it struck me that I had perhaps put a few too many items on my 2A plate. I decided to go all the same because I am a sucker for new experiences and I also hate cancelling on people, especially those I don't know.

When I arrived for my training on Saturday, I was overwhelmed and felt extremely out of my depth. We walked briefly through the South Building Trade Show and then the Investors Exchange and it think my eyes were the size of saucers just trying to take in exactly how many booths there were at this event. This was before the people arrived and somehow, I was already panicking.

But back to Monday, my third day of PDAC and I was ready to show the people of the industry just what I was made of. I was going to get those 25 business cards they told me to get and I was going to make sure they remembered who I was. Sadly, I came rather unprepared without business cards of my own; my personality would have to suffice. After my resume critique, I jumped into a company tour for students to introduce us to some "student-friendly" companies, or companies willing to hire someone without a degree and 6 years of relevant work experience. It was interesting but there were only three companies that I went back to again: Agnico Eagle, Teck, and a Wilderness first aid company.

Before I knew it, I had to head up to the Mineral Outlook Luncheon, where the guest speaker Dr. Dambisa Moyo, a 3-time New York Times Bestselling author on economics, gave a talk on the future of geopolitics and where the mining and mineral exploration industry is headed. You as a reader likely don't know this, but the mining sector has taken a major hit in the last few years with the price of gold and other important commodities falling drastically, making mining less economically profitable and making it very difficult for an aspiring young student to get into the industry. If there is one thing that PDAC taught me, it's that people in this industry are very very hopeful for a golden future. Prices have started to rise and everyone I talked to told me how lucky I was to be getting into the industry when I graduate because, so they say, gold will be at its peak once again. In other words: buy gold now.

The great thing about the luncheon, other than the fascinating talk, was the people who I sat with at my table. It was a paid event and everyone there had bought their plate (a delicious 3-course meal) to be at the lunch, as a volunteer I got to go for free. I happened to sit with , by accident, three people who all work in or near Denver, as well as two other people from Canada, and we had a great discussion about our separate professions and reasons for being at PDAC, the places we were from, and inevitably Trump.

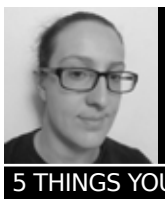
When I left the lunch, many business cards later, I headed to the Trade Show and wandered around for a while drinking my free beer and chatting with random booths. I ended up at the Memorial University booth and the woman and I got to talking about geophysics, the area in which she is doing her PhD. As so often happens at PDAC, we struck it off and I got an invite to a reception that evening for Geosoft, a company that makes a very powerful geophysics software. So, after a symposium on Women in Mining, we headed out to the hotel for more networking, free appetizers and an open bar. By the time I got home Monday night I was exhausted and ready to fall into bed, unfortunately I had an assignment to do for Wednesday.

Tuesday, I was determined to finally check out the Investor's Exchange, so after my volunteer shift, and the Student Networking Luncheon (honestly, it's worth going to PDAC just for all the free meals and *cough* alcohol) I put on my business casual, squared my shoulders and set off. By the time I was half-way through the booths I was mentally drained and desperately in need of the free cappuccinos offered by so many of the companies (it was becoming very obvious why so many offered coffee!). I did have some good exchanges though and got some positive feedback on my style of approach when I introduced myself to a group of geologists and mining engineers and was told I'd go far simply because I had dared to approach them and introduce myself and suggest that with a co-op student they could get a tax rebate.

However, when the floors closed at 5, I was ready to set my very full goody bag down and put my feet up. It was a weekend well worth the stress, even if I don't get a job out of it. I had got my first glimpse into the world of rocks and metal that I so desperately wanted to be a part of, and this first taste has only made me hungry for even more. You better believe I'm going back next year with better strategies and actual business cards!

Nursery Rhymes and Murder Ballads

Five Weird Folk Songs



CAITLIN MCLAREN
3T CHEMICAL

5 THINGS YOU DON'T WANT TO KNOW

As L.P. Hartley once said, "The past is a foreign country". Our ancestors lived completely different lives from the ones we do, and that led to some very different attitudes. We look back at some of their ideas and laugh or shudder, and for the most part the crazier ideas don't have much traction any more.

However, sometimes old songs are just so catchy or poetic that they survive to the present day, with people even continuing to sing them. When you examine the words, though, folk songs can be disturbing.

