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## Waterloo Takes on Saskatoon World Mining Competition 2019



via Gabrielle Klemt

We clean up nice after several days without sleep! From left: Grant Mitchell, Gabrielle Klemt, Breanna Marks, Liam Kelley



GABRIELLE KLEMT  
4A GEOLOGICAL

This October, Waterloo participated in the 8th annual World Mining Competition (WMC) in Saskatoon, Saskatchewan. This year's theme was "Driving Global Innovation", and students competing were encouraged to think about innovation in mining and technology when putting together their solutions for the case study.

I think my teammate Breanna summed up the weekend pretty well: "WMC was definitely an exhausting but amazing experience. This was my first time participating in any type of university competition and I wasn't too sure what to expect, thankfully we had a few returning members on our team which helped a lot. Looking back on the experience now I'm glad I decided to go, not only did I get to visit Saskatchewan for the first time, but I had the opportunity to meet students from around Canada and the world. Additionally, who doesn't want to spend 36 hours with three of your good friends on minimal sleep trying to understand mining financials...".

The WMC is unlike many engineering

competitions you hear about, the closest facsimile in something like the Waterloo Engineering Competition is the Consulting category, where teams are given a case study problem and told to design a solution and sell the judges that yours is the best one. It simulates, in some ways, how consulting companies might bid on projects in the real world, putting together a design pitch to try to win the contract. At WMC, though, each team has already "been hired", you're not pitching to do the solution, you're advising financiers or company executives on what they should be doing based on the data and criteria you were given.

In past years this has involved determining the potential of a mine site, advising on moving company headquarters to Canada, and this year it involved a lot of Corporate Social Responsibility (CSR) and finances. Mining today is a vastly different industry than it was even 15 years ago, constant improvement is being done about CSR in the mining industry. This is particularly true in Canada where we are attempting to improve relationships with indigenous groups, but in many countries, there is still a long way to go to improve relationships with communities and mining companies. This year, we were tasked with a case study

that involved a company operating a mine in the DRC and their financiers who were squeamish about working in such an unstable country. The mine had a problem with people, including children, coming onto the property and illegally mining in "artisanal" mine shafts with no safety regulations. Recently there had been an accident in one of these illegal mines and several people, including children, had died. It was our job to tell the financiers what the position of the company would be if they continued in the DRC vs. leaving and trying to develop a property the company had bought in Canada.

If you're thinking "how do you prepare for something like this?" the answer is, you can't really. The most important thing is to have numbers that make sense, confidence in your solution, and really good presentation skills! The final presentation was the culmination of the 36 hours of case study resolution, but on top of that, we had smaller competitions as well including a PR challenge, a minute-to-win-it games night, and time to consult with industry professionals about our case.

This was my second year competing at WMC, but half our team of Geological Engineers was new. If you're considering joining the Waterloo team for next year,

here's another testimonial from my teammate Liam:

"The World Mining Competitions provided me with both the opportunity to network with industry professionals and fellow students from across Canada and internationally. The 36-hour case study resolution challenged my team with a multi-faceted mining challenge where financial, engineering and social responsibility had to be delicately balanced to arrive at the most appropriate solution. The two days spent on the resolution provided me with an excellent opportunity to work on my financial and economic analysis skills and I left with a greater appreciation for their importance in the engineering decision-making process. Although we didn't win, I am very pleased to have had the opportunity to represent the University of Waterloo and the Geological Engineering program at the World Mining Competition in Saskatoon."

WMC is a great way to meet industry professionals and get a good look at what takes place within the mining industry. I've found it an extremely valuable experience both years I've participated and I would encourage anyone who's interested in mining to go to the competition and get your feet wet!

# Letter from the Editor

## Water! Water! Water! Loo! Loo! Loo! Water!



KIRSTEN EHLERS  
2A BIOMEDICAL

We've got a great issue for you inside. We've got more design teams for you; Midnight Sun, ProtoMD and WatSub will be rounding off our final design team spotlight. Any other interested teams can contact [iwarrior@engsoc.uwaterloo.ca](mailto:iwarrior@engsoc.uwaterloo.ca). We would be happy to hear more about your team. The crossword is Prof-themed. I would highly recommend checking that out. Sophia wrote an amazing article about lettuce club. Yvonne covered TalEng so if you missed the events you can get a recap here. Ratan is summarizing everything 'Mark Zuckerberg' for those of us who have fallen behind on all the Facebook scandals. Also for the first time, Ratan is reviewing an audiobook while Farzeen is reviewing a podcast for her wellness column. I'm quite excited for this issue and I hope you are too.

What's up on campus? I like to call this time of the term "a brief moment of relaxation". Midterms should be wrapping up. Unless you're like me, with never-ending midterms. So, it feels like finally, you have free time. Wrong. Unfortunately, finals are right around the corner. Labs are finishing up. You're buried in lab reports. Continuous round is upon us. Life is about to get real busy. For my editorial this issue, I want to do something a little different. Instead of talking about an opinion I have about

society. (See my Point/Counterpoint for that). Let's reminisce about when we were all applying to Waterloo.

I went to Fall Open House last weekend, but not as a tour guide. I came to bother future Waterloo engineering students and ask them why they wanted to come to Waterloo. I wandered around E7 for several hours, awkwardly talking to parents and prospective students. I also interviewed several current students who were very confused about why I was asking them why they wanted to go to Waterloo until I realized that they were already students. Sorry. I had some great answers. Since I am an engineering student, I felt obligated to graph the results. So, below, you will find bar graphs of what programs people are applying to and why they wanted to come here.

For the reasons they wanted to come here, every reason was plotted so one individual who mentioned co-op and the campus atmosphere would get a point under nice campus and co-op. Due to the variety of responses, some responses were combined. Anything about the University of Waterloo being ranked high or hearing about Waterloo as a good school was scored as reputation.

I was pleasantly surprised that the number-one answer wasn't co-op. However, my favorite answer I got was "Smart people come out of Waterloo." Now this response was from a guy named Christopher, whom I talked to for about fifteen minutes about the University of Waterloo campus life, the history of Kitchener, and medieval

music. The interesting thing was that he is applying for music.

Bianca told me that the University of Waterloo had "Big hype at [her] high school." I feel that this is a very relevant response that a lot of people won't admit was a factor in coming to the University of Waterloo. Another interesting thing was that some people were very prepared with answers to this question as if they had practiced the answer the previous night. Others had no idea why they were even there.

I also asked what program people wanted to apply to. Mechanical was popular. This is probably because I was camped out in front of the mechanical info session. Obviously, the data doesn't represent the proportion of people applying to each program. It is a small sample of who went to Fall Open house and which program's applicants better reflect the responses about why they want to come to the University of Waterloo.

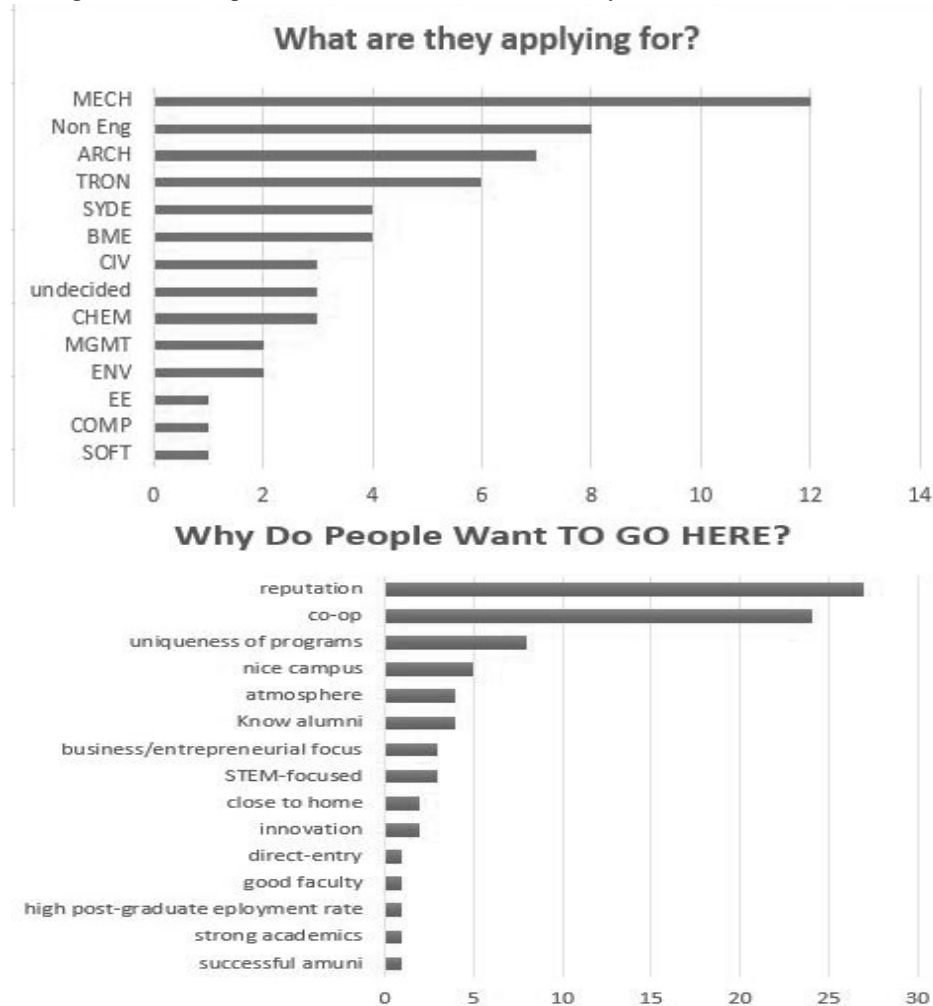
Speaking of WATERloo (see that great transition), it turns out many Ontario schools had higher lead levels than the federal standards. For reference, the Federal standard is 5 ppb and the Ontario guideline is 10 ppb. Turns out my former high school was 50% above the federal standard for lead. Now that's why a bunch of water fountains was removed my final year there. Everything makes sense now.

The problem goes beyond schools, across 260 homes in the country, 39% of homes had lead levels exceeding federal guidelines.

It doesn't seem too far ago that we were all talking about the Flint, Michigan water supply. Didn't we all think that in Canada that we were safe from all of that negligence?

Dozens of municipalities in Ontario have no idea how many lead service lines in their cities. There are limited requirements for municipalities to conduct tests on the drinking water. Some municipalities haven't tested water supplies in the past two years. However, some municipalities are taking action. Toronto has had notoriously high lead levels until 2014 orthophosphate was added to the water for corrosion control. Now only 2% of tested water supplies exceed standards. From an economic perspective, experts say that every dollar spent on corrosion control saves 10 dollars.

What about Waterloo? The region of Waterloo complies with the Ontario guidelines (which are double the federal guidelines). The Region of Waterloo tests the water every year. Waterloo, unlike many other cities, is less prone to lead in the water supply due to its water. Waterloo water is very alkaline (that's why the water here may taste different). Alkaline water is less likely to corrode pipes because the lime buildup (that weird white stuff in your kettle)/ This all in all means less lead in our drinking water. Yay! Also, the Region of Waterloo estimates that lead pipes are only used in homes built before the 1950s.



