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THE IRON WARRIOR

THE NEWSPAPER OF THE UNIVERSITY OF WATERLOO ENGINEERING SOCIETY

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Battle On Ice: Faculty vs. Students

Kevin Veloso

The faculty and student teams pose after a game dominated by the Faculty with a score of 8-2

SARAH-ROSE LANCASTER
1B MECHANICAL

On Saturday, March 2, at Columbia Ice Fields, the Engineering Student vs. Faculty Hockey Game brought professors and students together in an effort to promote camaraderie between the two groups. After a ceremonial puck drop by Engineering Dean Pearl Sullivan, and the singing of the National Anthem by Alessia Danelon, the action got underway. The first two periods were tight, with the students netting two goals, scored by Aren Patel and Zack MacLennan, and the faculty scoring three. The third period was dominated by the faculty, as they added six goals to their tally, for a score of 8-2. The final score however, was 8-8, due to a heavy bell curve. To settle the tie, the game proceeded to a shootout, where both teams shot simultaneously. Tremendous saves by goalies Keegan Skoretz and Dave Lowrie and a fantastic goal by Ben Selby made it appear as though the students would taste victory. The faculty however, emerged victorious by a narrow margin.

Making its first debut since 1977, the Student vs. Faculty Game even featured a Faculty member who participated as a student in the game thirty-six years ago. "I do remember scouring for equipment", said Professor John Wright of his endeavors as goalie for the Student team in 1977. "I may be the only player to play back-to-back games". A trophy from the 1977 game was found in storage and awarded to the faculty team for their win. "We want it delivered to each of our offices", exclaimed one jovial professor after the game.

Donations of $200 each from the Mechanical and Mechatronics Engineering Department, the Systems Design Engineering Department, the Civil and Environmental Engineering Department and Dean Pearl Sullivan provided each player on the student and faculty teams with a customized jersey. Much thanks is given to each department for their contributions.

Special thanks go out to referees Ryan Jenken and Lindsay Brock as well as to announcer Cameron Winterink, timekeeper Mathieu Tremblay and photographers Jeff Luo and Kevin Veloso.

Faculty team members included: Bill Bauer, Mike Worswick, Oscar Nespoli, Jonathan Histon, Marc Aucoin, Karl Janzen, Gerry Schneider, Andrew Paquegnat, Gary Brock, David Clausi, John Wright, Scott Paterson, Tom Gawel, John Zelek, John McPhee, and Alex Bardelick.

Student team members included: Dave Lowrie, Keegan Skoretz, Haran Balaram, Mike Seliske, Curtis Strome, Tom Raso, Fady Methias, Brandon Van Asseldonk, David Janssen, Matt McMaster, Brad Carmichael, Aren Patet, Zack MacLennan, Greg Bolzon, Scott Wood, Farhan Panthaki, and Ben Selby.

Students Aim to "Green" the Future of Transportation

CAILIN MUNROE
4B ENVIRONMENTAL

The University of Waterloo Alternative Fuels Team (UWAFT) is a student team comprised of undergraduate and graduate students across all of the university's faculties. The team is currently competing in EcoCAR 2, a competition established by the U.S. Department of Energy and General Motors (GM). It is a three-year competition that challenges 15 schools across North America to re-engineer a 2013 Chevrolet Malibu.

The technical team, lead by Gurhari Singh (candidate for MASc), aims to "green" their Malibu by changing the power train to a series Plug-in Hybrid Electric Vehicle (PHEV). The team is using a battery pack to allow for full electric driving - up to a 50 km range – that was generously donated by a competition sponsor. There were three options considered by UWAFT for extending the range of their vehicle: (1) biodiesel, (2) hydrogen fuel cell, and (3) ethanol. UWAFT's decision was based on power train modeling, volume considerations, and team knowledge. The competition is scored based on fuel economy, greenhouse gas emissions, petroleum energy use, vehicle performance, and safety/consumer acceptability.

When choosing the engine for their new power train, UWAFT had to consider Wheel to Well emissions. This means considering both the upstream emissions associated with manufacturing, and the emissions being released from the actual vehicle. The hydrogen fuel cell option has the fewest emissions, however due to size restrictions this system could not reach competition range. Biodiesel was not available locally because it is not mass-produced anywhere in Ontario. Finally, ethanol was chosen as the engine could fit in the vehicle and required the least amount of petroleum energy out of the three options.

UWAFT had a choice between two engines from GM that could be used with ethanol: a 1.4L turbo charged engine and a 2.4L naturally aspirated engine. The 2.4L engine is tuned to run on ethanol whereas the turbo charged option is not. Due to the development time associated with tuning an engine to run efficiently with low emissions off of ethanol, UWAFT chose to use the larger engine.

Continued at UWAFT on page 3

Cailin Munroe

UWAFT team members stand with Waterloo Mayor, Brenda Halloran, at a meeting to discuss setting up EV charging stations in the city

Letter From the Editor

Our Jaded Transformation: Is it Inevitable?

ANDREW FISHER
EDITOR-IN-CHIEF

Wow, does time go by fast! It seems just yesterday that I was welcoming you back from reading week. Now here we are, half way through March!! Regardless, Issue 4 of *The Iron Warrior* is here and ready for reading. I would like to recommend reading the opinion piece 'What about the Waterloo Dubai Campus?' by Hachem Hamadeh. It brings forward a good perspective from the Dubai students and what they think of the Dubai Campus closure. My favourite article of the issue goes to 'Gretchen, Leggings Aren't Going to Happen' by Mammaknowsbest. It is quite a funny read and definitely covers the don'ts of wearing leggings. I would like to thank Farzi Yusufali this issue for continually taking on the Point vs. Counterpoint article. It is always a challenge to write and I appreciate her efforts the past three issues. I also want to thank Alex Lee for helping out this weekend on layout.

Now that my spiel is finished, I want to get into the main meat of my editorial. By this stage in university, I am starting to wrap up my undergraduate degree. Fellow colleagues are talking about where they want to go and how they plan on getting there. While doing the same, I came to realise that despite my past longings to stay in university forever, I am ready to move on. How could this be? I fondly remember not even a year ago saying that leaving undergrad would be the worst thing ever. Thinking deeper about it, I started to wonder, was this presumed preparedness to leave me becoming jaded? How has this dreaded symptom that fourth years tend to develop managed to get to me as well?! THIS WASN'T SUPPOSED TO HAPPEN! Now, I like to think I am on the lower end of the jaded scale, but I must say it is definitely there.

So I have to wonder, how does one become jaded? Is it a gradual process, or one day do you just lose that upmh? With this Editorial, I hope to present my thoughts as to why we become jaded over our years at university.

Before I begin, I first want to define jaded so we are all on the same page. By searching Google, jaded has the adjectives of tired, boredom or lacking enthusiasm.

So when we came to university as a first year, there is so much excitement (and nervousness) about basically ALL of the things. We were dropped off in a place unfamiliar and completely unknown to us. While it was a little nerve-racking, it was exciting to have basically an unlimited list of things to do! There were hundreds of people to meet, new areas to explore, an unfamiliar city to investigate, and new course material to learn (haha yeah right, like that was one of our excitements). As we began to do all of those exciting things, we started crossing them off that seemingly infinite list. Then one day, that list starts to have an end. We don't necessarily notice this, but it's when jadedness begins to fester. By the time we reach our last year or so of undergrad, there is usually not much left to do on that list. We've been to all the bars, we've met all the people in our class, we have our set of friends we hang out with, and we have developed a routine called daily life. This routine is what starts the jaded transition. Once life becomes routine, we begin to complain how things are boring, nothing is as exciting as it used to be, and the dreaded words of "you are getting old" come out of someone's mouth. While we think it is a standard part of growing up, it's actually a result of our own doing.

One of the things which encourage this routine to develop is the people who we hang out with (no offense). By the last year of university, we have met basically everyone that we want to meet. The class knows everyone's name, we have tight bonds with our roommates, and we have that core group of friends. We become set and comfortable with these people and get stuck in that. Group events although still a great time, don't have quite the same excitement as they did back in first and second year. The jadedness has started to move in.