Waltzing Matilda: Desperation, arson, and police brutality

Quite possibly you know "Waltzing Matilda", the famous Australian folk song. It's considered to be Australia's unofficial national anthem, and it is one of the many, many pieces of evidence that Australians really give no f***s.

"Waltzing Matilda" is about a homeless man who finds a sheep wandering around. Since he's hungry, he eats the sheep, only to be chased down by the farmer and a bunch of policemen. Rather than be captured, the hobo kills himself and haunts the place forever.

Sadly, the song is based on a true story: in 1891,a strike turned so violent that it almost caused an out-and-out war. When some strikers burned down a barn full of sheep, the troopers chased down one man, Samuel Hoffmeister, who shot himself rather than face the angry police.

Stenka Razin: Reasonable reaction?

"Stenka Razin" is a Russian folk song about the eponymous Cossack leader, who was a real person. Fortunately, the events of the song are not real.

The song begins with Stenka Razin marrying a princess. The wedding was celebrated on a big boat on the Volga river, with everybody partying and having a good time. Since most of his men were plastered (some things are universal), tongues became loose and one guy thought it would be a good idea to make fun of his boss. He started shouting about how Stenka Razin had turned into a woman since his wedding, because he was spending all his time partying with his new bride instead of fighting. Which is what women do? Apparently?

You'd expect, based on stereotypes of ancient warriors, that Stenka Razin would prove this idiot wrong by challenging him to single combat or something. Unfortunately, that would be way too reasonable for a Cossack warlord. Instead, Stenka Razin threw his bride into the river, drowning her. He then ordered his men to go on partying, leading them in singing and dancing. In this way, he proved once and for all that he was not a sissy. The song treats Stenka Razin as a tragic hero who puts his honour and his people ahead of his own happiness as opposed to a complete lunatic, because the past was like that sometimes.

Aztec Songs: Because subtlety is for the weak

It's been a while since we've had an Aztec entry in this column, which is a shame, because the ancient Aztecs were quite something. These were the guys who did all the human sacrifices in unpleasant ways, mostly by ripping people's hearts out. They were big fans of blood and war and death in general, which is not unusual for old or even modern songs. However, while in most times or places war would be glorified as heroic, with the actual bloody reality being sanitized for propaganda purposes, the Aztecs get straight to the point. Here is an example of Aztec war poetry:

Heart, have no fright.
There on the battlefield
I cannot wait to die
by the blade of sharp obsidian.
Our hearts want nothing but a war death.
You who are in the struggle:
I am anxious for a death
from sharp obsidian.
Our hearts want nothing but a war death.

Points for honesty! However, the Aztecs weren't only about war - they did existentialism too! Of course, their existentialism could also be needlessly graphic:

Filled are the bowels of the earth
with pestilential dust once flesh and bone,
once animate bodies of man who sat upon thrones...
Vanished are these glories,
just as the fearful smoke vanishes
that belches forth from the infernal fires of Popocatepetl.

Murder Ballads: Exactly what they sound like

Britain and Ireland have a rich tradition of ballads (i.e. songs that tell a story). That's all very well, and most are about love or history or fairy tales or something. However, a sizeable genre of ballad is the "murder ballad", which is simply a graphic description of a murder, with rhymes and set to a catchy tune. Here is an example of one of the most famous, "Weile Waile":

She had a baby three months old, weile weile waile.
She had a baby three months old, down by the river Saile.
She had a penknife, long and sharp, weile weile waile.
She had a penknife, long and sharp, down by the river Saile.
She stuck the penknife in the baby's heart, weile weile waile.
She stuck the penknife in the baby's heart, down by the river Saile.
Just so we are clear on this, this is a children's song. Yay!

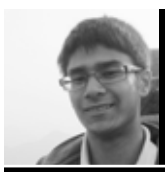
Song of St. Nicholas: The Irish have nothing on the French

A song about Santa Claus! What could possibly be disturbing about that? Well… everything.

The song begins with three small children looking for shelter on a stormy night - why they need it is probably disturbing too, but that's a minor issue. A butcher seems like a nice guy and lets them in, but once they are inside he kills them. Why? To turn them into salt "pork", Sweeney Todd-style. He puts them in barrels in the basement and just forgets about them, which puts his profit motive into question.

Seven years later, Santa Claus shows up at his house and asks the butcher for something to eat. The butcher offers him all kinds of meat, but Santa insists on having the salt pork in the basement. (Cannibalism aside, eating seven-year-old meat? Ewwww.) When the butcher brings the barrels up, Santa miraculously brings the kids back to life, so at least we get a happy ending. What happens to the butcher is unclear, but we can assume Santa sicced Krampus onto him or something. What a lovely Christmas carol, everyone!

