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THE IRON WARRIOR

THE NEWSPAPER OF THE UNIVERSITY OF WATERLOO ENGINEERING SOCIETY

VOLUME 37 ISSUE 4 | WEDNESDAY, MARCH 12, 2014

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EngSoc Sponsored "Little Plummers" Defeat Sharks 5-0

Lucas Hudson

UW Engineering Society's aptly nicknamed "Little Plummers" faceoff against the Sun Life Sharks in their Saturday game, which they won 5-0

KEVIN MCNAMARA
3A CIVIL

This year, the Engineering Society sponsored a team in the Waterloo Minor Hockey Association. Bright and early on Saturday, March 8, 2014, 30 excited engineering students gathered at Albert McCormick Arena to show their support for our team. The game was evenly matched, with the Waterloo Engineering Society "Little Plummers" (the nickname created by UW Engineers) playing the Sunlife Financial Sharks. With personalized signs for every player lining the stands, and a lot of loud engineering spirit, the atmosphere in the rink was electric. It is hard to say who had the most fun: the players, the parents, or the engineering students in attendance. One thing is for sure though, this event was one to remember.

The game got off to a great start with the Plummers taking a quick lead over the Sharks. Awesome plays by the Plummers led to two more goals, with some amazing celebrations from the players similar to what one might expect from a professional NHL team. An exciting breakaway and slap shot by one of the Plummers was denied by the Shark's goaltender, who stood his ground and shut down the rebound. A tripping call put the Plummers on the penalty kill, however the team stopped every advance by the Sharks. As the clock wound down, things really began to get exciting, with the Plummers scoring two more goals in the last few minutes of the third period. The final score was 5 – 0 in favour of the Plummers. Congratulations are due to both teams on a very hard fought game! Each player skated strong and every one of them has something to be proud of.

In the Spring 2013 term, the Engineering Society began researching into the process for sponsoring a minor sports team, and settled on the Waterloo Minor Hockey Association. Waterloo Minor Hockey provides four levels of play, ranging from house league (recreational) to AAA. The Engineering Society's team is made up of sixteen players born in 2004, in the recreational Minor Atom Division. To sponsor a recreational team is $350 for the season, which helps pay for jerseys and other costs of running the team.

The goal of sponsoring a team was to help out the community, and show the Engineering Society's support for giving back. By organizing a group to attend the game, the hope was to cheer like crazy and have the players feel like they are playing in the NHL. As a 9 year old, to have 30 people randomly show up to your game and cheer non-stop for you for is probably about as exciting as it gets. Everyone at the game was ecstatic, with many parents requesting that we attend every game for the rest of the season. Though the loudness may have been a bit overwhelming to the boys at times, it was easy to tell that they were enjoying every minute of it.

Having the Engineering Society logo on the back of the team's jerseys, and seeing the excitement that the players have to go out and represent the Society on the ice, is worth much more than $350. This is an initiative that will last from year to year, and continue on as a tradition. There is massive potential to expand this to a larger scale in the coming years, with more events, more games to watch, more teams sponsored, and more kids who are able to have a great time and represent the Engineering Society. Whether this means attending more games, sponsoring different sports, sponsoring more teams, or expanding to have other societies on campus sponsor teams as well, this marks the beginning of a great tradition.

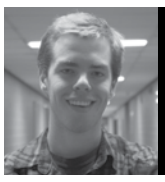
The team has one more regular season game, and is then into the playoffs. Keep an eye out on the Engineering Society mailing list and Facebook page for the team's schedule, and whether or not the Engineering Society is organizing another group to attend a game.

Sponsoring a minor hockey team is only one initiative of many that benefits our community, both locally and nationally. As of late, there has been a fair amount of bad press related to engineering students in Canada. Thus, it is very important that we highlight all of the great things that engineering students do for the community. The Engineering Society competes annually in CANStruction, a community event where groups get together to build structures out of cans, that are then donated to the Waterloo Food Bank. As well, the Engineering Society hosts a number of education outreach events to teach engineering principles to children in the community. The Engineering Society also has a large presence at the uWaterloo Canada Day events in July, running all of the events for children, with a visit from the Tool for pictures.

Engineering a Difference is a program that connects engineering students with local non-profit organizations for volunteer opportunities. As well, a number of volunteers take part in Engineering Explorations to show off our engineering facilities to elementary school students. Outside of the community, the Engineering Society raises money each term for charity through a number of events. Since May 2013, we have raised over $4500 for Free the Children. We also run Bus Push for the Heart and Stroke Foundation, which is coming up soon.

The opportunities do not end there. Sponsoring a hockey team was a new initiative this year, and one that will hopefully last as other initiatives have. If you ever have an idea of how the Engineering Society could better reach out and benefit the community, then do not hesitate to make a suggestion to the Engineering Society Executive. Let us all work together to maintain these great initiatives, and help to continue the strong positive image of engineering students in the Waterloo region and across Canada.

Ukraine: Why Putin Needs to be Stopped



SPENSER GOOD
EDITOR-IN-CHIEF

I had originally planned to write about Canada in this editorial, but I felt it would be difficult to write an editorial on my pride as a Canadian without coming off as clichéd. Instead, I want to offer my thoughts and some background on the situation in Ukraine. For those geopolitics experts out there, I must offer a warning, I am no expert. I have done some research and hope that most of my facts are right. On this note of confidence, I will begin.

For those of you who were wondering, as I was, the proper title when referring to this Eastern European nation is just "Ukraine," not "the Ukraine." This is an important distinction to many Ukrainians, who feel that the title "the Ukraine" is a belittling term that originated from Soviet rule, and the nation has since made a pronounced effort to have this usage be eradicated. Ukraine's battle for the proper usage of its own name is but a small example of its constant fight for independence against the influence of its much larger neighbour, Russia. The recent turmoil in the nation stems from a number of issues, which I do my best to elaborate on below.

Ukraine is a divided nation. The Eastern half of Ukraine, which includes the focal point of the conflict, Crimea, remains predominantly pro-Russia. It has historically supported pro-Russia candidates (including ousted Prime Minister, Viktor Yanukovych) and has a higher amount of Russian speakers. The Western half of the nation, which contains the embattled capital, Kiev, is much more sympathetic to an independent Ukraine, identifying more closely with Ukrainian culture and politics. However, both of these areas are nowhere close to uniform in their views, with substantial amounts of Ukrainians living in Russian support hot beds in the East, and a smaller, but still significant, amount of ethnic Russians living in the West. This, along with other ethnic minorities in the nation (to be elaborated on later in this article), add further complexity to the situation. This ethnic mixing, combined with a strained history between Russia and Ukraine, leaves the country extremely vulnerable to political instability. Insofar, Ukraine has seen very few uniting politicians. Although it is a multiparty system, two movements generally dominate politics, leaving a choice between closeness to Russia and distance from the EU and the West, or vice versa. The lack of a Mandela type character capable of uniting a divided nation further exacerbates the country's fragile position.

Ukraine's independent history has added little confidence to the strength of national unity. In 2004, Viktor Yanukovych, the same man who is currently on the lam to avoid imprisonment or worse, was elected President. These elections were deemed invalid by domestic and international observers alike, and led to the Orange Revolution, another series of mass protests. This led to another set of elections and the installment of pro-West and EU politician Viktor Yushchenko as President. His time in politics was marred by a series of scandals, political upheavals, and most striking of all, a bizarre illness leaving his face scarred and disfigured. Most of the international community, supported by several doctors, believed it to be a result of dioxin poisoning. Several members of his medical team believe that the toxin was so pure it would have had to be made in a laboratory, leading many to speculate it was an attempt on his life by a Russian source. Despite this, he remained President until he was voted out in 2010. Yushchenko's fall from political greatness can largely be credited to the rise of his former political ally and powerful Ukrainian former businesswomen Yulia Tymoshenko. After some well publicized disputes between herself and Yuschenko, Tymoshenko ran for President in 2010, stealing much of the pro-EU and West vote away from Yuschenko, but ultimately losing to the now ousted pro-Russia politician Viktor Yanukovych. Soon after Yanukovych's election, Tymoshenko was sentenced to prison and ordered to repay vast amounts of money for a series of crimes mainly revolving around the abuse of her Prime Ministerial powers before 2010, when she served in the position. Many international and domestic analysts believe the trials to be politically motivated and an effort on Yanukovych's part to undermine his most powerful pro-Western and EU rival.

These developments, prior to Yanukovych's election, already placed Ukraine in an extremely delicate situation. Yanukovych did little to unite the nation. Targeted trials on opposition members, accusations of censorship, general coziness with Russia, corruption allegations, and the decline of the nation into financial ruin further elevated frustrations of ethnic Ukrainians. Ultimately, it was Yanukovych's decision to abandon an agreement on closer trade ties with the EU that provided the first spark for protestors. By the end of 2013 over a million people had converged on Kiev to protest and demand the ousting of Yanukovych. Restrictive anti-protest measures passed by Parliament in mid-January elevated tensions, and despite attempted back pedalling by Yanukovych and co., the country was in disarray. By February 22, Yanukovych had fled, protestors had taken control of the Presidential administration and Tymoshenko had been freed. Soon after speaker Olexander Tarchynov was named as interim President. A type of counter movement was soon to develop in Crimea, a largely autonomous region within the Ukraine composed of a peninsula on the northern coast of the Black Sea.

Crimea itself has a very complex history. The region plays a critical role in Russia's geopolitics, as it provides a site for a large naval base and holds national importance to many Russians, who believe that Nikita Krushchev's move to transfer Crimea to the then Soviet controlled Ukraine in 1954 to be a historical wrong. Crimea, being part of Eastern Ukraine, is predominantly Russian at 58 percent of the total population. It was these demographics that have provided Vladimir Putin with reasoning to occupy much of the Crimean capital Simferopol, and further escalate the conflict with concerns rising of a full scale international conflict. However, it must be understood that Crimea still contains approximately 24 percent ethnic Ukrainians and 12 percent Crimean Tatars. The Tatars are Muslims of Turkish ethnicity, who have long resided in Crimea, previously making up the majority of the population before Stalin deported a sizeable population in 1944. This ethnic complexity, along with a host of other factors, discredits Putin's blanket statement of having the right to occupy the region simply to protect Russians in the area, many of whom previously had no claim to actual Russian citizenship until they were given passports by the nation to increase their territorial claims.

As I have outlined in my summary of the situation, Ukraine is a complicated nation with many players and factions. Russia may have a rightful claim to Crimea that could be justified through due process when Ukraine is in a more stable situation. However, allowing Putin and his cronies to grab fragile pieces of Europe at their whim just because they have a sizeable Russian population sets a terrible precedent. There exists a sizeable Russian diaspora in a host of other nations in Europe, many of which are small and susceptible to Russian meddling. If Russia is allowed to simply step in and snap away pieces of a nation now, what is stopping them from doing so in the future? Also, at what point will Putin realize that the presence of a Russian population is not a required justification for his actions? If I were an Estonian, a Lithuanian, or a citizen of another nation close to Russia and with a history of Russian influence, I would be sweating.

Many people are understandable weary and critical of an American solution to the problem. It is difficult for America to act as a moral superior as they have a recent history of needlessly meddling in the affairs of other sovereign nations, leading to two needless, bloody wars. However in the world we live in, we have no other nation with a big enough stick to subdue Putin's ambitions. A President in his final term, Barack Obama must find the courage and wherewithal to stop Putin at whatever means necessary. Vladimir Putin is a former KGB agent, hell bent on Russian dominance and a return to what he believes is their natural role as global superpower. Many comment that an occupation of Ukraine and further expansion of the Russian Federation would almost surely lead to the economic collapse of the nation. However, Putin blindly spent over $50 billion on a two week sporting event without blinking an eye. I have my doubts that sanctions or economic instability will have little influence on such a bull headed man. Ultimately, subduing Russia lies with America's military might. Despite their past costly mistakes, America remains the last defender of freedom, justice, and due process. Obama must leave Putin with a choice: get your ass kicked or back off. As casual observers, all we can do is pray that the Russian President chooses the latter.

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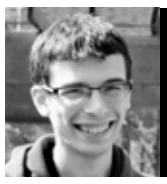
When Security Goes to Fail: Apple's iOS Vulnerability

Explaining the Mechanics of the Increasingly Infamous "goto fail" Bug



JOSH KALPIN
3A SOFTWARE

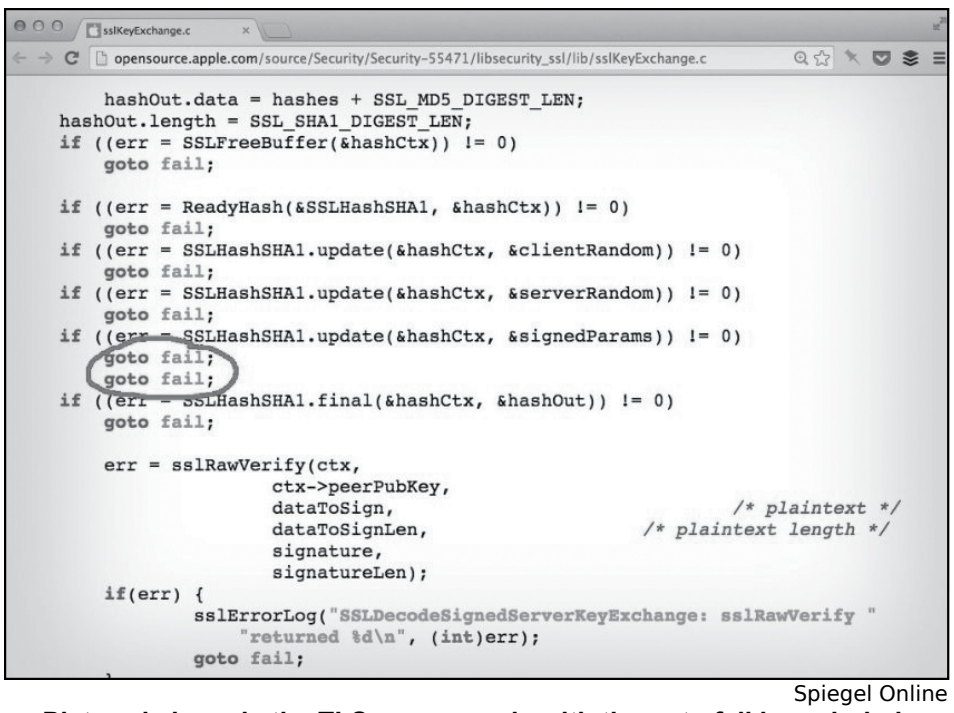
In the past two weeks, Apple has released updates for its iOS and OSX operating systems to fix, what is now called the "goto fail" bug among other things. To the average user of these devices, this can be slightly worrying, since the implementation of one of the core encryption algorithms contained a major flaw. Unless you understand cryptography and have a pretty solid knowledge of programming, understanding why this was a major flaw can be difficult. So, in this article, I'm going to try to break down the anatomy of the vulnerability and explain what went wrong, and why it is incredibly bad.

Let's start by going over how Transport Layer Security (TLS), the encryption algorithm in question, works. TLS encrypts your web traffic when you visit websites using that start with "https" instead of "http." When a website uses https, it has a certificate, issued from a certificate authority, that it uses to verify its identity. When you visit that page the browser gets a special key and the certificate so it can validate that the certificate is trusted (i.e. not malicious), it is valid (hasn't expired), and it is actually from the site that it is coming from (not fake). Once that has been verified, the browser and the website create a special key that is used to encrypt all of the web traffic during that session. Once the session ends, the key is thrown out and a new one must be created for a new session to begin.

So, the question is where was the bug inside of Apple's implementation of this algorithm? If we look at the source code, there are multiple checks to ensure that each step of the algorithm works. Essentially, each if statement is saying that if this specific part of the algorithm returns an error or has invalid data, go to the section of code where failures are handled. However, in C, the language it is implemented in, if braces ({, }) are not surrounding the statement below the "if" only one line of code is considered to be included in the if statement. So if you take a look at the circled if statement (see picture), there is a second "goto fail" included. Since there are no braces, this will always execute and never execute the last steps of the algorithm.

This is a glaring security vulnerability that also could explain some of the information that came out of Snowden about the NSA being able to read iPhone traffic. It turns out that this vulnerability has appeared over a year ago, when the extra goto fail appeared in a seemingly unrelated change to the code base. Regardless, there is now an easy fix to make sure that you are protected from this vulnerability.

First, ensure that any iPhones, iPads, and Macs that you have are fully up to date with the latest version of their respective operating systems. For iPhones and iPads this is iOS 7.0.6 or iOS 6.1.6 (depending on your device) and for Macs make sure you are running OSX 10.9.2. These versions have the extra "goto fail" removed from the TLS algorithm and are no longer vulnerable to potential exploits.