Right now, we are heavily considering our future. Jobs, grad school, time off, that trip to Europe, are all on our minds. We are constantly trying to figure out what is going to happen next, and as a result the present becomes quite dull. There is no fulltime salary, warm sun, or innovative research that the future entices us with. Once we start wanting that future to come sooner and sooner, the amount of jadedness increases because what we have now isn't our ideal situation. We lose enthusiasm for the present.

This idea of the future, being the independent individual we are imagining, further develops the jadedness inside of us. In school, we are dictated by preset schedules, assignment deadlines, and are consistently told day in and day out what to do. Once in fourth year, we want to be our own individuals and take life in our own direction. Therefore the day to day requirements become a chore, and are no longer appreciated as they once used to be. We have also developed a decently sized ego. We know the drill, we know how to study, how to pass a test, and it's just a matter of waiting out the rest of the term (at least in our minds). We are ready to do our own thing, but the institution is preventing that, so we become less enthused and more jaded about the school environment.

This leads into the next point. Our egos that we have developed make us want to be heard; we want our say in how things are done because we are clearly knowledgeable after spending five years in the university environment. Unfortunately, the university is not prepared to give that to us. They aren't reaching out to get our feedback as they could be, and it comes across as ignoring us. We feel we can contribute so much, and when the university fails to ask it of us, we become jaded because of the lack of interest in our knowledge. This is a vicious cycle, I know!

All of these points I discussed unfortunately are further enhanced for us engineers because of our five year program. This extra year of time in university just allows more routine to develop, more ego to build, which in the end, makes us more jaded.

So is it too late? For us fourth years, it pretty much is. We will soon begin that next stage in life where hopefully the jadedness resides as we become that young first year again experiencing the new and unknown stage of life. But for those of you who still have a long way to go, I have a few tips to keep the jadedness out:

Continually try to break routine. When I say this, I don't mean change your study habits for every exam, or vary when you get up in the day. I mean change how you go about dealing with a situation, or who you hang out with. During your spare time, don't fall back to that favourite video game or the TV series you have seen three times, do something spontaneous. This will help keep your daily life full of new interesting things which should hopefully keep your interest in university life.

Try and meet new people. Once we get stuck in the friend zone (see the *Topz* column from last issue), we lose the variation in our life. You don't need to seek out people to become your best friend which you share all your sex stories with. These are the people who if you see in the hall, you can stop and have a conversation with. As you get closer to fourth year, and jadedness starts to develop, these conversations will help bring the variation you need to daily life.

Things always seem greener on the other side. Before you start longing for that full time salary, or the easy hours of a grad student, try to remember the things you will be giving up. It's only until you cross that line to the other side where you realise how much you miss the life of an undergrad student. Why wait until then to realize you miss it. Put the future aside and live in the now. By doing so, the jaded feelings will hopefully subside.

Test your knowledge. Once we get in our heads that we already know 'everything' we need to know, we lose the drive to learn more. The process of learning something new keeps us engaged and hopefully enthused with what we are learning. As soon as we only learn the bare minimum, then it becomes routine. Don't forget, routine leads to jadedness.

Pass on your knowledge. Just because the university doesn't ask for our opinions doesn't mean we can't still give it. If there is something you want to see changed before you are finished your degree, then get to it! Make that change happen. If that's not your style, then try passing on that knowledge to someone else. Doing so helps reduce the feeling of being ignored, and eases the sense of becoming unneeded or obsolete. As soon as you feel wanted or needed again, then the jadedness will start to subside.

So I have said a lot which isn't backed by science, statistics, or even a bit of research on my part. It's all from personal experience and observation. Being jaded is not something which is inevitable; it's something which happens based on how we run our day to day lives. If you take one thing from this Editorial, then my suggestion is to make an effort to break routine. Do something spontaneous, and who knows what new opportunities present them. If it works well, you will soon be adding things back to that empty list.

THE IRON WARRIOR

The Newspaper of the University of Waterloo Engineering Society

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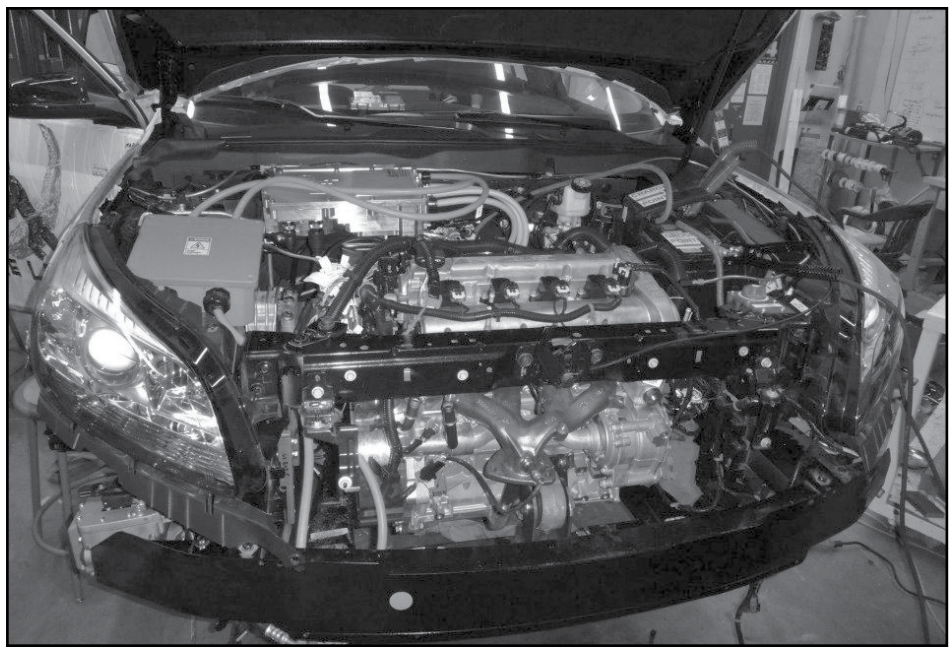
UWAFT in Talks with City to Set Up EV Charging Stations

Continued from STUDENTS on page 1

Unlike a conventional car, UWAFT's engine is not coupled to the wheels. The engine is directly coupled to a generator, which provides energy to recharge the batteries or power the traction motors in the event of high power demands. Two traction motors - one located at each axle - drive all four wheels. Electric traction motors provide instantaneous torque and much higher torque than typical gasoline engines. The higher torque makes electric vehicles more exciting to drive due to quicker acceleration and and elevated responsiveness than typical gas powered vehicles.

Ethanol is typically produced from fermented corn or other plant matter. While this seems like a "green" fuel, there are many diverse implications to its use. Ethanol can cause socio-economic issues because ethanol comes from a food source. If it is used as a fuel, prices of corn will skyrocket making it impossible to purchase corn for consumption. Also, the consistent farming of corn for fuel purposes will severely degrade the land over time, rendering the soil useless for future farming. There is a new process called cellulosic ethanol, which is produced from organic items such as wood chips or switch grass, thus reducing the dependency on food based sources.



Cailin Munroe

A 2.4L naturally aspirated GM engine is the base to which the UWAFT team adds the electric vehicle technology

The technical team at UWAFT works closely with a business team that is comprised of students from the University of Waterloo and Wilfrid Laurier University. The purpose of the business team is to source funding for the prototype vehicle that UWAFT is producing, by finding sponsors and organizing fundraising events. GM supports the team by providing the Chevrolet Malibu and $25,000 toward vehicle parts. There is also an outreach team responsible for raising awareness about the future of transportation through the use of blogs, social media, elementary school workshops, and hosting public events.