Easy Study Treats: Marshmallow Squares



BRYAN MAILLOUX
3A MECHATRONICS

HALF-BAKED

Hello again from the Half-Baked kitchen! It's been pretty hectic over the past little while (we're starting to get into that system transient analysis – we're not in steady-state land anymore) and I haven't had time to try any entrée recipes for this issue. So, I'm just going to feature some really easy-to-make Peanut Butter Marshmallow Squares. These take only about 15 minutes to prepare and take about an hour to set – perfect for busy folks like us – and are great as a morning snack if would rather sleep in and forgo eating breakfast.

Peanut Butter Marshmallow Squares – makes 24-ish squares

Ingredients

1/2 cup margarine

3/4 cup peanut butter (either crunchy or smooth peanut butter works, but I'd recommend smooth peanut butter)

1 package of either butterscotch or semi-sweet chocolate pieces (butterscotch is my personal favourite)

3 cups of mini marshmallows

You'll want a casserole dish on hand too

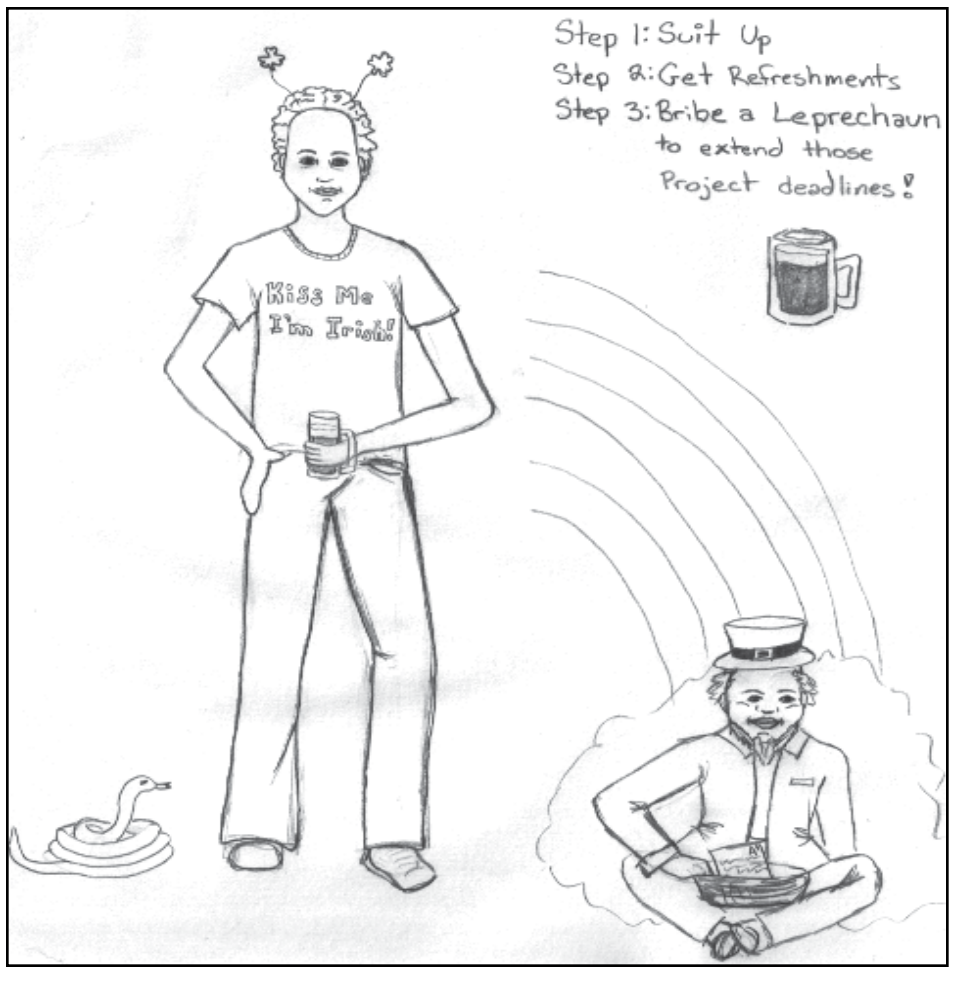
Preparation

Start by melting the margarine, the peanut butter and the butterscotch or chocolate in a pot. While those ingredients are melting, melt some more margarine in a bowl by microwaving it for a minute. When the margarine is melted, use it to grease the casserole dish. (I've tried greasing a pan using non-stick spray before – sure, it's easier, but then whatever you put in the pan tastes a bit like non-stick which isn't very tasty.) By now, the ingredients in the pot should be melted, so mix them together. Once they're well mixed, take the pot off the heat and wait for the mixture to cool down to about a lukewarm temperature. (Testing the temperature of the mix is a good excuse to eat some of it too…) Finally, when the mixture has cooled down enough, add in the marshmallows and stir well. Put the mix in the greased pan and put it in the fridge to harden the squares. If you want it to harden faster, you can put it in the freezer, but keep an eye on it because you don't want it to freeze solid. And after about an hour, your peanut butter marshmallow squares will be ready to enjoy!

The good thing about this recipe is that you have to get mini marshmallows, and since you won't be using all the marshmallows to make the marshmallow squares, you can just eat them while you make the squares. Or whenever you want, really. Mini marshmallows are great to have as a snack while studying. Just get a club-sized bag full and reward yourself with a mini marshmallow or twenty after you finish a homework question. I'd limit eating the marshmallow squares to one per assignment though. Unless you're doing transient analysis questions. Then since one question is going to take you two hours anyway, you may as well have one square per question. Marshmallow squares also have the extra benefit of cheering you up after you answer a question wrong. Or any time, really. They're the true key to happiness.

Saint Paddy's Day!