Spiegel Online

Pictured above is the TLS source code with the goto fail bug circled.

The End of an Era for Waterloo Based BufferBox

Google Decides to Shift Focus Towards Same Day Shopping Service

MEAGAN CARDNO
2N NANOTECHNOLOGY

Anyone with their eyes open in the Student Life Centre has probably seen the large green box with the white X on it. The BufferBox, for those unfamiliar with it, was designed with the intention of making parcel deliveries a far more smooth process, especially for those who have felt the frustration of attempting to properly time a home delivery. Instead of waiting at home during a four-hour window for a five-second delivery, BufferBox provided publicly accessible delivery locations in Waterloo, Toronto, and (most recently) San Francisco that served as the title "buffer" zone. When a user's package arrives at their designated BufferBox, they are sent an email notification with a code to unlock the box and retrieve their purchase.

The start-up was first formed by Waterloo grads Aditiya Bali, Mike McCauley, and Jay Shah back in 2010 and developed over the years into a larger, more formidable company. Originally only serving Waterloo, it expanded into Toronto in late 2011, picking up contracts and agreements with other companies to expand its services into GO Stations and 7-Elevens.

In November of 2011, BufferBox was acquired by Google in what appeared to be a simple business venture into investing in a smart and successful start-up. After the purchase, BufferBox announced its intentions to expand its market into more cities south of the border, and began offering its services in San Francisco. It seemed like a promising sign, as Google was clearly interested in expanding the company far beyond its original scope and perhaps expand it geographically.

However, just two weeks ago the company announced its decision to begin "winding down" its services to make way for future shopping services offered by Google, including Google Shopping Express, which is currently only offering deliveries around the San Francisco Bay area.

Google Shopping Express is currently in a trial basis, and is designed as a same day shopping service in which users can purchase merchandise online and receive said merchandise in a same-day delivery. Currently, the service offers products from Target, Walgreens, Staples, American Eagle, Toys R Us, and Babies R Us. It remains to be seen whether this service will be expanded beyond the San Francisco Bay Area in the future. However, such an ambitious undertaking explains Google's need to shift focus.

With this announcement, BufferBox ceased the ability for new customers to sign-up on their website, and provided the final dates that the BufferBoxes would operate. After March 31, packages will no longer be accepted into their warehouses; any items shipped to them after this date will be returned to the sender. April 12 will be the last day in which packages can be picked up from the BufferBox locations. This holds true for all BufferBox locations in both Canada and the US, and means that any online partners with BufferBox will also cease to offer the service.

The news of the impending closing of BufferBox came with a message of optimism from the BufferBox team, claiming that the action will hopefully allow them to focus on integrating the data and lessons they gained during BufferBox's lifetime into bettering the delivery service of the future. It is clear that their ideas and efforts are committed to the cause of easier, more efficient shopping. Still, it cannot be an easy task for any entrepreneur to let go of the start-up that they formed, perfected, and watched grow into a company successful enough to catch Google's attention. We can only wish the team great success in their future projects, and hope to hear more from the Waterloo grads in the future.

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Presidential Ongoings: What the Future Holds

DAVID BIRNBAUM
PRESIDENT

Hello again wonderful IW reader.

I hope you all enjoyed my article last issue, and if you missed it, be sure to check it out on *The Iron Warrior* website. In my previous article, I focused on what things didn't get accomplished during my term as President, but this article I want to talk about what projects are under way that I feel should be focused on in the coming terms. These are projects that I hope to be able to continue working on, and that the Engineering Society continues to push forward.

The first, and literally the biggest project, is that of Engineering 7. The Engineering Society is working with the Dean's office to confirm a large amount of student space in the upcoming building. As well, I sit as the student representative on two committees relating to Engineering 7. In the coming year, we will need to come to an agreement with the University regarding this space, and potentially go to referendum to have students support the building financially.

The other projects that are still under way with the administration are numerous, as this was the area I tried to push the most on during my term. With Associate Dean Loucks, we are pushing for a complete syllabus bank, an exam bank stocked directly by the Professors, and additional room and resources for Engineering Counselling. Working with the departments, there are still a few left that we need to gain access to their mailing list, and we will need to develop an all-around communication strategy; we need to find a way to better engage the members. Also with the departments, we should continue to push for a standardized midterm process faculty wide, and for academic reps to have at least termly meetings with their departments.

On the more EngSoc-y front, the Governance Review Committee is at full throttle, and is working towards providing governance reform suggestions at the coming Joint Council in June. Two main things to be discussed are General Meetings and a Board of Directors. Also, there has been much discussion about the executive and commissioner structure of the Society, and I definitely think there should be a review in the coming year to see how it can be made leaner.

The student deals program has proven to be a very well utilized and popular service, so it should be grown. The LCD screens have finally gotten new locations approved and they are on the way. We need to once again develop a good strategy regarding how to best use these, and utilize the specific locations to best target our advertising.

RidgidWare is probably the most substantial initiative that will be coming forward in the near future. Having tentatively gotten over $4000 from ECIF and WEEF, we are moving forward quickly with the goal of a soft launch over the spring term and a full launch for Fall 2014! It will be a great new service for students looking to work on electronics projects, either as part of class or for their own interest.

One of the other large things that will be coming in Fall 2014 is the renewal of the Feds Societies agreement. This will be a pivotal time for both EngSoc and Feds to properly establish our desired relationship with one another. There is definitely a lot of room to improve on the current agreement, and EngSoc should be quite active in working with the Federation to come to a mutually agreeable position.

So there you have it, some of the major projects that are under way and hopefully getting settled within the next year or so. I hope that they all can move forward at an accelerated pace over the coming terms, and get to a place where implementation is possible. I am sure that the B-Society and incoming A-Society executive will be able to work on these as well, and hope that I may be able to continue my work on bettering life for the undergraduate engineers.

As always, questions and comments can be sent to me at *president.a@engsoc.uwaterloo.ca*

Thank you, and see you next issue for my final executive article (out of 20+)!

Attention: Only a Few Weeks Left to Get Involved!

LEILA MEEMA-COLEMAN
VP EXTERNAL

As the term is coming to a close, there are a bazillion ways to get involved in outreach and the external events we run so here's a nice quick summary of all of them!! If you want more information on any of them, please e-mail me at *vpexternal.a@engsoc.uwaterloo.ca*!

Pi Day/week! March 9-14

Do you like to pie people in the face for a good cause? I know I do! So watch out all of the week of March 9-14 for pies flying everywhere with the proceeds being donated to Free the Children!

Bus Push! March 15

Bus push (actually pull!) is an annual event where we pull a bus all the way to Kitchener to raise money for the heart and stroke foundation! There are pledge forms in the EngSoc office and you can sign up on the Facebook page to receive a t-shirt!

MacEng Musical! March 15

Right after bus push we will be going to see our friends in McMaster to attend their engineering play Snow White and the 7:1 ratio! The bus will be leaving from Waterloo in the afternoon and returning that night. Tickets are 15 dollars in the orifice and they get you a bus there and back and into the show!

Charity Bottle Drive! March 23

If you have accumulated a few empties over the course of the term, we want them! We will be running a charity bottle drive all day on the Sunday so save your empties and sign up in the orifice closer to the date for a pick up at your house!

Spring Clean-up! March 29

It will soon be spring so you know what that means… spring cleaning!! We will be gathering a group of engineering students to clean up campus and the community so mark your calendars and look out for more information soon!

And this is just in addition to all the fantastic EngSoc social events coming up! I want to thank all of you for continuing to volunteer for these outreach events and giving back to the engineering and Waterloo community. If you ever have any ideas on more ways engineers can give back, please e-mail me so we can help make it happen!

Lucas Hudson

Upcoming Events Calendar

Wednesday March 12	Thursday March 13	Friday March 14	Saturday March 15	Sunday March 16	Monday March 17	Tuesday March 18
EngSoc Meeting #5 17:30 - 19:30, CPH	Running Club 18:00 - 19:00	Pi Day! 11:00 - Midnight, POETS Semi-Formal 20:00 - 1:00, Turret Night Club	MacEng Musical 17:00 - 21:00, McMaster 2017 Slumber Party 20:00 - 7:00	Curling 18:00 - 21:00 CANstruction Tear Down! 18:30 - 21:00	Global Cafes 11:30 - 13:30, POETs	Running Club 18:00 - 19:00
Wednesday March 19	**Thursday March 20**	**Friday March 21**	**Saturday March 22**	**Sunday March 23**	**Monday March 24**	**Tuesday March 25**
Genius Bowl 19:00 - 22:00 Colouring Contest Submission 20:00	TalEng 18:00 - 22:00 Running Club 18:00 - 19:00	Gradcomm Event #5 11:00 - 02:00	Winter Leader Retreat	Cardboard Boat Racing Charity Bottle Drive 10:00 - 17:00	Global Cafes 11:30 - 13:30, POETs Course Critique Reading Party 16:30 - 18:30 Alumni Speaker 18:00 - 19:30 Yoga with WiE! 18:30 - 20:00	Running Club 18:00 - 19:00 GLOW Board Game Night 19:00 - 21:00

Check out up-to-the-day event postings on the EngSoc website at engsoc.uwaterloo.ca

Ask Yourself, Why Haven't You Gotten Involved?

ANNAMARIA REDA BRENDAN O'HANLON
VPS INTERNAL

The Engineering Society is a huge part of student life on campus, but we also help sponsor many student teams on campus and events within the community. When we talk about getting involved, we're not just encouraging students to work on an EngSoc event, or just being a part of the events we run specifically, but getting involved somewhere on campus or within the community!

So why should you get involved? Many employers look to see the different challenges and extracurricular responsibilities student's are involved with. By becoming a director and planning an event, being a part of a student team, or doing something within the community, you will learn how to apply many skills you learn within the classroom, as well as gain leadership and planning experience. It is also common to learn to how to quickly deal with an unexpected crisis, which will be beneficial for any job!

Although we all know that focusing on school work is extremely important, it is possible to juggle both responsibilities! I personally enjoy the time I have to spend on my extra curricular tasks as it gives me a much needed break from school work. Getting involved in a student team can give you a chance to apply what you are learning in school, as well as get help from upper year students!

So ask yourself "why haven't I gotten involved yet?!" when there are so many benefits to it! Maybe you don't know how, or haven't realized that these different things exist on campus? If you are interested in getting involved with the Engineering Society, directorship applications will be opening in a few more weeks, so keep an eye out for those on our mailing list, which you can join from our website *www.engsoc.uwaterloo.ca*. Many of these directorships include outreach and community events, which are always super fun to get involved with!

Student teams are always looking for new members. If you are interested in joining a student team, pass by their booth in the Student Design Center of E5, or look up the contact information online. There is more information available on the Student Design Center and how to get involved at *uwaterloo.ca/sedra-student-design-centre/* so check it out! A list of teams is also available if you aren't sure what teams exist, or which ones you would be interested in.

As always please e-mail me at *vpinternal.a@engsoc.uwaterloo.ca* if you have any questions, or want to learn more about getting involved with EngSoc or on campus!

Major CECA Changes

DREW DUTTON
VP EDUCATION

Hello everyone! I wanted to start my article by congratulating those of you who have found a job for Spring 2014, and to encourage those who are still looking for job placements to stay positive! There is still plenty of time to find your placements for the spring term!

This issue I wanted to talk about the progress of the WaterlooWorks project that will be replacing JobMine within the next year. CECA has been working with Orbis Communications Inc. since May of last year to develop a custom package for the University of Waterloo. There have been a number of recent developments that students will be excited to hear about.

First and foremost, the decision to allow students one "no rank" option per term has been confirmed. This is a fantastic decision that moves the co-op process one step closer to a "real world" scenario. Additionally, it will create a more level playing field between students and employers (who currently have the option to not rank students). Furthermore, this decision will likely result in a reduced number of students requesting sign-offs from jobs, ultimately allowing CECA staff members more time allocated to career mentoring. Finally, there is a general consensus that employers would rather not hire a student who has no desire to work for them. At the end of the day, the "no rank" option will likely result in happier students, and happier employers respectively.

Another exciting feature for students is the key word search. The key word search is going to allow students a much more effective way of finding jobs that specifically interest them. I think everyone can agree that a lot of employers (especially ones new to the hiring process at Waterloo) don't necessarily post their jobs under the most appropriate program category. The key word search will help students bypass this issue by finding jobs with the specific terminology that interests them. There are a number of other differences between our current software and the WaterlooWorks software, and I encourage you to visit *uwaterloo.ca/ceca-systems* to learn more about them.

As far as implementation timelines go, the first trial of WaterlooWorks will begin with the Architecture students this Spring 2014. Architecture has been selected since they are a conveniently isolated group in terms of co-op: they apply to architecture specific employers, who in turn target architecture students solely. The WaterlooWorks software will continue to be developed moving into Fall 2014, where a larger trial group will utilize the software for hiring in the fall. This group is yet to be confirmed. Finally, full implementation is scheduled for Winter 2014.

CECA is working hard to develop a system that makes the hiring process easier on students. That being said, they need more student feedback to represent students effectively! CECA has been conducting student polls over the past few months, and I encourage you to voice your opinions through them. You can also get involved via student panel at*uwaterloo.ca/ceca-systems*. Help ensure you get a software package that… WORKS for you!

What $14.72 Gets You

KEVIN MCNAMARA
VP FINANCE

Hey there Engineers! Hope everyone is doing great. This issue, I would like to share some information about something you may not know much about, or may be wondering about. As you probably noticed, each term on your statement of fees on Quest, there is a fee called ENG Student Society, which is currently $14.72.

This fee is paid by every undergraduate engineering student who is in school (about 3700 this term). From these fees, it is the job of the VP Finance to create a termly budget allocating these funds for the Engineering Society and its operations, which is approved by the Engineering Society Council at the start of the term. If you frequently read *The Iron Warrior*, you might have seen the budget for this term in a past issue.

So, what exactly does your $14.72 Engineering Society fee get you? The answer is, quite a lot. The majority of the fees go towards fixed costs associated with running the EngSoc Office, and our other facilities like POETS. This part of the budget allows us to offer all of the things we do in the EngSoc Office, like cheap report binding, photocopying, free staples (lots of free staples), and some of the other things that are commonly used. It also helps to pay the salary of our employees, who work very hard to keep everything running within the society, including all of our finances, the EngSoc Office, and the Coffee and Donut Shop (CnD). Without their work, we would be hard pressed to offer all that we do.

On top of our fixed costs, a large percentage of the budget is allocated towards specific funds. Each term, 15 percent of the student fees, capped at different amounts depending on the term, are allocated towards Engineering Society Sponsorship. The purpose of this fund is to sponsor the activities of student teams and other groups on campus, and help them with all of their initiatives. Another fund is the Engineering Capital Improvements Fund (ECIF), which receives 15 percent in the Fall, and 5 percent in the Winter and Spring. This money goes towards capital purchases that improve our facilities around campus, such as POETS upgrades, and outdoor furniture. Finally, each term 1 percent of the student fees goes towards funding *The Iron Warrior* (woohoo!).

The rest of the budget (which is typically between 25 percent and 30 percent of the student fees depending on the term) goes towards funding all of our Engineering Society services and events. This allows us to run things like resume critiques, interview skills, Mental Health Awareness days, semi-formal, TalEng (the engineering talent show), Genius Bowl, and other events throughout the term. This covers everything from venue costs, printing costs, volunteer appreciation, to other event related expenses. Directors, who are the people who run all of our services and events, request funds each term to cover their costs, and it is up to the VP Finance to allocate money to them.

All of that sums up to make our termly budget. This budget is what allows the Engineering Society to run all of the things that it does on a term by term basis. $14.72 may not seem like it gets you much, but if you think about all of the services that the Engineering Society has to offer you, it really does contribute to a lot. If you have any more questions about how the budget works, I encourage you to come and ask me, or send an email to *vpfinance.a@engsoc.uwaterloo.ca*, I am always happy to answer. Good luck with school, and see you next issue!

Women in Student Government

A Response to the University of Ottawa's Student Federation Scandal

ALLYSON FRANCIS
3T MECHANICAL

The recent incident involving offensive comments made by student politicians at the University of Ottawa has affected many students, and has sparked much discussion and a call for action among students in the National Capital Region as well as the rest of Ontario. The President of the Student Federation of the University of Ottawa (SFUO), Anne Marie Roy, was sent photos taken of a private conversation between four other elected student officials that graphically described the way one of them wanted to sexually degrade her, as well as comments by the others offering incentives and encouragement. This incident was made public when the photos were published online, and has now escalated into a viral debacle that involves campaigns calling for those four students' resignation from their positions as well as involvement from the local news. I normally remain relatively quiet with my own opinions on sexism in today's world, but the details of this incident in particular hit me too close to home for me to remain silent.