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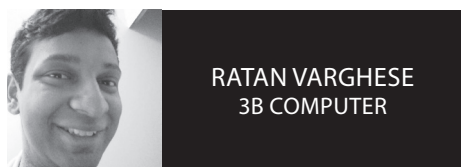
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# The Climate Activist Who is Changing the World

## 'Everything Needs to Change'



RATAN VARGHESE  
3B COMPUTER

Facebook. It's the social network with more users than any nation, and the company with more controversies than most politicians other than Trump. Keeping track of all the frustrating things Facebook does is exhausting, so we at the Iron Warrior have read about them so you don't have to. Now, without further ado, a summary of Facebook-specific controversies and PR gaffes from 1 September to 8 November 2019.

Right around the middle of September, the Republic of Facebook announced that it was creating its own "Supreme Court". It's actually called the "Oversight Board", and it is ostensibly an independent organisation which will simply be contracted by Facebook. Its role is to make decisions about allowing and removing content on Facebook. Exactly how a panel of 11 judges will manage the tasks previously handled by tens of thousands of underpaid content moderators might seem unclear. The actual role of the panel is just to adjudicate on a small subset of contentious content.

A little later in September, Facebook withdrew tens of thousands of apps from using Facebook's API for inappropriately sharing data, making users' data available without protecting their identities, and violating Facebook terms of service. Among the removed apps was myPersonality, which shared a bunch of data with companies and researchers but refused to participate in an audit. Facebook also sued the oddly named LionMobi and JediMobi for using Facebook to spread phone malware.

On 23 September, the Wall Street Journal revealed that Snap, the company behind SnapChat, had prepared a dossier on Facebook's aggressive and possibly anti-competitive tactics. This file, known as "Project Voldemort", described how Facebook discouraged social media influencers from mentioning SnapChat on their Instagram pages. Instagram, by the way, has been owned by Facebook since 2012. Additional behaviour documented in Project Voldemort included preventing content from SnapChat from trending on Instagram and cloning SnapChat's features into various Facebook-owned apps.

That same week, Facebook's VP of Communications Nick Clegg confirmed that speech from politicians was officially exempt from Facebook's fact-checking and decency standards. This is because of a "newsworthiness" rule instituted in late October 2016. Back in 2016, some Facebook employees were opposed to hosting Donald Trump's demand for a Muslim travel ban. However, Facebook CEO Mark Zuckerberg (Data Be Unto Him) personally decided that it would be inappropriate to intervene. However, there was one caveat: while regular posts by politicians were exempt from fact-checking, paid advertising still needed to follow Facebook's Community Guidelines and advertising policies. That caveat would be swept away mere weeks later.

The Verge, which is basically the BuzzFeed's nerdier and less-successful sibling, leaked a 2 hour Q&A session between Mark Zuckerberg (Data Be

Unto Him) and his minions. Zuckerberg said that if Senator Elizabeth Warren became US President and tried to break up Facebook, he would "go to the mat and .. fight". He also mentioned that Facebook created an app named Lasso to compete with TikTok. It would initially launch in Mexico, where TikTok isn't yet available and will be pushed worldwide when it's considered good enough.

In early October, Facebook revealed a subtle change in its advertising policy which would allow politicians to lie in paid Facebook advertisements. The ad that triggered this revelation was made by the Trump campaign and contained false accusations about former Vice President Joe Biden. The ad was so misleading that CNN refused to broadcast it, but Facebook hosted it. When the Biden campaign asked Facebook to take down the ads, the official response was that Facebook's approach "is grounded in Facebook's fundamental belief in free expression." Senator Elizabeth Warren claimed, "This is a serious threat to our democracy. We need transparency and accountability from Facebook." A couple of days later, a number of payment companies including Stripe, Visa, and Mastercard all withdrew from the Libra Association on the same day. Libra is an upcoming Facebook-related crypto-currency, and the Libra Association is the governing body for the new currency. The companies that left did so on a Friday: the upcoming Monday was the Association's first meeting where the payment companies would have been asked to make a binding commitment to Libra. These payment companies were probably also "encouraged" to withdraw by a letter on 8 October from the US Senate which warned that, "If you take this on, you can expect a high level of scrutiny from regulators not only on Libra-related payment activities but on all payment activities."

Around mid-October, Mark Zuckerberg (Data Be Unto Him) delivered a 35 minute speech at Georgetown University where he declared, "I'm here today because I believe we must continue to stand for free expression," and, "I don't think it's right for a private company to censor politicians or the news in a democracy." When asked whether allowing lies in political ads would favour conservative politicians, he said, "Right now, we're doing a very good job of making everyone angry at us."

Late October was a difficult time for the Book of Faces, starting with a Federal court refusing an appeal for a \$35 billion lawsuit against Facebook. In the distant days of 2015, three Illinois residents sued Facebook for violating Illinois law. Basically, automatically tagging people's faces in photos without their consent was deemed a violation of the Illinois Biometric Information Privacy Act. Once it became a class-action lawsuit, it became clear that all 7 million Illinois Facebook users would be affected, and each knowing violation could cost Facebook \$5000: this is where the \$35 billion number comes from.

On 23 October, Mark Zuckerberg (Data Be Unto Him) testified before the House Financial Services Committee. This hearing was ostensibly about Libra, but the representatives grilled the CEO on various other issues:

misunderstanding the problems that Libra is supposed to solve, the thousands of content moderation contractors who spend hours watching gruesome material all day and get "nine minutes to cry in a stairwell while somebody watches them", discriminatory advertising, and the lies in political ads. Rep. Alexandria Ocasio-Cortez (D-N.Y.) asked, "Could I run ads targeting Republicans in primaries saying that they voted for the Green New Deal?" Zuckerberg (Data Be Unto Him) provided this sage reply: "I think probably."

In fact, this issue of lies in political ads was so controversial that hundreds of Facebook employees signed a letter proposing alternative ways to deal with political ads. Adriel Hampton registered as a candidate for the California gubernatorial race and openly claimed his reason for doing so was to spread lies about Donald Trump and Zuckerberg (DATA BE UNTO HIM) in political ads. Twitter announced a ban on all political ads on this platform.

On 5 November, there was yet another announcement of a Facebook API flaw. This time the flaw revealed "group member information, like names and profile pictures in connection with group activity" to developers "for longer than we intended". The apps affected were mainly for administering Facebook groups and sharing a video to

them.

This minor blip was followed days later by a massive bombshell: a public release of 7000 pages of leaked confidential files from Facebook. These files stemmed from a 2015 lawsuit between Facebook and a now-defunct company called Six4Three. After being told by a California court not to release the files, a Six4Three executive visited a member of the UK Parliament, "panicked", and provided the British with Facebook's confidential data. Bits and pieces of these files have been leaked over the years. One of the new revelations from the files: Facebook prevented messaging apps such as WeChat, Line and Kakao from buying Facebook ads. In 2014, they prevented messaging startup MessageMe from having access to Facebook's APIs. This will be helpful for the dozen or so antitrust investigations against the company. A couple of days later, an anonymous blog described racist incidents at Facebook against black, Hispanic and female Asian employees. The blog claimed that these incidents have gotten worse since 2018. Facebook publicly apologised to its employees. In the words of Bertie Thomson, Facebook's VP of corporate communications: "No one at Facebook, or anywhere, should have to put up with this behaviour."



via Wikimedia Commons

Mark Zuckernerd (DATA BE UNTO HIM)



# Zero Waste Shift

## What is Waterloo doing about it?

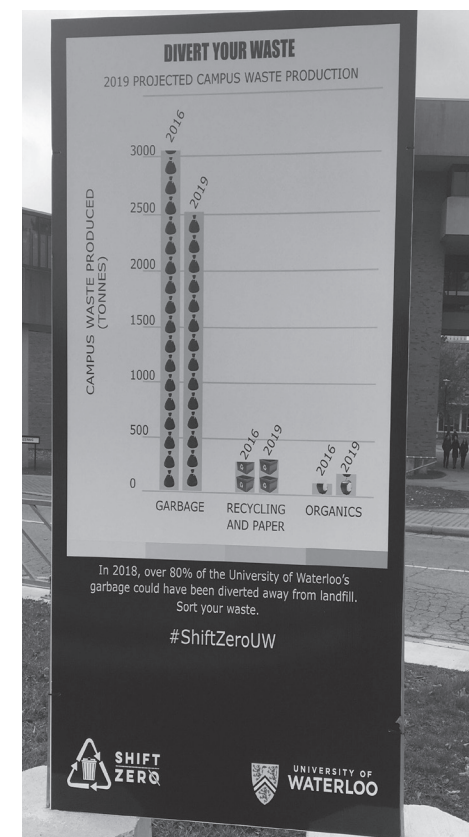


One popular saying of the Zero Waste movement has long been that the planet doesn't need a handful of people living perfectly sustainable lives, it needs everyone to try their best. It was reading a similar sentiment in an Instagram post last year that made me realize I had weird resentment towards the Zero Waste movement because it felt so exclusive. I'm a student; it's impossible in this day and age to be a student without creating garbage, I just can't be zero waste so stop making me feel bad about myself! When I read that the world doesn't need those perfect zero wasters right now, that it needed me in all my imperfect glory, I felt included at last, because I try to reduce, reuse, recycle... but I could be better. So, from there out, I pledged not to be perfect but to be a little bit better. Honestly, sometimes I think coffee tastes better out of a paper cup than a travel mug, hot take but someone had to go there. I might be a little late to the megaphone here, and no doubt if you live in residence

you've heard all about this already, but over the last few weeks I've noticed little signs across campus about "Shift Zero". Ever since, I've been meaning to look into just what they're all about, but you know how school is: one week it's all Netflix and no assignments and the next you're drowning because you have four group projects, a lab exam, two midterms, and three assignments all due at the same time... It took me a while to sit down at my desk but here I am at last. In 2017, the University made it a goal to be a zero-waste campus by 2035. It sounds like a long time from now, but also, it's incredibly soon. Not to mention, this is the entire university we're talking about here, there is a LOT of trash produced every hour, not to mention annually. This fall, the school kicked off part of its "engage and train" approach to the shift. In my opinion, this is the most important of all the approaches because you can change the waste diversion infrastructure all you want, but if students don't care about how they're disposing of trash and how much they're making, you're not going to change anything. Residences are encouraging students to buy a re-usable container to receive a 20¢ discount on purchases (although to be fair, this did start last year), and once the SLC is done the food court

there will offer this program as well. Plus, everywhere you bring your travel mug on campus you gives you a drink discount, though most places have done this for years and the Environment CnD only sells drinks in re-usable mugs, I've had spotty acceptance of the 10¢ discount at campus Timmies many times. And, the school is trying to really encourage people to bring their own water bottle to campus instead of using disposable plastic ones – they might have more success with this if they made all drinking fountains into water filling stations (\*cough\* first floor E2 \*cough\*). On top of these three sustainable initiatives we can all participate in without too much hassle, they're encouraging students to really think about what bin your waste goes in. I know it can be annoying, but honestly, it only takes three extra seconds to read the labels on the bins! And, the school has put together an A-Z sorting guide for anything you might possibly think of tossing from keyboards to textbooks to writing utensils, it's all in there! (Just Google "sorting guide UW"). We've already missed Zero Waste Week, which was the second last week of October, but it's not too late to take the pledge to do your best for our campus and for our planet. Just like one vegetarian isn't reducing carbon emissions, one zero-

waste campaigner isn't going to fix the Pacific garbage patch; it's when everyone works together that good things can happen!