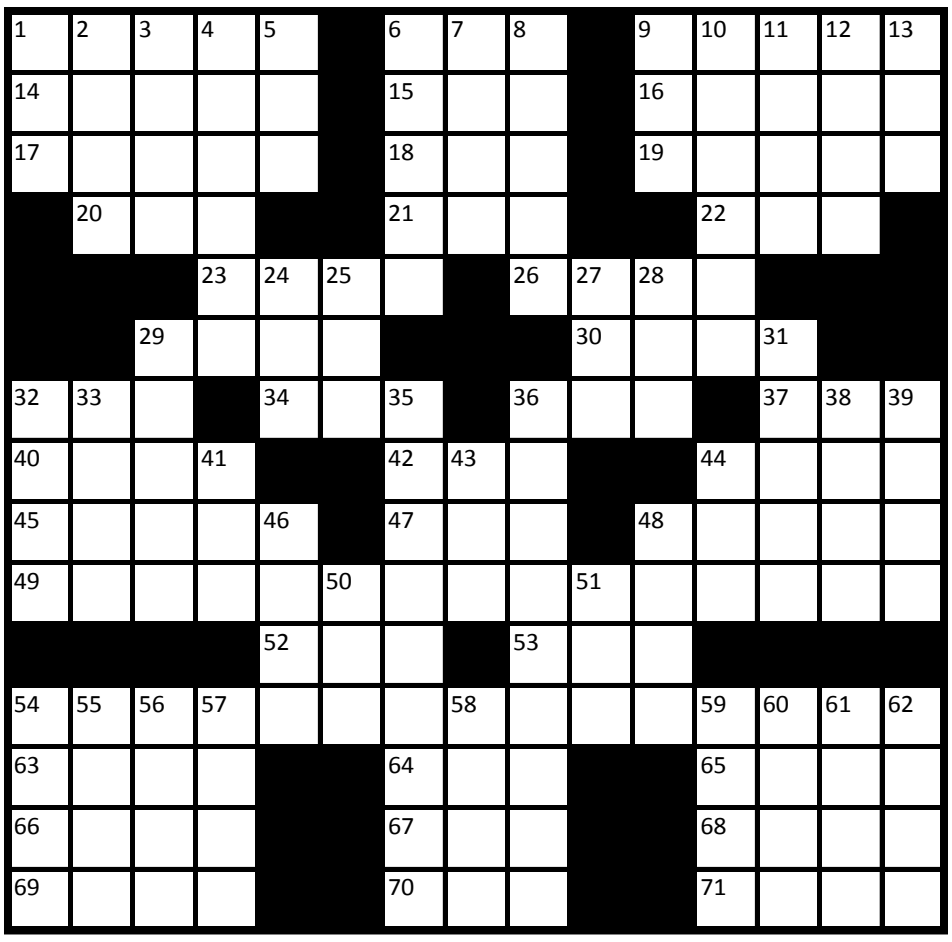
LEAH KRISTUFEK
CHEMICAL 2016



The Iron Crossword

Podcasts

CAMERON SOLTYS
3T MECHANICAL



ACROSS
1: A citizen of Iraq
6: Place where alcohol is drunk
9: Liquid in a soup
14: Medical term for "flank"
15: Female sheep
16: Mathematician of many discoveries
17: Line of a song
18: Song with spoken or chanted words
19: Famous medieval Icelandic literature
20: Marvel organization that created Captain America (abbr)
21: An ___ for an ___ (same word)
22: Open Educational Resources (abbr)
23: Philosopher of the Categorical Imperative
26: Loyal and honest
29: Canada's intelligence agency (abbr)
30: Soy-based protein foodstuffs
32: Health center centered on a mineral spring
34: Father
36: ___ 9000, sister to the HAL 9000 of 2001: A Space Oddessy
37: Two pi
40: Irish female name meaning "lamb"
42: Grain often found in granola bars
44: Female chickens
45: Batman's sidekick
47: Operations and Maintenance Unit (abbr)
48: Doctor's assistant
49: Podcast that showcases TED Talks
52: Adobe After Effects file extension
53: "What I like about ___!"
54: History podcast with 6-hour "blitzes"
63: Latin word relating to horses
64: The taxman (abbr)
65: Hydrogen or uranium, for instance
66: Word relating to the Moon
67: Short for zillion
68: Ninety-___ Percent Invisible
69: Joannes de ___, Dutch geographer who mapped the New World
70: Long, thin fish
71: Request that comes with a party invitation

DOWN
1: Not well
2: ___ of light, for instance
3: Alberta Tactical Rifle
4: ___ and Quarks, CBC podcast
5: Uwaterloo administrator who helps instructor with their responsibilities (abbr)
6: A round flat cap
7: Not near
8: Drive off
9: Buzzing pollinator
10: Reindeer with horrific facial deformity
11: Ye ___
12: Rip apart
13: As opposed to "cold-rolled steel" (abbr)
24: Help