I would love to say that my own experience as a woman in student government have enforced beliefs of gender neutrality in student politics, but that would not be truthful. I also wish I could say that I have never experienced discrimination based on my gender, seeing as how this is 21st century Canada, where the gender gap is as slim as it has ever been. However, the truth is that girls are taught in subtle ways from a young age where our place is in society. A personal example of this took place when I was in the sixth grade, and played basketball in a boy's city league; there was no equivalent girl's league at the time. However, it was made quite clear by my teammates exactly how they viewed me ("Why would you pass to the girl? She can't shoot a basket from there!"). Although I am sure this group of 12-year-olds did not intend for me to be excluded in such a way, I never truly felt like I had the right to be on that team. That is why, after one short season, I transferred to a lower-level girls team where I would not be able to play at the same athletic level, but at least I would be considered a viable teammate. This is but one of many examples of how young women are treated, albeit subconsciously, by their male peers from an early age, which can lead them to believe that they are somehow inferior and not as valuable.

Now fast-forward to high school, to the time when I was considering post-secondary options and decided that my future was in engineering. Although those closest to me were incredibly supportive, there were many who would say things like "It's very tough academically and there aren't many girls so it probably isn't for you," or even one person, who I spoke to in passing, that said to me, and I quote, "…but everyone knows that girls aren't very good at math." These comments did nothing but fuel my desire to prove them wrong, to not only graduate from an engineering program but also leave my mark on the University of Waterloo in a significant and positive way. That is not to say that I was without self-doubt. In a society where women are still being groomed to think that they are only of value in "compassionate" careers, such as those involving health, children, education or hospitality, or careers that do not often involve heavy decision making or leadership, there will always be some resistance to going against the grain, even though technically the opportunity for equality is there.

After I arrived at university, I was still regularly faced with this problem. At times it felt as if people didn't show much interest in me as a person, and instead were only interested in talking to me because I was female. Often, this would get to the point where they would get angry or pushy if I didn't reciprocate their eventual advances, as if I owed them something for the time they invested in talking to me. It seemed ridiculous that that was my daily reality, while my male classmates never experienced such a thing. That's not to say that I felt uncomfortable or threatened as a woman at Waterloo, but there should be awareness that this treatment of our female peers does happen, and on a regular basis.

That is also not to say that this treatment exists within engineering alone. Walking around in the Waterloo community, I have been whistled or yelled at more times than I can count, I have had food thrown at me and I have been spat on, and I have been chased and threatened while walking in a completely public place. Although I cannot definitively prove that these things happened to me because I am a woman, it is extremely unlikely that any of these things would have happened to a male in the same situation. It is for reasons like this why I become personally offended at the notion that we have already achieved equality and that feminists are simply loud-mouthed extremists. Although we have come a long way, there is still a long way to go before I will feel comfortable walking alone, even in my own neighborhood.

Now, I will address my experiences as a woman in student government, because although I have worked hard to get where I am, there will always be those who believe that I only succeeded due to the fact that I was elected to this position because I am something nice to look at, because I am female. That is not what feminism is about. I wish more than anything that I could be judged only by my own merit, my ideas, and accomplishments, rather than the body I was born into. It is not uncommon, while campaigning and even now, to hear or read comments about myself that are offensive and unnecessary, including those that are similarly degrading to what Anne Marie Roy is experiencing right now. It is a real shame that as women, we are forced to feel that we cannot simply be respected based on our achievements in our elected positions without having to endure the demeaning remarks that come with it. This happens all the time, right under our noses, to people that we care about, simply because they want to put themselves in the public eye and make life better for students in their constituency.

The point I am trying to make with this article is not that the life of a woman is hard and that all men should feel bad, but rather to think about yourself and how what you say and do affects the culture we live in and accept as the norm, everyday. The culture that surrounds us is one that is conducive of the remarks made about Ms. Roy, and does not consider them to be of any real harm. I am sure, however, that you could ask any of your female peers for personal examples of the way that women are still treated simply for aspiring to be more than the role society laid out for them many years ago, and receive eye-opening responses. Equality has come a long way by presenting the opportunity for women to hold the same positions as men, but the problem still exists that women who seek to hold positions of influence are treated differently than their male counterparts, and the culture of today's society makes that totally okay. It is what makes women feel uncomfortable running for positions of leadership on campus, for not accepting society's expectations of them, and making it their mission to leave a mark on the world.

I would like to quickly say something to the girls and women who are reading this and may be second-guessing their decision to pursue engineering or run for office – the best tool for change is for women to succeed, and to make no apologies to themselves or others for it! Conversely, the best way for men and women alike to help those aiming for the top is to not remain silent on the subtle and not-so-subtle ways our culture oppresses these women. Yes, the conversation about Ms. Roy was meant to be private, but it is alarming how none of her peers came to her defense. Instead, they allowed jokes to be made about how to sexually degrade her, and how riddled with venereal diseases she apparently is. These are people who work with her every day, people who she is supposed to trust. This is not how women who aspire to lead aught to be treated, especially not by their fellow students.

In closing, I ask you to think about what you see and hear on a daily basis in our community, and the impact it has on the culture we have created for ourselves. Until a woman can feel as comfortable and respected in a position of influence as a man would, we have not truly achieved equality. It will take all of our effort for us to get there.

Impact with Input: Time for Course Evaluations

BJORN DAWSON
MADELAINE LIDDY
GORDON STUBLEY
COURSE CRITIQUE COORDINATORS

Course evaluation packages have been sent to your professors and instructors, who have been asked to bring them to class between March 10 and 21, 2014. Student representatives will be called upon to distribute one questionnaire to each student in each class, collect them when they are completed, and deliver them to the EngSoc office. Your Course Critiques Directors will work with student volunteers to prepare the packages for computerized scanning and processing. It's a process that has been repeated every semester for over 40 years. And yes, it's quite a big undertaking, but it's one we believe is well worth it.

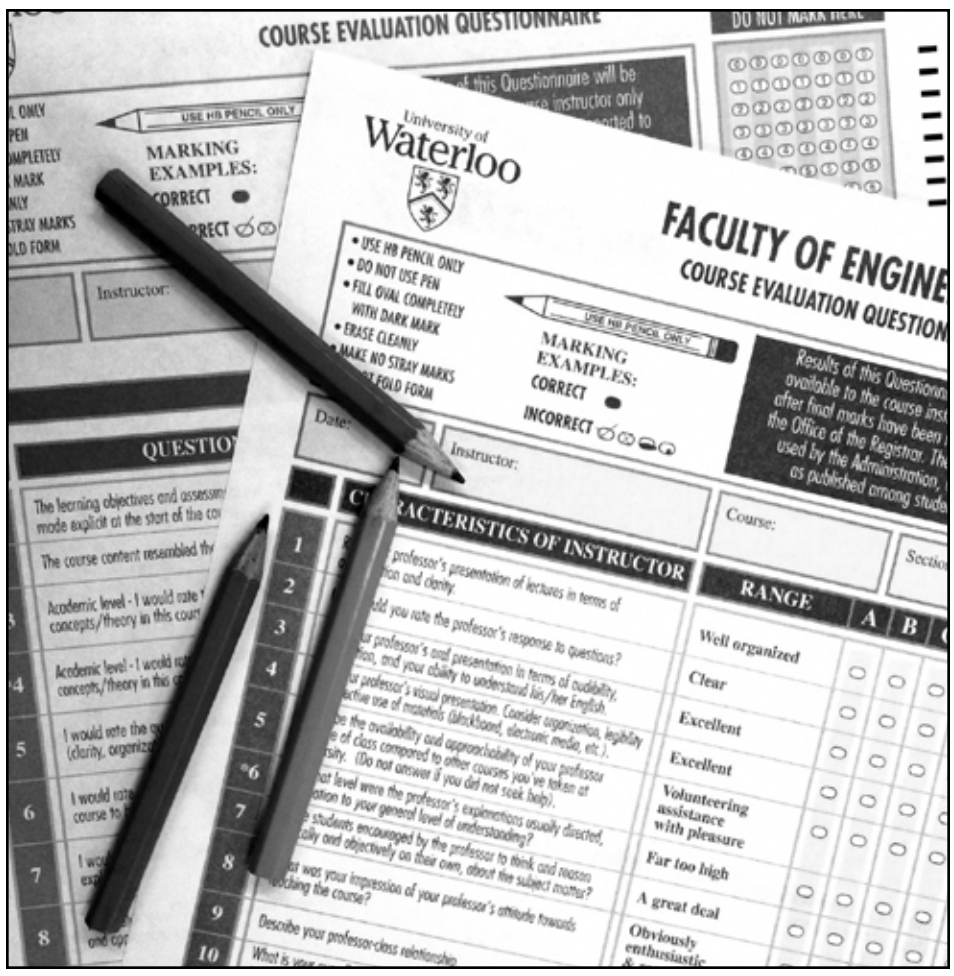
On the day after grades are due, a package is mailed to each course instructor with a summary of the numerical data as well as the original completed questionnaires so that they can read the comments you've written on the back. The numerical data is also used to prepare summaries for department chairs and entered into a database that the Associate Dean, Teaching uses to inform course improvement efforts. The data is also posted online so that you and future students may review the results.

A new feature has been added to the Engineering Teaching web site. A teaching award nomination form is now available for students who want to support the nomination of an excellent instructor for a teaching award. Visit *uwaterloo.ca/engineering/teaching-award-nomination* to access the form (login required).

Your thoughtful and candid responses to course evaluation survey questions have a big impact. Instructors rely on your feedback to help improve their teaching. The faculty and departments use your feedback to make tenure and promotion decisions. Your feedback helps the Associate Dean of Teaching to gauge how effectively our teaching supports our students.

Thank you for your time, your feedback, and, most importantly, for your continued support of this longstanding and valued process.

Sincerely,
Bjorn Dawson
Course Critiques Director
Madelaine Liddy
Course Critiques Director
Gordon Stubley
Associate Dean, Teaching



Point Vs. Counterpoint

Should Our Meat Have Labels Indicating Country of Origin?

POINT

LEAH KRISTUFEK
3A CHEMICAL

Having a label saying "Produced in Canada" gives the consumer a sense of security when making food purchases. This label provides the assurance that a certain set of standard practices are followed throughout the production of the item. The Canadian Meat Inspection Agency claims to inspect the facilities used to process meat in other countries in addition to further inspections that take place once the product or livestock reaches Canada. However, in some countries the culture is one of corruption and local inspectors can't necessarily be trusted not to overlook shortcuts. When shortcuts can result in contamination which could potentially sicken or kill consumers it is an unacceptable risk. Knowing the origin of your food is important to enable consumers to take the appropriate precautions.

Labeling on food products also allows Canadians to support other Canadians. Without the "produced in" labels it is impossible to tell if the meat in your grocery store is from a Canadian producer or an international producer. Some countries can produce meat at a cheaper price. Without labels consumers will naturally tend towards the cheaper product. The ramifications on Canadian farmers could be enormous. When you look in the grocery store produce section Canadian produce is present in equal or lesser amounts to that of international produce, even in the summer. Only 50 years ago grocery market shelves were stocked exclusively with Canadian produce with the exception of the occasional Christmas Orange. Could this end up being the future of Canadian meats as well? Money in the pockets of Canadian farmers allows them to further invest in their operations, improve the lives of their animals, fix up and buy equipment and stimulate the economy.

Meat produced in Canada is regulated by strict rules for the well-being of animals. Canadian Agriculture has strict rules regarding medicating livestock and mandates frequent testing for antibiotics in the animals. There is also a code of practice for the care and handling of livestock which details and where necessary mandates the use of pain control methods. This includes freezing and painkillers for procedures such as dehorning and castration. Buying Canadian meat assures that the animals involved were treated humanely.

How do you know where the meat came from? All Canadian sheep and cattle are individually identified through radio frequency identification (RFID) ear tags. These can be used to reliably track an animal back to the farm where it was born. It is illegal to move an animal off of a farm without tags. The infrastructure already exists to identify the origin of the animal and if it moves around Canada after it was born what difference does it make?

The United States and Canadian markets have long been closely intertwined. However, the Country of Origin Labeling (COOL) law introduced by the United States in 2008 has strained that country's relations with both Canada and Mexico. COOL requires all producers and processors to identify where an animal is born, raised, and slaughtered. Canada and Mexico view this law as a protectionist measure directed towards the United States and have taken it to the World Trade Organization (WTO) multiple times. The US market accounts for 77.5 percent of Canada's beef exports with grain fed Canadian beef being preferred over its American equivalent. Canadian Beef is three percent of the total beef consumption in the United States. Although COOL is a protectionist law which may inhibit our exports of many Canadian agricultural products for beef products, the Canadian label continues to indicate a consumer preferred choice.

Other types of labeling are already prominent within the food industry. "Registered Organic," "hormone free," grass-fed versus feedlot or grain fed are all ways that industry already associates their products with specific sets of practices and regulations. In Canada, national regulations and guidelines are constantly being updated to help improve the agricultural practices both for animal welfare and environmental stewardship. In Canada, this means that dairy farmers now have to work with nutritionists to develop nutrient management plans which will benefit their cows as well as decreasing pollution and algae blooms.

Labeling meat products with "produced in" is a valuable tool for consumers. Having the place of origin on food products is a powerful indicator for the rules governing how that product was treated as it went from animal to dinner plate. Knowing whether a meat product is from a Canadian producer or abroad allows consumers to choose to support their local economy, sets a base level of food quality, and assures humane treatment of animals. Meat labeled "Produced in Canada" is an assurance of a high quality, reliable product that can be trusted.

COUNTERPOINT

LEAH KRISTUFEK
3A CHEMICAL

Is it necessary for our food to be labeled with the origin of the product? Absolutely not! Labeling food with "Produced in ..." creates a false sense of food security for consumers. To fully understand the complexities of this issue let's start by looking at the example of a person. We'll call him Bob. So Bob was born in the United States but when he was 16 one of his parents lost their job and they relocated to Canada. He decided to get his education at a Canadian university and eventually settled down and had a child named Beatrice. Was our friend Bob a product of the United States or Canada? Although he was physically born in the United States a large chunk of the money that went into making Bob the talented professional that he is now was invested in Canada.

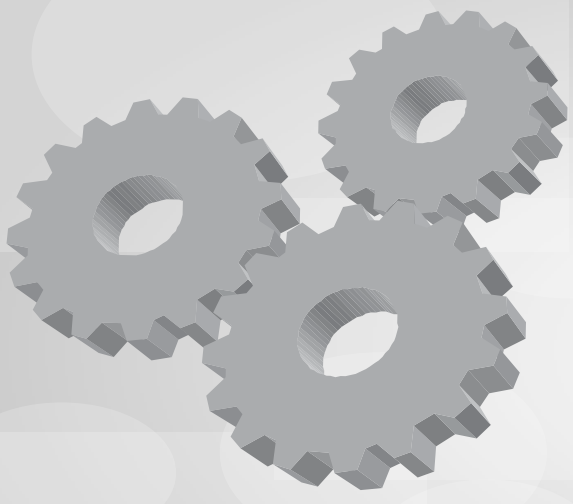
Health concerns are often a reason that people want the "produced in" labels. What is the difference between a cow slaughtered in Alberta and shipped to Toronto and a cow slaughtered in Asia and shipped to Vancouver? The currencies are different, the feedstock may be different and possible environmental toxins might be different. However, for meat to be imported into Canada it must meet stringent guidelines. Animals and meat products produced overseas must follow strict guidelines including being processed in frequent inspected facilities and they must be inspected upon reaching the Canadian market. The meat that reaches the Canadian market will be equally safe if not of equally good quality to that of Canadian meat. We outsource clothes, gadgets, and many other products so why not trust those countries to produce our food as well?

Canada has had its fair share of health scares related to meat products. Who could forget the years when Mad Cow disease led to North American meat being shut out of many international markets including Japan, New Zealand, and Cuba? The United States also closed their borders to Canada despite both countries having incidents of Mad Cow. There are also frequent *E.coli* scares where inadequate inspections allow sick animals to end up on the slaughter house floor contaminating the meat products and potentially contaminating equipment. Inadequate temperature and humidity control can also be culprits of contamination. Meat products are not 100 per cent guaranteed whether they are produced in Canada or produced elsewhere. Accountability to the quality of a food product and the ability to speedily recall contaminated products is assured by Canada's Meat Inspection Act. Tracking of food products is likewise a complex and well organized system which assures health and accountability for all meat products.