Stats from 2019 UW waste audit

## Dear Darla Answers Your Burning Questions

DARLA  
IRON WARRIOR, ADVICE EXPERT

Dear Darla,  
I have issues.

I like to think of myself as a Software Engineer in their 4th year, but the uncertainty of post-graduation makes me want to go to the 5th. Due to a bout of six consecutive detestable co-ops in Nowheresville, Ontario, I have resolved to take a job in Somewhereville, Maybe-Ontario-maybe-not. Alas, alack, I am paralyzed with choice. Waterloo, Montreal, Austin, San Francisco, Singapore, I do not know where to begin my job hunt. My end goal is to earn as much money as possible, so in 30 years I can retire to a luxurious cottage and relax. However, I also want to, like, genuinely enjoy and take part in the things my community has to offer. Dear Darla, where should I go?

Sincerely,  
Oliver All-Over-the-Place.

Good Day Oliver,

Now I'm not an Arts major, so don't expect me to give you some qualitative analysis comparing research and studies comparing personality traits, demographics, and life satisfaction based on geography. Few metrics adjust to see if you're the right "fit" for a city. You will find happiness in any locale if you understand, appreciate and respect the people around you for who they are, and they do the same for you. However, you may need to compromise some of yourself depending on where you live. For example, if your passion is rehearsing screamo in a fursuit on a balcony under the full moon, and you live in a New York apartment, you will engender resentment from your community. In order to be understood, appreciated and respected, somewhere, you'll probably find something about yourself that should be changed. Luckily for you, number freak, which you must be if you're getting a double degree in engineering and math, there is a way to analyze places: Finances. I almost paid

attention during my Econ class, so buckle up as I misinterpret eat-the-poor rules. Since our global society is organized through capitalism, wages for the same job and the same employee will be different depending on where you go. Unfair taxation schemes and currency distortions can remove this mess. Since capitalism determines your wage based on your demand, being a victim of societal discrimination reduces your demand. Additionally, if there are proportionally more people applying to the same jobs, and people don't start moving away, your wages will go down. However, for ideal capitalism scenarios, you will accrue the same amount of wealth, for the same job, anywhere you go, even if you have a lower wage. This is usually thanks to the cost of living and taxes, in conjunction. In the Bay

Area, you may have an incredibly high wage, and an average tax rate, but a sky-high cost of living. This means you're probably getting the same amount of wealth as you would living in Waterloo with lower wages, the same tax rate, and a dramatically lower cost of living. In ideal capitalism, anywhere you go you will get the same amount of wealth for the same job, even though salaries may be different. So take advantage of those market distortions. Go somewhere where you're aren't going to be discriminated against, where there are few workers, there is an unfair distortion in the currency that benefits you, and other people have to bear your tax burden. Much to your benefit, I also know Excel so here's a graph to compare some cities. The wages are adjusted to show you your buying power after-tax, with the Waterloo

cost of living as a basis. Don't ask for sources or my formulas, you're in Eng, set up a matrix or something and figure it out. From here you can see why you should go Cali or bust, but probably not to San Francisco. It is well worth it to go to small tech centers like Austin, where you can take advantage of low taxes. After all, you're probably a young Canadian, so who cares if you have no social safety net in Texas, you can move back North if you need access to affordable(ish) education and free(ish) healthcare. There's probably something that scares people away from Austin, giving it its edge in wealth earned, but you'll have more money for proper therapy now, and career coaching, not just some agony aunt in a university newspaper.

Yours untruly,  
Darla

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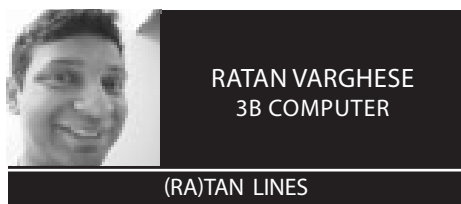
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# The End is Always Near

An audiobook (not a podcast) review



In an era when every YouTuber seems to be making their own podcast, it should come as no surprise that longtime podcasters are themselves seeking new lands to conquer. On the 29th of October, we reached the logical conclusion of that trend. It was on that day that Dan Carlin, perhaps the greatest podcaster ever, published a book. There is, of course, an audiobook edition.

What precisely is the difference between Dan Carlin's "Hardcore History" podcast and the audio version of his recent book, "The End is Always Near"? One might imagine a difference of length, but "Hardcore History" episodes have already been stretching beyond five hours each. Some podcasts have almost no preparation before recording, but "Hardcore History" episodes tend to be researched pretty well, at least for a layman without a professional career as a historian. Each "Hardcore History" episode takes months to create. This

commitment to quality is part of what makes "Hardcore History" so unique and so incredible.

A longtime listener might hope that the book and podcast would cover different topics. Alas, this is not so. All the topics covered in "The End is Always Near" have already been covered in "Hardcore History". Of course, some of the relevant episodes are rather old and behind a paywall. Someone who has already binged Carlin's entire archive will find no new material at all. Those who haven't face a bit of a dilemma: is it better to listen to said material in a podcast or an audiobook? And which of the two is the better purchase?

One of the major differences in the listening experience is the choice of apps or lack thereof. There is a specific technical standard behind most "regular" podcasts, which allows listeners to use almost any app for almost any podcast. Since the audio is stored as a regular MP3, the apps themselves allow the user to manipulate podcasts in all sorts of ways: one excellent recent example is silence removal, which started as a feature of Overcast but spread to a number of other podcast apps. The Audible app doesn't have silence removal, though it at least

has a speed setting. Hopefully, more podcast innovations spread to audiobook software as time goes on.

Dan Carlin's voice sounds a bit different as well. Even when my podcast speed settings match my Audible speed settings, he seems more formal and perhaps a bit louder. It's a minor difference to be sure, but one that is noticeable after a few hours of listening. Carlin's tone of voice also seems a bit more uniformly serious to me.

What really makes "The End is Always Near" different, and perhaps inferior, to "Hardcore History" is the fact that it confines Dan Carlin to a script. The book lacks that conversational flair one gets from the podcast, the feeling that the speaker is nearby or even explaining things to you in person. In the book, Carlin explains every concept in the most artificially succinct way he can and avoids some of the strange tangents that sometimes consume hours of the podcast. In this way, the content of a five-hour podcast can be compressed into an hour of an audiobook. However, that hour seems less authentic than the five hours it replaced.

All this increased focus might have been a good thing if this book were a deep dive into a specific topic, but it's

not. While each individual episode of "Hardcore History" has a clearly defined scope, "The End is Always Near" doesn't. Each chapter hardly connects to the one after it. Although the cover promises "Apocalyptic Moments, from the Bronze Age Collapse to Nuclear Near Misses", there is an entire chapter about the rather non-apocalyptic history of child abuse. This chapter has the same title and a good portion of the same information as the "Hardcore History" episode on the same topic.

Ultimately, I cannot say that any individual chapter of "The End is Always Near" was bad. They were good enough in isolation but were bad compared to their corresponding podcast episodes. They also did not fit nicely into a coherent whole: each chapter seemed disconnected from every other.

"The End is Always Near" is an audiobook, not a podcast, so there are no episodes, intro music, outro music or anything else of the sort. "Hardcore History" continues to exist and receive updates: two massive four or five-hour episodes every year. "Hardcore History" is still my favourite podcast of all time, but I will no longer be describing it as being "practically an audiobook series".

# Social Wellness Podcast Review

This is a podcast review



Hi All! Welcome back to my Wellness Column. I'm going to talk about the importance of social wellness and review a few podcast episodes I recently listened to. In these podcasts, the host and his guest speakers covered a variety of topics such as identity, productivity, mindfulness, stress-relieving methods, etc.

One of them was Jay Shetty's latest podcast and Eva Langoria was a guest speaker. She talked about how to do more with your time, increase productivity and how she dealt with certain situations in her life. She had dark-colored skin as a child and faced colorism and she also talked about parenthood and how much that phase in her life had shaped the following years. It was pretty insightful.

She was looked down upon for not being fair-skinned and she dealt with that by not letting other people's opinions affect what she thought of herself. When you don't know your own self, you accept the definition that others give you. Life is about finding your identity and learning who you are and standing by it. And change is natural, your personality keeps evolving but it's important that you're the one who defines it at every new stage.

Eva also quoted an author of a parenting book, and this quote applied to everyone, not only parents, "You have to meet people where they're at in life because you cannot expect somebody to be more or say more when they're not ready". Everyone has problems, everyone has a learning phase, everyone has their timeline and it's extremely important to understand this. This helps us sympathize better with people and have fewer conflicts. Social wellness is so significant in our lives. You give to

society by sympathizing and accepting others and you take from society by surrounding yourself with people that not only bring you joy but are also good for your overall wellness. It's a gray area of course, which is what makes it important enough to be part of one's wellness journey.

And she talks about how she doesn't waste time. Time is precious and as students, we procrastinate a lot. We have so much potential and we can do so much with our time and learn so much. And of course there are always setbacks but those setbacks should be exceptions and not the rule. This way, we keep our mind occupied and we feel proud of ourselves for having achieved so much in one day. Eva also mentioned something that Oprah said on her show, everything she does has to deliver something, has to have some purpose. Doing pointless things is not going to help anyone. Being mindful increases your emotional intelligence and your productivity level. This is what I learned from this podcast episode and it's given me so much insight. Viewing things from someone else's perspective opens your eyes to a lot more than you ever could have imagined and I feel that's the purpose of these podcasts. So do listen to them when you have a chance and it could really help you if you're struggling with this kind of situation.

Jay Shetty had another guest speaker, Dr. Rangan Chatterjee. They talked about how to reduce the consumption of chemicals that ruin your brain and body. He mentioned how he changed the way he gave advice to patients. And it's the same idea, meet people where they're at. He told them to start exercising at their own pace, with just a few minutes that you're willing and ready to spare, feel the difference and you will want to work out more. He also talked about managing micro stresses, loneliness, lifestyle, morning and bedtime routines, sleep, etc.

Micro stresses are tiny bursts of

stress that affect us throughout the day such as stressing about waking up late, a message or email that you read after waking up, not having enough time to have breakfast, thinking about an assignment due that day, etc. They seem small enough to ignore but the more they build up the faster you will break down. And we face at least 15 micro stress doses before we leave our house in the morning, so mornings are very important for shaping the rest of your day. Dr. Chatterjee follows the rule of 3 M's - Mindfulness, movement, and mindset. Mindfulness can be any sort of meditation such as breathing or positive affirmations, movement includes a quick exercise and mindset can entail reading a book for a few minutes. This seems like a good morning routine and I'm going to give it a shot. So, try this out as well and see if it changes your energy levels. Bedtime routines are vital for sleep patterns. Us students tend to watch TV before we sleep because we feel it helps us decompress after a hard day's work. It really doesn't. Sleeping for that one hour instead of watching TV can go a long way and you will feel more refreshed the next morning. Sleep is the true decompression and it defines our behavior, productivity and stress levels during the day. The problem is we don't make it a priority because our lives are so busy. We feel like we need to accomplish certain things before we go to sleep but having less sleep is what hinders our accomplishments. So, make sleep a priority and you will study so much better.