Recently, UWAFT met with the Mayor of Waterloo to discuss setting up Electric Vehicle (EV) charging stations in the City of Waterloo. Current PHEV's allow for 50 km of driving on one battery charge, which is more than sufficient to meet most people's needs. By setting up charging stations and promoting the use of EV's, this initiative could significantly reduce Waterloo Region's consumption of gasoline. The benefits of this include: cleaner air, reduced cost to the driver, job creation, and having Waterloo recognized around the world as an innovative city. These stations would be located at malls, big box shopping centers, uptown Waterloo, and other high traffic areas.

UWAFT is one of many teams striving to create a better, greener future for transportation. Students like you can influence meaningful change in your community. Ideas start here.

Waterloo Engineering Students Team Up with High Schools to Light the CN Tower Purple

ALESSIA DANELON
4B MECHANICAL

A Rube Goldberg Machine is a highly complex mechanism to perform a simple task. You may have seen a rather intricate one in the band OKGO's music video "This Too Shall Pass". This past weekend, Waterloo Engineering students worked with high school and elementary aged youth to design and build a Rube Goldberg machine. The event featured three build days over which several intricate components were designed and built by innovative and creative volunteers and participants. Saturday was the big finale when all of the components were brought together through collaboration of each of the component teams and great teamwork between groups.

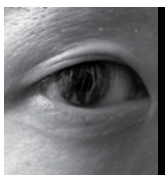
So why all the hard work? This Rube Goldberg machine marks one of thirteen concurrently being built across the province. Engineering undergrads across Ontario are teaming up to build Rube Goldberg machines with high school students for National Engineering Month. Through this event, youth are able to get a taste for the design, planning and team building skills that are all essential to the engineering profession. Each machine is connected to another through cell phone and internet connections. Waterloo's machine will be set off by one built at the University of Toronto.

Waterloo's machine has been lucky enough to be chosen to set off the machine at the CN Tower! In order to promote awareness of National Engineering Month and the importance of engineering in modern society, the CN Tower, a feat of engineering in itself, lights up purple to commemorate the event. This year, for National Engineering Month, each machine will run at schools across Ontario and as the signal is transmitted across the province, we will celebrate the brilliance, innovation and advancement of the field of engineering, and all the contributions it has given to our modern society.

Michael Seliske

Students create a Rube Goldberg Machine which was used to light up the CN Tower purple through a digital signal.

Hugo Chavez's Ballad Comes to an End



ALEXANDER LEE
1B NANOTECHNOLOGY

On March 5, 2013, at 4:25 PM, Hugo Chavez, the longtime president of Venezuela, died after a long battle with cancer. To some, Chavez was a national hero, standing up for the poor and downtrodden against the rich. To others, he was a menace, using his charisma to gain support from the lower classes, while doing little to actually help them. His death leaves Venezuela bereft of leadership, but also hints at the possibility of a change in direction for the nation.

Chavez was born on July 28, 1954, to an impoverished family. Both of his parents were schoolteachers. When he was seventeen, he studied at the Venezuelan Academy of Military Sciences, which, despite the name, taught many subjects besides just military related ones. It was here where he became interested in Simon Bolivar and Che Guevara. Bolivar was a 19th century revolutionary, who is South America's icon of resistance against Spanish imperialism. Che Guevara was another revolutionary, who was instrumental in Cuba's communist revolution. These two sources would influence the direction of the rest of Chavez's life.

After graduating, he served in the military for 5 years, before he formed the Bolivarian Revolutionary Army, a secret cell within the military. In 1992, he attempted to overthrow the Venezuelan government, but the coup failed miserably. However, the attempt gained the support of most of Venezuela's working class, which comprised the vast majority of the population. After being released from prison in 1994, he would ride this wave of support to the presidency in the 1998 election, and he would hold this post for the next fifteen years.

Chavez was well known for being a vocal socialist. Having grown up surrounded by poverty and corruption in Venezuela's prior laissez-faire economy, he was clearly disillusioned with the capitalist model, and understandably so. This has naturally put him at odds with the United States on many economic issues, but also allowed him to build a political alliance with other socialist-minded Latin American countries. He saw the United States as an imperialist hegemonic power, and was devoted to preventing US influence in Venezuela and the rest of the world.

His domestic legacy is mixed. The majority of Venezuela saw him as their champion, and loved him. During his term, Chavez was blessed with increased offshore oil windfalls, and this allowed him to increase welfare spending in accordance with his socialist policies. He was able to drop the poverty rate in Venezuela considerably from 42% to 30%; however, 30% is still nearly a third of the population, so his spending policies were only a partial success. In addition, his policies of controlling food prices made it hard for Venezuela to import food, which counterintuitively made it harder for Venezuelans to get food.

Chavez was a polarizing figure in life, and will no doubt continue to be one in death. Venezuela stands at a crossroads: They will hold elections in thirty days. Chavez's socialism has dominated Venezuela's politics for a decade and a half. Will Venezuela continue down Chavez's socialist vision, or will they turn around and re-embrace capitalism, re-establishing links with the West? Many eyes will fall on Venezuela in the coming month, as people observe Chavez's legacy.

mises.ca

Deceased leader of Venezuela, Hugo Chavez

Point vs. Counterpoint

Government and Private Funding Should be Skewed Towards Research

POINT

FARZI YUSUFALI
3T NANOTECHNOLOGY

The current atmosphere and state of affairs in any post-secondary institution is much like a rat race to get to the top. The race of choice? Research. With the Quantum Nano Centre that had opened last term, it seems that there has been a significant investment towards finding new discoveries and continuing with cutting-edge research. Considering that the number of classrooms in the QNC can fit in one hand, there doesn't seem to be much to gain for the average student.

However, with the new research being conducted and grants being given to those who conduct it, a circular trend has begun where both begin to benefit each other. However, the first step has to be taken where one is more expensive than the other in relation to the returns it gets. Fortunately, Waterloo is on the cusp of such a trend; considering the relatively young age of this university compared to others who have established themselves as the best in the world (MIT is young at 150 years old), Waterloo seems to be on the fast track.

The problem is that either research or attracting the best of the best in terms of prospective students is what's needed to have Waterloo climb up the rankings. The marketing required and the resources required to appeal to prospective students on an international scale would be monumental. In addition, bringing the school up to par (in terms of student facilities, quality of teaching, and even aesthetic) to appeal to those students looking to the world for a school to go to would be ridiculous. Making these changes to attract sponsors and students from outside Canada would require a significant investment on the part of the student; this means a rise in tuition for the average student is inevitable. With that said, this change would occur quickly and would benefit future students greatly if successful. Furthermore, these changes would also directly impact the students. The question is, is the return worth the investment? If the return is the influx of international students and larger sponsors to fund every service in Waterloo, how long would it take before there is a visible benefit to the average student? The truth is, with this methodology, it would take years for this to come to fruition.

Now, if research was made the primary investment, then there is still a significant amount of money being put into the university that would not reduce tuition. However, the difference is that the average student doesn't get to see where this money goes. Instead, professors and graduate students use this money to conduct research. Like before, the rat race of choice between universities is found in research; the more papers published or the papers with the highest impact, will generate more attention and attract more money to those conducting it. If the research is of a high impact, those in the scientific community will take notice. For any sponsor investing in a piece of research, this is a great incentive to provide in order to continue the work or take steps to commercialize it. For a student, the promise of becoming a part of this success becomes greater. While the cost of research is expensive (what with all the equipment and ingredients), the number of research groups to which this applies is far less than the number of students in the university. Sure, one grant could pay for upwards of tuition for several people, this still doesn't make a dent in the grand scheme of things for one out of thirty thousand students. Sure, there will be two lecture halls in a entire building while the rest is outfitted for the research groups thereby not providing for the average undergraduate.

At the end of the day, what's the easiest way and most cost effective way of increasing the amount of students coming into the university? How about the easiest way to market Waterloo as the school of choice for post-secondary studies? It's the way MIT does it, work on the reputation of the school. Yes, while you may cater to the students who provide the money required to run the university, the school does not grow when looking at a long-term basis. In fact, universities who are looking to make a name for themselves will race ahead such that Waterloo stands to lose the reputation it has currently. The way to make Waterloo known as the school to attend is to make the tools and resources available for distinguished academics so that their work has the opportunity to progress to the point where worldwide recognition is possible. In short, publishing many high quality papers is the equivalent of money in academia; publishing more and publishing better acquires more attention and, with that, more money into the university.