In today's global market, food is a global issue which transcends national borders. A contaminated batch of meat products can easily become an international issue. This was the case when Mad Cow disease hit first Europe then North America. A long incubation period meant that Mad Cow in North America would peak six years after European Mad Cow exploded around 1997. While the initial outbreak caused many borders to close to beef products the long term result of this incident was serious restructuring of international markets.

Humane treatment of animals is something many consumers consider to be an important factor in their purchasing decisions. Having a "produced in" label would allow them to make meat purchases based on region specific information. Industrial farming is a messy, sometimes seemingly inhumane industry. People have to make their own decisions. The best way to ensure you approve of how your food is produced is to buy from a local farm where you can see the farm in action.

Putting "Produced in..." labels on products gives an unrealistic sense of security to the consumer. Place of origin should be an unimportant factor in food purchases because all food products available on the Canadian market should meet or exceed minimum standards of quality which ensure consumer health. Food is something that has become a global issue and foods are now routinely a global resource which ignores borders and nations. There is no difference between meat having been shipped from Asia to Canada and meat that has been shipped from coast to coast within Canada itself.



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Thoughts on Mobile-Vehicle Interfaces

JACOB TERRY
3T NANOTECHNOLOGY
T CUBED

Now that we have gotten a good look at the final release of Apple's CarPlay, discussion on automotive customer-facing computer systems has become a little more serious than it was previously. Sure, Google announced a consortium of sorts with companies for Android in the car in January, and Microsoft has had Microsoft Auto going for a number of years. Whether you love or hate Apple, they do have a tendency to attract attention to industries they enter, or are just rumoured to be entering — a look at the interest from Samsung and its brethren in smart watches is just one example.

CarPlay is kind of interesting but not all that different from iOS 7 to be honest; it has the same icons in little organized rows and the apps have a dark-coloured take on the current iOS 7 app interface that one would assume is designed to fit the aesthetics of most car dashboards. At first, it appeared that not much thought was put into keeping eyes on the road, but further investigation shows that there has been some discussion at Apple on how to avoid having people playing with their dashboards when they should be driving. Messages in particular are only read back through Siri, so people do not spend time reading them when they should not be, but the driver has the ability to skim the list for the right message. Music, Maps, Phone, and radio applications obviously display their contents, as there is not too much reading to be done.

With companies releasing their own implementations of mobile-vehicle interactions, interoperability is a growing concern as each comes with their own ecosystem. How the companies choose to approach integrating their systems appears to differ. Google's approach appears to be getting automotive companies to implement Android in their vehicles, similar to how Microsoft has done this—particularly with Ford. BlackBerry has a very large stake in this approach to developing in-car entertainment systems through QNX, which runs the backbone of many systems in cars already. Apple's approach originally appeared to be similar, but has turned out to be implemented through an optionally activated overlay of sorts. CarPlay only appears if a driver plugs in their iPhone, and at other times appears to use QNX as a default when no phone is inserted, displaying the typical in-car entertainment display many people have grown accustomed to.

A solution more like Apple's, where the phone loads up its interface when appropriate, would likely be best for future compatibility and for keeping cars out of the ever-growing ecosystem people find themselves entering as new connected devices come out. Details on every exact part of the implementations are still unclear as CarPlay and Android in-car have yet to be rolled out. Regardless of how they truly work, it would be ideal for a consumer to be able to load up the system by activating it with a phone, instead of having it require that phone run the application. As an example, if a system normally plays QNX, and an iPhone can be plugged in to use CarPlay, it would be neat if a Nexus could be plugged in to use an Android-specific overlay. Cars are not cheap to "upgrade," and having the alternative where an Android entertainment system requires an Android phone to truly use — or any combination for that matter — would lock customers into the aforementioned ecosystems that already include laptops, tablets, phones, and services.

CarPlay and the various mobile-vehicle interfaces that have preceded it have also prompted some discussion on how much is appropriate to display on a console to balance productivity, entertainment, and minimal distractions. Before entertainment systems, the most one would usually see is the radio station or the tape or CD track, and everything else was gauged with knobs and buttons. If something else was momentarily displayed like volume, it was usually one or two lines of text at a time and replaced whatever else was on the screen. In-car entertainment systems already have a fair level of information on them through their screens, which can be legitimately useful. A GPS or system that can show a map is indispensable for many drivers who need to check where they are going again, and is certainly better than looking down at a phone for a second to figure out where to go. CarPlay's integration of Siri for most of the commands is better as it keeps eyes on the road, but it could be argued that the driver is still being distracted by having to think about what to say to Siri to get the car to call someone or read a text.

Some interfaces conceived online suggest a blank or sparse touchscreen with minimal controls, but the ones I have seen thus far appear to be pretty confusing to use in any case. One example by Matthaeus Krenn, titled *A New Car UI: How touch screen controls in cars should work,* suggests that a user would use various finger combinations on the dashboard to control various settings, and at first glance appears quite simple. Move one finger up and down for this, two fingers for that, and so on. The idea is being shared around the Internet as a great UX (user experience) solution, but as with many "great UX solutions," there is a severe lack of foresight or realization in how complicated the system actually becomes in the attempt to be so simple. Krenn begins suggesting two fingers together rotating for one thing, and far apart for another, and three fingers really far apart, and so on, until it becomes an exercise just to memorize all these combinations to operate something as simple as your volume control. Something touch screens have yet been able to resolve is eyes-free control, where you can just know how to change the volume without having to look. Kreen's idea is on the right path, as when you learn all the combinations it would become easier to do, but unfortunately the learning curve would be quite steep.

It will be very interesting to see how these in-car systems work out, and see if they gain significant traction in the market. If people keep their cars for a while, one would imagine that there would be incentive to keep the same phone for a longer period of time, or upgrade to a model still compatible with the system in the car. The true point where this system will be tested will not be upon release, but three years later when people upgrade their phones.

The Internet of Things Has Arrived

CAMERON SOLTYS
1B MECHANICAL

When the first electronic computers where being developed in the 1950s, and the internet's predecessor ARPANET handled its first message—"login"—it is likely that their inventors knew what a useful tool they were building for themselves. But in the 60-some years that followed, computers have changed every aspect of society to an almost unfathomable degree. From banking to socializing to commerce, whole industries have migrated from physical locations to virtual ones. Some of today's most successful companies have no physical services or presence at all. As influential as the computer has been for the last half-century, there are signs that the internet revolution has only just begun.

For the majority of their existence, all information on computers was there for human beings' use. Humans would provide inputs to the computer, computers produced outputs. Innovations such as digital sensors began to allow computers to get their inputs from a source other than directly from a human. Graphical User Interfaces (GUIs), the icon-and-mouse based interactions modern computer users are most familiar with, allowed for computers to have more human friendly inputs and outputs. Until recently, most computers were doing things for humans. If a computer was running a program it was because someone, somewhere, wanted that program's output for their own purposes. This is the Internet of People. The next step is the Internet of Things.

The essential idea behind the Internet of Things is that more and more information is being generated which is not intended for us, but rather for the use of the ever-multiplying host of technological gadgets which surround us. The world is being populated with sensors which observe and devices which adapt automatically. They are denizens of the internet just as much as we are, sending and receiving information, using that information to work smarter. They are "things," and they are the new members of the net.

As more and more "Smart" devices—consumer goods such as cars, thermostats and refrigerators which have been impregnated with sensors and given an internet connection—hit the market tasked with quietly monitoring your life and adapting to suit you, the Internet of Things continues to grow. Perhaps the most important stage so far in the evolution of the Internet of Things is the creation of virtual presences for physical objects. Small, inexpensive Radio Frequency Identification (RFID) tags allow computers to track the physical location of tagged objects. Mobile phones, which are usually exclusive to one person, go even further. As a primary conduit of information for many people, phones have the ability to find and record the location, relationships, and hobbies of their owner. Without any prompting from us, it would seem that we and our surroundings are becoming a part of the internet. On the one hand, this a fantastical process with great potential to improve our lives. On the other hand, it must be remembered that the internet is not always a friendly place.

As our lives become more technology and internet-centred, crime on the internet becomes an ever greater concern. Recent months have seen dozens of high-profile security breaches from Target losing the information of millions of credit cards to the Syrian Electronic Army shutting down hundreds of websites and hijacking social media accounts. Broadly known as cybercrime, this type of crime includes anything from stealing sensitive information, to shutting down or altering websites, to email scams such as the infamous Nigeria 419 scams. As the internet grows in both size and importance, the opportunities to commit cybercrime become more plentiful, and the rewards ever larger.

According to the Criminal Lawyer Group, crime on the internet changed drastically around the year 2000. Before, then most "crimes were committed by computer nerds who felt challenged to prove they could beat the system." While a successful hack could result in a target losing money and be quite a headache, the potential for the hacker to make money was limited. After 2000, with ever more sensitivity information being stored online, the increasing popularity of online banking and shopping, it became more viable to make a profit by hacking someone's system.

The internet has become such an important, irreplaceable tool for us that there is even a profit to be made in illegally removing our access to it. Last September, a new computer virus named CryptoLocker made headlines as it infected computers around the world, encrypting users' files and then offering to unencrypted them for a fee. While it is estimated that only three percent of all users ever paid the ransom, the existence of such viruses, known as randsomware, shows that criminals think even ordinary users are willing to pay a hefty fee for the information that is stored on their computers.

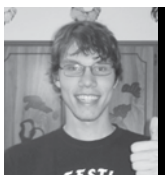
In a similar vein, there is also money to be made in disabling websites and other online services. Known as a DoS, or Denial of Service attacks, this type of cybercrime involves sending an enormous number of requests to a server. The server, which can only handle so many requests at a time, can crash from the load or become unusably slow in fulfilling legitimate requests. The more common and powerful form of a DoS attack is known as a DDoS (Distributed Denial of Service) attack. DDoS attacks work just like DoS attacks, but the requests are sent from many computers, most likely at the will of a virus infecting the computer.

Earlier this month the website security firm CloudFlare reported that it had mitigated a 400 gigabit/second (50 gigabyte/second) DDoS attack, the largest to date. What is especially concerning about this attack is that it abused a fundamental part of internet infrastructure, the Network Time Protocol (NTP), highlighting the fact that the modern internet is still based on old, insecure protocols. The NTP is a way for devices such as computers to get the time from servers—known as NTP servers—which can keep very a accurate time. The problem with the protocol is twofold. First, a request to an NTP server is very small while the response from the server is much larger. Second, it is possible for a computer to request the time on the behalf of an unrelated computer. The DDoS attack took advantage of the NTP to multiply the magnitude of their attack. Instead of directly bombarding their target server with requests, the DDoS computers sent requests to NTP servers, which responded with a larger message to the target server. The end result is that the target server receives a much larger attack than was originally sent.

Like it or not, the Internet of Things is here. Certainly, there are risks involved, but there is also the promise of a more connected, intelligent world. While you do not have to rush out embracing this future with open arms, it is probably best to at least recognize that the internet of tomorrow will not be the same as the one we are familiar with. We can make all the predictions we want. Some will turn out better than others, but all we can say for certain is: there will be change.

A Brief Rundown on the World of Twitch Plays Pokémon

Despite Many Hardships, Including "Bloody Sunday" and the Route 9 Ledge, We Have Done It!



MICHAEL LAANVERE
3B MECHANICAL

It all ended on March 1, 2014, which will forever be known as National Helix Day. The chaos and hilarity that was known as Twitch Plays Pokémon, came to a halt with the defeat of Pokémon Champion Blue.

For the uninitiated, Twitch is a website that streams live gameplay to viewers. Twitch Plays Pokémon (TPP) is a stream of *Pokémon Red*, but instead of streaming just one person playing Pokémon (because, you know, that would be boring) TPP uses inputs from Twitch's chat function to play the game. What this means is that you have tens of thousands of people controlling one character by typing Gameboy commands (Left, Right, Up, Down, A, B, Start) into the chat window. The results: pure and utter chaos. The fact that the emulator has to process every single command causing an approximately 40 second delay between the time a user's command is entered in the chat to the time it is inputted into the game further added to the madness.

Having that many people trying to play a single game was both incredibly frustrating to watch but also quite entertaining. For example, let's look at the dreaded ledge. To get from Vermillion City to Lavender Town the player must go through Route 9, which has a long narrow path over a ledge at the beginning. Normally it would take two seconds for an 8 year-old to get past this ledge. For TPP it took over 14 hours. That's because out of the 50 000 – 100 000 people watching at a given time, it takes only one troll to type the word "down" which would cause the player to jump over the ledge and have to go back to the beginning and try again.

This slow progression prompted the creation of the Democracy/Anarchy mode. If enough players entered the "democracy" command, the game would enter democracy mode. Instead of using every input, democracy mode aggregates every input over five seconds and then uses the command that was entered the most. Democracy mode was heavily criticised as it got rid of the most fun and interesting aspects of TPP, and was therefore used sparingly when absolutely required.

Things like the dreaded ledge combined with the constant walking in circles and opening and closing the menu made it incredibly frustrating to watch, but it also made the most minor things feel like accomplishments. Using the PC without accidently releasing any Pokémon, using a TM without tossing it and using an attack move that wasn't leer or whirlwind were, however minor, feats in themselves.

In addition to the minor feats there were some actually impressive accomplishments that TPP achieved that I would have even struggled with playing by myself. For example, we solved the Lt. Surge trash can puzzle first try! I used to struggle with that as a kid and was expecting the player to be fumbling around for hours, but instead TPP solved it in less time than I probably would have by myself.

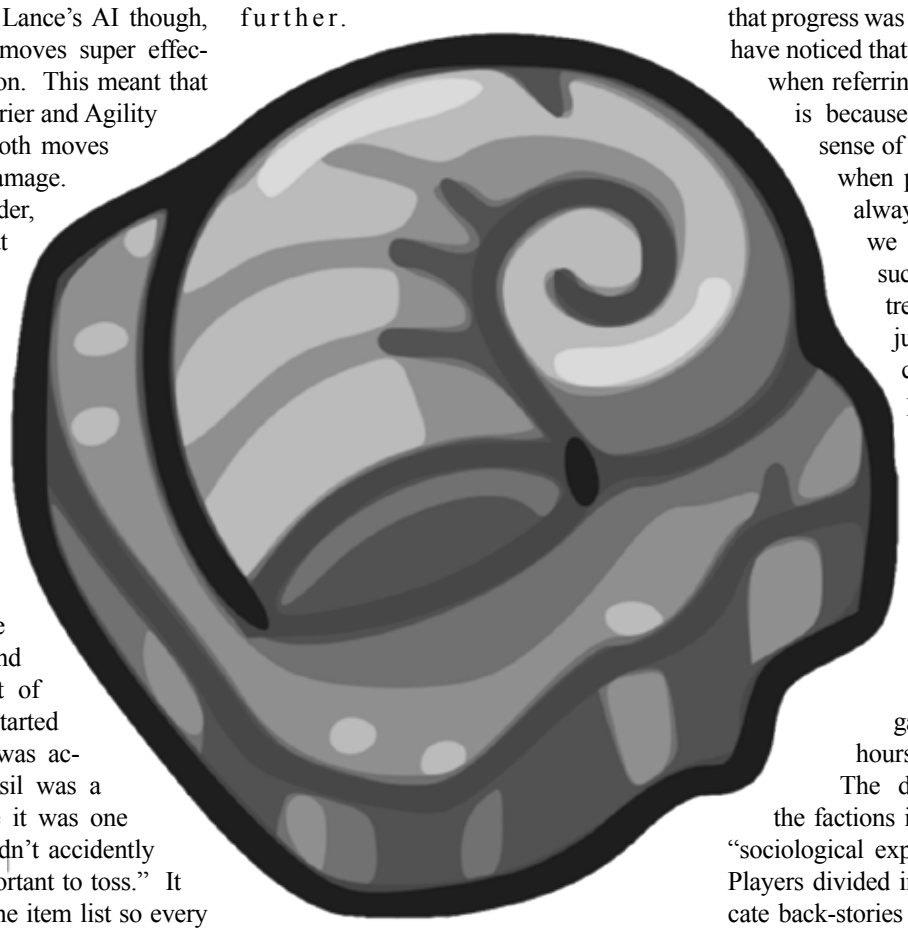
Probably the most impressive moment of the stream was when we were battling against Lance of The Elite Four. He sent out his level 62 Dragonite and all we had left was a level 36 Venomoth named "AATTVVV" (since writing a coherent nickname in TPP is impossible), that was only in the party because we were too afraid of accidentally releasing a Pokémon, to use the PC to switch him out. Venomoth's only damaging ability was Leech Life which did only one damage to the Dragonite. Lance's AI though, would always choose moves super effective against our pokemon. This meant that Dragonite just used Barrier and Agility over and over again; both moves that do not deal any damage. After using poison powder, ATV was able to defeat a pokemon he had no business beating by slowing poisoning him. When we won that impossible battle the chat exploded with cheers of triumph and from then on Venomoth was dubbed "Dragonslayer."

