The Centre for Pavement and Transportation Technology (CPATT) recently collaborated with the Government of Northwest Territories (GNWT) on an undergraduate Fourth-Year Capstone Design Project (FYDP) focusing on sustainable design solutions for the future Tlicho All-Season Road (TASR). This specific project allowed the students to complete the required capstone design courses while taking part in a real-life, ongoing project that involved working with a large group of industry professionals and a funded trip to Northwest Territories.

**Project Team**

The project team was supervised by Prof. Susan Tighe, PhD, P.Eng. and comprised of four undergraduate students: Michelle Liu (project management and road design), Kurtis Hubert (substructure design and 3D renderings), Siva Tharmabala (superstructure design), and Bailey Humphrey (superstructure design). The FYDP was administered and evaluated by Prof. David Brush, PhD, LEI (W2018) and Prof. Wayne Parker, PhD, P.Eng. (S2017) in the Department of Civil and Environmental Engineering (CEE).

**Acknowledgment**

This collaboration was made possible by Mr. Kevin McLeod, P.Eng., Director of Highways and Marine Division of the Department of Transportation (DOT) in Northwest Territories. Throughout the project, the students were supported by Mr. Binay Yadav, P.Eng., Mr. Kamran Ata P.Eng., Mr. Ziaur Rahman, P.Eng., Mr. Stewart Gibson, and Mr. Muhammad Abu Bakar, among other staff members of GNWT Department of Infrastructure (DOI). The team also received assistance from an external consultant, Dr. Bala Tharmabala, P.Eng., PhD who is Head of the McIntosh Perry Bridge Engineering Office in Burlington and former Bridge Office Manager at the Ministry of Transportation (MTO). Dr. Tharmabala assisted the team by providing both verbal and written guidance in structural design.

**Project Timeline**

The FYDP was carried out between May 2017 and March 2018. Preliminary design work took place between May 1st, 2017 and July 24th, 2017 (S2017). Detailed design work took place between January 8th, 2018 and March 26th (W2018). During their co-op work term (F2017) between the two phases, the students continued to work on the project by consistently following up on data transfer, learning relevant design software, and so on.

Prof. Tighe and the four students travelled to Northwest Territories for site visit between August 8th, 2017 and August 11th, 2017. Mr. Yadav and Mr. Ata travelled from Northwest Territories to the University of Waterloo on March 22nd, 2018 to deliver a guest lecture, tour CPATT labs, and participate in the Capstone Symposium.

In this ten-month period, the four students logged a combined time of 1,231 hours in project-related work, which exceeds the FYDP requirement (800 hours) by over 50%.

**Site Visit (August 2017)**

The collaboration between CPATT and GNWT allowed for a site visit which took place following the preliminary design phase. On August 8th, 2017, the students travelled from Toronto to Yellowknife and met with Mr. Yadav, Mr. Ata, and Mr. Gibson the day of for general project discussions. On August 9th, the students met with Mr. Gibson in the morning for a short briefing, then embarked on a three-hour flyover aboard a Summit Air seaplane with Mr. Gibson. During the flyover, the team conducted aerial observation of terrain type and density of vegetation along the approved alignment of TASR (and alignment of existing access road), as well as the approximate location of the bridge to be designed (La Martre River crossing). The team noted extensive signs of a recent forest fire near the start of the alignment, and a high density of esker and pond formations midway into the alignment.

Continued on page 5
I'm Now Calling These Written Podcasts

Just kidding. Alright so thanks for picking up a copy of the second issue of the Iron Warrior. For this issue I’d like to thank my thanks to Leah, who helped out with comics for this issue. If you ever want to be featured in this paper with a comic, shoot me a message. Here is the next installment of the things I’ve been checking out the all the aforementioned bits of the newsletter, as well as the Iron Inquisition. This was the first time I did it myself, and I was surprised to get a few bits out of the question. Those involved were really funny and I think it turned out great.

I noticed some clerical errors in my last issue while entering the English Calendar: coffe house instead of coffee, 5:30AM – 7:30PM event instead of PM, and an extra space between the time and date of Study 24 Charity BBQ. All of these mistakes are not my fault; it’s the fault of those who didn’t check over the newspaper when I sent the draft out. Just kidding I love you all, but I tend to be a bit stringent when I can. I don’t like the idea of being a perfectionist, but that doesn’t mean I can’t be perfect in my own small life. And I messed up the English calendar with 3 small clerical errors. I have failed you all.

Voting is next week. Go vote. I’m travelling back to my hometown to vote in my riding, as well as see my family, so be informed please. Aaron Propp gave a good summary last issue about the different parties and what they stand for. As this issue releases, voting day will be the following day. Get your voter cards, IDs, and anything else that you need so that your politician of choice can win in your riding.

Fun fact about me: this is the first time I’m getting interviews in first round (not counting a coding challenge I received in 2A). And I have quite a few interviews. It feels nice to actually have something going for me, as obtaining a co-op was always the hardest part of university for me. But things are looking good. Just keep putting hard work into it. I’m sure the results will surface. However, this means wearing a suit pretty often and it’s getting really hot now. That means the same suit pretty much every day. I also only own one suit and shirt and tie, so I have to consistently wash stuff to ensure it’s not smelly, but at least the interviews have been going pretty well. I love wearing suit pants; I find them really comfortable. Like really tight, hugging pants, and accompanied with the proper look of a suit, confidence builds help for interviews. Doesn’t help as much when walking between classes, especially since I’m still going to be fasting for about two more weeks. So here are some tips to keep cool in this blazing hot weather.