...publishing many high quality papers is the equivalent of money in academia; publishing more and publishing better acquires more attention and, with that, more money into the university.

With this boost in reputation, a highly accomplished international student who has the whole world to choose from will look for reputation first when making this choice. When the international student attends, this person is paying fees two to three times higher than the domestic student. If the number of international students were to increase, eventually, a part of that capital will be used to subsidize the tuition of their domestic peers. More importantly, this attraction of highly accomplished individuals will also increase the likelihood of great accomplishments being produced at the university. Considering the collaborative nature of breakthroughs today, one more great mind could do nothing less than help this endeavour. Now that this scenario has come full circle, Waterloo will only benefit from putting their time, money and energy into research.

freelogovector.net

To market Waterloo as the choice university, it needs to build its reputation through research, similar to how MIT has done over the past 150 years

COUNTERPOINT

FARZI YUSUFALI & DUSHANTH SEEVARATNAM
3T NANOTECHNOLOGY

uWaterloo seems to be forgetting their biggest financier, the undergraduate student. All of the money that the government should be using to help students fund their education (which is in itself quite expensive), is spent on facilities that benefit a very small fraction of uWaterloo's population. Considering the amount of space allocated to the student every time a new Engineering building comes up, another engineering student will start to question if this school can cater to his/her needs.

For one, the statistic of having one-third of students starting off actually graduating when they intend to is nothing too proud of. For one, the fact that two thirds of students aren't sticking with what they started with indicates that there is a problem in student retention. A student out of high school is used to nothing less of excellence; however, in their first term at university, they've learned that they're many others like them and that excellence is a much harder endeavour than it used to be. Coupled with the many changes (and added anxieties) of moving to a new place to pursue an education, it's not surprising that some students have decided to leave the university altogether. At a completely financial standpoint, Waterloo stands to lose a significant sum of money coming from the students who drop out.

In addition, a vast majority of Waterloo students are not involved in research because of their backgrounds and the time commitment it would take if a student were to embark on their own research project. Since undergraduates don't get to see this side of Waterloo nor have access to the tools and resources available as a result of the research conducted, they are often left out of the loop in terms of what Waterloo is producing. Since there is almost nothing for undergraduates to claim as their own when new resources are introduced to the university, undergraduates can't help but feel ignored. Furthermore, when the professors themselves, who conduct such research, are not interested in the subjects they teach and aren't able to excite their students with the happenings around the university, there is no other motivation other than the piece of paper at the end of five years.

If the funding provided towards universities is skewed towards research, students will also run into a problem that's already plaguing many post-secondary institutes, rising tuition. As more and more of the money gets pumped into the labs spread throughout the university, additional funding needs to be obtained to fill in that gaps, and who else can the university turn to, in such a short notice, but its beloved students? In other parts of Canada there are students petitioning for free tuition. Would free tuition be possible if majority of the money is being allocated towards research? Probably not.

However, universities aren't the only facilities that conduct research. Research and development (R&D) is an important aspect of many companies. So from a company's point of view, would it be beneficial to skew their funding towards research? No, because this would limit companies to the number of employees, contractors, and even facilities they can financially sustain. Especially when hiring senior engineers, companies run into situations where many of these potential candidates are almost irreplaceable because of how deep and specific their knowledge is with regards to that field. Unfortunately, these one-of-a-kind candidates also come with a large price tag and, if a company has to put a significant portion of its budget into research, hiring a senior engineer would not be financially possible.

Still looking at an industrial company's perspective, investing a majority of its budget into research is a terrible idea, when looking at the profitability of the company. This is because a good majority of industrial companies make its revenue through mass production of simple goods or smaller production of highly specific products. Either way, if money is taken away from the development of the plant floors and put into R&D, the revenue of the plant will surely decrease. Yes, there is the argument of the research increasing the efficiency of production, but how much more can you realistically improve the production method and how does a small plant with a more efficient system compare to a large plant mass producing the same product?

Since government funding is a huge part of research, in both academia and industry, consider where the money comes from and where it goes. Government money is tax payer money and what do tax payers want with their money? They want it to be used appropriately for the needs of the public within Canada. Unfortunately though, the money allocated towards research may not always stay within Canada. Industrial companies often rely on cooperation from external firms to conduct research; however these external resources are often found in other countries such as USA. This means that Canadian tax payers are essentially paying American companies to conduct research that may not even benefit them. Therefore, as more money gets pumped into research, the more money companies use to build relationships with American firms, and the more Canadians end up sponsoring this.

Finally, the government also has its own research facilities throughout the country. These facilities, however, experienced large budget cuts under the Harper government due to the organizations "being lost" and hoping that the budget cuts will help the groups find the right direction again. So the question is should more money be put into the research that is not going anywhere? How does this benefit anyone? Having that money go into health care would benefit Canadians much more than research that is assisting no one.

Research is an important part in development, but skewing the funding towards it is not a good idea and should definitely not be done.

What about the Waterloo Dubai Campus?

HACHEM HAMADEH
UAE STUDENT COUNCIL

There have been several articles recently concerning the controversial closure of the Waterloo Satellite Campus in Dubai. *The Iron Warrior* article, "UAE Campus to Close: Now What?" dated November 14 of last year began:

"The news that uWaterloo was closing down its Dubai campus came as a surprise to most students."

Despite the content of this and other recent articles, the real voices of the Dubai campus students have still not been heard. The intention of this article is to redress this balance.

It is undeniable that many students were deeply disappointed by the news of the closure, especially past students of the Dubai campus. However, as for the students who are still part of the campus it was a very different and untold story.

On May 18, 2012, an article published by the Imprint entitled, "Hamdullahpur defiant in face of censure & budget cuts" had the following excerpt:

"There were a lot of questions when we decided to go to Dubai, whether we were doing the right thing. I am very proud to say that the Dubai campus is doing very well now…"

Hamdullahpur remarked, having recently returned from a trip to Dubai.

"The question in the first year was 'Can it swim?' Now it's, 'How fast can it swim? The Dubai campus has established a firm reputation for quality education. There are many other countries in that area that want to engage with our faculty and collaborate with research opportunities…"

Clearly the Dubai campus was enjoying healthy growth, and gaining momentum, presence, respectability and credibility with an increasing number of applicants both locally and regionally each year. Many people invested great time and effort into establishing this campus as a serious quality player in the fast developing sector of Tertiary Education in the U.A.E. No shortcuts were taken or compromises made to deliver the same experience to the Dubai campus students as that on the main campus.

Therefore, everyone was in shock when we received the news of the precipitous closure of the Dubai campus. Since the announcement was a surprise to everyone at the Dubai campus, the students (not to mention their families) were confused and worried, especially when the (now ex-) Provost did not come with any clear or reassuring exit plan. The second-year students were concerned that their fast approaching co-op terms would be in jeopardy. The first year students had many more worries to confront in addition to concentrating on their studies. Many first-year students were not planning to go to Canada so early; they were not ready on so many levels, whether mentally, emotionally, or economically. Some students had family or personal commitments for the next year that they will have to give up if they are to complete their education undisturbed. Unfortunately, no one thought of this and the students had no options. The students as customers, standard bearers and ambassadors of the university were shamefully neglected. Their opinion was never taken into consideration by the powers that be.

However, nothing more can be done at this point concerning the closure and the remaining staff and faculty and managers at the Dubai campus are working tirelessly to ensure that normal service is maintained during the closing down period. This still does not make up for the fact that this decision was unfair to everyone who has worked and put time and effort into building the campus. It does not make up for the disappointment of the students who had faith in the promises made by the main campus. What makes things even more frustrating for the students is that the reason for shutting down the campus is still unknown. In May, the campus was being hailed as a success by none other than the President, and six months later it is being shut down. This contradiction has not been addressed in a clear or satisfactory way by those responsible for the decision (whoever they are). A clear explanation is still something that most if not all students would love to hear before they go to Canada.