The nicknames were all part of the greatest and most interesting aspect of TPP: the lore. It all started when the helix fossil was acquired. The helix fossil was a key item and therefore it was one of the few items we didn't accidently toss since it's "too important to toss." It was also at the top of the item list so every time we opened up the item menu it would be the first thing we looked at. Due to the chaos of 50 000 people entering commands all at once, we did that a lot. It happened so much that people started saying the player was consulting the fossil for guidance, because of the player's fixation with the fossil it was dubbed the player's deity. And thus, the Church of Helix was born. Soon the chat became filled with phrases such as "All praise the mighty Helix!" and "We must consult the Helix fossil for guidance!" It was awesome.

Of course, with a religion comes its disciples and enemies. Since the Helix fossil was equivalent to God, the Dome fossil became the obvious choice as the equivalent Satan. Our Pidgeot named "aaabaaajss" became known as "Bird Jesus" and was the champion of Helix. The chat became split into two factions: followers of Helix and followers of Dome.

About five days in the lore grew when our Charmeleon "ABBBBBBK" and our Rattata "JLVWNNOOOO" (AKA Abby and Jay Leno) were accidentally released. Soon after, we accidentally bought a fire stone and evolved Eevee into Flareon even though we really needed a Vaporeon because we had no one who could learn surf. That Flareon became known as the False Prophet of Dome and was accused of being responsible for Abby and Jay Leno's release.

A few days after the Great Exodus was Bloody Sunday causing the lore to expand further.



Bloody Sunday started off when we used the masterball to capture Zapdos and nicknamed him "AA-j" or "Archangel of Justice". Then when we went to the PC to withdraw him, we proceeded to release 12 Pokémon, including our only one who could learn cut! Some say that the PC demanded blood sacrifice for the withdrawal of the Archangel. Others say he is actually Dome's new prophet who caused Bloody Sunday as revenge for the release of Flareon.

It was amazing how people could take these events, born out of the mayhem that is 50 000 people simultaneously controlling one character, and create intricate back-stories for them. And not only did people create these back-stories, but they also made amazing fan art to go along. There's tonnes of beautiful artwork out there depicting these events happening. The lore truly was what made TPP so awesome and so unique.

The anonymous Australian creator made TPP as a "social experiment" and boy did he get one. Surprisingly, for the most part, people wanted to progress and complete the game, while only a handful of participants were trying to hinder progress. I would say probably 85 percent of the people were actually trying to advance and the other 15 percent were trolling. Despite the trolling, progress was made! I like the analogy that TPP was like a message in a bottle that gets pushed various different ways by the ocean waves, but eventually it reaches land, and that progress was very satisfying. You might have noticed that I have used the term "we" when referring to what happened. That is because there was an incredible sense of community and teamwork when playing the game. It was always we solved the puzzle, we beat the gym leader, we successfully used cut on that tree (after hours of trying). It just goes to show that you can throw a bunch of people together and they can actively work together despite how easy it is for a minority to disrupt the progress. It did take us 14 hours to take 8 steps along that ledge but we eventually did it. And it took 16 days, 7 hours and 45 minutes to beat a game that normally takes 27 hours, but we still did it!

The development of lore and the factions is another reason why this "sociological experiment" is so intriguing. Players divided into two factions and intricate back-stories were created for religions that were formed out of seemingly random events.

Twitch Plays Pokemon is now over and I doubt there will be anything like it anytime soon. They started playing the next generation of Pokemon games but it hasn't picked up as much traction as the original. There are way fewer players, the lore is lacking and the way they changed the Democracy system really makes it less enjoyable. The chaos and hilarity that is TPP is now over but boy was it fun while it lasted.

Obama Meets with "Youtubers" to Discuss Obamacare

ALEXANDER LEE
2N NANOTECHNOLOGY

On March 2, President of the United States Barack Obama met with several well known YouTube personalities at a White House summit. Among those in attendance were Hannah Hart, known for the *Drunk Kitchen* series, Michael Stephens, creator of the educational "Vsauce" channel, and Peter Shuckoff and Lloyd Ahlquist, creators of the *Epic Rap Battles of History* series, as well as many more.

The topic of the summit was the Affordable Care Act, colloquially known as "Obamacare", the universal healthcare insurance bill that the Democrats and the Obama administration have been championing, which is naturally being opposed by the Republican Party. Obama met with these personalities to thank them for the work they have already done to encourage enrolment in the Act, and also to encourage them to continue to promote it. As of right now, the Act has not quite met the expectations. The Obama Administration has expected a total of seven million Americans to sign up for insurance under the Act, with about 40 percent of those being between the ages of 18 and 34. So far only 25 percent of those that have enrolled have fit into that demographic, and there are suspicions that the Act will not cover the projected seven million people by the March 31 deadline.

Healthcare reform has been a major issue since Obama was first elected in 2008. The Obama Administration fought a long, gruelling battle against not only the Republicans, but even some of their own party members. Eventually, after much arguing and compromising, the Act was finally passed in 2010, and has been the first major healthcare reform made since the original implementation of Medicaid and Medicare in 1965. While the act was first passed in 2010, it took several years for it to get off the ground and be properly implemented. It also faced additional challenges after being passed. For example, in October of last year, the government launched *healthcare.gov* to make it easier to find affordable healthcare insurance in most states and to incentivize participation under Obamacare. However the site crashed on launch, and continued to suffer problems during its first month of operation. With the deadline for registration for 2014 getting close, the government is doing everything it can to encourage people to sign up for insurance. This includes using both traditional and internet celebrities in ad campaigns, which has had some success.

This summit is just further proof of the increasing role that the internet plays in our lives. We spend a large amount of time doing various things on the internet, such as going on social networks, playing games or just surfing. The amount of information that is available to anyone with an internet connection is staggering. Companies and institutions are starting to adapt to the large role that the internet plays and the United States government valuing internet personalities so highly is an example of that. This very action of adapting is more evidence that the World Wide Web is here to stay, and we are only just beginning to explore the possibilities that it entails.

TOP Reasonz It Will Get Worse

WADE WILSON & EDWARD BLAKE
4Z HANDSOMENESS
TOPZ (WITH A Z)

Recommended listening: *Lux Aeterna*. In September 2010, sex columnist and gay-activist Dan Savage started the wildly successful "it gets better campaign," providing even more support and hope for youth everywhere than his campaign to redefine the word "santorum." And it's true, for LGBTQIA youth struggling with bigots in their backwater, bible-thumping high schools, it does get better. However, the same cannot be said for you engineering majors. This week we're going to play the ghost of Christmas future. Of course not literally though; we're only dead on the inside. But trust, it does get worse! And keep reading, because we're going to tell you why.

High School Teacher

Remember that amazing high school teacher who was themselves an engineering graduate? That man or woman who was so down to earth, really knew their stuff, and of course sported a fetching iron ring? Remember how they inspired you to the Calling of the Iron Ring (and by extension, Jesus Christ)? Has it ever occurred to you that that person was an abject failure in life? After five years of Waterloo how do you think it must feel to spend weeks trying to explain that *f(x)* does not mean *f* multiplied by *x*. All those PDEs, fluid dynamic problems, quantum photonics … totally useless. Get ready to dedicate your life to the quadratic equation. Then, after a long year of pounding these basic principles into the pot-addled minds of people who act like their attendance is a favour, get ready to do the exact same thing next year!

Full-time employment

You might be thinking "I can avoid the snot-nosed punks, the wasted undergrad knowledge, and the monotony of teaching by taking my skills to industry!" Well you can avoid the dopey teenagers in high school, but working with their parents isn't much better. Yes, as anyone who has had a co-op (i.e. non-nanos) should realize by now, in industry you still aren't applying 95 percent of the material that made your undergraduate career so difficult, and jobs are so repetitive and dull that people resort to petty water-cooler gossip and internal politics (so those of you heavily involved in EngSoc might actually find this to be a smooth transition). But hey, you get a slice of cake at retirement parties!

Graduate School

You might be thinking, "hey guys, I can totally use my degree to its fullest by enrolling in graduate school!" And you will! In academia you will be applying all your favourite theories working 80-hour weeks at what amounts to less than minimum wage! Then, after wasting 2-6 more years on another degree or two, you can proceed to waste multiple degrees at a job for which you will in all likelihood be totally overqualified for! Of course you could go hardcore into academia by becoming a professor, where you will have the opportunity to flex your mental muscles with a job that is literally begging for money (aka grants). #professororhobo?

Forge a New Path

Some people find their passion for another field while studying engineering and decide to finish it due to the sunk-cost fallacy. These people may pursue music, culinary arts, and/or drug abuse. Yes, you can find your true passion at the low, low cost of about $50 000 (or over $100 k if international), your physical peak spent indoors studying, your mental peak spent wasted on a topic you'll never apply, and brain cells so fried that they're no fucking use to anyone (they're no fucking use at all).

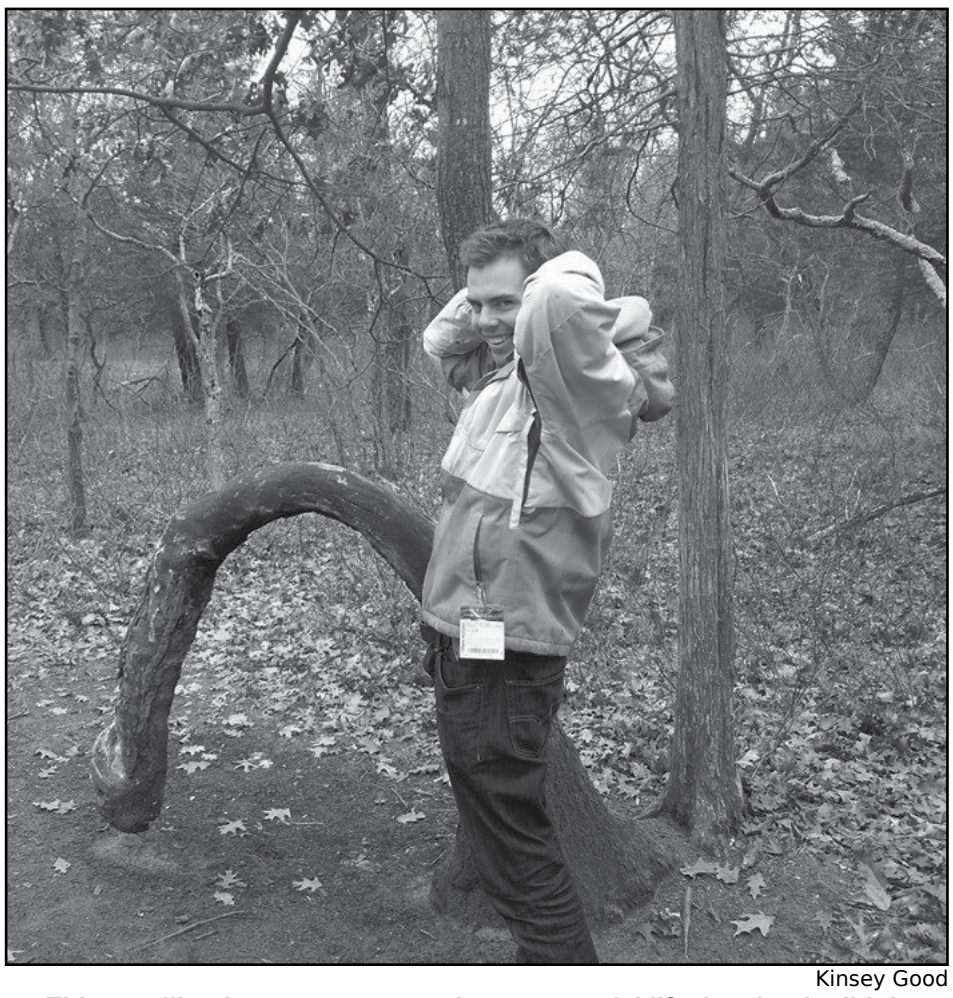
Social Life

Of course, your career isn't everything, you also have social life you can look forward to being awful. University has been a great place to meet people. Just think about how many new people you met in the last year, and in the year before that, and in the year before that. If you have another year before that, you really should be working on your 4YDP right now. Now ask yourself, how many friends have your parents made in the last year? In the last five years? Yes, never again will you be able to meet so many interesting, young, and attractive people. If, like Spenser Good (our esteemed EIC, pictured in his finest form), you have squandered this opportunity, well your right-hand doesn't get much colder. Actually it does, when you die. Your parents are going to die.

To Hell With Topz (With a Z)

Feeling sad? That's why it gets worse: because you're an impressionable idiot. If you have a passion for teaching, then teaching is a rewarding pathway that allows you to inspire dozens of engineers and benefit society much more than you would have alone. Edward Blake was inspired to go into engineering by a great ringed high school teacher. Wade Wilson was not, he hated his teachers, in particular Ms. Manny … that bitch. Of course take that with a grain of salt, as Wade Wilson is an idiot. Full-time employment offers new challenges not seen in a classroom, and the point of a university education is that you don't feel like you're applying formulae and mathematical proofs because you have internalized an intuition for the fundamental principles of your field. You don't realize how much you know, until you hear Will.i.am or Steve Jobs talk about technology. And you won't get bogged down in repetition because in engineering there are plenty of opportunities to jump around projects and even companies. Graduate school is for people who want to go to graduate school because they love what they're researching … or because they did an undergrad in nanotechnology engineering for whom it actually does get worse. As for those who forge a new path, maybe engineering was what it took for you to discover your passion, and the analytical skills learned in engineering are really applicable anywhere. And finally, it's true that you'll probably make fewer friends while drunk at Chainsaw with whom you'll reiterate the same four jokes every time you pass them in the hallway. But maybe it's better to have partners and friends with whom you've been growing together for decades. But you will die. There's no getting out of that one.

We feel like we've said all we have to say about why life gets worse, so we'll send you off with some wisdom from a friend. "Some people die at 25, and get buried at 70" – some girl on Tinder who turned down Ammar (who is not affiliated with Topz (With a Z)).



Kinsey Good

Things will only get worse so enjoy your social life, he clearly didn't

A Taste of Homemade Italian: Ennio's Pasta House

Started in 1994, Ennio's Combines Tasty Comfort Food and a Casual Atmosphere

SABRINA LI
3B ENVIRONMENTAL
THE WARRIOR FOOD REVIEW

When people ask me if I ever eat at home, the truth is, I do. But eating at home in Waterloo doesn't always mean I'm cooking. The quickest way to solve my dinner problems on a busy weekday night is usually retrieving a small-boxed container from the freezer. C'mon… Michelina's cannelloni and lasagna? Quick and dirty. As always, the heat quickly dissipates and I'm left with cold pasta.

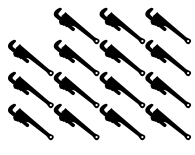
Some nights, microwaveable pasta just won't do. On a recent Sunday night, I decided to drive to Ennio's Pasta House, a little bit past McDonald's on King Street North. Started by Chef Ennio and his family in 1994, the restaurant serves not only pasta, but a variety of traditional Italian favourites to the KW region. The interior of the restaurant is very European influenced and traditional. At the same time, it feels very homey. There is a fireplace and separate rooms for individual parties. The décor reminds me of restaurants I've been to in Germany.

Upon arrival, I was served complimentary fresh bread with olive oil and basil as a dip. The basil adds a nice touch to the flavoring of the oil dip. Jumping right into the menu, I noticed it had two pages dedicated to a variety of different pasta dishes. Each pasta dish was very reasonably priced, considering it comes with a salad. I chose the Italian vinaigrette as opposed to the Caesar. I did not enjoy the dressing very much. It was overdressed and the dressing was very acidic in taste.

However my entrée was quite exciting. I went for the *Bettola*, a penne dish with vodka infused sauce. The portion was very reasonable. It was presented as a simple and minimalistic pasta dish, as it does not come with veggies like many of the other pastas on the menu. Asking for a sprinkle of black pepper might have been a mistake. The sauce was well seasoned and carries a blush of spice (just like what the description promised). It was not like most spicy pasta dishes I have had in the past. When my friends asked me how I liked my pasta, I told them they needed to try the sauce. I wasn't lying (or trying to be stingy) because it was the sauce that was truly addicting and I found myself enjoying the sauce more than the pasta. This was simply a dish that was worth another serving.