Water. “Drinking lots of water keeps you hydrated and cool.” That’s a quote I stole from to keep cool in this blazing hot weather. especially since I’m still going to be fasting for help as much when walking between classes, confidence build helps for interviews. Doesn’t really tight, hugging pants, and accompanied I’m not smelly, but at least the interviews have so I have to consistently wash stuff to ensure day. I also only own one suit and shirt and tie, suit pretty often and it’s getting really hot now. I have already given me an offer. Also, it’s a good process, and I still make sure I get articles for the issue that top of all that I have to study for midterms, and dent. I also have to go home and vote, and on through, and the light at the end of that tunnel will be prepared the weekend after midterms. I also make sure I get articles for the issue that will surface. However, I’m going to get through this! I don’t know but I’ve done it before so I’ll just do what I regularly do? Right now I have a tunnel to go through, and the light at the end of that tunnel is rankings. I currently have a job offer from one of the companies that interviewed me, so hopefully if everything else fails for the other companies, I can take solace in the job that has already given me an offer. Also, it’s a good company I would work for, so it’s a win-win. My family’s also been super helpful in this re so I got a little excited yesterday. Let’s talk about Shima. This isn’t a paid advertisement or anything, but I just tried it yesterday, and honestly for a plaza restaurant it’s not bad. I tried the Shima fried rice, and although the rice was a little bit hard and not super flavourful, with some chill sauce it was good. Also the shrimp in the rice was plentiful; they didn’t skip out, and I finished the whole thing in one sitting. I’m definitely going back there to try the defunct Aunty’s and other terrible restaurants, but I still didn’t put below some of the more popular ones (even Lazuree to be honest). However, I’ve only tried one dish, and will have to sample more dishes to get a better idea. The interior looks nice, and apparently they also serve halal meat, which is a huge incentive for me to go back to more of their dishes, like the soups and chaat items. I’m a huge fan of Asian cuisine, and there’s some halal dishes on the menu I want to taste. I’ll probably go tonight and eat out again even though it’s not amazing for my bank account. But whatever, I’m young, hip, and full of life. One of the more innovative ideas was this restaurant (which isn’t really a problem) is that they surcharge on credit and debit under $10. So I recommend paying cash over there if you get a chance. Although it’s not exactly uncommon, and the server I interacted with was really nice and I left a generous tip. While I’m reading about Shima, I’m going to mention my current best plaza deals. Shas-warma plus 2 for $14 (I think used to be $10) is awesome, and the Pita Factory food is pretty good. Kabab Hut also has a buy one special on Friday that regularly sells out, so eat it soon if you have the chance. Subway’s sub of the day is always a good choice, and combo’d, it can be a pretty good deal. Parmesan is de facto if you consider you’re paying for two meals due to the portion size, and if you get a lot of Sutra-cha, you can up the flavour of the dishes. I’m pretty low maintenance in terms of food, but I also do have high expectations, but not from the plaza. That’s why I always advise to shop for deals here, and not just go for the sub when you can. Plaza’s go/placed during exam time too, and although some of these places close at 11:00PM-ish, there’s enough places open to give you a good selection at late hours of the night.

Okay now BAD places of the plaza. Again, not like a paid advertisement, but these opinions are my own, but listen to my opinion if you want. Auntylv: absolutely not. Anyone who knows my personal story with them will know to avoid it. Long story short: H pylori. Other bad places: Campus Pizza, but only if you store the pizza in the fridge and try to eat it later. Eating it fresh is really the only good opportunity to get a good slice. I tend to judge places by the pizza on the availability to be eaten later, since I like to order whole pizzas and then eat them periodically. And the last place is First Choice Haircutters. Terrible food, but they take cou so, make your judgement based on that. Alright your issue’s word is parovoke, specifically the solar cells. They have the same structure as the actual mineral, and harvest light for solar cells. They’re generally lead-based or tin halide based, and a common material is methylammonium lead halide. If you want to learn more, there’s a TED Talk titled “Uncovering a radical discovery in solar energy” by Sam Strauks, explaining the potential viability of these structures. Obviously as a Nano I like this kind of stuff, but if you’re in mechanical reading this and want me to share something related to your program, send me an email. I’ll include it if it’s cool enough. Right now they’re pretty much lead-based materials but lead is bad for you kids. Don’t ingest it and definitely don’t bathe in it. Also, the “lead” in your pen-cil isn’t, it’s graphite. So join me in saying that you need to sharpen your pencil graphite, or get some graphite for your mechanical pens. Change the lexicon. Be rebellious. Fight the power. Okay that’s editorial two again 19 hours from my own imposed deadline. Sympathy and good luck on midterms.

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Nicaragua Demonstrates Against Social Reform

#SOSNicaragua and the frustration with Daniel Ortega

Ever since 2007 when Daniel Ortega became President of Nicaragua, the people of Nicaragua have been frustrated by the government. With his wife, Rosario Murillo as Vice President, Ortega allegedly permitted indefinite re-elections. To top it all off, Ortega made a social and economic policy where the employed pay more tax and pensioners get less pension than before.

Around April 19th, the hashtag #SOSNicaragua surfaced on Twitter. This was because of the protests that were happening around the country which led to the death of 17 university students. Two police officers and a journalist also lost their lives to the cause. By April 25th, the death toll had reached 34 people. All around the country, citizens and pro-government supporters attempted to suppress the demonstrators after the reform.

On May 29, 2018, CNN reported that Nicaragua has adopted a to “shoot to kill” policy against the demonstrators which has lead to a huge number of deaths around the country. A recent report by Amnesty International, the government has violated citizens’ human rights, used “excessive force in the context of the protests...[and] possible extrajudicial executions” of civilians. These mobs are called Sandinista turban and threads in an attire that associates them to the government and sometimes ride on motorbikes. The government has reportedly used these mobs to attack people and make threats.

According to Amnesty International, a London-based non-governmental organization which focuses on human rights, the government is handling with the perspective of punishing individuals that are dissenting the authorities. It will be a better idea to have an impartial party come into the country to investigate the state. Human rights and freedom of expression needs to be respected in this scenario and the Nicaragua government is doing the exact opposite of that.

As for the residents of the country, they are demanding that President Ortega be removed from power. The also want the reform made to the constitution regarding indefinite re-election be reversed. Democracy needs to be restored in Nicaragua and Ortega is not the way to go. Amidst this unrest, the area around Polytechnic University of Nicaragua is facing the most attacks during demonstrations, and students seem to be facing the brunt of it all.

Prof. Personalities - Douglas Harder

How long have you been teaching at Waterloo?

I’ve been teaching here since 2002.

What courses do you teach?

I teach ECE 204A and 204B (Numerical Methods), ECE 250 (Algorithms and Data Structures), MATH 211 and MATH 212 (Calculus for Electrical Engineering), MATH 215 (Linear Algebra), MTE 241 (Real-time Systems), and NE 216 and NE 217 (Advanced Calculus for Nanotechnology Engineering).

Favourite course to teach?

I really like the Linear Algebra course, but the Algorithms and Data Structures course is also fun. So is Numerical Methods.

How’d you end up as a lecturer?