Two further articles have also been written discussing in a point and counterpoint manner whether satellite campuses should be one of the projects that Waterloo should focus on or not. These two articles used the Dubai campus as one of their examples, and unfortunately, the use of the example was more effective in the counterpoint arguing against the opening of more satellite campuses. Neither article touched on or even questioned the reasons behind the alleged failure of the campus, which is probably the most important point that should be considered when such future projects are proposed. However, an article recently posted on the Faculty Association of the University of Waterloo (FAUW) Blog might shed some light on some of the implied attitudes which led to the closure of the campus.

The article, "To Provost or Not to Provost?" raised a very important point that any student on the Dubai campus would find insulting and very inappropriate considering the circumstances. The purpose of the article was to inform FAUW members of the resignation of the Vice-President Academic and Provost (VPAP); and to list her few achievements (since she was only in the position for a very short period of time) and to demonstrate her competence in such a position. Starting on line 12 of the article (based on the webpage format when the article is printed) is the second 'significant development' that the VPAP achieved: the closing of the Waterloo Satellite Campus in Dubai. In spite of the sadness that the news of the closure of the Dubai campus brought to everyone in Dubai (only in Dubai apparently), what was sadder was that the closure of a satellite campus and the failure at expansion, is addressed as an achievement by the ex-Provost and was 'cheered' by the author. Clearly, this campus did not have the blessings of at least one eminent member of the Faculty Association, who by his prominent title is representing the entire faculty membership of FAUW in this article. Once again, the voice of the students was ignored in this one-sided article.

Let us look at some of the achievements of the Dubai campus rather than dwelling on the unsupported innuendo. A new campus was established more than 10 000 km away on a different continent. Enrollment, resources and equity with the Canadian campus were all issues that had to be addressed. Start-ups always need time and support before they can stand securely, academically and economically by themselves. Nothing was a given, and it is obvious that factions on the main campus were not willing to help and support the Dubai campus to get through the critical first few years. The first cohort of students is due to graduate soon and locally, the university has established a good reputation in the U.A.E. and many other countries in the region.

The details behind the campus's functionality are unknown, yet it is very insulting and unprofessional for the campus to be called a 'debacle' in the aforementioned article "To Provost or Not to Provost?". This 'debacle' has already sent two cohorts of students to the main campus; was and will for one last time send two more cohorts of international students that match the high academic standards of the University of Waterloo; and who will add diversity to its student community. Calling this campus a 'debacle' implies that those working on this campus were not doing their job properly; when in reality it appears to be those on the main campus who were not doing their job; starting from the ex-Provost.

Students on the Dubai campus do not know

University Fairs

The (now ex-) Provost did not come with any clear exit plan for the Dubai students leaving many worried about their future.

of the background concerning this project and the planning that was undertaken. Nonetheless, the FAUW article uses the fact that 'a capital offense' would be committed by 'an openly gay faculty member' as a reason for closure, which is absolutely absurd. Just as people and students have to respect the Waterloo policies when on the Canada campus, the cultural sensitivity of the Middle East region must also be taken into consideration just like any other part of the world. It is disappointing for a seemingly open-minded community or member to comment in such a manner, as the comment in itself is discriminatory against the religious beliefs that must be openly practiced and respected. Different cultures require different mentalities and policies to be implemented, and having flexibility is an asset and shows the greater understanding of the Waterloo community. Unfortunately, the opposite has been displayed. The University of Waterloo is a large university and has enough faculty, staff and expertise to adapt to an environment under the aim of delivering quality education.

Despite it being a very minor point that does not contribute to the argument, the author of the FAUW article did not take the time to capture a proper, recent or representative image of the Dubai campus. The image displayed, showing an area behind the cafeteria, is about a year old, and has changed drastically since that time. In addition, using that picture was meaningless and a picture of the main campus building should have been taken instead. Overall, it shows how the Dubai campus was being viewed the whole time.

This article does not intend to insult or inappropriately address anyone who might have been mentioned throughout. It is a response to all the previous articles which have neglected to consider the thoughts and feelings of those who were most affected by the closure: the students. It is an insight into what the students on the Dubai campus felt once the news was delivered and a reply to the way that the Waterloo Dubai campus has been treated and portrayed.

3D Printing Pen Lets You Draw In The Air

KEVIN VELOSO
4C SOFTWARE

Ever doodled something and wanted to be able to lift your pen off the paper and draw in the air? 3Doodler is a 3D printing pen that lets you draw in the air without the use of any regular surface. The 3D printing pen works by rapidly heating up the plastic "ink", which quickly cools down as the plastic is released from the pen. The pen supports the use of both ABS and PLA plastic, the same kind of plastic that can be found in most 3D printers. Simply turn it on, load the 3D pen with the plastic, wait about one to two minutes for the red light to turn blue, and you're ready to print! 3Doodler has two different speeds for releasing plastic: fast mode for larger or wider prints, or slow mode for more delicate or precision prints. The pen supports printing in mid-air, as well as printing on print-out stencils for more intricate print designs.

At the moment, the 3Doodler has raised an incredible amount of money. Originally, the company had $30,000 as their pledge goal, but with recently popularity on the Internet, 3Doodler was able to raise over $2.1 million in two weeks on Kickstarter, a funding platform for projects. As of this publication date, there is less than two weeks left to back this project, with very few pledge options available. Most popular pledge options are sold out, including options that offer the pen with bags of various coloured plastic. Unfortunately, we'll have to wait until at least June of this year to see the über early adopters play around with this pen. For now, the folks responsible for the pen are collaborating with some sellers on Etsy (a shopping site for handmade and craft items) to showcase various creations made by 3Doodler.

There are several interesting things to note about this 3D printing pen. Although it's not like a conventional "printer" that takes in data from a cable, it is still considered a printer in the sense that it still produces objects such as a 3D image. Some people such as the folks at SingularityHUB consider this more of a 3D "craft pen", rather than a handheld 3D "printing" pen.

This pen also reminds me of a glue gun, but the pen design and the heating and cooling process makes this neat little invention more versatile (although I don't think it would work as a good adhesive like a glue gun).

It's interesting to note that the 3Doodler doesn't run on an ink cartridge model, thus the plastic tubes are not provided by the manufacturer. The Kickstarter page lists several places to purchase plastic spools used by the 3D printing pen, including both ABS and PLA plastics for those with a preference for either material.

endtasks.com

The 3Doodler raised over $2.1 million in two weeks on Kickstarter

I would definitely like to get my hands on one of these 3D printing pens to play around! It looks like a very fun tool for hobbyist and artists.

3Doodler is a project invented by WobbleWorks, a toy and robotics company whose founders met while working in Hong Kong. To learn more about the development of the 3Doodler project, as well as finding more about how to contribute to this project, you can go to their Kickstarter page here: kickstarter.com/projects/1351910088/3doodler-the-worlds-first-3d-printing-pen

MasterCard Announces PayPass to Become MasterPass

Revamped Service to Include Scan-Based Payments

JACOB TERRY
2T NANOTECHNOLOGY

MasterCard announced an extension to their current PayPass program at this year's Mobile World Congress, expanding the network to be compatible with any mobile device. PayPass is best known for allowing MasterCard users to tap cards against compatible machines instead of having to enter a PIN, and also allows some limited support for select mobile phones that support Near Field Communication (NFC). MasterPass is the next version of PayPass, allowing for purchasing of items in-store by scanning barcodes directly in a store's application.

Anyone who has used the Apple Store's EasyPay system may find this familiar. In November 2011, Apple introduced an iOS-based payment system allowing customers at their stores to scan items they wish to purchase in the store and pay for them through the credit card used in their iTunes accounts. Customers get receipts upon completion of the transaction and can show an Apple Store employee to receive a bag or as a simple proof-of-payment before leaving. The process, while arguably not much faster at the moment than just getting an employee to tap the card against a machine for you, is designed to make it easier for customers to go into a store, purchase items, and exit in a matter of minutes. It also makes it cheaper for Apple to operate the store since they can have less staff monitoring checkouts. Apple's implementation may not be the first time it has ever been used in a store, but it has been one of the most notable early-entries into the cashier-free payment system in traditional stores.