Your social wellness also depends on loneliness. In today's age, we define friendship and connection in terms of social media connectivity. But as humans, we need a deep meaningful connection to be able to survive. When you're lonely, you feel vulnerable and your body is smart enough to protect you. Your blood sugar rises, your body becomes inflamed and your immune system is affected. So everything is

interconnected. Your social health affects your mental and physical health. With the amount we stress during the study term, loneliness will only make it worse for us. So even if you're really busy since finals are soon approaching, take some time for socializing. And it doesn't have to be a night out with your friends. You can form a study group or go to the library with a friend. Take a break from your studies and meet a friend for coffee.

I learned a lot from listening to these 70-minute episodes on Spotify. The podcast is called ON Purpose by Jay Shetty and the individual episodes are with Eva Langoria and Dr. Rangan Chatterjee. So I'd recommend listening to them even though I've summarized it for you. Just listen to it when you're walking to class or having lunch. It's honestly so informative. And I hope it helps you.

Keep studying hard. You got this!



ImagineCup via Flickr

Guest speaker Eva Longoria

## We need a Bigger Boat

### Waterloo Submarine Racing Team (WatSub)



KIRSTEN EHLERS  
2A BIOMEDICAL

WatSub is a University of Waterloo design team. They have been competing in submarine racing world-wide since 2015. WatSub kindly answered a few questions for us all to learn more about what they do.

**Q: What is WatSub?**

The Waterloo Submarine Racing Team (WatSub for short) is a student design team at the University of Waterloo who designs and builds human-powered submarines. We have taken this underwater challenge that is very rarely explored since 2015. We race our submarines at the International Submarine Races (US) and the European International Submarine Races (UK). The rule of this competition restricts the submarine's power to human power, thus focusing our attention in maximizing the submarine's design and life support system.

**Q: What makes WatSub unique?**

Not only we are the oldest human-powered vehicle at the University of Waterloo, we are the only team in Sedra Student Design Centre involved in marine engineering. We are also the first and only student-run human-powered submarine racing team in Ontario.

**Q: What are you currently working on?**

We are working on our 4th human-powered submarine; Darwin. It will be an enhanced and improved version of our 3rd sub; Claire. The submarine will use a non-propeller system and has electronic steering. We are still in the designing process as we just competed in the 2019 International Submarine Races a few months ago.

**Q: What is the funniest failure/best success you've had?**

One of our CAD models for our

propulsion system was out of date. Our team did not realize this and when we went to put the system together with our chassis, it didn't fit; nothing fit. We had to think fast and make quick, but engineering-forward judgement. It was a long night of cutting and drilling aluminum at competition at 2 am.

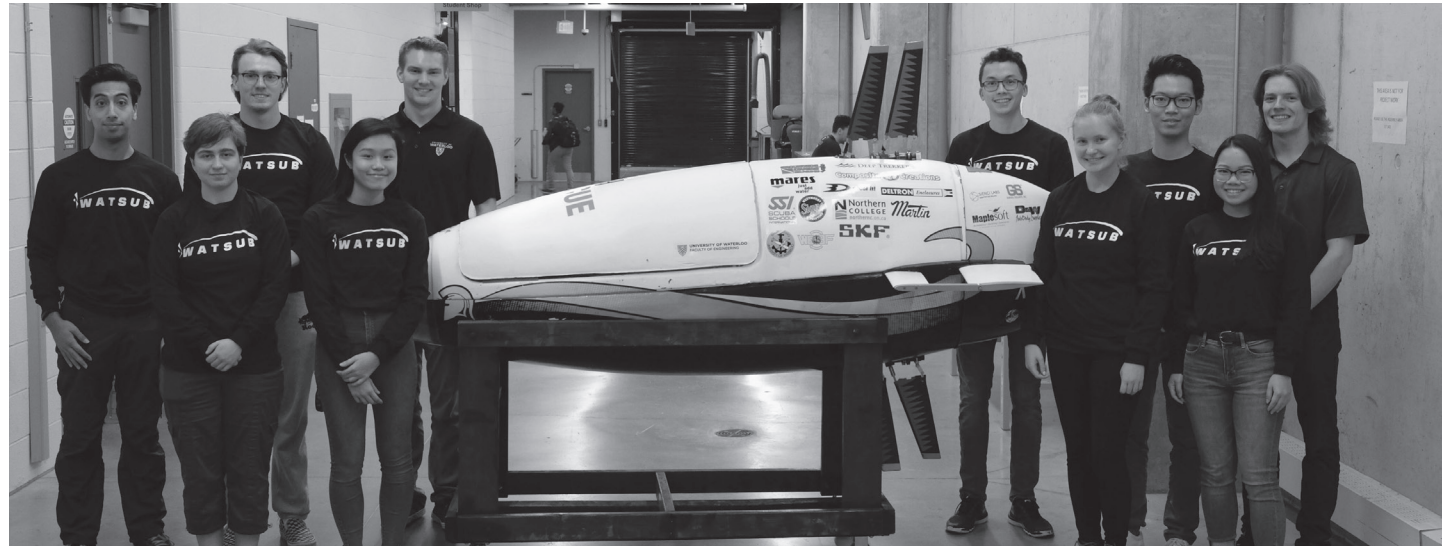
**Q: Can you tell me about one of your competitions?**

One story from a competition is we used a part of Michigan's submarine drive train in our submarine as our control system was not working as intended. So,

we made a last minute fix on our control system and in the end, our submarine worked. We are so thankful to the Michigan team for giving us their drive train, because without them, we would not have a working submarine.

**Q: How can we find out more?**

You can find more about us in our website <https://waterloosubmarine.wixsite.com/watsub> It is still in progress but it is almost finished. We are also on Instagram <https://www.instagram.com/waterloosubmarine/>



via WatSub

This is no SUB-par team

## Med Pros at Work

### ProtoMD design team



AKANKSHA JOSHI  
2A BIOMEDICAL

**Q: How did you guys start up?**

Originally, our design team was part of a global organization called Medical Makers that was focused on prototyping affordable medical solutions for individuals in developing countries. However, due to some differences in the goals of our team and the organization, we decided to split and become ProtoMD in Winter 2019. Our new design team's goal is to rapidly prototype affordable teaching models to support the learning of human biology on a local and global level. We are currently focused on working with local high schools to create tangible models that will provide hands-on learning experiences for the students. We are excited to work with high school teachers and students directly, to create improved designs to encourage learning.

Hopefully, we will expand our reach globally as time progresses, to help those who do not have access to teaching models around the globe!

**Q: What types of projects are you working on?**

Currently we are working on a project for the Kitchener-Waterloo Collegiate

Institute and Vocational School's Biology department. The goal is to create a 3D printed cell model which demonstrates the process of protein synthesis, including translation, transcription and modification and where each of these processes occur within the cell. We are hoping to provide the teacher with several of these models,

to allow for their use in a dry lab.

**Q: What type of impact are you hoping your projects will have?**

Above all, we are hoping to make teaching resources in the field of human health and biology more accessible to everyone. Education is the root cause of many health care problems that exist in our world. If we provide teaching tools to better support the proper education regarding our own biology, (and maybe even make it a little more fun), we hope more students will be interested in furthering their knowledge of biology and healthcare. Many educational models that exist today are extremely expensive

The price of these models often means that local schools cannot afford them. If local schools cannot access these models, one can imagine that they are relatively impossible for schools in developing countries to afford. Long term, we hope to expand our reach to these developing countries, creating inexpensive models that directly address the gaps in their healthcare education.

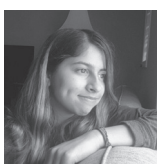


via ProtoMD

These smart engineers are about to change the medical game!

## Aqua-mazing Design

### ProtoMD design team



AKANKSHA JOSHI  
2A BIOMEDICAL

Aquadrone is a student-run design team that is currently working on the design and development of a fully autonomous underwater vehicle. The team was formed in early 2019 by a group of engineering students, and will be competing in the AUVSI RoboSub Competition in San Diego, California in the summer of 2020. One of the team members was kind enough to provide answers to some of our

questions.

**Q: What is Aquadrone?**

Aquadrone is a student-run design team developing an Autonomous Underwater Vehicle for RoboSub competition.

**Q: What makes Aquadrone unique?**

Firstly, we're designing for competitions, so we have clear end goals, organized schedules, and good team communication.

Secondly, we face unique challenges like waterproofing and fluid dynamics, and we also have no past competition experiences, so this is our first time.

**Q: What are you currently working on?**

I am in the mechanical sub team responsible for the manipulator arm design. Specifically, I worked on the adaptive finger design, adopting and modifying existing industrial models to suit our needs. Currently the mechanical design part is pretty much finished for this revision and we are mainly focusing on analysis, sourcing and assembly.

**Q: What's the advantage of joining a new design team?**

There are lots of opportunities to learn, as long as you are willing to put in the effort.

**Q: How can we find out more?**

Apply on our website: <https://www.waterlooaquadrone.com/>



# On the brighter side...

## Midnight Sun design team



RATAN VARGHESE  
3B COMPUTER

Midnight Sun is a University of Waterloo student team that designs and manufactures solar-powered electric vehicles. The team has existed since 1988, and one of their older cars is on display under the stairs of E5. Their more recent cars, including last year's MS-XII, can actually fit multiple people comfortably. In an interview with the Midnight Sun Project Manager Micah Bai, I learned a bit more about their cars, their team, and the competitions they compete in.

Midnight Sun has team meetings every Wednesday at 7:30 PM, and a co-working period at 12:30. In addition, Micah noted that there are always a couple of team members hanging out in their work bay at the Sedra Design Centre. The specific hours are mainly a convenience for new members of Midnight Sun.

"Every student team has to think really hard about how to integrate new members," Micah said. Upper years who have worked for a couple of months can often contribute to the team right away. "Not that first years can't," Micah clarified, but Midnight Sun does take some effort to get first years up to speed with all the tools used by the team.

Ultimately as far as Micah is concerned, "teams are there to help you learn practical skills that you won't learn in class."

What practical skills might you learn at Midnight Sun? Micah organised the answer by breaking the team down into subgroups.

The mechanical team obviously has to handle the high-level mechanical design of making a car that can actually drive. They also have to consider design for assembly (DFA) and design for manufacturing (DFM), to ensure that Midnight Sun can actually manufacture the parts they design.

The hardware team deals with all the electrical systems of the car. They have to consider how all the different systems of the car connect and communicate with each other, and often design custom printed circuit boards (PCBs).

The firmware team is tasked with programming all the embedded computer systems of the car. In addition to the device drivers needed to control the car, they also need to program the telemetry systems that collect data used by the strategy team.

Every race that Midnight Sun competes in involves some real-time decision making for the team. When is the best time to start, stop, or charge? What is the optimal speed for the car to cruise at, right at this moment? These are the questions that the strategy team must answer. They interpret data

the car's sensors collect, such as the remaining charge and temperature. They also consider environmental data such as the weather and the elevation for the next 50 km. By considering all this data, the strategy team can ensure that the car runs at maximum efficiency during a race. Midnight Sun hasn't had a strategy team for the last 10 years, but now in 2019 they're back.