It started before then. I joined the reserves and when I took my infantry section commander’s course, part of that is learning how to teach. You spend a week preparing lecture plans and delivering those, getting every single aspect of your lesson plans nickel and dimed, and as a master corporal you give lectures and you teach courses. I learned how to teach from the military.

The last project in the Algorithms and Data Structures course is also somewhat of a contest. Students don’t go for awards or for extra marks. They go for either monetary prizes which I award or free dinners or both, depending on whether or not they can beat me.

If you weren’t a lecturer what would you be doing?

I’d still be working at Waterloo Maple. It’s a great place to work. For mathematicians it’s great, it’s one of the few places where you are one of the more important players. As a mathematician/programmer, you tend to be a service for another group. Whereas at Maple that is the entire point of the company. That was a lot of fun. Great people, challenging problems and interesting problems. You can do things your own way, interesting people to talk to. They have a gym onsite.

Interviews are around the corner. Any tips for engineering students?

Don’t talk about why you’re so great or why you’re so wonderful. Explain why you will benefit the company. Why is it worth the company’s time to pay you and to employ you over a 4-month period. What are they going to get out of it? That is their interest. You’re interested in your self-sort of goal and that’s great. But, if the company wants to be able to understand what they are going to get out of the transaction. The same thing for applying for graduate studies. What is the company going to get from taking you on as opposed to someone else?

3 tips for undergraduates:

As early as you can try and figure out what your final objective is for doing an undergraduate degree. What is your final objective? What is your goal in 5 years? Not the same thing for applying for graduate studies. The last project in the Algorithms and Data Structures course is also fun. So is Numerical Methods.

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**Where Will It End, America?**
Santa Fe High School is the Victim of Yet Another Shooting

Yet another school shooting occurred in Santa Fe, Texas on May 18, 2018, where ten people were fatally shot and thirteen wounded. The perpetrator was Dimitrios Pagourtzis, a 17-year-old student at Santa Fe High School. Reports from survivors include more gruelling details, including a witness who existed—another one bites the dust—for each victim he shot. Eight students and two teachers were killed in the attack, including Sahika Sheikh, an exchange student from Pakistan. She was laid to rest in Pakistan, and was scheduled to come home shortly after the end of Ramadan, which was about three weeks away from the time of her death. Even in Pakistan, where gun laws are present but not as enforced, the parents are rightfully calling for better gun control in the United States.

Shana Fisher was another victim in the attack, whose mother said she was rejecting Dimitrios’ advances for the past four months. Although his attorney says the attacks weren’t targeted, the conclusion can be made that there was a motive behind the attack. Although Pagourtzis has yet to undergo a mental health evaluation, and says he “doesn’t remember much of the attack,” he remains in solitary confinement, restricted to two-minute visits in jail each week. Shana’s mother, Sadie Rodriguez, believed it was a targeted attack due to the constant advances he made on her, and the increasing aggressiveness of those advances. She also mentioned that Shana “stood up to him” by calling him out in front of class based on the advances just a week before the shooting. This brings up the conversation of incel culture. The father of Pagourtzis claimed he committed the shooting because he was bullied. A lot of disagree- ments were made, arguing that LGBTQ+ students, among others, are bullied daily and they do not commit mass shootings. The blame is always shifted onto another party, instead of the criminal at hand. Was Pagourtzis an incel? Who cares. He committed a mass school shooting, and was reported to keep the students “he liked” alive, while shooting everyone else. Shana was the first victim. However, the incels on the internet have been responding in gruesome ways, saying the kids who bullied him had it coming amongst other responses.

Do women become complicit by rejecting dudes because they turn them into deranged killers? Doesn’t that sound like a terrible sentence? Well luckily the answer to it is no. Shana had given rejec- tions constantly to the killer, and there is no further discussion. This sort of entitlement is not just sudden, it’s mani- fested over the years and can cause ma- jor problems. Guns just make it easier for them to kill. Speaking of guns, gun control also becomes a heavy topic that is yet again touched on in the American news. Re- ports say Pagourtzis took the guns from his dad, which counteracts the “respon- sible gun owner” ideal of the US gun laws. I don’t know what’s going on in the States; from Kim Kardashian and Don- ald Trump meeting in the white house to talk about prison reform, NRA trying to “take back orange” as a colour for gun violence, and all around debauchery, one can only hope they straighten something out and offer more than thoughts and prayers, or the midterm elections won’t fair well for the Republican party.

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**Tempests and Actors and ... Bomb Threats?**

On Monday May 28, the Stratford Festival’s much-anticipated opening night performance of The Tempest was shockingly cancelled when a bomb threat was made against the festival. Audiences and actors alike were hugely disappointed as they were asked to leave both the Avon and Festival Theatres after months of hard work and preparation. 2000 well-dressed men and women milled about and watched police dogs enter the buildings they had evacuated, a drama none had paid to see that evening. Martha Henry was to star as Tempest lead Prospero, one of only a few female actors to take on the role – a choice which caused a stir in the arts community when it was announced. When asked by the director to leave the theatre due to a bomb threat, she walked out staff in hand to the admiration of many on-lookers. That evening rather than presiding over the stage she was to be found with a group of actors who came together over drinks to offer support and comfort. At the same time in a nearby park, students were seen acting out their own Tempest, reading the script out of their phones. It was with relief that the police reopened the theatre Tuesday morning after declaring it safe once more. However, the Stratford Festival staff say they will be checking bags in future and utilizing metal detectors – an inconvenience to theatre-goers, but one they will learn to put up with for the sake of great performances. In fact, as the age- old saying goes “the show must go on” and the Festival picked up right where it left off opening with The Music Man rather than The Tempest, which received 4.5 stars in the Globe and Mail reviews column. A lot of discussions were also underway, claiming they would not be scared away from supporting the arts and the artists because they turn them to life, choosing instead to rally and come together after Monday’s scare. In fact, the Festival has been selling more tickets than usual – a sign that people will not let threats come in the way of a good night out at the theatre.

If you’re free in the next month and looking for a way to spend a fun evening, check out the festival lineup. After all, Stratford is only a reasonable 45-minute drive from the University!