The introduction of scan payments in MasterPass will extend this function past the relatively small testing bed of Apple Stores to thousands of other stores, assuming they integrate the ability into their own apps. If it has the support it expects, it could be possible to scan and pay for a variety of goods from retailers, but it's likely to be limited in its scope to places where it is remotely practical. The grocery checkout line, for example, may need to be rethought to make use of MasterPass in its presented form, since there are so many items that would need to be verified when they check you out of the store. MasterPass will be brought to Canada by the end of the month, giving you a chance to check out their mobile wallet before Americans for a change, who will receive it in the spring.

MYO: Wearable Gesture Control by Waterloo Tron Grads

MEAGAN CARDNO
1B NANOTECHNOLOGY

With the bold tagline "Unleash Your Inner Jedi", Thalmic labs had already grasped the attention of many people. Its 90 second video has accrued over two million views in under two weeks. That is a lot of hype for a company founded only last year.

The concept of the device itself is rather simple, and not entirely groundbreaking in nature: motion-based control that removes the 'controller' from any aspect of technology, from video games to formal presentations to audio systems and robotics technology. But it is appealing in the fact that it eliminates much of the previous restrictions of this idea of gesture-based controlling, including either camera-based control, which is rather unrefined and makes mobile use impossible, or with held devices that simply add a motion-based aspect to current controllers rather than remove the issue of hindered use of hands. The MYO is based on the idea of measuring electrical activity in your muscles through an arm band, thus interpreting different hand, finger and arm motions as unique signals and inputs, allowing for a very diverse method of interacting with anything electronic without the need of bulky devices.

Thalmic Labs, founded by three Waterloo mechatronics graduates, has already begun preorders of the new device, starting with the fairly reasonable price tag of $149, considering what you paid for your Wii when it first came out. Their website quotes less than ten thousand units available for preordering, with shipping beginning in late 2013. The MYO uses Bluetooth pairing technologies to communicate when connected, with full support to Windows and OS X computers, and plans for future Android and iOS interfaces as well.

In addition to the muscle-sensing technology correlating a greater freedom of motion when using electronic devices, it also means that response time will be even above expectations, as the muscle activity the device will measure in your arm will occur slightly before your arm or hand even moves. Delayed responses in technology will be a thing of the past.

Of course, a frequent concern would be that the device could have accidental triggers, as there would likely be many mishaps if one forgets that they are wearing the device. Thalmic Labs has taken this into consideration, though, as they are quoted as having a unique On/Off gesture that will be unlikely to occur unintentionally, accompanied by "haptic feedback" (most likely a small vibration from the device) to make it obvious when it has be activated or deactivated. What the gesture is has not been officially stated, but I am personally hoping for it to be the Spiderman web slinging action.

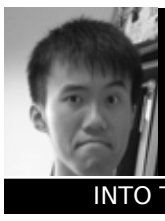
Aside from the obvious simple novelty of the item, the further development and exploration of this technology could lead to many improvements in our everyday lives in terms of efficiency, safety, and general well being if integrated into the right technologies. It is also particularly nice as an alternative to voice-based operators, unbiased towards people with specific accents, languages, or speech capabilities, and unhindered in high-noise environments.

The only question that remains is what this will be able to add to the technology of prosthetics, because I know of a few Jedi who could use a new arm. Or two.

getmyo.com

The MYO uses muscle sensing technology to eliminate response delay.

New Spectroscopy Method May Lead to Improved Optical Devices



BRIAN SO
1B NANOTECHNOLOGY

INTO THE NEW WORLD

A multi-university research team has gained insight into how light is emitted from layered nanomaterials and other thin films through a new spectroscopic technique. The technique, called energy-momentum spectroscopy, allows researchers to tell whether or not the light emitted from a certain film is coming from emitters that are oriented along the plane of the film or perpendicular to it. By knowing the orientation of such emitters, engineers may be able to capitalize on the applications of thin films, such as in LEDs and solar cells. These results are due to a collaborative effort between Brown University, Case Western Reserve University, Columbia University, and the University of California—Santa Barbara.

Energy-momentum spectroscopy takes advantage of a well-known property of light – interference. Examples of such interference are the rainbows that you see on the surface of bubbles, or the surface of oil slicks. This property allows scientists to calculate properties of the material such as its thickness, by making use of the angle at which the light is hitting the thin film and the constructive/destructive properties of light which interference entails.

"The key difference in our technique is we're looking at the energy as well as the angle and polarization at which light is emitted. We can relate these different angles to distinct orientations of emitters in the film. At some angles and polarizations, we see only the light emission from in-plane emitters, while at other angles and polarizations we see only light originating from out-of-plane emitters." said Rashid Zia, assistant professor of engineering at Brown University and one of the study's lead authors.

This technique has been used on two different films of different materials: molybdenum disulfide (MoS2) and PTCDA (acronym for a complex organic molecule, whose name is longer than this description of the long name). These two materials have potential optical applications. MoS2 is two-dimensional and similar to graphene, whilst PTCDA is essentially an organic semiconductor. The emissions from the MoS2 film are shown to come only from in-plane emitters, and PTCDA comes from both in-plane and out-of-plane emitters.

By knowing the orientation of the emitters, it is possible to construct devices with a structure that is able to maximize on this fact by layering the thin-films on top of one another. The orientation of the emitters tells us whether or not electrons will travel in the layer or across the layers.

"If you were making an LED using these layered materials and you knew that the electronic excitations were happening across an interface, then there's a specific way you want to design the structure to get all the light out and increase its overall efficiency." said Zia.

The same concept can be applied to any sort of light-absorbing device such as a solar cell. This study shows how with just the understanding of excitations in a material, we will be able to more efficiently convert incoming light to usable energy.

Facebook's Redesign a Sign of the Era of Mobile Design

JACOB TERRY
2T NANOTECHNOLOGY

T CUBED

Facebook announced another redesign last week (which should come as no surprise to anyone who uses the website), bringing some new changes to how content is organized on the main page of the network and other visual tweaks to how stories are displayed. A large move behind the change was combining the design behind the mobile and desktop versions of the site to make it more consistent for users.

On the left side of the screen is the new menu, much like you'd see in the mobile applications, and Facebook Chat, both contained in a tall black sidebar. It's easier to filter the News Feed to show specific themes, such as games, music and sports, or have a feed of all content (Most Recent) by using a table in the upper right corner of the screen. At the top, for those who don't already have it changed, the layout is changed to show Facebook's new Graph Search tool in the top bar. A much larger focus is put on content in the News Feed as well, replacing little boxes with giant photos with overlaid text, widgets for different kinds of content and cleaner, compartmentalized views for stories.

Most of these elements are already present on Facebook's mobile apps, and in a move that has become more common in user interface design in the last few years, most changes are moving from the lower size displays to the larger ones. The longstanding trend in web and application design since earlier days has been to design for desktop hardware and displays and then build a small, perhaps less functional version for a mobile operating system. In the days where Pentium processors reigned supreme and PalmPilots were the most advanced computers one would have in their pocket, it made sense to target larger displays with your primary design since most people were using desktops and laptops to access content. With the advent of the iPhone and other modern smartphones, and even more with the release of the iPad, it has become increasingly important to put effort into mobile devices as more people start doing their primary communicating through these new interfaces.