25: US intelligence agency that monitors online activity
27: Approximate duration until meeting (abbr)
28: US's first large ISP
29: "I ___ ___ a soldier..." Star Cast lyric (2 wd.)
31: In ___, describing a fetus
32: "Science… ___ of" humor/science podcast
33: Winnie the ___
35: Contest one is entered into by attending an event
36: Place that gets full as finals approach
38: Advanced Microwave Sounding Unit (abbr)
39: Person accessing an online service
41: US's alternative to an embassy in Taiwan (abbr)
43: Online open-form interview popular on reddit
44: Expression of disinterest
46: Mysterious prank-pulling organization (abbr)
48: ___ sommes, vous êtes
50: Latin word meaning God
51: Ideal of Idol, South Korean girl group
54: Opposite of heaven
55: Prefix meaning "water"
56: Ancient letters
57: The food consumed by an organism
58: The smallest of the Great Lakes
59: Short for the capital of Madagascar
60: World's first elevator company
61: Large blue hardware store
62: Yukon Mineral Exploration Program (abbr)

Sudoku

#2017-04

BRYAN MAILLOUX
3A MECHATRONICS

Medium

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

Hard

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

Very Hard

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

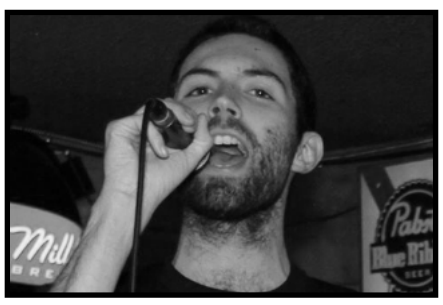
Solutions for previous crosswords can be found on *The Iron Warrior*'s website at *iwarrior.uwaterloo.ca/distractions*.

THE IRON INQUISITION
Tom Willert, 3B Mechanical

"What is the best free thing you have ever gotten?"

"Prosciutto wrapped asparagus and cheese in the SDC."
Nicholas Christopher, 3B Mech

"Life."
Elizabeth Morrow, 3B Tron



"A free beer at Kickoff."
Dan Laroche, 3B Chem

"My 2015 frosh leader Nalgene bottle."
Yamen Mouhanna, 3B Chem

"A goose plush from my first day of uni!"
Aditya Narayanan, 3B Mech

"My hooman!"
Adi's Duckie