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**Even Restaurants Aren’t Safe These Days**

On the night of May 24th, 2018, Bombay Bhel, a popular Indian restaurant in the Mississauga area, was targeted by a bomb blast, injuring 15 people. Police say the explosive device was planted by two suspects who were in and out quickly around 10:30PM during the night in question. The device had contained nails, suggesting the spread of impact and potential impalement of the nails. Witnesses described the blast scene as gruesome. After the deafening explosion, Rafael Conceicao, an international student from Brazil, commented on the scene, mentioning that, “everything was destroyed. Lots of blood in the floor. Many people were screaming. They were trying to run out from the restaurant. There was a guy with glass inside his eyes.” Police had quickly closed off the entire area and deployed a tactical team, and one officer was described to call for a drone, according to witness Jess Dalessandro, who was parked in the lot, and wasn’t allowed to move her truck out of the lot on Friday morning.

Two pieces of footage were released, showing the suspects fleeing from the scene. One was potentially a female suspect, but no further identifications were made. No clear motive was indicated for the attack as far as police know. It is not known or suspected to be some sort of terrorist attack or targeted bombing.
CPATT Collaborates with NWT for Capstone Project

The project team with their capstone poster, from left to right: Kurtis Hubert, Siva Tharmabala, Michelle Liu, Bailey Humphrey

**3D rendering of proposed solution for road segments over permafrost**

100-metre steel bridge design located at La Martre River

**Technical Summary Of Capstone Project**

What is an indigenous community of around 525 people in the North Slave Region of Northwest Territories. The only existing vehicular crossing of the community of Whati is the Thilcho Winter Road, which operates on deeply frozen portions of the Great Slave Lake during wintertime. However, climate change has caused a decrease in the reliability of winter roads, and an all-weather road is deemed necessary in 2013 by the Department of Infrastructure of Northwest Territories and the Thilcho Government. Challenges faced by the future TASR include permafrost, presence of weak subgrade, and proximity to caribou habitats.

The project was carried out in two phases: preliminary design and detailed design. In the preliminary design phase, a post-tensioned concrete bridge, a steel I-girder bridge, and a timber arch bridge were developed as alternatives for the bridge structure. The concrete bridge consists of a concrete superstructure tensioned by continuous steel cables within circular voids. The steel bridge has a concrete deck supported by longitudinal steel I-girders. The timber bridge is made up of twin glulam arches connected to transverse steel ribs that support a timber deck structure. Conceptual design was conducted for the bridge alternatives, taking into account major constraints such as the presence of discontinuous permafrost, flooding events, and erosion.

Each alternative was then evaluated against the criteria of environmental impacts, resiliency, and cost. The post-tensioned concrete bridge received the highest score in the comparative analysis and was selected to be carried forward for detailed design. However, in August 2017, the GNWT fund revealed that the equipment and skill required for post-tensioning is not readily available in NWT and recommended that the team proceed with a steel structure.

The scope of this detailed design included three representative road segments and the bridge crossing at La Martre River, which was designed on the pre-determined alignment. Three representative road segments were selected, each with an identified problem related to resilience, environmental impact, and constructability. Three main solutions were thus proposed:

- **Geotextiles, hairpin thermosyphons, and designated caribou crossing zones.** The pre-approved horizontal alignment was used to determine the vertical alignment that would require minimal fill while still meeting all design criteria. Some sources are sourced from Geometric Design Guide for Canadian Roads while others are NWT-specific parameters.
- **Following geometric design, the Gravel Road Thickness Design Methods were used to calculate the most economical combination of granular layers.** Both the superstructure and substructure of the steel bridge were designed using the Canadian Highway Bridge Design Code. Superstructures include guardrails, deck reinforcement, girders (flanges, and webs), stiffeners and diaphragms. The substructure was designed to ensure an even overestimation of moment and sliding action while not exceeding the bearing capacity of the subgrade.

**Mansplaining 101**

**The Guide to Knowing More Than Me**

Steve believes, with more conviction than necessary, that catcalling is okay if instigated by pretty men. Let’s collectively think about this for a second.

Ironically, Santagati, also wrote a book called Code of Honor... well, it was really called Code of Honor Women: The Ten Commandments That Define All Bad Girls. Oh, that’s why he thought he knew more about women than other women - he wrote a 148-page novel about the rules bad girls live by. He, of course, knew more about me then me. I should probably reread this whole article and start working on my own code. It’s called “I don’t give a damn.”

But alas, Steve is not the only mansplainer there is. Shall we talk about Kanye West for a minute? In September 2009, Taylor Swift won a VMA for Fearless, an album a lot of us, as teenagers, felt really moved by. During her acceptance speech, Kanye felt the need to climb on up, and bring the whole party – ironically - South. As Kanye stood on the stage, explaining to everyone why Beyoncé should have won, our palms just collectively hit our faces. As Kanye, buddy, we were amused when you walked out at the 2004 American Music Awards after not having won an award. We also tolerated your eloquent whining about losing in 2006. But when you belittled a 19-year old for winning over Beyoncé, when even Queen B did not expect to disprove, was just breaking the girl code. Now, I am not saying you should read the Code of Honor by your friend Steve Santagati, I’m just saying that it won’t help all.

Since, mansplaining seems to be a huge part of our lives these days, consider using the following techniques to avoid being mansplained. If interrupted during conversation, try screaming at the top of your lungs until noticed. Running away while screaming is recommended but not required. In case you are told to smile more, quote Dwight Schrute from The Office, “Showing one’s teeth is a submission signal in primates. When someone smiles at me, all I see is a chimpanzee begging for its life.” and walk away. If that still does not deliver the message, it is helpful to obtain dragons, build an army, and become queen of your own empire.
Dear Students of the Waterloo campus,
As you have no doubt noticed, big yellow X’s have started sprouting around town. On posters in hallways, on the sides of convenience stores, maybe even on your street. These are not marks for demolition, please do not be alarmed; all hallways will continue to have the correct number of walls (2).

It is in fact a strange mythical time is upon us, a time prophesied by those who believe in their opinion – for once someone is asking and looking for an answer! Yes, it is Elections Season.

This season is not for steaks, it’s for choosing a new leader for this great province of ours. This season is for searching deep into your soul, buried deep beneath false apathy, a jaded view of life, and a lot of crumbs, to find that nugget of Values you hold dear. Take these values out. Polish them off, they should shine up pretty nice. Take a good look at them under a microscope.

In 2016, when Smith was on the Cavaliers, his team was in an advantageous position to take down the Warriors. Smith was bought out, and the Golden State Warriors were on the defense. LeBron James bowed just a few years before. I’m glad to see that you should put an X before them.