There is also a business team: according to Micah, "they're awesome". Some of them understand the finances of the team, handling their spending and sources of income. Some of them are involved in marketing the team, both to new members and to sponsors. In addition to cutting deals with sponsors, the business team also cuts deals with suppliers to get materials at a discount (or, ideally, for free).

Midnight Sun has recently started an interiors team. They have to test whether the car is easy to get in and out of, whether it is easy to turn the car on and off, and other aspects of the driver experience. The task of improving the user interface of a car truly fascinates Micah. Midnight Sun's previous cars didn't focus too much on this aspect of car design. However, for their upcoming car, the MS-XIV, improvements to the interior are a major part of the team's strategy

There are three main competitions that Midnight Sun is involved with.

One is the Formula Sun Grand Prix

(FSGP), which is an annual track race. The basic idea is that whichever team completes the most laps in a time limit is the winner. FSGP 2019 was held in Austin, Texas at North America's largest Formula track: the Circuit of the Americas.

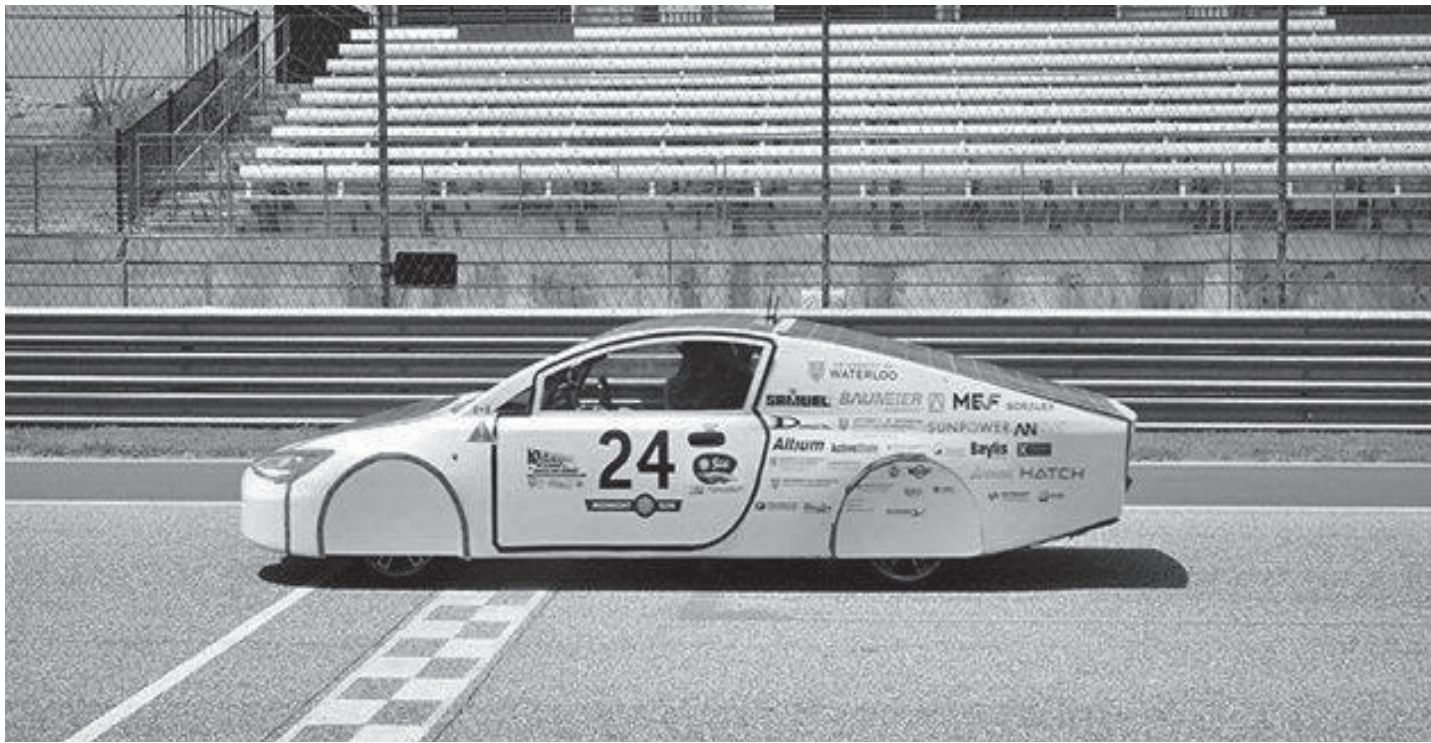
Another competition is the American Solar Challenge, which is held every two years. This is a cross-country endurance race, with 3000 kilometres to cover. Cars are graded on efficiency as well as practicality: is the car easy to enter, leave and control? In 2018, Midnight Sun competed in the American Solar using their MS-XII car. They were the first Canadian team to finish the multi-occupancy vehicle competition. The MS-XII is currently sitting on the ground floor of the Sedra Design Center, near the work bays.

In Micah's opinion, the most exciting competition for Midnight Sun is the World Solar Challenge. It is similar to the American Solar Challenge in that it is a cross-country race: however instead of racing through the US, cars must travel through the Australian outback. There are competitors from all around the world, and the speed requirements are higher than the American competition.

Midnight Sun is setting the bar higher with their next car. The MS-XII was a top 3 car in the American Solar Challenge. With their next car, the MS-XIV, Midnight Sun aims to break into the top 2.

There are three main areas where MS-XIV will improve compared to the MS-XII. First, the MS-XIV will have superior aerodynamic efficiency: which is the main factor preventing energy loss in a solar car. Second, the MS-XIV will have higher practicality scores thanks to the aforementioned interiors work. Third, the MS-XIV will run at high efficiency on race day thanks to the efforts of the now-resurrected strategy team.

Making a long-range solar-powered vehicle is obviously a very interesting engineering challenge. What is less obvious from afar is the other factor that kept Micah involved from first year to today: the people. Micah finds visiting the work-bay, working, and hanging out with his team-mates to all be quite pleasant. "The people who are involved make working on it such a joy," Micah said. So if you're looking for technical challenge, ways to build a more sustainable world, or a sense of community, give Midnight Sun a try.



via Midnight Sun

Vroom! Vroom! Driving on sunshine.

## NASA makes a Helical Engine?

KSHIN PATEL  
1A BIOMEDICAL

Dr. David M. Burns who works for NASA at the Marshall Space Flight Center in Alabama, USA, is the mind behind the idea that it may be possible to create an engine that has the capacity to travel at close to 99% the speed of light; that's nearly 296,794,533 metres every second. Burns states in his paper published on the online NASA database, titled "Helical Engine," that the only moving part of the engine will be the travelling ions that are trapped inside electric and magnetic fields as a part of a closed-loop vacuum.

Burns describes how the idea of creating such a powerful engine came to him. He explains in an interview with science newspaper, New

Scientist, about taking advantage of a possible glitch in Einstein's theory of relativity. This allows him to manipulate the speed of the ions while they are in the closed vacuum as they are accelerated to the speed of light. When they accelerate to a relative speed and their velocity is slightly manipulated, the momentum of the ions will change as a result.

To better visualize Burns's idea, he says to imagine a box containing a rod with a ring that can slide back-and-forth along the rod on a frictionless surface. Due to Newton's third law of motion, if a spring pushes the ring to the other end of the box, the ring will push forward, and the box will want to move in the opposite direction. Burns suggests that if the mass of the ring were greater when sliding

in one direction versus another, the action force would be greater than the reaction force, resulting in the box accelerating forward. This is possible due to Einstein's theory of relativity implemented for particle movement in an accelerator. He says that as an object moves closer to the speed of light, it will gain mass.

Although it sounds possible to make with the right tools, if such an engine were made and tested, many hypothesize that it would take a long time to generate enough force to thrust an object forward at such a high speed. According to the interview in New Scientist, a two hundred metre-long helical engine would generate enough force as someone who is typing on a keyboard. Burns said he is "comfortable enough throwing [the

idea] out there," and "if someone says it doesn't work, I'll be the first one to say it was worth a shot."

The ultimate goal of an engine this powerful is to be able to expand the life of satellites in space. It will allow for an engine that is capable of running for a longer period of time at a higher speed. Although we still don't have the resources to be able to create a model and test the concept of a helical engine, the idea that something so powerful could be created can open a whole new door of possibilities when it comes to space travel in the future.

For more information on the Helical Engine, Burns's paper is available on NASA's server as a PDF copy at the following source: <https://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/20190029294.pdf>.

# Get an Edge for Google Interviews

## Developer Students Club at UW



FARZEEN TITINA  
4T COMPUTER

University Clubs holds an important place in Waterloo's learning community be it academic, sports, performance arts, fine arts, recreational, etc. Being part of a club helps you gain knowledge from your own experiences and by collaborating with other students as well. So, if you're in search of a club that will help you improve your programming and design thinking skills, we have a new addition called the Developer Students Club (DSC) for all you avid coders.

This club is an initiative by Google to encourage students to learn Google's Open Source Tools. In order to better understand how this club works and share it with anyone interested in joining, I interviewed Shubhangi Raj, the Director of Workshops of the DSC. Shubhi is a 2nd year Software Engineering student with a keen interest in Computer Vision.

### Q: Can you give me a brief overview of the DSC Club?

The Developer Students Club is a university-based group that encourages undergraduate as well as graduate students to build with Google Developer technologies. We help them grow in peer-to-peer learning and build solutions from open source tools. It's not affiliated with WUSA but it's a chain of clubs established by Google in the universities, globally.

### Q: What kind of club is it? Is it similar to a student design team or just a gathering of students interested in learning about Google's Open Source tools?

Unlike design teams that represent the University, the DSC is not really associated with UWaterloo but it's based in our community, since it's a great place to encourage students at an early stage, to learn Google's technologies and build with them.

### Q: Is this club open to programmers of all levels?

It's definitely open to programmers of any level because we want to introduce the technology to students. We're interested in helping those who want to get started, equally compared to someone who already has knowledge and wants to learn more about these tools in depth.

### Q: And what can we learn from building with these open source technologies?

You can learn about cloud, machine learning, mobile technologies and everything Google has to offer.

### Q: When did you join and how are you finding it so far?

So the DSC has already been established in other universities and it was recently introduced to our university, so I joined this term. I feel it's an amazing opportunity, especially having the Google office in Waterloo. It can help us learn from the Google community and as an executive of the club, I can help others, organize workshops and learn new technologies myself as well. It's a great place to meet new and experienced people. We have a pretty good backing by Google and they provide funding for the workshops and activities held by the club.

### Q: How would you define the structure

### of the club?

Google selects one of the students as a DSC Lead through an application process that takes place every year, around September to October. The lead is responsible for setting up the club in the university, hosting workshops and building activities and helping people learn. The executive committee is set up after the Lead is chosen, so responsibilities are divided. It is a fairly new club and we're an executive team of 6 and are looking for students to join our mailing list to expand our club.