The restaurant in a nutshell as summarized by the TOOL (with 5 tools being the best score):

Price:
Selection:
Environment:
Service:



Suitable for: Groups of all sizes, as well as casual dinner dates

Address: 384 King St N, Waterloo

Sabrina Li

Ennio's *Bettola* penne dish

Antiheroes: How They Stack Up

NANCY HUI
3T CIVIL

TAKE FIVE

The theme of the 86th Academy Awards was the hero, celebrated by montages of heroic characters doing heroic things of the animated, "everyday," and "really heroic" nature and dragging out the ceremony by a good 15 minutes.

Here are five movies about heroes who do unheroic things, ordered from anti-heroes who do their own laundry, to heroes in name only.

Spider-Man 2 (2004)

Spider-Man was one of the first comic book anti-heroes: not because he was particularly dark, or tragic, or snarky, but because he had problems. Here, Spider-Man/Peter Parker (Tobey Maguire) can hardly hold down a job. His rent is often paid late. His girlfriend Mary Jane (Kristen Dunst) leaves him. Consequently, Peter Parker has an emotional breakdown due to the stress and retires as Spider-Man. This causes the crime rate in New York to spike, and Dr. Octavius (Alfred Molina) to emerge from the shadows. The poor boy just can't win.

Spider-Man 2 is the best of the Tobey Maguire Spider-Man trilogy: *Spider-Man* (2002) had too sprightly a spring in his step for a guy whose uncle just died, which makes sense since it only gives lip service to his origin. *Spider-Man 3* (2007) had way too many characters, one of whom was the dreaded Emo Peter. *Spider-Man 2* strikes a balance between Peter Parker's emotional and physical struggles. The action scenes are as dynamic and flexible as Doc Ock's mechanical tentacles. The dialogues are neither weighty exposition (*X-Men*), ominous warnings (Nolan's *Batman*) or improbably snarky-yet-meaningful quips (Marvel, and *The Amazing Spider-Man*). They are quietly orchestrated dialogues between humble human beings about relatable problems. *Spider-Man 2* is as human as superhero movies get.

Despicable Me (2010)

Gru (Steve Carell) is a capital-V Villain, who would like to pull off the ballsiest act of villainy ever. As part of his plan to steal the moon, he adopts three girls so that they can easily infiltrate a rival's (Jason Segel) base in the guise of Girl Scouts. Of course, Gru finds himself caught between his duties as a father and his desire for fame.

To begin, Gru isn't even a hero. He's a professional villain. His number-one goal in life is to enter history as the Greatest Villain of All Time (his second was to become an astronaut). Raping, murdering, and pillaging come secondary to the shock and awe of a good spectacle. He is an entertaining protagonist.

He is unfortunately upstaged by his own minions: yellow watermelon-shaped creatures whose principle roles are to cheer for Gru and babysit the girls. They are like Jack Sparrow in the *Pirates of the Caribbean*, and the Penguins in *Madagascar*. Their role grows larger and larger in the sequels until they get their own movie altogether. I wish it weren't so – the minions, although cute and perfectly suited for slapstick comedy, outshine the main plot. You can definitely have too much of a good thing.

Quantum of Solace

After the death of his lover in *Casino Royale* (2006), James Bond (Daniel Craig) is somewhat soured to the world and everyone in it. He thus proceeds to star in the most violent Bond film ever, in which he kicks a total of 250 asses in the pursuit of environmentalist Dominic Greene (Mathieu Amalric), who wants to monopolize the water supply of Bolivia.

Daniel Craig, is of course, a dangerous Bond to start with. He is a tiger where his predecessors were Persians. This does not mean, however, that his strengths were best showcased in *Quantum of Solace*. The 250 asses he kicked would have been more entertainingly disposed of through guile and intimidating small talk. But it seems that Mr. Bond doesn't have time for that shit anymore, seeing as how it got his girl killed in the prequel. That's too bad. I like Daniel Craig best when he wears a nice suit, speaks dismissively of the weather, and smiles with just a hint of bared teeth.

The Boondock Saints (1999)

The hooligan MacManus twins (Sean Patrick Flanery and Norman Reedus) kill two members of the Russian Mafia and receive what they perceive to be a "calling" from God, asking them to cleanse Boston of crime. They are unwatchably ill-suited to this task.

Anti-heroes are supposed to be flawed, but not to the extent of being unsympathetic. The titular Saints are uncouth. Their plans are poorly wrought. I guess their execution speeches are cool, but that's the only thing I enjoyed about this movie. I think this is director Troy Duffy's attempt at Tarantino, but it is entirely lacking in self-awareness, affection for its source material (gangster movies?) and empathy. Sure, Tarantino has featured violent louts in his movies before (*Pulp Fiction*, *Inglourious Basterds*) but they had purpose and a modicum of charm. Duffy's stars lack both.

The Chronicles of Riddick (2004)

Riddick (Vin Diesel) is a dangerous convict with a scowl on his face and a chip on his shoulder. He is definitely violent and probably evil, but that's not why he's pursued by the Necromongers, an imperialistic race that lives by the maxim "you keep what you kill." They hunt each other across hostile planets and space ships to alternately bring about and prevent fulfillment of a prophecy, but to what end?

Well, there's a lot of fighting between morally dubious characters. I cheered for Riddick because he's more of a badass, and that his quest for revenge is more sympathetic than the Necromonger's fulfillment of Manifest Destiny. It's a lot like deciding whom to vote for in the American two-party system, I guess.

Visits from Characters, New and Old

A Preview of Television Shows Returning to the Small Screen in 2014

ANJIDA SRIPONGWORAKUL
3A MANAGEMENT

And…we're back, in the second half of the term. Good news, you're halfway through. Bad news, you're halfway through.

Not to worry. When a much-needed break beckons during these times in late February/early March, there are exciting TV series returning after their winter hiatus. Here we take a look at four emerging TV series, apart from the well-known top tiers like *Game of Thrones* and *House of Cards*.

Created by Nic Pizzalatto, *True Detective* (2014-present), is a crime/thriller series centered on the lives of two detectives, Rust Cohle (Matthew McConaughey) and Marty Hart (Woody Harrelson), inter-cutting between the years 1995 and 2012, as they become involved in the investigation of a serial killer in Louisiana. The series is another anthology series, much like *American Horror Story* (2011-present), meaning the current mystery will be resolved by the end of each season, and a new mystery will be introduced the following season. The series premiered on January 12, and is still going strong. Acclaimed by critics and viewers alike, the show can potentially be the new *Breaking Bad* (2008-2013). Each episode is directed by Cary Fukunaga, the talented filmmaker of *Jane Eyre* (2011), which promises, and delivers, stunning camerawork, including an impressive, six-minute long single-take at the end of episode four. The series also boasts nuanced characters, running on a suspenseful, intriguing plot. *True Detective* is one dark, intense journey you might lose yourself in.

While we're on the subject of serial killers, your charming cannibal of a doctor, Dr. Hannibal Lecter, returns for *Hannibal's* (2013-present) second season on February 28. Fans of creator Bryan Fuller's unfortunately short-lived previous works, *Wonderfalls* (2004) and *Pushing Daisies* (2007-2009) associate him with beautifully crafted scenes and well-written characters and plot, and with *Hannibal*, you won't be disappointed. This show puts the visuals to the phrase "murder as art." Fuller adapts the classic Thomas Harris novels into the series, currently reinventing on screen the early days between Dr. Hannibal Lecter (Mads Mikkelsen) and the young Will Graham (Hugh Dancy), an FBI criminal profiler with a talent in empathizing with serial killers. Late in season one, the series added *X-Files*' (1993- 2002) Gillian Anderson as Hannibal's chilling psychiatrist, Dr. Bedelia Du Maurier. Mixing in classical music with Emmy worthy performances, *Hannibal* is both entertaining and, at times, unnerving to watch. From where season one has left off, season two holds the fate of Will Graham at Hannibal's hands. Don't forget! Come the end of February, you have an appointment with Dr. Lecter.

You might as well drop in to see your *Suits* (2011-present) lawyers, when they return on March 6, for the series' season four. Creator Aaron Korsh based the series on his experiences while working as an investment banker on Wall Street. *Suits* is the story of Mike Ross (Patrick J. Adams), a college-dropout with eidetic memory, who becomes the first-year associate to Harvey Specter (Gabriel Macht), a senior partner at a New York law firm, Pearson Hardman. In *Suits*' world, backstabbing, ironies, expected and unexpected humor, power struggles, suave gestures, relationship problems, tension, workplace scheming, and secrets reign. The series features fast-paced, witty dialogues and negotiations in terms of conversations, from actors who never fail to impress, and who make you crave one episode after another. *Suits* is that underrated, addicting series you may have heard your friend talk about. Go ahead and watch an episode, it's that good.

From the other side of the pond, as they say in the UK, we have *My Mad Fat Diary* (2013- present) returning for a second season on February 17. Written by Tom Bidwell, the series is based on real-life diaries of 16-year-old, 231-pounds Rachel 'Rae' Earl (Sharon Rooney, a breakout star), a music-obsessed teenager living in 90's Stamford, Lincolnshire. Discharged from a psychiatric hospital, Rae is still dealing with her mental health and body image issues as she reunites with her best friend, popular, pretty Chloe (Jodie Comer), and her gang of friends: the ditsy Izzy (Ciara Baxendale), the jokester Chops (Jordan Murphy), the adorable Archie (Dan Cohen), and the reclusive, moody Finn (Nico Mirallegro). I don't know why, but British shows (see: *Skins*, back in 2007) somehow always manage to slip in and subtly steal my heart, and *My Mad Fat Diary* is no exception. With freeze frames covered up in doodles from Rae's diaries, hilarious voice-overs from Rae that sometimes hit close to home, and Rae's fantasies and dream-sequences, the series views Rae's social network—her friends, her flighty mother, her psychiatrist—from her perspective. *My Mad Fat Diary* manages to seamlessly blend in the humor with the drama, and does it with glorious 90's music playing in the background. Sharon Rooney's performance as Rae is natural, raw, and honest. Take a chance. Join Rae and her gang on their (mis)adventures, and you might take another look at those rounded, Liam Gallagher-esque sunglasses and listen once more to a certain *Babylon Zoo* song.

And there you have it, a run-down of recommended TV series, your satisfaction guaranteed. Happy Watching! (And tell me what you think of them!)

Try Again or Walk Away

CHRISTY FUNG
1B NANOTECHNOLOGY

Reflection from the mirror, staring at melancholy.
Perhaps it's time
To let go of this enchantment, sentimental
Just when I thought it would end, there you are again
Not noticing my presence, yet now I have an alibi
To smile the smile of a damsel.

Destiny has made you glow.
Perhaps it's meant to be
Unrequited yet I will; I will go on without fear.
So let me hold your hand
Even though my heart is in pain,
I'll tell you the story, like a recount from a camera.

"Face to face and a thousand miles apart"
I pray for you to be blest, "but if you wanna cry, cry on my shoulder"
By your side is where I'll stay, in the starlit sky and in the stormy sea.
Whisper, and whisper, tears that want to be heard by you;
When I rest my head on your chest,
Please listen to what my heart says.

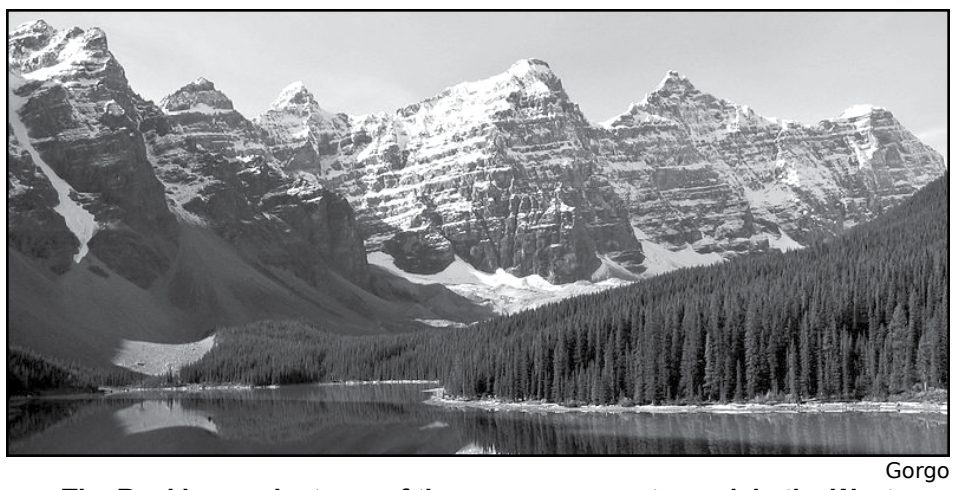
Working in Canada's West: A Guide from a Coop Veteran

PAUL DESJARDINS
3B MECHANICAL

With job rankings finishing many of you have secured jobs for the spring term and can now relax, while others, like me, now suffer through continuous job postings. However I'm not concerned with how or when you get your job, it's the location that I'm writing about. Most people I've spoken to seem to have the wrong impression about the West, so I thought I would take this chance to set the record straight. I was raised in Alberta, and I have since spent two of my work terms there. I would like to offer my opinion based on my experiences, and some personal research as to what it is like to work in Western Canada.

Calgary is a very large city without as much of the big city feel. It's larger than Toronto despite having less than half the population. The nightlife is centered on the downtown area which is easy enough to get to but is a little more mature than you would find in Toronto or Vancouver. Edmonton is similar to Calgary, only with a pretty killer mall. There are not many attractions around the Alberta cities except for the mountains. The Rockies are only an hour and a half away from Calgary, and a more grueling four hours from Edmonton. They make for excellent skiing in the winter, and good hiking or mountain biking in the summer. I like Vancouver, it's a beautiful city and it borders on the mountains but for whatever reason, people here treat Vancouver like it is the Promised Land. Well it's not, it rains all the time, it's expensive, and the hockey team sucks. Not that any of that should stop you from going, only people should go there with the right frame of mind.

Let's talk about money. I'll get into the numbers in a minute; first we have to divide up the West a little. Most of the engineering work in British Columbia is in Vancouver so I will focus on them. Likewise for Alberta, most engineering students will be Calgary bound, unless they have been drafted by one of the oil companies, in which case they're most likely headed north of the 57th to our third category: Fort McMurray and the Territories. Now for the numbers; if you're on one of your first three work terms you can expect to make a little over $20 in Calgary and about $19 around Vancouver, contrast this to the $17.85 that's the cumulative average for engineering. For the last three work terms, Calgary's average is roughly $27 and Vancouver is a more meager $24, compare that to the total average of $23.69. So you're making a little more, but it's not quite the fat stacks I know you were hoping for; to get that will have to go to oil money, and that's Fort McMurray and the North. I have not been able to get any figures for the territories, but I have been told that they are comparable to Fort McMurray. The average salary in Fort McMurray for the first three terms is $24.51 and $29.11 for the last three. That's pretty good but there are a few things you need to keep in mind. Firstly, things up north are more expensive; big items like paper towels get a little ridiculous and fast food is expensive because they have to offer a Fort Mac wage, but the rise in prices gets softened by Alberta's five percent GST. The second thing is that most of the companies in Fort Mac will give you free housing, and that's because housing there is extremely expensive. If you are forced to rent a room you can expect to pay around $800 a month, so make sure you ask about that in any interview you may have. The other thing to keep in mind is that companies in Alberta above the 57th parallel are required by the government to give their workers a northern allowance for working up north. This is about 14 percent, and can be directly added to your hourly wage or given as an allowance on a biweekly basis. I enjoyed my term in Fort McMurray and I would recommend it to anyone who has the opportunity to go. It's actually a rather large town; they have plenty of restaurants, a great recreational facility, golf course, and even a casino. The work days are long but the work load is good and the money is exceptional.



Gorgo

The Rockies are just one of the many reasons to work in the West

Now that we have the money part out of the way, I'll go over job satisfaction, and then I'll get into housing. Overall job satisfaction numbers out west were very good, with the majority of people ranking their job somewhere in the range of eight to ten, and only a handful of people saying it was worse than a seven. The job satisfaction in Calgary and Vancouver were slightly higher with most people ranking their job a nine out of ten. Northwestern Canada was on par with the average with almost everyone ranking their job a seven or better.