Alternatively, you could decide where to vote based on your risk tolerance. This is something you will have come across if you’ve done any investing with money. If you dislike risk and want to avoid losing your money, you should probably opt for a bond option, quite comfortable, vote for the person who’s been there for the last while. If you prefer adding some risk to your portfolio and are okay with a new player – we don’t know what they’ll do but it could be interesting to watch. We’ve got going on a deal to cast that ball out, take a walk over to Elections Ontario (just Google it, I’m sure you won’t click the wrong thing). If you’ve voted before, you’re probably already registered. If you are over the age of 18, you’re also probably registered. Make SURE. Click the large and intimidating yellow button labeled “Confirm your voter information”, then when they ask if you’re registered, because we want to be certain that we live in Ontario and we do. Click “Let’s Check” as though we’re all in this together. Quickly skip the giant block of text saying something about “privacy” and click “Next.”

Once you have filled in your info, check that your birth year is correct because they designed this website to allow you to scroll through the years while you’re scrolling down the page without noticing and then you’ll have to go through this whole process five times internally screaming “HOW CAN I NOT BE REGISTERED I’VE VOTED BEFORE!!” until you realize your birth year is 1965 and you’re definitely not 47.

Once you click “Search” we hope you get taken to a page that displays your info and says “I’m glad to see you are registered to vote, congratulations!” but might just say “We found you,” or worse still “You don’t exist” in which case you should come by to one of the drop-in offices to get your birth year checked.

In all seriousness, register to vote and use your voice, we only get to be heard once every four years, make it count!

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**Hasan Ahmed**  
**Elder-in-Chief**

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**J.R. Smith Blunder Leads to Game 1 Loss for Cavaliers**

LeBron is Less than Happy

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**J.R. Smith Blunder Leads to Game 1 Loss for Cavaliers**

LeBron is Less than Happy

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**Trudeau Buys Trans Mountain Pipeline**

Liberals Empty Their Pockets to End the Deliberations

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**Aaron Propp**  
**20 Computer**

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**Gabrielle Klemt**  
**3a Geological**

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The month of June is upon us! And you know what that means – it’s Pride month! The streets are a-glow with beautiful rainbows, the sun is shining on all the Pride flags and we are already preparing for the Pride parade happening at the end of the month. But believe it or not, we don’t all fun and games when it first began.

The history of Pride month is a story of discrimination. On June 28, 1969, Stonewall Inn was a popular gay bar in New York City. It was raided by the police. There were more gay bars in the city but Stonewall was the only bar that didn’t have an owner. This was a night of celebration of all sorts of LGBTQ+ visitors. While the police had a justification for the raid – Stonewall Inn was serving alcohol without a license – it was not uncommon for bars to serve liquor without a license, and it was really common for gay bars to be continually attacked by the police. When a raid happened, all the lights in the bar would be turned back on. People without identification cards or dressed in drag would be arrested and everyone else could leave. Women who would not be wearing at least three feminine articles of clothing would also be arrested. On estimate, each gay bar would be raided at least once a month. The managers, in preparation, would have a hidden stock of alcohol so as to resume business as soon as possible after the raids.

So, what was so different about the raid at the Stonewall Inn? The standard procedure during the raids was to line up all the bar-goers and separate the women and have female police officers identify if any of the women were actually men dressed in drag. But this time, people dressed in drag refused to separate themselves and men refused to show identification. When the police were trying to take everyone to the police station, the crowd began singing “We shall overcome,” and fighting arrests, and finally, throwing pennies and beer bottles at the wagons. The number of people grew to a huge crowd filled with anger, frustration, and unity. The crowd became a mob and escalated to a point that the Tactical Police Force of the New York City Police Department had to come in to free the police trapped inside the Stonewall Inn.

Within 6 months of the raids, gay activists started a city-wide newspaper called Gay. This, they thought, was really important because even the most liberal newspaper in the city refused to print the word “gay”. June 26th, 1970 marked the first anniversary of the Stonewall Riots. The first ever Pride parades happened simultaneously in Los Angeles and Chicago. More cities joined the next year and the Parade in New York City covered 51 blocks.

This year, if you want to be a part of Pride Month, be sure to check out all the educational, interesting and fun events happening around Waterloo and Toronto. Educate yourself when possible and be aware of the diversity in your community. Toronto Pride Parade is happening this year on Sunday, June 24th. The parade is always a sight to behold and if you decide to march with either EngSoc or The Glow Centre, I guarantee you it will be a life changing experience. If attending the parade is not an option, there are so many events happening around Waterloo. For example, Drag Me to Bomber is happening this Friday, June 8th, right in our favourite Bombshelter Pub. Nonetheless, be sure to bask in the rainbow Pride colours and celebrate your differences this month!

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Appreciate Diversity This Pride Month! A History of the June Celebration

**SAMRIDHI SHARMA** 3A GEOLOGICAL

A line of figures in black and gold jerseys makes its way slowly onto a field. On the front of the jerseys: the Engineering logo. It’s not a sight you frequently see – Waterloo engineers out in the sun running around after a ball, flying school colours – but this weekend at the Engineering Student Societies’ Council of Ontario (ESSCO) soccer tournament you could see just that.

Our rag-tag group was assembled of friends and strangers, on-stream and on-co-op, skilled players and people who had benched themselves for a few years. We came together in Mississauga ready to play and represent our university and most of all have a great time. Friday night was the first game; we were facing one of the two Windsor teams and we were short of the eleven players we needed. Luckily for us, and unluckily for them, most of the McMaster team couldn’t make it so we absorbed their points in the second half to only one goal from the other team!

It was with high-flying confidence that we prepared for our last game of the day, again facing Ryerson. At the same time, Conestoga was going to play Windsor’s A team, but with only 6 players it looked like they would have to forfeit. To help out, Mac Eng left our team for theirs and we gave up one of our players for net and they managed to play without our two halfbacks. That first game we were still getting our soccer legs and feeling out how to work as a team. We lost 10-2. The game ended, and we stumbled back to our hotel for a night in the pool with pizza to rest up for our three games on Saturday.

Saturday dawned cool and cloudy, perfect for a day of soccer. Our numbers also increased miraculously overnight and with the addition of two Mac’s and one Queen’s student, we were ready to crush the other teams! Our game against Ryerson began at 10:30AM and we started off strong, having learned some lessons from the night before about where our strengths lie. We swelled our defense up to 5 players, subdued more frequently and scored a lot. By the end of the game we had lost by less of a margin than the day before and we were feeling pretty swell about our teamwork.