The executive team consists of a Director of Workshops, Marketing Director, Finance Director, Project Lead, and the Core Developers. The Director of Workshops is responsible for ensuring the club is running actively and workshops are held at correct intervals of time, organizing tutorials for new technologies and advanced learning sessions, based on the project's requirements. The Marketing Director is responsible for the marketing strategy, especially in this early phase. We need to communicate to students what we're trying to achieve and how beneficial it is to them. The Finance Director is responsible for the funds provided for certain events. Since the main purpose of the club is to help open source contributions, we will be having projects throughout the year. So, the project lead will be responsible for selecting and facilitating the projects. The Core Developers will help with the development process along with other members who would like to join the club.

### Q: How do y'all select projects to work on? And is the plan to make everyone work on the same project or multiple projects?

We have a lot of autonomy. So we can make the decisions on how we want to structure the projects throughout the year. In the beginning, we will start with a lesser number of projects, but as we're heading different departments, we have the autonomy to build a more intense network of teams under us. So, if we feel the projects are becoming too detailed, we can eventually set up different pillars of streams. So, we can have a mobile project and a machine learning project at the same time. But we're still a new club so we don't have projects lined up yet since we're still looking for people to join.

### Q: Does anyone from Google oversee the projects? How involved are they with the club?

They aren't going to keep an eye on the

projects but they help us organize certain sessions such as study jams. One of the major requirements is that the project has to be open-sourced.

### Q: What's the process like when a project is finished and when a goal has been achieved?

We're independent from Google as a company. They have certain people in Google who are responsible for ensuring the clubs are functioning properly and doing what they need to but it's more about encouraging a community so they can grow and learn together as developers.

The goal of the club is to have an innovative approach towards learning Google technologies and building open sourced projects and facilitating a peer to peer learning community.

### Q: Does being a member of the club help students applying for Google jobs?

So it definitely helps in a lot of ways. You don't need to know all of Google's tools but it would help you know what team you want to work in based on what technologies you've worked on. And Google would appreciate the fact that you put in an effort into building open sourced technologies and it can give you an edge when applying.

### Q: Would you say executives have a good networking opportunity since they coordinate with Google employees?

Definitely, and not only the executives but the club members as well, especially with the lineup of events. We have an upcoming event on November 14th, "Cracking the Technical interview". We have a Google Software Engineer, who is also a Waterloo alumnus, coming in to talk about techniques you can use the crack the interview for any company. This will give students an opportunity to network.

Google also holds a DSC Lead summit where all the DSC leads from universities meet, network and see what other universities are implementing, learn from them and exchange knowledge. It's a great leadership opportunity.

### Q: These sessions that you hold for students? Does google ask you to hold these sessions or does the club decide them?

There are some standard events that google asks us to host such as the cracking the coding interview. They encourage us to incorporate these events as part of the club. There's also a study jam coming up in December, which will be a 3-4 hour session and as a club, we can choose certain streams



Salah Gouasmi via Pexels

This could be you! Join DSC.

such a Kubernetes, IoT, ML, etc.

Apart from that, it's our responsibility as a club and as independent decision makers to decide what we want to do throughout the year, so that the club remains active and there's something new and exciting happening every time.

### Q: Are these events open only to DSC members or other students as well?

Every student is welcome and we encourage students with any background to attend these events and take full advantage of them.

### Q: And how are y'all planning on communicating to students who are not part of the club about these events?

So that's how we've started. There was no one on the mailing list since we started from scratch. We've posted on different Facebook groups and taken the approach of talking to 1st to 3rd years directly. We've even gone to classes and advertised and set up flyers. We talk to them about the advantages of joining the club and the events.

### Q: Is there anything else you would like our readers to know?

To summarize, it's an amazing opportunity to take advantage of, now that it's in the university and accessible to everyone. We encourage you to contact the execs if you have any questions. We're ready to help anytime.

You can find us on LinkedIn and we even have a DSC Facebook page so you can keep track of events hosted by us.

Check out these websites for more information on the DSC Club and upcoming events - Google DSC: <https://developers.google.com/community/dsc>

DSC Uwaterloo: <https://dscuwaterloo.github.io/DSC> Uwaterloo FB Page: <https://www.facebook.com/dscuwaterloo/>



What an imposing logo... Do you want to work here?

Meneame Comunicacions via Flickr



# Point Vs. Counterpoint

## POINT

GABRIELLE KLEMT  
4A GEOLOGICAL

Remembrance Day should be a holiday. See, Remembrance Day is not a day like any other. The importance of this day is not one of glorifying war, it's about recognizing the peace we have, it's about nostalgia, and it's about loss. When the armistice to end hostilities was signed at the end of World War I, no one thought November 11 was just a regular day, it was the most important day of their lives so far and it has ever been a day to remember. I've thought about it and gone over this argument many times and I have come to the straightforward conclusion that making Remembrance Day a holiday is the right thing to do.

The problem with Remembrance Day is not its insignificance, but rather its lack of seeming relevance in the day-to-day lives of most Canadians. Sure, we're all grateful for the sacrifices others made in the past, but as the last living veterans of Canada's major wars die out, and few of us know anyone who served in Afghanistan, it's becoming easier to imagine November 11 is a regular day. When we were in school, we had Remembrance Day assemblies, and we were made to learn about what the day represents. I still remember the first time I got to perform at our school Remembrance Day assembly with the Junior Choir in grade 3; in fact, I still remember the songs we sang, I have a very emotional attachment to those songs.

But the older we get the fewer people around us are telling us what to do. No one tells you when to eat lunch anymore, no one cares about most of your day-to-day activities, certainly, no one is going to tell you when to observe a moment of quiet reflection. Obviously, we don't need teachers in our adult lives, we are independent people now, after all, but it is so easy when you're busy with everything else in your life to get completely caught up in your own bubble and forget about the outside world. We need things to look forward to in order to remember things, birthdays come with celebrations with friends, holidays come with time off work, Remembrance Day is the forgotten one; what is there to remind us of its presence? Poppies on jacket lapels? Then what? There are no French horns playing in the streets to remind you that it's 11 am, there are no morning announcements to recommend a moment of silence to think about veterans or war or peace or fish or whatever you want to think about for a moment of your day that isn't your life and your problems.

No matter how you dice it, the fact that Remembrance Day sits like any other day in the week means the only people who are able to really observe it and attend

city parades are civil servants and retirees. That is not how you keep a tradition alive, traditions need the interest of young people to carry them into the future. We are forgetting Remembrance Day because, crudely, there is no reason to care about it when we have work and school taking over our thoughts.

It doesn't have to be this way, though. I've been out of high school for five years now, this will be my fifth Remembrance Day where I am not involved in a celebration as an Air Cadet or with my school. In the last four years, I have had three different experiences with November 11. In my school terms, I managed somehow to miss the day both times, not because I don't care, but because I had class and homework and group projects and at the end of the day I realized all the superficial things I had been stressed about that day and I thought how sad it was that I had forgotten. In my first fall co-op, I worked for the government in Ottawa, where all civil servants get the day off. I went downtown and stood with what felt like the whole city and it felt fantastic to be part of this amazing celebration of life and sacrifice and remembrance.

When I worked in Whitehorse, I found out all of Western Canada gets the day off. Again, we're adults, no one is going to make you go a Remembrance Day parade. However, the fact that you have a day off work means you're not going to forget about the day. You'll have time to wake up and listen to radio coverage or read through a newspaper, and maybe you'll spend some time thinking about those that came before us and the trials and tribulations and victories they experienced. It's fair that people want children to be in school on November 11 so that they can have the experiences I already described assemblies. But learning about Remembrance Day is not restricted to the day of; in the lead-up, to November 11 we learned about peace and war, we made paper poppies, and we recited songs and poetry. Learning about what the day means is arguably more important than the ceremony because understanding why November 11 is not like any other day in the year is what makes more conscientious adults later on. Taking students out of school on November 11 is not harmful to their education surrounding Armistice Day, it will continue to keep the tradition alive for the next generation because it also allows adults to pay more attention to this important day.

KIRSTEN EHLERS  
2A BIOMEDICAL

Remembrance Day should not be a holiday. My peers in Alberta and New Brunswick will disagree with that statement. However, the provinces of Quebec, Ontario, Nova Scotia, and Manitoba, and the Canadian Legion all share the same opinion as me. Firstly, consider the meaning of Remembrance Day. Remembrance Day is not a celebration is a solemn day of, for lack of a better word, remembrance. Holidays have a celebratory connotation. Victoria Day is the kick-off to summer. Many Canadians know who Queen Victoria was and the importance of her actions on Canadian history. But how many Canadians take the time to reflect on her actions on the holiday given her namesake. Labour day is the last hurrah of summer. Do you ever consider and remember the Toronto labour protest on Labour day? I didn't even know it existed until I researched it for this article. In 1872, there was a printer strike that fought for a nine-hour workday. Before, they had to work 12 hours. This was a huge win for the labour movement in Ontario. That's why we have a holiday for it. Do you reflect on the hard work that average working people did so that we could have well-established labour laws today? But what about the United States? Don't they celebrate their veterans as part of a holiday every November 11th? That is true. In Canada, Remembrance Day isn't a party. It isn't a celebration of our victories. It is a day to reflect on the sacrifices of many Canadians to protect the freedoms that we enjoy today. The risk of losing the importance of Remembrance Day is too great. It is vital that Canadians reflect on the efforts of veterans. It is a day to observe and we don't need a holiday to do this.

Thousands of Ontarians, be it at school, work, out on errands or at home, take a moment out of their day to pause and remember the sacrifices that Canadian soldiers have made for this country. The act of everyone taking a pause in their normal busy day is a powerful symbol. I recognize the difficulty for the average Canadian to attend their local ceremony, but I really want you, reader, to consider what you would actually do, if you were given the time off.

The average university student, particularly during this busy time of the

semester, would probably not attend a ceremony. Would you wake up early to go to a ceremony across town? Would you take a morning off from your studying and homework? Would you treat it as a catch-up day? If you say no, that is amazing. It is unrealistic to assume that everybody shares those opinions. Would the average person haul themselves to Toronto for the official Ontario ceremony on a non-work day? Who would commute downtown if they didn't have to?

Another risk of making Remembrance Day a holiday is that Ontarians may, eventually, think of the day as just another day off work or school. Companies and schools do their part to ensure that employees and students recognize the holiday.

One of the strongest arguments for not making Remembrance Day a holiday is to keep children in schools. Remembrance Day is an opportunity for teachers and schools to educate students about what Remembrance Day means, the soldiers that fought for our country and the history that defines Canada. Some argue that schools can still teach it remembrance leading up to Remembrance Day. Still, there is an increased obligation of schools to teach children about Remembrance Day if the students are actually in school that day. Why can't parents educate their children about Remembrance Day on Remembrance Day? As I discussed above, how many parents do you think will take their child to a Remembrance Day ceremony? Meanwhile, if the kids are in school, it is almost guaranteed that every child will have the opportunity to recognize Remembrance Day in some way.

Another rebuttal is that adults out of school represent a larger proportion of the population so Remembrance Day should be a holiday so more adults can go to ceremonies. Still, adults are smart enough to learn about the day themselves. They can read a book about it. Adults know what Remembrance Day is because they were taught it in school. They can take the initiative to have a moment of silence at work. A child needs to have an adult explain what remembrance really means. It's important to have that in the classroom. One flaw in this school argument is that schools do recognize Remembrance Day on an alternative day if Remembrance Day falls on the weekend, as was the case last year. We cannot change the calendar and for that, I'm sorry. Still, when it is on a weekday, one cannot ignore the benefits of having the kids in school.