My housing experience in Fort McMurray was very good with Suncor; I received a private bathroom, dishwasher, and even a lazy maid service. I've also had the chance to see the co-op housing for Syncrude which is also a step above the average student housing. Smaller companies further up north may agree to take on part of a student's rent, or otherwise giving a housing allowance, in either case it is important for you to do your own research to determine how much you may be paying. Housing in Calgary had a bad rep a few years ago and although it has since recovered, it still hasn't cleared its name. You can live downtown where it is expensive, or you can get a decent place in some pseudo ghetto suburbia for $450, a little more if you want some amenities. British Columbia on the other hand is a little more expensive, after a quick Kijiji search it's hard to find a room for less than $550, and a lot more if you want some privacy. Keep in mind that for the cheapest prices you may find yourself in a real ghetto around Vancouver's east end.

To finish off I would like to encourage any of you whom have the opportunity to take a job out west, to seize that opportunity. The money is good, the people are friendly, and you may not get the chance to live and work in the other half of this country again.

Anita Sarkeesian's War on Sexism

CHRISTY ROUAULT
3B GEOLOGICAL

FEMGINEERING

Anita Sarkeesian is not your typical critic. This Ontario born media critic is famous for her YouTube channel, Feminist Frequency, which she started with funds from her campaign on Kickstarter in May of 2012 to create a series of videos on sexism in video games. After the release of Tropes vs. Women, she became the target of online harassment. She is often named the most hated person on the internet, and for every person supporting her, there is someone who is fighting against her. Sarkeesian's goal is quite simple: raising awareness about sexism in the media and speaking out against it in hopes of informing others and creating a safe community to talk about these issues. Most of her work is in critiquing common characterization of women in the media and pointing out the far reaching negative impacts of those which are sexist and often misogynist. She has created videos on a range of topics including the manic pixie dream girl, the bechdel test, and her most popular work, Tropes vs. Women.

Tropes vs. Women in Video Games is a three part series which delves into the issues of the fashion in which women are portrayed in video games. The first is the damsel in distress, a character who is generally used to push the story along and to give motivation to the male protagonist, often a brother, partner or son. She is designed to cause an emotional trigger and is aimed at young, straight, male players, who are the main target audience of all video game production. Characters like Crystal in Star Fox Adventures, Pauline in the original Donkey Kong, and Princess Peach in Super Mario Bros. are all examples of the damsel in distress. You can also find a damsel in distress in almost every single Final Fantasy game. These characters are almost all kidnapped and need to be saved by the male protagonist and are framed as weak and fragile and most often, the adventures are too dangerous for them to go on. These characters reinforce the idea that subordinate and powerless women are actually more attractive and that this role in a relationship is considered normal or necessary. Their audience is young boys who are often unaware of this trope at all and are unquestioning of the damsel in distress being portrayed.

Her videos also concentrate on the violence against women used in video games. The shock value of the brutal murder of women is constantly used to trigger an emotion in the male player and to carry on the story of the male character. Sarkeesian points out instances in which misogyny is used in main stream video games and how it is consistently and often blatantly used. Female disempowerment is constantly demonstrated by violence against women. The idea that domestic violence is somehow brought on by the woman who deserved it, wanted it, or literally asked for it is perpetuated by the characters in video games who must kill a women they might love or care about in order to save them from their misery. The most startling part of these characters is that when they fail to save the woman, the goal of the game is then to prove their masculinity by performing violence and exerting dominance on others, reinforcing the backwards idea that a good man must be violent and resist showing any emotion other than anger. This idea is replicated in our society and a common belief in both men and women.

Sarkeesian highlights that she doesn't think that these games or other forms of media should be banned or censured, but instead that these tropes and gender clichés should be noted and critically analyzed. Sexism is reinforced in the media if the audience is unaware of its existence. She also points out the nostalgic forms of media which have ironic self-awareness of sexism, like that used in video game Super Meat Boy or television shows like Mad Men, does not challenge or disrupt the message to its audience nor does it subvert the audience's expectations. They leave the damsel in distress powerless and incapable of self-sufficiency just as she is in self-unaware media. There is an assumption that if an audience understands that sexism is purposefully being used, then it is acceptable. These satires which acknowledge sexism do not make it okay regardless of how over the top or obvious the sexism may be. Sarkeesian also notes that this type of ironic media is generally used to defend sexism when ultimately using it is as a selling tool.

Before you jump up and criticize Sarkeesian, you should know that it has already been done on all possible outlets. In these critiques, she is most commonly attacked on a personal level – from the way she looks to the way she talks, often without notice of her argument at all. These critics are on occasion pointing out important and valid arguments, though they relay anger towards her and feminists as if people are being attacked by what she is pointing out about the media. She is the victim of online harassment including endless hate mail and repeated vandalism of her Wikipedia page with images of sex acts, personal rape, and death threats. She reported to The New York Times that she was emailed images of herself being raped by video game characters and there was an online video game created where users could punch Anita until the screen turned red. Thankfully, the press has not at all been negative; there has been much attention given to Sarkeesian in the past year as a result of harassment and she is now in the spotlight. She has the attention of the Internet, and as awareness increases so does support for her cause.

Ontario Says No to Invasive Species

Province Takes New Angle on Invasive Species Management

ANDREW MCMAHON
3B ENVIRONMENTAL

Globally, invasive species costs to the environment, agriculture, and societies – including control costs – are estimated to be $1.4 trillion – the equivalent of five percent of the global economy and seven times the cost of natural disasters. Invasive species are non-native species that have been introduced to an ecosystem by human activity. According to Canada's Department of Fisheries and Oceans, invasive species thrive in the absence of their native predators and have the potential to drastically alter habitat, rendering it inhospitable for native species. In order to put an end to the introduction of invasive species into our province's environment, and address the impending problem associated with Asian carp, Ontario proposed and Invasive Species Act on February 26. If passed, the act will be our nation's first stand-alone invasive species legislation. David Orazietti, Ontario's Minister of Natural Resources, has been quoted stating "Currently Ontario relies on a patchwork of more than 20 federal and provincial acts. None of them was designed specifically to deal with invasive species or their impact on our economy and natural environment."

The proposed invasive species act would give Ontario the tools to ban activities such as possessing and transporting certain high-risk invasive species, enable rapid response actions to address urgent threats, and would ensure compliance through modernized inspection and enforcement measures. Included in the enforcement measures will be penalties, and the allowance for inspectors to take samples as well as give them the power to stop the movement of invasive species.

NDP Leader Andrea Horwath has voiced concerns that the bill will put too much emphasis on how to deal with invasive species after they have already settled in. It should also be noted that the federal government also has provisions in place to control invasive species. The Ministry of Natural Resources has responsibility for monitoring the advance of Asian carp into the Great Lakes, and ensuring the fish is not transported into Ontario. The Canadian Food Inspection agency has also been involved in the fight against invasive species – most notably the ash borer beetle – and has the authority to ban the movement of certain firewood from one part of Ontario to another.

Ontario deals with hundreds of invaders, most of which are found in southern Ontario. Some land based invaders include the European reed, mountain pine beetle, ash borer beetle, and longhorn beetle. With its vast freshwater resources, Ontario is also highly susceptible to aquatic invasive species. Some examples of aquatic invasive species in Canada include sea lampreys, zebra mussels, and Asian carp, to name a few.

Sea lampreys are a primitive fish that feeds on the bodily fluids of other fish by goring through the scales and skin of those fish with their tongue; a control program was put into place in 1955 to reduce their population, but not before they played a role in the collapse of the Lake trout and Whitefish fisheries in the 1940's and 1950's. Zebra mussels are small freshwater molluscs that have spread rapidly in Canada and the United States since being introduced in the 1980's via ballast from transoceanic vessels. These mussels cause millions of dollar in damage annually to human infrastructure as they can colonize on almost any surface; in addition to this their feeding causes an increase in water clarity, which increases light penetration and leads to excessive vegetation growth. Finally, there is the Asian carp, which was the driving force behind the introduction of the Invasive Species Act. These fish will compete for food with indigenous species and prey on their larvae. On top of this and the habitat damage that they cause, these fish also have a tendency to jump out of the water posing a threat to recreational boaters and water skiers because they can grow to a weight of 100 pounds.

If passed, this Act will serve to not only protect Ontario's ecosystems, but also potentially save the province millions in yearly costs associated with eradicating invasive species and attempting to repair the damages that they cause. It is rare that the environment and the economy have an opportunity to benefit from the same piece of legislation, but this proposed Act has the potential to do just that.

Jonas Valanciunas: The Big Mystery

The Lithuanian Center May Not Be a Superstar, but he is a Bonafide Pro

RONAUQ SABHARWAL
3B ENVIRONMENTAL

HADFIELD'S HOOPS

Jonas Valanciunas. Damian Lillard. Josh Selby. John Wall. Blake Griffin. Jerryd Bayless. Nate Robinson. Randy Foye. These are all the summer league MVPs from previous years. Three bonafide superstars (Lillard, Wall and Griffin). One savvy veteran (Robinson). Two league average players (Bayless, Foye) and a no name (Selby – playing for the Cedevita Zagreb of the Croatian League). Just a fancy way of saying, Summer League MVPs don't always lead to a prosperous careers. Last year, JV was one of the few bright spots of a gloomy season. This year, he hasn't lived up to the almost unfair expectations of the rabid Raptors fan base. Raptors fans, it's time to have the talk about Brother Jonas.

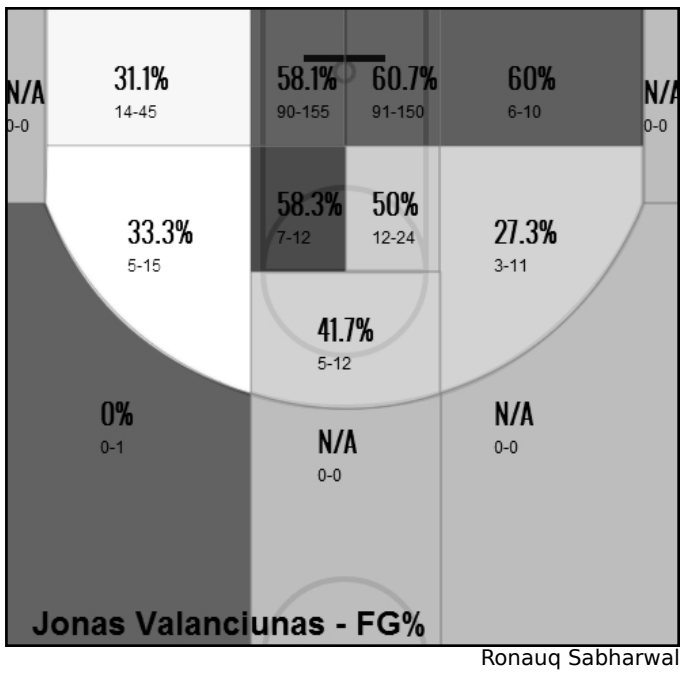
Repeat after me: He is only twenty one years old, 21! He is averaging 10 points and 9 rebounds while being limited to 28 minutes per game. No, he isn't dropping double-doubles like Tim Hortons in SCH (0 for 6 on Roll Up the Rim) but he is passing the eye-test. The eye-test is a term used by scouts and self-proclaimed Raptors experts to describe if a player actually plays. Jonas does the dirty work that doesn't show up on the stat sheet. He screens hard, executes pick and roll/pop nicely and rolls to the rim hard for the offensive rebounding opportunity.

Every Raptors game has at least 2-3 plays where Jonas gets the team an extra possession by being in good position to get the offensive rebound. He is strong in the paint but his shot fakes are legendary in the basketball community (for comical reasons mostly). He has polished his game and added a sweet 15 footer from the top of the free throw line which opens up the spacing on the offensive end. Even though he hits it consistently, he needs to have more confidence in that shot.

Valanciunas is still a step slower on the defensive end and needs to master the art of footwork as he is guarding the quicker players in the league. Even though the Raptors are ranked 4th in the NBA for least points scored against, his slow reaction time as a help defender hurts the Raptors front court. As the season comes to a conclusion and playoffs approach, JV may need to take a backseat to veterans such as Johnson, Hayes and Patterson. The playoff experience will be a great asset under JV's belt as he will have a chance to battle and learn from veterans such as Kevin Garnett, David West, Joakim Noah and Paul Millsap.

Casey can probably help Valanciunas out a tiny bit by lengthening his leash — letting Valanciunas play through a few more mistakes. He has frequently said that despite their record, the Raptors are still prioritizing the development of their young players, and Valanciunas is arguably the most important young player they have. There is a fine line there, though, between letting Valanciunas learn and contributing to the destruction of his confidence. It is hard to blame the coach too much for trying to protect his centre.

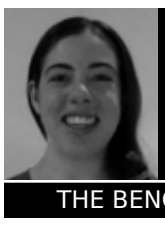
One thing you can always count on from JV is that he is always bringing 100 percent effort and 1000 percent heart (mathematically impossible but whatever. Sue me). He is only a sophomore and still learning the nuisances of the game. The most important thing is that he has time to develop as a cornerstone for a winning team, which is an experience not many players are lucky enough to have. There will be growing pains associated with JV and that is part of the fun as a fan. His raw potential combined with his high work ethic will yield great results in the future, barring an injury. Brother Jonas is going to be alright, but I can't say the same about the Jonas Brothers. JV may never turn into Kevin Garnett, Blake Griffin or Kevin Love but he also won't be playing in the Croatian Basketball League anytime soon.



Ronauq Sabharwal

Jonas Valanciunas' shooting percentage.

The Benchwarmer Report: NHL Trade Deadline Recap



ELIZABETH SALSBERG
2N NANOTECHNOLOGY

THE BENCHWARMER REPORT

Hockey fans! March 5 at 3:00 pm was the 2014 NHL trade deadline. Teams were looking to equip themselves with some last-minute acquisitions to beef up their rosters heading into the home stretch of the season. Other teams seemed to declare re-building mode. Several big-name players moved around this year… some teams won and some teams lost. For those of you who weren't fanatically watching TSN TradeCentre all day, here are the Benchwarmer's most exciting and controversial trades:

First up, Vancouver Canucks goaltender Roberto Luongo was traded back to Florida along with winger Steven Anthony for forward Shawn Mathias and young goaltending prospect Jacob Markstrom. After years of speculation and hard treatment in Vancouver, particularly with that monster 12-year contract, 34-year-old Luongo is looking for a fresh start with his original NHL team. Florida was the winner in this one, getting an experienced and skilled starting goaltender without giving up any valuable assets. Once again, Canucks GM Mike Gillis has been on the short end of the stick, as he probably should have been able to get more value for Luongo. That being said, he did succeed in unloading an enormous contract without the pain and embarrassment of a buy-out.

Arguably the most exciting trade of the day was the captain swap, with Tampa Bay dealing Martin St. Louis to the New York Rangers for their captain, Ryan Callahan. Following St. Louis's controversial exclusion from the initial Canadian Olympic team roster by his own NHL manager Steve Yzerman, there were rumours that he had asked for a trade to New York. St. Louis is currently 12th in scoring with 62 points (29 goals and 33 assists) and was always relied on to be a leading point-getter in Tampa Bay.

Callahan, on the other hand, is a different kind of player: Known primarily for his defensive responsibility, shot-blocking ability (reminiscent of former coach John Tortorella's strategy) and his leadership, Callahan brings new depth to Tampa Bay's roster. Steven Stamkos is finally ready to return to Tampa's lineup, so it'll be a whole new look with these two when they hit the ice. This was likely the closest to a 'fair' trade at this deadline, yet New York ultimately got the edge here, gaining one of the most consistent scoring forwards in the game as they look to tighten their hold on a playoff position in the East's Metropolitan division.

The other big-name on the table was Thomas Vanek. Already dealt from Buffalo to the New York Islanders this season (for forward Matt Moulson along with first and second round draft picks), it was anticipated that he would be moved once again before the trade deadline, being an unrestricted free agent at the end of this year. To make sure they'd get something for Vanek rather than have him walk at the end of the end of the season, the Islanders sent him off to the Montreal Canadians in exchange for prospect Sebastien Collberg and a 2014 second-round draft pick. Vanek has 53 points thus far, including 21 goals and 32 assists. He adds some much-needed size and depth up front for Montreal, who look to hang on to the second spot in the Atlantic division, with Toronto and Tampa Bay right on their heels. Montreal was undoubtedly the winner in this one – the catch being, will they be able to convince Vanek to re-sign at the end of the year? That will depend on their success or failure in this year's playoffs and how much they're willing to pay.

There are only 20 games left in the regular season and then it's playoff time. It will be interesting to see the effects of these trades in the playoffs, particularly if one of these players finds his game right away on his new team. Best of luck to your favourite teams in the home stretch! Stay tuned for another NHL report as the regular season comes to a close.