The next two games were back-to-back but didn’t start until 1:30 so we hung out watching Ryerson play against Windsor’s B team and Ryerson played against Waterloo. By 1:30 we had accumulated even more

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Engineers Have Fancy Footwork Too

ESSCO Student Soccer Tournament in Mississauga

**GABRIELLE KLEMT** 3A CHEMICAL

Waterloo players, enough to sub out half our team at a time. We were playing our second game against Windsor and while they were tired from playing a game before, we were well rested (and maybe overly-fed). Somehow, we pulled a “second half victory” as someone on the team termed it. Losing 5-4 but scoring 3 points in the second half to only one goal from the other team!

To make matters more severe Waterloo was lagging a bit this time in the day; the sun was out in full by now, it was our third game of the day and our second in a row. Muscles we hadn’t used for months sitting in offices on co-op were starting to cramp. But we played on, persevering as we Waterloo students are known to do against great odds (2B). Ryerson’s offense was strong, at times it felt as though their entire team was on our defensive line, but we kept up pressure as the bruises and sunburns we woke up with Sunday morning will surely tell you. We didn’t win that last game either, but we damn well put up a good fight.

Both of Windsor’s teams chose not to stay in Mississauga for the Sunday games, so Waterloo went home, choosing to end the tournament on our own turf against Conestoga. Unfortunately, not enough players could be called up on the Conestoga team, and those on the Waterloo team were seriously feeling the burn from the day before and reluctant to play again. So our last game is postponed for now, but if you’re around when we play again, come out to cheer us on or join the team more are always welcome! If there’s one thing I learnt about this school of ours at the tournament, it’s that despite what they say about us we are an athletic bunch who’s just out to have a good time! Oh, also that Waterloo definitely has more girls than any other engineering school. Way to go Waterloo, you have officially earned more of my respect.
Marketing, Marketing, Marketing!  
The Behind the Scenes Team That Likes to be Seen!

Marketing is a key part of day-to-day operations of the Engineering Society and it takes a large team to make it run smoothly. Our team of marketing, media, and social media directors are always working to make the awesome social media and on our LCD screens surveys to get your opinions on our term we are going to be rolling out two room for improvement and this term we are looking for all of your help. This is a great job, we know that we have some of you throughout the term. We host, and take amazing pictures of all posters you see, post about all the events we host, and take amazing pictures of all of you throughout the term.

While the marketing team is doing a great job, we know that we have some room for improvement and this term we are going to be rolling out two surveys to get your opinions on our social media and on our LCD screens so that we can make them as effective as possible going forward. Please make sure to keep a lookout for those and fill them out, it will help us to keep you better informed going forward. This term we are also working on implementing some accessibility guidelines in our advertising manuals. That means using specific colours, fonts, and graphics that are easy to read for everyone to ensure that no one misses out on an event because they couldn’t read our posters.

If you have any suggestions on how to improve our marketing or just want to find out more, please feel free to find me in CPH 1327 on Wednesdays from 2:30pm-4:30pm or Fridays from 11:30am-12:30pm. Alternatively, send me an email at vpcomomm.b@engsoc.uwaterloo.ca. Have a great term everybody and enjoy the sun!
B-SOC Exec Don’t Need to Hold Their Breath to Turn Purple!
Purple Us for Engineering Day!

If you read my last article then you might have been waiting in suspense for my exciting news. Engineering Day is happening Friday, July 13, and as always it will be a day full of fun and as we celebrate the Waterloo Engineering community! However this year the on-term executive team has decided to add in a little fun of our own to support a good cause.

June is Pride Month, and to help support diversity and inclusion within our community the EngSoc executive team is going purple! Throughout June and the beginning of July, we are raising money for the Trevor Project which provides crisis intervention and suicide prevention services for LGBTQ+ youth. During the fundraiser we will be setting goals in order to dye the executive team purple, one by one. The purple-ing will happen on Engineering Day during all of the other festivities!

Luckily for those interested the first goal is to raise $500, which will require me to go full purple on Engineering Day. The rest of the executive team will follow; the next goal being to purple our VP Communications, Grant Mitchell when we reach $1000. Our VP Academic, Ben Beelen, will be next when we reach $1500, followed by our VP Finance, Liam Yeates at $2000, and finally our President, Katie Arnold, when we reach our ultimate goal of $3000!

The Waterloo Engineering Society strives to create an inclusive environment for all students. We have our very own EngQueers club which meets every Monday at 6:00PM in P.O.E.T.S. If you are looking for a supportive community within Waterloo Engineering, consider coming out to the next meeting – all are welcome! Please consider contributing to our cause. Donations can be made at: www.gofundme.com/hsoc-exec-gets-purple.

If you're below the median, you're still okay. If you're not getting interviews you're not a failure. Keep applying and improving your resume when you can. Compare with your friends, even talk to CE (Co-operative Experiential Education, previously known as CECA).

Good luck to all of you and RIP Job-glitch. Note that EngSoc is hosting another resume critique on June 25th, just in time for continuous!

Imagine this array of executive, but purple! Go donate for a good cause!

Interviews and Positivity
A Few Reasons to Keep Your Head Up

First round interviews are now in full swing! One of our university’s best offerings is our co-op and it all starts here (or beyond here I guess)! Reminder that first round interviews end on June 21st and match results will be up on June 22nd, rankings are due on the June 25th. More information on interviews should have been sent to your email titled “Interview protocol,” and if you were faked out by that email thinking it was an interview, so was I. Also some third year advice, be very ready to sign up for interview spots as after 10 minutes most of the “good” spots will likely be taken. So monitor your email constantly!

After first round, continuous round begins on June 27th with jobs being posted daily with intermediate interview cycles. For more information on continuous cycles, CECA does a great job of posting their cycle dates at uwaterloo.ca/ceco-oper-ative-education/important-dates! If you are looking for employer info sessions which continue well into June, check out www.ceca.uwaterloo.ca/students/sessions.php?month_num=6&year_num=2018.

Something about interview time brings us all the subconscious competitive nature of what it means to be trying to find the best possible job. What is particularly painful is watching your friends and seemingly everyone around you getting 10-12 interviews where you can’t even get one. Getting your resume critiqued by everyone who’s above first year with a pulse seems to do nothing, your interview skills have been practiced from birth but what does it matter?