Other provinces have proven successful in having a holiday for Remembrance Day. Still, I strongly believe in keeping Remembrance Day, not as a holiday.

## COUNTERPOINT

### 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.



In Flanders' fields the poppies grow...

Serena Koi via Pexels

# IW goes to TalEng



YVONNE LALUMIERE  
1A ECE

On October 26, the Engineering Society hosted TalEng, the engineering talent show, at Wilf's restaurant and bar. With the exception of a couple of EngSoc members none of the names of performers are mentioned in the article.

I went with a couple of my friends, and had a chance to eat some food (very good) and enjoy the talents of our fellow engineering students (even better). Personally, I'm a

big fan of the spinach dip and enjoyed the excuse to order it.

At nine, the show got started. The performances included a duet on the piano, an original song, some fiddle, an original remix of a rap song, several covers of songs, and the EngSoc president Ellen performed with the guitar. During the breaks between individual presentations several people would tell jokes, some corny, some genuinely funny, all entertaining. Every performer brought their all and were met by the cheers of the crowd.

Right after the first performance the Tool made an appearance, and the new VP finance Jay was sworn in on it. I was not expecting

the appearance so it was a bit of a surprise, but a welcome one nevertheless. The tool bearers then stayed for the rest of the show, writing comments and requests on papers for the performers to, say, do more dancing.

One of the most notable performances was a pair lip-syncing in very extravagant way to Call Me Maybe by Carly Rae Jepsen. The two embodied the energy of the song and engaged with the audience, moving into the crowd to interact with individuals directly. One then continued like this through three more songs, keeping the same energy throughout.

Overall, the entire night had a very encouraging and positive environment. As

this was my first EngSoc event I feel like I understood the vibe that these events have. A fun community who encourages the upbeat chaos that community brings.

Unfortunately, I ended up leaving early because of other commitments, and can't report on the last hour of the show. I don't doubt however that it was the same energy as the rest of the night. My thanks go out to EngSoc for running the event, and to the individuals who performed.

Everyone walked over from Poets at eight, and after getting there at eight, we had about an hour to hang around, order some food and get ready for the show.who were there to make sure the event ran like it did.

# Engineering Traditions - An Overview

CHUKWUNONSO J. MONEME  
VP COMMUNICATIONS

Being an Engineering student is a heck of a time. There are exams, assignments, labs, and classes. Hours of classes and sometimes less than optimum hours of sleep. All that work can sometimes make a student feel like they're alone here, but we're very much not. One way that we connect with the extended engineering community is through conferences. This weekend, a group of 8 first years, alongside myself and my A-Society counterpart, Andrew Dickson, will be participating in ESSCO's First-Year

Integration Conference (FYIC). While there, these first years will get a crash course on leadership and involvement in engineering, while also getting exposed to more traditions of our culture like coveralls, patches, and mascots.

As you may know, at Waterloo we have grey coveralls that have the Society's logo on the back and ENGINEERING in bold lettering down the left leg. Though these coveralls start off rather bland, each engineer can customize their own by sewing on patches from different events, schools, and other personal adventures. You can even trade pockets, sleeves, legs and other parts

of your covies with other schools to make yours extra special. Different schools have different colours and styles like McMaster's Redsuits or Carleton's Flightsuits. We use our covies to connect us as a provincial and national community, and to show our school pride when a bunch of other schools get together.

Another iconic symbol of the Waterloo Engineering Society is the Tool. You may be familiar with our 60 inch mascot, but did you know that we have a smaller one? The Mini-Tool, affectionately named Junior, is the 24 inch representative of the Tool, and is our travel mascot. We take Junior to most of our

conferences to represent the Society in the Tool's absence. Other schools also bring their mascots, like USaskatchewan's RoadBear, or UBC Okanagan's shield. There is a culture of stealing mascots between schools, all in good fun, as a way of facilitating healthy interactions between schools. There is a Code in place that we follow so nothing gets too out of hand. In the past, Waterloo has stolen many mascots, most recently, the Gear from Ontario Tech, the Gong from Carleton, and the Nut from Conestoga College. To make sure nobody takes Junior from us, we always chain ourselves to Junior when we bring Junior out at conferences, and hide Junior otherwise.

There are lots of things we do that connect us with all the other Canadian engineering students. Just like the Iron Ring, these traditions showcase our pride in our profession, our commitment to our practice, and our respect for fellow engineers. After all, as engineers we have to stick together, and we don't give a damn for any damn man who don't give a damn for us. If you have any questions, or would like to know more, please feel free to come visit me in the EngSoc Office (CPH 1327) whenever you're free!



EngSoc via Flickr

ToolToolToolToolToolToolToolToolToolToolToolToolToolToolTool

Upcoming Events Calendar							
<b>Wednesday Nov 13</b>  Council Meeting #4 5:30 PM - 8:30 PM	<b>Thursday Nov 14</b>  Black Engineers Study Hall 5:30 PM - 8:30 PM	<b>Friday Nov 15</b>  EngSoc Bowling Night 8:00 PM - 10:00 PM	<b>Saturday Nov 16</b>  Santa Claus Parade 9:00 AM - 2:00 PM	<b>Sunday Nov 17</b>	<b>Monday Nov 18</b>  EngiQueers 6:00PM - 9:00PM	<b>Tuesday Nov 19</b>  Metal Club 5:00 PM - 7:00PM	Check out up-to-the-day event postings on the EngSoc website at <a href="http://engsoc.uwaterloo.ca/event-calendar/">engsoc.uwaterloo.ca/event-calendar/</a>
<b>Wednesday Nov 20</b>  B*tch n Stitch 6:00 PM - 8:00 PM	<b>Thursday Nov 21</b>  Patch Auction 7:00 PM - 9:00PM  Black Engineers Study Hall 5:30 PM - 8:30 PM	<b>Friday Nov 22</b>  Board games 7:00 PM - 10:30 PM	<b>Saturday Nov 23</b>	<b>Sunday Nov 24</b>	<b>Monday Nov 25</b>  Post Secret Starts EngiQueers 6:00PM - 9:00PM  Krispy Kreme Sale 11:30 AM - 1:30 PM	<b>Tuesday Nov 26</b>  Course Evaluation screening 11 AM - 2PM  Director Appreciation 6:00 PM - 8:00 PM	

# Lettuce Discover Something New



SOPHIA CHU  
1A NANOTECHNOLOGY

With all the clubs on campus and acronyms for every combination of words possible, one might wonder about this one. Is it a club that advocates on behalf of vegetables? Is lettuce really L.E.T.T.U.C.E. that stands for some new groundbreaking invention? Nope! Lettuce club is exactly what it sounds like - it's a

club about lettuce that caters to the veggie enthusiasts on campus.

Up to three times a term, a group of lettuce lovers congregate in POETS. Every participant must bring their own full head of iceberg lettuce. After size and condition are confirmed, each participant may prepare their lettuce however they deem fit. Some people prefer to peel straight from the head and fold the leaves into their mouths, others chop theirs into bite-sized pieces they can pop in quickly, while others prefer to quarter their lettuce to shove an entire chunk in at once. After everyone is

prepared, the timer starts and the crunching commences. The goal? To finish the entire head faster than everyone else, earn the title of "Head Lettuce", and become the new president of Lettuce Club.

The room fills with the sounds of munching and crunching. Eyes flit back and forth to gauge comparative progress. Hands dip into bowls, and lettuce disappears at a rapid rate. The symphony of competitive crunching is an indescribable experience. Iceberg lettuce is 95% water, making it the perfect choice for a food competition. It also has 5% fibre and a

small amount of minerals like calcium and iron. The only thing to watch out for is consuming the lettuce at a safe rate so as to prevent choking. In the end, only one thing remains to be said: this club is a unique opportunity I would highly recommend for anyone who enjoys leafy vegetables and healthy competition. Lettuce all say congratulations to runners-up Nonso Moneme and Nick Pfeifle, and to Brandon Lam who finished first with a time of 6 minutes 35 seconds, and earned the title of "Head Lettuce" only to abdicate, and pass the title to Nonso.

# That One Where Our Voices Are Heard

MATTHEW CASALE  
VP ACADEMIC

Its course evaluation time! Your professors and instructors will be asking you to give feedback on what happened this term, and we're asking that you do it and do it well. The Course evaluations, known as Course Critiques in Engineering, are a way for students to have their voices heard. Instructors use scores and written

comments to help improve their courses and their overall teaching. Chairs and Directors use scores to make hiring and promotion decisions. The feedback of past students has informed the learning experiences you've encountered in your program, and your feedback this term will have an impact on the learning experience of future engineers. We use UW's course evaluation platform, evaluate (which can be found in the following link:

<https://evaluate.uwaterloo.ca>), for the majority of your course evaluations. 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 courses an instrument for gathering valuable student feedback. The key to this is student engagement, this means the more of you that evaluate the

better information we get. So, for the next 2 weeks, ask your professors to give you some time to do Course Critiques electronically, they will say yes if you ask! 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, or a drive, or take some form of environmentally friendly transport, or like just use it.

# Horoscopes

SCORPIO  
OCT 23 - NOV 21

It's been 9 weeks, and you still haven't used the stove in your apartment to cook a proper meal. However, things are about to change, and you'll decide to make an actual casserole from scratch. Go you! Having skimmed through the recipe, you'll go shopping for everything you need. Once you have everything ready to go, you'll start with step one, which is to heat oil in a flameproof casserole dish. However, you'll realize you've forgotten the most important part - the casserole dish. Go you! It's okay though, you're an engineer, you'll think of something. Or maybe microwave pizza pops are your best bet at this point.

SAGITTARIUS  
NOV 22 - DEC 21

Since you have a co-op term coming up, you'll have a lot more time on your hands, so you'll decide that learning a new instrument is a great way to spend the next four months. You already know how to play the guitar and mandolin, so you'll settle for another stringed instrument: The Oud, an eleven-stringed, fretless instrument that was popular in the Classical world. Perfect for rockin' out REALLY old school.

CAPRICORN  
DEC 22 - JAN 19

You'll decide that today is a perfect day to play Nat King Cole's "Christmas Song" in your room with your door open, much to the annoyance of your roommates who still think that it's way too early to start listening to Christmas music. Despite their passive-aggressive efforts to get you to stop, you will stand firm in your belief that "it's never too early to listen to Christmas music", which will compel you to create your very own hour-long Christmas music playlist with Mariah Carey's "All I Want for Christmas Is You" as the first song. It's stuck in your head now, isn't it?

*I don't want a lot for Christmas, there is just one thing I neeeeeeeeeed...*

AQUARIUS  
JAN 20 - FEB 18

You had promised yourself that you would handwrite your bio assignment that's due next week because you didn't want to suffer through having to enter 15 different equations on Word. However, it's 2am and you're bored, so you'll decide to do it anyway because you're the type of person who's obsessed with neatness and typed up answers, and you really just want to go the extra mile anyways. Congrats, you've just won the prize for Being Excessively Extra. Sorry, there's no certificate for you to add to your resume, but you can always go a step further and generate your own from scratch. Then you've really earned it.