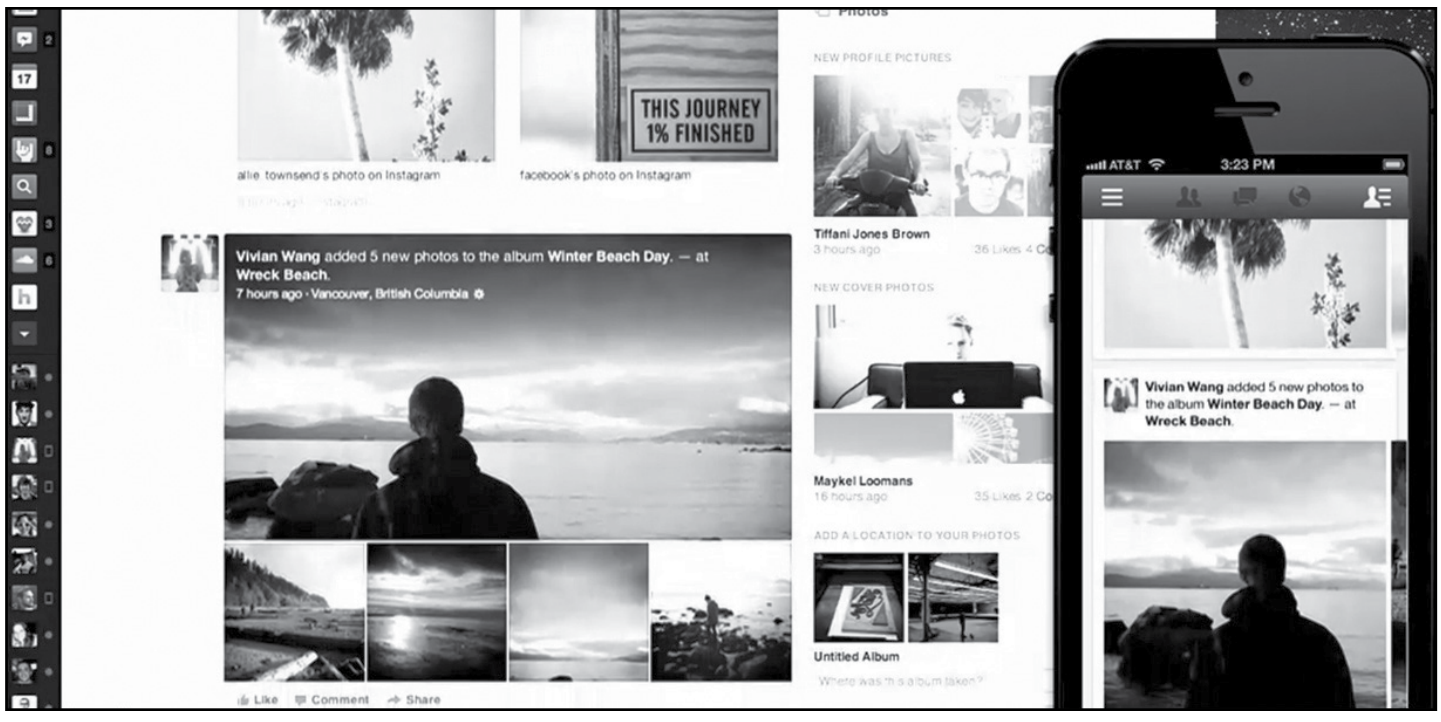
On The Iron Warrior, at the beginning of March our statistics show that 60% of our traffic originated from Windows, 22% from OS X and 2% from Linux. Part of the remaining percentage is from mobile devices, as 9% of our traffic originates from iOS, 4% from Android and 1% from BlackBerry. Now, our website is not too heavily visited, since we only get about 3000 visits per month, mostly from a select demographic, but it's very likely that looking back before 2006, mobile devices as a whole would have registered at a mere 1% of the traffic for our site, if even that. Considering that much of our time on production weekends is spent working on the site in the browsers, our statistics overrepresent Windows as a source of our website traffic, so mobile usage is a greater percentage of outsider traffic than is reported. Our website isn't the best right now on mobile devices, but it is definitely something we are prioritizing when looking at how to improve it for the future.

You don't have to just look at our traffic to see how important it is to target mobile devices when considering design. Net Applications reported that for February, websites had 79% of all traffic originate from Windows, 6% from OS X, and 1% from Linux. For mobile devices, 8% of all traffic originated from iOS and 4% from Android. These are worldwide statistics, so results in each country likely vary, but the fact remains that at least 12% of traffic to websites comes from mobile browsers, and their share is climbing continuously. More than ever, it has become important to take as much into account how a website looks on a phone or a tablet versus a desktop browser.

An increased importance placed on simplicity and a boom in mobile app design has helped in fuelling the trend in bringing mobile design to the desktop. When Apple first launched iOS, they took OS X and packaged down the necessary parts of the operating system to make something that worked for mobile devices. In recent versions of OS X, elements introduced into iOS have been working their way back up, bringing features like true full-screen applications and simplified menus back to the desktop operating system. Part of this, on Apple's part, is necessitated by the 11-inch MacBook Air, whose screen is almost as small as an iPad's yet needs to fit a desktop operating system inside of it. Another part of this is that by reducing elements down to their fundamental components out of necessity, it becomes easier to realize what is truly needed to be shown to a user and what should be hidden away, and just because a desktop has more screen space to work with doesn't mean it should be filled with useless controls and endless menus. Instead, the controls that are needed in the moment should be displayed, but the main focus should be on content. iTunes 11 does this extremely well, by hiding the former sidebar into a menu on top, bringing greater focus to the user's albums or movies, or to the iTunes Store should the user want to navigate to it. This lets the sidebar be more useful, such as in the Podcasts window where it now displays a list of the podcasts that a user is currently subscribed to, and upon being clicked it displays a list of recent episodes.

Google has been showing improvement in this regard as well, and Google Chrome is another good example of how to keep design simple yet practical. All that you see on the screen is one little bar for the URL and a couple functions, and the list of tabs, keeping a much larger portion of the screen reserved for content. When compared to how Internet Explorer was during that period, notorious for allowing rows of useless toolbars, it was a reminder of how web pages, and not gimmicky buttons around the page, were the primary use of a web browser and how that philosophy should be reflected in the browser's design. Microsoft's efforts on Windows Phone with their flat, text-based visual language were brought into Windows 8, which was one of the things that went in the operating system's favour upon release. The parts that still clung to old design paradigms looked oddly old and out of place, a bizarre juxtaposition of a bold, new cleanliness for Microsoft's products against the monolithic and complicated design from before.

So, if you're looking for what design ideas will be coming to desktops in the future, your phone is probably a good indicator. It wouldn't be surprising to see more Holo-like elements brought to Google OS, or for news sites to look a little more like Flipboard and less like *The New York Times*, for the age of crowded toolbars and bulky interfaces is reaching an end, and the age of intuitive and understandable controls masking powerful functions is making its debut.



endtasks.com

Facebook's new redesign is the most recent example of the mobile-to-desktop trend in user interface design that has blossomed in recent years

Tesla's Struggle for an Electric Future

JACOB TERRY
2T NANOTECHNOLOGY

Electric vehicle production company Tesla Motors entered a high-profile dispute with *New York Times* writer Jon Broder in mid-February over a highly critical review of the writer's experience with their Model S sedan, starting a large discussion about the validity of his claims and the viability of the electric car in today's environment.