We often find ourselves comparing ourselves to others and especially in engineering. We are one of the only faculties that still provide rankings and “as long as you’re above the median you’re doing ok.” The reality is that half of us are below that line. Does this mean you’re not ok; that’s what the above statement implies right?

There’s a thing about first round, that if you don’t get a job with all the “successful” students, that you’re a failure. The reason for first round existing is so that at the end of a month of interviews, you can theoretically have the largest choice in possible jobs to accept. The unfortunate negative of the first round of interviews system is that many, and I mean many, students get zero interviews if you don’t get a job with all the “successful” students, that you’re a failure. The reason for first round existing is so that at the end of a month of interviews, you can theoretically have the largest choice in possible jobs to accept. The unfortunate negative of the first round of interviews system is that many, and I mean many, students get zero interviews.
The e-book. That simple marvel of human engineering. Who could have guessed it’s supremacy in the argument of book vs. e-book would ever be questioned. Of course e-books are better. Who’s the doubt. If there is still any shadow of a doubt in your mind, let me convince you.

If you are like me - a good person, and you love the planet, then e-books are clearly the better option. Where did you think books came from? The sky? No you fool - its trees. Dead trees! I know, it seems so cruel, how can anyone possibly think of killing those majestic creatures. Well its the book lovers that do. Clearly, if you want to prevent another tree from being cut down, then e-books are clearly the better option. Just to throw some figures at you, in the U.S, 30 million trees are cut down each year to print books. Save a life. Get an e-book.

If you are still not convinced (you heartless person, you) I know just what will convince you. Money. So, I am not trying to bribe you. I am only trying to remind of the incredible, ginormous, crazy savings that you get when you buy an e-book or borrow one-permanently from the internet. Where a good old fashioned paperback might set you back about 20 bucks, an e-book will cost you nothing - if you know what you want to be reading. Once. You can always be reading just what you really need to say more? Wink, nudge nudge. Do I really need to say more? This is money people. Money. The stuff of life. The fruit of your co-op. Do I really need to say more?

Why are you still reading. Go away. How have I not convinced you yet? Fine people. Maybe money isn’t your thing. Well I have just the thing for you. want to get your hands on a book really, really badly. Well how did that go? You probably went to the library. Not there. Went to another library? Nope. Ask your friends? Still? No. Then you are out of luck backs. With an e-book it just ain’t the same. It doesn’t matter how rare the book is, if there is an electronic copy, you can get it. I can go on the internet and read straight from the Gutenberg Bible- one of the rarest books in the world, like I have my own copy (it’s in Latin, so more like stare at intensively.) Before the e-book, you would have just been out of luck. E-books let you read any book you want. It doesn’t matter how rare it is. How can paper books even compete?

If you are the nostalgic type, then I get it. I remember those days in elementary school when we were all voracious readers, spending our money on those scholastic fairs. Well, it doesn’t feel like that anymore does it. When was the last time you really sat down and got lost in a good book. Don’t lie to me. Don’t worry. We’re all busy people. Life gets in the way. You just don’t have the time to go to the library or book store and take out a book to just read for fun. Don’t worry. E-books have got your back. You can take a book from the comfort of your own home and carry it with you wherever you go. With e-books, you can get back into the habit of reading in a jiffy and you don’t have spend your time wistfully remembering the good old days.

How many people here wish we had lockers? That would be pretty cool. Well we’re not getting them any time soon. How do we carry these textbooks that feel like bricks around with us. You just can’t, without seriously risking some damage to your back. This is where e-books are actually good for your health. You can carry all your textbooks with you, wherever you go, and there are no health risks associated with it at all. It doesn’t even have to be text books. When was the last time you were reading a book and really wished you were reading something else. With e-books, you can. Carry all the books you have ever wanted to read with you, all at once. You can always be reading just what you want to be reading.

If you still aren’t convinced. I don’t know what will convince you. E-books are better for the environment and your wallet. They let you read books that are rare and expensive that you wouldn’t be able to get any other way. E-books will help you get back into the habit of reading and relive your middle school years and they’re better for your health. Need I say more? So go out there and get an e-book.

Point Vs. Counterpoint
Are E-books Better Than Printed Books?

TONY KAPPEN
1T ELECTRICAL AND COMPUTER

The books fall, the person helps you collect them, you are engrossed in a conversation, my friends, e-books cannot forge. Before I begin to tell you why physical copies of books are better than e-books, let me ask you something, have you ever been to a library and sat amidst the un-ending, tall shelves of books? Have you ever bought a new book and immediately taken a whiff of the fresh pages? Now imagine smelling a Kindle. What does it smell like? Nothing, I hear. Printed books come in so many different shapes and sizes. You have paperback, hardcover, thick like Harry Potter and the Deathly Hallows, and skinny like the Bernstein Bears. Now imagine these on a Kindle.

E-books are bland and boring. Every page looks like every other page, feels like every other page. There is no sensory perception. Printed books give you the opportunity to feel the book before you even read it. They make reading pleasurable on a physical level. When you are reading an e-book, it feels like any other activity you would do your laptop or a tablet. There is no sense of a break from electronics. Isn’t it exhausting to come home from work, having looked at a screen for 8 hours and then looking at a screen all over again? Wouldn’t you rather curl up in bed and hold a physical copy of a Sophie Kinsella, or Stephen King novel and just while the evening away?

Speaking of Stephen King, studies have shown that using a Kindle were less likely to recall events in a mystery novel than people who read the same novel in print. So, if you really want to remember important details and follow the plot closely, it is recommended that you read printed books rather than e-books.

Another reason to choose printed books over e-books is for the meet-cutes. Imagine this scenario: You are walking down the DWE hallway, a few printed books tucked close to your chest, engaged in a conversation that is making you look anywhere but ahead and you collide into someone. The books fall, the person helps you collect them and you exchange numbers. Now if those books were a Kindle, the only number you would be getting is a fake one because no one wants to pay for that damage.

And after the meet-cute, you may want to share your books. Sharing an e-book, like we all know from sharing PDFs of textbooks, comes with the warmth of a hot chocolate gone cold. It has so much more meaning when you lend someone your printed copy of your favorite book. Printed books come in so many different shapes and sizes. You can find doodles and meaningless phrases, or even lyrics of songs that they were probably thinking about. It’s like being in the previous reader’s mind while they were reading the book? If that doesn’t excite, maybe you are meant to be an e-book reader.