PISCES  
FEB 19 - MAR 20

You'll walk into your room one day and notice that your stack of Coca-Cola cans has finally reached the top of your door. "Maybe now is a good time to go and throw them out", you'll think to yourself. However, you also have 2 lab reports and 3 assignments to finish, so you'll decide to start a new stack right next to the first one. You do know that you'll have to get rid of the cans sooner or later right?

ARIES  
MAR 21 - APR 19

You'll wake up one morning, stare out your bedroom window, and come to the realization that it's actually snowing and that Christmas is closer than you think (even though you have a giant brick wall called final exams in the way). It's a great excuse for you to finally start wearing your fuzzy red and green Christmas socks and favorite infinity scarf! The only hard part is going to be scouring the mess that is your closet to find it. You'll search your closet to find a can of soup that you forgot you had. Will you eat it? Will you leave it? Will you eat in a house with a mouse? Would you eat it with a fox in a box? Will you eat it here? Will you eat it there? Will you eat it anywhere?

Sam I am, maybe I don't like soup.

TAURUS  
APR 20 - MAY 20

With finals inching closer and closer, you'll decide to try and get ahead by going over those calculus notes from September that you haven't looked at since. However, after reading through them and realizing that you have no idea what anything means, you'll decide that watching the most recent episode of your favorite show on Netflix is a much better way to spend your time.

GEMINI  
MAY 21 - JUN 20

After studying for 8 hours straight for physics and calculus, you'll decide to give yourself a well-earned study break after completing a total of 2 practice questions from the textbook by making yourself some instant noodles and promising to watch only one episode of your favorite Netflix TV show before you hit the books again. Three hours later, however, you'll realize that you've in fact watched a total of 12 episodes, finished your instant noodles, and the box of candy you bought yesterday that was supposed to last until the end of the term. But hey, at least you were able to balance your Rubik's cube on one of its edges! (Productivity has reached an all time low).

You'll say to yourself: maybe tomorrow will be a better day. Then it's not and before you know it, you get a C on your final. But that's okay!

CANCER  
JUN 21 - JUL 22

As a university student, you seldom have any free time to partake in any leisure activities, especially during the middle of the term when midterms are in full swing. Except now that midterms are over, you finally have a weekend where you can take a Saturday off to finally read that one book you bought two years ago at a used bookstore, but just never got around to reading because you were swamped with studying for tests and writing lab reports. But now Dobby is free! (except for finals.... Dobby is almost free!)

LEO  
JUL 23 - AUG 22

You've got a presentation coming up in a couple of hours, and you still haven't gotten your part "Happy Birthday"-level memorized. You're nervous and have a tremendous amount of stage fright, especially when speaking to a large audience that isn't just a mirror. You decide to try a simple exercise to prepare, which involves holding up your index finger in front of your mouth, exhaling deeply, and making a "Woooooo" sound for 5-10 seconds to relax your vocal muscles. It's supposed to help according to the experts, so you give it a shot in a quiet hallway right before your presentation. To your horror, a professor walks by right as you're in the middle of a "Woooooo", and now you're even more nervous because you've just embarrassed yourself by sounding like a 10-year old pretending to be a ghost.

Thanks, internet.

VIRGO  
AUG 23 - SEP 22

Your phone will warn you that "you're dangerously low on space", and you'll try your best to clear up as much space as possible without having to delete any apps, because you can't bear having to uninstall "Temple Run" or "Crossy Road" even though you haven't played those games for the last 2 years. There has to be a better way.

There must be.

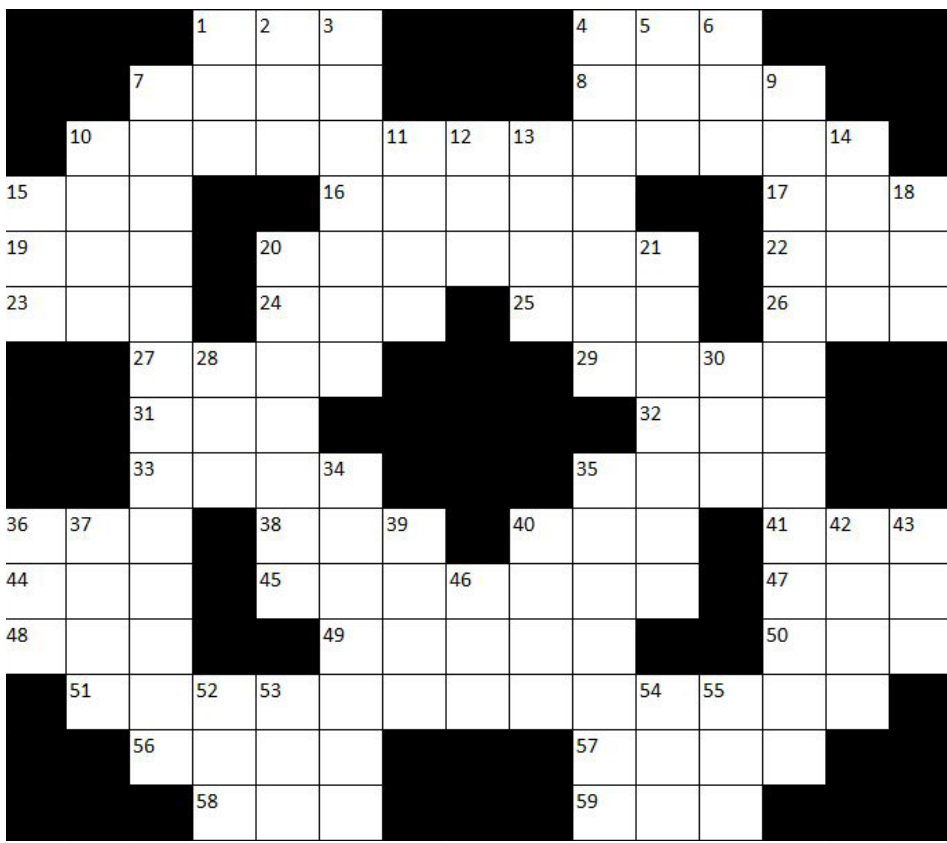
LIBRA  
SEPT 23 - OCT 22

It's time you started a new side project: Something new, something bold, something challenging, something innovative. Will it be a website? A blog? Scrapbooking? Photography? Who knows, perhaps you'll decide that that's too much effort, and weekends aren't really feeling like weekends, so maybe it'll have to wait until your co-op term when you're not trying to juggle seven classes in addition to clubs and design teams. Fun times.

# The Iron Crossword

Professor Names

INAARA AHMED-FAZAL  
1A BIOMEDICAL



**ACROSS**

- 1:** Unit symbol of the tebibyte
- 4:** Programmable electronic device used to build reconfigurable digital circuits (abbr)
- 7:** Miss Eyre
- 8:** You probably aren't studying for one of these if you're doing this crossword
- 10:** ECE Department Chair, first name including the value of 1% of a dollar
- 15:** To fold and sew the edge of a cloth
- 16:** More safe
- 17:** To separate with an edged instrument
- 19:** Car feature that alerts a driver to an imminent crash and helps them to stop (abbr)
- 20:** The act of being cunning and/or deceitful
- 22:** Governing body of all ice hockey in Northern Ontario
- 23:** Short for "brother"
- 24:** Series of soccer simulation video games by Konami (abbr)
- 25:** World's largest organization of privately owned campgrounds (abbr)
- 26:** "A long time \_\_\_\_"
- 27:** Management Associate Prof. (last name)
- 29:** French for "night"

- 31:** Kit-
- 32:** "There's no need to call me \_\_, Professor."
- 33:** German surname meaning "tree"
- 35:** City in central Texas, sieged in 1993
- 36:** Legal charge for drunk driving, synonymous with a DUI (abbr)
- 38:** Representing body of libraries, librarians and library technicians in Australia (abbr)
- 40:** Electrifying rock band
- 41:** The science guy (last name)
- 44:** Mechanical/Mechatronics Assistant Prof. (last name), a stovetop kitchen utensil
- 45:** Civil/Environmental Associate Prof. in Environmental & Water Resources (last n.)
- 47:** Train passing E5/E7
- 48:** Opposite of "beginning"
- 49:** Hospital case classification system (abbr)
- 50:** Spiritual being commonly associated with white wings and a halo
- 51:** ECE Associate Prof., last name indicates that he experiences no confines (full name)
- 56:** First President of South Korea, serving from 1948-1960
- 57:** Wrench worshipped by Waterloo engineers

**58:** Managing body for land and resources in Ontario (abbr)

**59:** Toronto non-profit providing service for low-income and marginalized communities

**DOWN**

- 1:** Mechanical/Mechatronics Associate Dean
- 2:** Appended to company names to indicate a separate legal entity from the people forming it
- 3:** Architecture Prof., is developing kinetic architectural environments (last name)
- 4:** Architecture Adjunct Prof., shares name with Toronto airport (last name)
- 5:** Civil/Environmental Prof. in Structures, Construction & Mechanics (first initial, last name)
- 6:** Father, informal
- 7:** Director of WATMIMS (full name)
- 9:** A magical faculty combining the two existing ones that begin with "Mech"
- 10:** To suddenly change direction
- 11:** More than one vote of no
- 12:** Id no. issued to each taxpayer by the Australian Taxation Office (abbr)
- 13:** Nerd, especially a computer one
- 14:** First half of the element W on the periodic table
- 15:** One of the Montreal Canadiens
- 18:** Synonymous with "as well"
- 20:** Flips pancakes and the like
- 21:** Breakfast hot dog
- 28:** Non-profit U.S. organization for advancement in aviation (abbr)
- 30:** Nonprofit institution for professional development in the Canadian property and casualty insurance industry (abbr)
- 34:** Position following study of management
- 35:** Systems Assistant Prof. in Human and Biomedical Engineering (last name)
- 36:** Distinct expression of surprise
- 37:** ECE University Research Chair and Tier 1 Canada Research Chair (last name)
- 39:** Redhead of Green Gables
- 40:** Modern taxi
- 42:** Nanotechnology Associate Prof. and Director (last name)
- 43:** Linamar company in stocks (abbr)
- 46:** Airport code, Agen, France (abbr)
- 52:** Unit of measurement for resistance
- 53:** Canada Research Chair in Lab-on-a-Chip Technology (last name)
- 54:** Indefinitely long period of time
- 55:** The sound a cow makes

# Sudoku

#2019-11-13

AKANKSHA JOSHI  
2A BIOMEDICAL

Easy

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

Medium

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

Hard

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

Solutions for previous crosswords can be found on *The Iron Warrior's* website at [iwarrior.uwaterloo.ca/distractions](http://iwarrior.uwaterloo.ca/distractions).

**IRON INQUISITION**  
Gabrielle Klemt, 4A Geological Engineering

*"What colour makes you not stressed?"*



*"Periwinkle"*  
Emma, 4A Mechatronics



*"Purple"*  
Atif, 2A Software



*"Light blue"*  
Alexandra, 1A Chemical



*"Lavender"*  
Breanna, 4A Geological



*"When do you need to know by?"*  
Stephen, 4A Geological



*"Turquoise"*  
Elisa, 2A Software