Venezuela Points Finger at US for Reason of Unrest

DEREK KAN
1B CIVIL

With one murder occurring every 21 minutes, Venezuela is one of the most violent places on Earth. Crimes are so prevalent that the government no longer publishes crime data. This month marks the one year anniversary of the death of Venezuelan president Hugo Chávez and people are mourning on the streets. These same streets also hold the chaos of thousands of protesters.

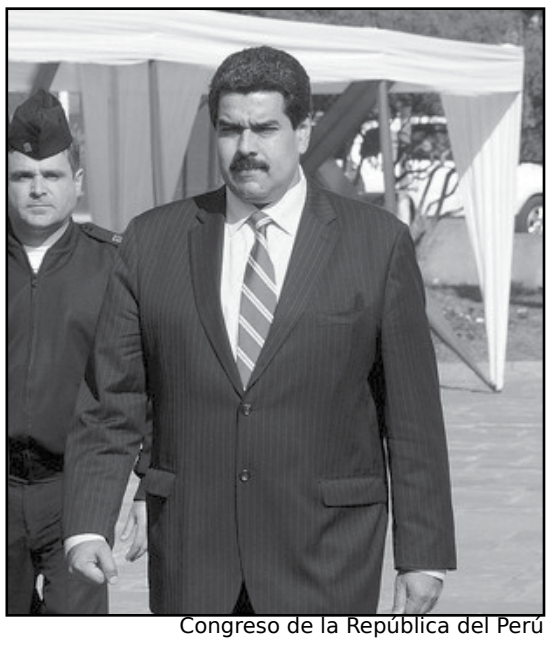
Vice President Nicolás Maduro won the subsequent election after Chávez's death, beating candidate Henrique Capriles by a marginal one percent. It all started with that one percent. Just eleven months in, Maduro was confronted with the largest protest he has ever faced. On February 12 2014, students flooded the streets in protest. Demonstrations caught global attention that day, with the death of three people and many more injured.

What is all the riot about? Since taking over for Hugo Chávez, Maduro has lead the country into the ground. This includes an astounding increase in the inflation rate, as high as 56 percent, and a 50 percent increase in the budget deficit, resulting in China cutting back on its $20 billion loan. The Venezuelan bolívar has dropped from an 8 to 1 exchange rate with the US dollar to a shocking 87 to 1. Unemployment has been rising with salaries decreasing. Maduro has also called for more state intervention. This makes things harder for the private sector, making it nearly impossible for Venezuelans to get food and other basic necessities. The hardships of the economy is one of the grievances of the protesters, along with the demand for a more democratic government, a decrease in violent crime and an end to human rights violations.

As a result, groups of young adults swarmed the streets to peacefully protest the poor governing of Maduro. Things took a turn for the worse when state police tried to corral them. It resulted in many injuries and the deaths of three protesters by shots to the head. Since then more have died in the crisis and many more people have come out to continue to protest Maduro's government and the repulsive treatment of the Venezuelan people, including those that were killed during the demonstrations.

To make matters worse Venezuelan officials began to blame external elements for the unrest in their country. Pointing a finger at the United States, Maduro states the Americans are trying to destabilize the Venezuelan administration. Maduro and his supporters say the protests against his socialist government are part of an attempted coup backed by right-wing "fascist" opponents in Venezuela and abroad in America. Venezuela gave three U.S. diplomats 48 hours to leave the country, accusing them of conspiring to bring down the government. United States president Barack Obama was not amused, and replied, "Venezuela, rather than trying to distract from its own failings by making up false accusations against diplomats from the United States, the government ought to focus on addressing the legitimate grievances of the Venezuelan people." In response to the expulsion of the three U.S. diplomats, the United States expelled three Venezuelan diplomats.

Maduro has also announced the severing of political and diplomatic ties and freezing trade relations with Panama. He accuses Panama of being a "lackey" for the United States in a conspiracy plot against his government. Panama's president Ricardo Martinelli was surprised by Venezuela's decision, "Panama only longs for peace, and for its brother country to find peace and strengthen its democracy." They have also denied Maduro's accusations saying that they had tried to encourage action by the Organization of American States to help promote democracy and human rights in Venezuela.



Congreso de la República del Perú
Maduro blames US for Venezuelan woes.

Radiation from Fukushima Reaches Canadian Shores

CAMERON SOLTYS
1B MECHANICAL

Scientists have confirmed that the first water-borne radioisotopes from the 2011 meltdown of the Fukushima nuclear power plant in Japan reached the Canadian west coast last month, almost three years after they were first released. The contaminated water was carried some 7500 km by the Kurshio Current, a major Pacific Ocean current which flows due east from Japan to British Columbia.

When Fukushima melted down, it spewed large amounts of radioactive material into the atmosphere and ocean. The following clean-up has been riddled with setbacks. In late February, for instance, the power plant's once-operator Tokyo Electric reported that it had spilt 100 tonnes of highly contaminated water after attempting to fill an already-full storage container. While they claim that "water is unlikely to reach the ocean" due to lack of drainage around the container, this is merely the latest in a series of leaks which has sent even more radiation into the environment.

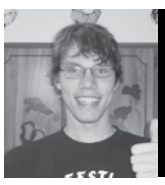
Due to the nature of the currents in the Pacific Ocean, British Columbia is the first coastline to receive the contaminated water, but it is expected that it will now spread both up towards Alaska and down towards Washington state and beyond. The radiation being output by Fukushima is uniquely identifiable from other sources of radiation due to the presence of caesium-134, a fast-decaying isotope with a half-life of only 2 years. This half-life is so short that there is essentially no naturally occurring caesium-134, while the caesium-134 created during Cold-War era weapons testing has all decayed; the only significant source of caesium-134 in the oceans right now is Fukushima.

Experts are quick to note that the radiation levels in the water is incredibly minimal, and poses absolutely no threat to the environment or human health. Current predictions suggest that the radiation levels will peak at between 2 and 27 Becquerels/m3, far less than the safety limit for drinking water of 7400 Becquerels/m3 set by the US government. Ken Buesseler, of the Woods Hole Oceanographic Institute, has even suggested that studying the movement of the Fukushima radiation could provide a wealth of information about Pacific Ocean currents. To this end, he launched a website, *ourradioactiveocean.org*, where people can make donations to support the collection and analysis of water samples.

There was plenty of advanced warning about the incoming radiation from Fukushima thanks to the Canada's Department of Oceans and Fisheries, which had been monitoring radiation levels up to 1500 km from Vancouver. However, initial estimates expected the radiation to still be months, if not years, away from making landfall. One theory for the discrepancy between the models and reality is provided by John Smith, a chemical oceanographer from the Bedford Institute of Oceanography. He suggests that the contaminants currently being seen were not discharged into the water at Fukushima, but instead were blown some distance eastward by the wind before falling into the ocean.

Fukushima has been described as the worst nuclear disaster since the catastrophic meltdown of the Soviet Chernobyl reactor, and some suggest that it is actually worse. And while there are still many questions about the effects of low level radiation on human health, it is unlikely that North American residents will have anything to fear; Fukushima has only produced a slight increase in radiation over background levels. Nevertheless, the accident has already rejuvenated long-standing arguments about nuclear safety. That fact that radioactive water has now made it to Canada is sure to inspire even more debate.

World's Smallest Engine Runs on a Single Atom



MICHAEL LAANVERE
3B MECHANICAL

German physicists at the University of Mainz have invented the world's smallest and most efficient engine. The engine, less than a micrometer in length, runs on a single atom to convert thermal energy into mechanical energy.

This "nano-engine" uses the principle of one of the simplest engine types: a Carnot Engine. A Carnot Engine is essentially a reversed Carnot cycle and uses the transfer of heat to produce mechanical energy. The nano-engine works on a similar principle.

The physicists trapped an atom, specifically a calcium-40 ion, in an electromagnetic cone that squeezes tightly around the atom. Then two lasers are shot on either end of the cone. One laser, on the smaller, pointy end heats the atom, and the laser on the larger base cools the atom. The heating of the atom causes it to expand and forces it towards the base of the cone since it is so tightly encapsulated. Then, at the base, the atom cools and is forced back to the pointy end of the cone. This cycle causes the atom to shoot back and forth through the cone thereby creating mechanical energy similar to a piston in a car engine.

The most interesting part, though, is the fact that by adding one additional feature to the engine, its efficiency become larger than the Carnot Limit – the absolute maximum efficiency any engine can have based on the second law of thermodynamics.

This feature is called "squeezing" the atom. When the atom reaches the pointy end of the cone, where it gets heated, the cone contracts in a way that causes the atom to enter a quantum mechanical condition called a "squeezed state." The squeezed state is one of the quirks of quantum mechanics, and putting the atom in a squeezed state doesn't actually transfer any energy to it.

The atom is then slightly bigger than normal and pulsating due to the squeezed state, which gives the engine a slight boost. This squeezing of the atom is analogous to a supercharger in a car. With the inclusion of the squeezing, the engine surpasses the Carnot Limit by a fair margin.

Whether the engine actually surpasses the Carnot Limit, and thereby violates the second law of thermodynamics, is a matter of perspective. Some scientists point out that although squeezing the atom does not transfer any energy to it, the squeezing process does still require some energy. Including this energy in the efficiency puts the overall engine efficiency below the limit.

The scientists in Germany, however, argue that since no energy is transferred to the atom then there is no need to include the energy that goes into the squeezing process. That would be the same as including the energy required to pump oil out of the ground into calculating the efficiency of a car engine.

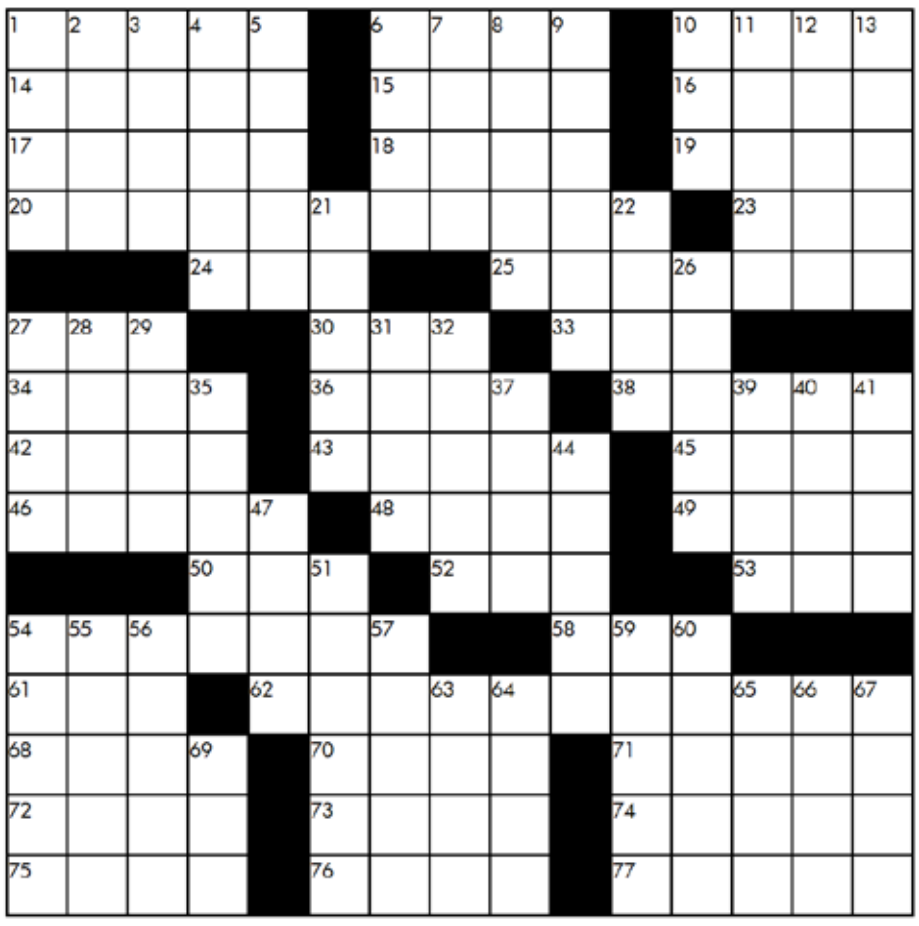
Either way though, we don't have to panic about the second law no longer being valid. When dealing with the quirkiness of quantum mechanics a lot of fundamental laws are generally broken. That's why observations in the quantum world can't be scaled up to the macroscopic world. That is also why this discovery isn't going to result in any super-efficient car engines anytime soon. Well, that and the fact that it takes a lab full of lasers, computers, electromagnetic fields and recording devices to work.

The discovery isn't entirely useless. There may be some applications in quantum computers in the future, especially in transferring heat. Quantum computing is still in its infancy and every discovery like this helps develop the field further.

The Iron Crossword

St. Patty's Day

NANCY HUI
3T CIVIL



ACROSS
1 Necklace fastener
6 Foodstuff of Monty Python sketch
10 Unlucky Bond girl? (Though not as unlucky as Tracy)
14 Boring device?
15 ____ mater
16 On a boat!
17 Commendation for performance
18 Mottled horse colour
19 Revolutionary German socialist
20 Happy chance
23 Hadrian's hail
24 Just out of the package
25 Subtleties
27 "Share My World" artist's initials
30 A piratey saying
33 It works well with shock
34 Modern Continental currency
36 What oboe players carve themselves
38 Expendable board member?
42 Slightly open
43 A round brilliant has 58 of these
45 Tightly strung
46 On the moon!
48 Cray-cray
49 Walk through the woods (snowy evening optional)
50 Assets minus liabilities
52 A bit of shuteye
53 Faerie police force that dogs Artemis Fowl (abbv.)
54 Hounds' targets?
58 Frequently misspelled word
61 Make a mistake
62 "They're after me _____!" (2 wds)
68 Lucky part of rabbit
70 Lion's crowning feature?
71 Oriented on an axis
72 Capital of Norway
73 Beg
74 Arbitrary number used once in cryptographic communication
75 Castrate
76 Prophet
77 Finished

DOWN
1 Taxis
2 Bait
3 Growth medium
4 A lucky number for many
5 Lying on stomach
6 Draped Indian garment
7 The sound you make when you sit heavily
8 At full speed
9 Romeo's residence in exile
10 Fruit preserve
11 Mathematician Newton
12 Guts
13 They run horizontal from a fiducial point in Cartesian coordinates
21 Happy or Sleepy?
22 A noise you make barbarically from rooftops
26 Not o'er
27 Breakfast or dinner
28 Luck, as referred to in Silver Linings Playbook
29 Fibrous muffin flavour
31 Not imaginary
32 Captain Holly Short's division at 53-across
35 Sumatran simian
37 Business competition (abbv., but what does it stand for?)
39 Cry of grief
40 Use microwave or atomic bomb
41 It's a small one for man on the moon?
44 Hot subject?
47 Roll of film
51 Strong cards in bridge
54 Obfuscate
55 Got up
56 Poshly amusing
57 AutoCAD command to resize object
59 Assassin Krios of Mass Effect
60 Anglo-_____
63 Common weapon against groin
64 You measure it in daylight, in sunsets, in midnights, in cups of coffee…
65 Outside of a wheel of brie
66 A club, sadly relegated to ceremonial use in modern times
67 SPOILER ALERT: It was his ____
69 28 pounds of wool

Sudoku

#2014-04

LUCAS HUDSON
3B MECHATRONICS

Easy

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

Medium

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

Hard

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

Issue 5 Deadline:
Friday, March 21 at 6:00 p.m.
Send your submissions to:
iwarrior@uwaterloo.ca

THE IRON INQUISITION
Lucas Hudson, 3B Mechatronics

"If you could name the EngSoc minor hockey team, what would you name it?"

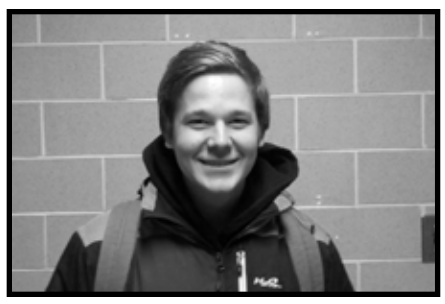
"Lil' Plummers"
David Birnbaum, 4B EngSoc

"The Iron Warrior"
Matthew Post, 2A Systems Design

"The EngSoc Puck Bearers"
Matt Michell, 3B Mechatronics

"The Little Pucks"
Annamaria Reda, 3B Chemical

"The Ridgid Sticks"
Kevin McNamara, 3A Civil



"Two Foot Tools"
Jake Harvey, 1B Mechanical