With printed copies, you can take notes, highlight, write in the margins, use post-its, and dog-ear important pages. Every time someone reads a book, it becomes a different version of the original book. While e-books may give you the option to virtually do the same, it is so easily reversible that the book is never really uniquely the reader’s. And once a printed book is yours, it will be a loyal friend. You can reach for it whenever you please. Having a bad day? Reach for a book and dive into a whole new universe. Perhaps it’s an e-book you want to utilize, but the electronic device is discharged. Guess you would have to put your bad day on hold until you find the charger and wait 2-3 hours until the device drinks some juice. Another reason why printed books are amazing is because they are representations of all the stages of your life. There are so many of us who, once they buy a book, do not get rid of them because of the memories attached to them. I still have copies of Princess Diaries by Meg Cabot tucked away at home from my pre-teen years. It is so refreshing to sometimes skim through the books and reminiscence about the school days.

Have you ever been on a subway and looked at the person reading across from you? Have you ever gotten curious about what they are reading but since they have a Kindle, you have no idea what they are reading? But when the person across from you is reading a printed book and you see the jacket, don’t you get just a little bit excited to see that they are reading the book that you love so much? In a way, you feel a little connected to that stranger. This connection, my friends, e-books cannot forge. Studies have also shown that reading e-books before bed hinders your sleep. Staring at a bright light, such as an electronic, before bed can make you less sleepy and the process of falling asleep will take longer. It is better to read a printed book under the light of a bedside lamp and to turn it off before sleeping.

While all these amazing perks of reading printed books definitely make them a better option, there is one bonus the surpasses everything on the list. You can take a book into the bath without having to worry about water damage.

SAMRIDDHI SHARMA
3A CHEMICAL

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.
Kathleen Wynne Acknowledges She Won’t Win
Urges Voters to Ensure NDP or PC Minority

On June 2, 2018, just five days before the election, Kathleen Wynne presented a speech saying she knew she would not win, and she is okay with that. Here is a little summary of her speech.

Although she says she does not care about herself, Wynne cares about the future of the province. Her take is that she’s worried about handing a “blank cheque” to the NDP or PC. On this point, she was concerned Doug Ford would have too much of a free hand if elected a majority, referencing the example where he would have opened up Greenbelt condo development until called out. She also attacked Ford’s history of berating people based on religion, gender, or sexual orientation. On the other side of the political spectrum, Wynne worries about the NDP’s effect on the Canadian economy. She is worried about the taxes that the party can impose on the Canadian economy. She is worried about the NDP’s effect on the other side of the political spectrum, history of berating people based on religious, gender, or sexual orientation. Her general dislike by the rest of the population seems to have hit her, and although she hasn’t technically given up, it’s clear that she’s being realistic about her odds. According to CBC news, as of June 1, 2018, the Liberals are only projected to receive 19.1% of votes, while the Conservatives and NDP are set to receive 37.2% and 37.1% respectively. The probability of winning goes to the Conservative party at 85.4% with a majority government and a 5% chance at a minority government. The NDP have a 6.3% chance of winning with a majority, and a 2.8% chance of a minority. The tracker was mainly predicting the NDP to pass the Liberal vote for polling averages as of the beginning of May, but the two vote counts for the PC and NDP government have only recently started to converge to the same value. However, don’t count the chickens before they hatch; this is similar to the idea that “Trump would never get elected” and look what happened (not saying Doug is as bad as Trump, but I’m speaking more objectively as a “left vs. right” situation). And remember the Green Party could still win theoretically.

Is this some weird sort of reverse psychology? 5-D chess that Wynne is talking about to get some last minute Liberal votes? Or has she really thrown in the towel? Taking off my tin foil hat, it just makes it clear that this doesn’t change much about who you vote for. It was kind of prevalent that Wynne wouldn’t receive many votes anyway, and at this point it seems like she’s stating the obvious. So stick to your research and vote who you want. Why has Wynne figured this out now? There was a long-standing trend of people disliking her, a large reason being selling off Hydro One. This has the potential of being the worst election for the Liberals in Ontario history. If they win fewer than seven seats, this record is broken. Although her plan may cause a left split, it may have just brought more NDP voters. We’ll have to wait until Thursday to find out.

Kathleen Wynne has been the Premier since 2013 and is the first female and open LGBTQ+ Premier of Ontario.

Google Will Not Renew Project Maven

Google Cloud CEO Diane Greene has announced that the company will not renew their contract with the Pentagon’s Project Maven, a drone footage analysis program that uses artificial intelligence (AI) to improve military drone recognition. This project was launched in April 2017, and has received backlash heavily from employees. Although the project was supposed to be restricted for very specific uses, the potential for surveilling entire cities at home and abroad, caused a great deal of concern. Employees petitioned and even resigned from Google due to the raised ethical concerns of the project. About 3100 employees were reported to sign the petition presented to the company’s CEO Sundar Pichai. Although Google insists that this is not as encompassing of a project as people seem to think, the potential of being able to click anywhere and see everything associated with that area in almost real time draws a lot of ethical and privacy concerns. Greene says the collaboration will cease in March of 2019, which is when the contract is set to expire. Google is also set to update its code of ethics within the next week. Perhaps this could extend a precedence of less (if any) military collaboration in the future. If such Pentagon collaborations were to occur, it might only be for less “invasive” purposes, but we won’t know for sure. The technology used in Project Maven is open source anyway, as Google was mainly providing technical support and expertise for the TensorFlow application programming interface (API). However, the controversy of direct involvement in an overtly military project from one of the largest companies in the world left many employees uncertain of the end uses. This brings about general conversations about machine learning (ML) and AI and the associated ethical and moral responsibilities for their use. As we approach a less and less private society, we have almost no choice but to trust these companies with our data. Although we may want to give it consensually (read your terms of agreement folks), any indication of our privacy being breached or our data being used without first notifying us is unethical at its core. Mistakes, hacks, and frauds can happen (re: Facebook and Cambridge Analytica situations), and ML and AI will only open up the door to make that worse. Then again, it could also make it better. The ones who have that technology and ability in their hands get to decide that for us. So maybe don’t ditch your touch screen for a flip phone just yet, but be aware of the potential uses, good and bad, when that data falls into unknown hands.