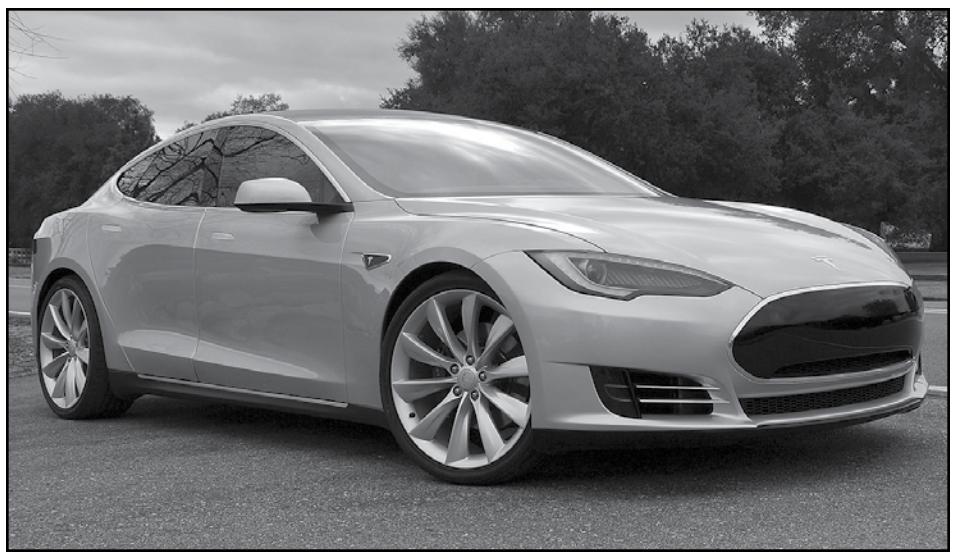
The February 8 article outlines Broder's test drive along Interstate 95 on the American East Coast, where Tesla had recently installed two Supercharger stations to allow drivers to go between Boston and Washington DC. His account noted issues primarily related to weather, where the cold weather appeared to make his estimated range drop dramatically, even after turning off the heater as recommended by Tesla's employees. In one case, he was barely able to get to a Supercharger station and in another, he claimed to end up five miles short before the car shut down and he had to call a tow truck to pick up the car. During an overnight stay, he woke in the morning to find that the range of the vehicle had dropped by 73%, which led to some issues with mileage the next day.

Tesla's CEO Elon Musk, who is also behind the founding of PayPal and SpaceX, argued that Broder's article was false, saying that his vehicle wasn't fully charged before leaving and that he took a long detour, negatively affecting his ability to reach his next destination. *The New York Times* backed Broder's account and posted a map detailing points during his drive where had made stops and what his mileage was at each point. They also claimed that he followed all instructions given to him by Tesla and that he was never told to leave the car plugged in overnight, which would have prevented the car from dropping so dramatically. Musk also stated that Tesla is still planning on installing more Supercharger stations along the east coast, aiming for having ones located 100 miles apart instead of the 200 miles currently between the stations.

Tesla then wrote a long post arguing many of Broder's points using the log from the car, then suggesting Broder has an anti-electric vehicle bias due to his article last March which claimed the electric car was in a poor state and had a questionable future. Most of Tesla's points disagreed with Broder's speed claims, and the log they posted showed that he had driven on cruise control for 60 mph, not 54 as he had claimed, that he had driven between 65 and 81 mph for most of the trip and that he had not turned down the temperature at the time he said he turned it down. His charging times also dropped each time he visited a station, so he left each station without charging the car completely.

Broder responded stating that while some of Tesla's claims were true, others were either explainable misunderstandings, such as not fully charging at each station since he felt it was unnecessary, or were false, saying he had definitely charged at one station for the time he had stated, even though Tesla claimed it was 11 minutes less than his claim. *New York Times* Public Editor Margaret Sullivan ended the two-week debate by defending Broder's integrity while stating he may not have used the best judgement, and also saying that some of Tesla's data appeared to be misleading.

If this was a review for any average gas-powered vehicle, it likely would not have become as large of a disagreement as it was, but Tesla has more at stake than most car companies. The electric car has had a struggling history since the 1920s, when improved roads necessitated the demand for cars that could drive longer than the electric cars of the day. The combination of the removal of the hand crank in favour of an electric starter, the introduction of the muffler and Henry Ford's mass production lines made gas vehicles cheaper and easier to use. Environmental, economic and societal concerns have brought alternatives to gas-powered vehicles back to the forefront, but poor experiences like the one documented by Broder push Tesla down while it's still trying to rise. It's already incredibly challenging for new carmakers to establish themselves in a market dominated by multi-billion dollar companies with a strong foothold on the industry and millions of dollars spent on lobbying governments to serve the status quo.



getmyo.com

The electric car has struggled since the 1920s; the Tesla Model S is no different having its own fair share of issues

In Tesla's defense, their infrastructure has been barely implemented on the East Coast, since their Superchargers were only installed a few months ago. However, if Tesla wants to push their car as comparable in experience and satisfaction to a gas-powered vehicle, then Broder's account was fair in some elements, and there is still much work for Tesla to do. On the other hand, their vehicles are the most promising electric vehicles seen in recent memory and their design in both their vehicles and at their site is phenomenal. There will be stations coming to Canada soon as well, with two stations expected to be placed between Toronto and Montreal and one in Vancouver along a route to California. Broder's experience may not have been ideal, but if Tesla's model proves successful, we could be seeing more Teslas in our cities, and if that reduces our dependency on gas, that's an exciting prospect.

Toddler Cured of AIDS: One of Two Recorded Cases

NANCY HUI
3A CIVIL

Scientists in Mississippi appear to have cured a baby born with HIV. The child is currently two and a half years old and has been off medication for one year. There is no sign of infection, although testing shows traces of the virus's genetic material in the child's body, which are not replicating.

The child was born to a mother with HIV who was only diagnosed with AIDS during labour. Pregnant mothers with HIV can take medications that prevent the fetus from contracting HIV. Children who are at risk of contracting HIV during birth usually receive a low-dose liquid medication to prevent the virus from taking hold in their systems. This medication was not available at the rural hospital where the child was born, thus the child was transported to the University of Mississippi Medical Centre.

There, the child was found to have a high level of virus in their blood, showing that the virus was probably contracted while in the womb. The medical team, led by Dr. Hannah Gay, the pediatric HIV specialist at the university, set the child on an aggressive treatment plan, starting with a three-drug infusion 30 hours after birth, which is earlier than usual. Treatment continued until the child was 18 months of age.

The early treatment prevented the virus from forming reservoirs of dormant cells within the body. In most patients, these reservoirs rapidly reinfect anyone who stops medication. As such, ceasing treatment is seen as death sentence. However, the child in this case has been off medication for 10 months, and in long-term remission. As the child is unlikely to require more treatment in the foreseeable future, the child is deemed to be functionally cured.

This is only the second time that a person has had HIV eradicated from their body. The other case was that of Timothy Ray Brown who received a bone-marrow transplant in 2007 for leukemia. His donor was an individual with a mutation that made white blood cells resistant to HIV. Brown has not required HIV treatment in the five years since receiving the transplant. Unfortunately, bone marrow transplants are dangerous, require the patient's own immune system to be destroyed, and have severe potential side effects like skeletal pain, deep vein thrombosis, fatigue, and death. Combined with the rarity of the relevant genetic mutation, bone marrow transplants are an unsuitable solution for large-scale HIV treatments.

Future research may focus on the impact of early and aggressive treatment in other infants born with a high risk of HIV infection. Researchers and public policy makers may also slowly shift work from the development of HIV prevention to an HIV cure for the 34.2 million people worldwide who currently live with HIV.

National Engineering Month and Why the Public Probably Doesn't Care

ROB REID
RESEARCH TEAM LEAD

As you probably know, March is National Engineering Month in Canada. The goal of NEM, according to NEM Ontario is to "celebrate engineering achievement; inspire the next generation of engineers, technicians and technologists; and contribute to a new direction for the profession." In my opinion, NEM is a tokenistic gesture marked by a few posters, events, and trinkets given away. If it hopes to fulfill its mission, it must strive for more meaningful changes. Specifically, I think that engineers must become more comfortable with becoming advocates for political and social change if they are to truly apply science to serving society. While scientifically-based policy alternatives exist to pressing social issues, the most political NEM gets is publishing letters of endorsement from the prime minister and governor general on its website.

As anyone who has taken a 100 level course or solemnly slipped on an iron ring on knows, engineers take upon themselves at a personal and professional level a responsibility to serve and protect society. Although engineering law has a definite voice on what constitutes this duty, engineers often go beyond this status quo and design and implement technologies that inspire us as they improve our quality of life. Technical achievement is something that is done as much out of personal drive as for lucrative patents.

We know however that just as environment doesn't stop where the pavement starts, society doesn't end where machinery starts. Engineered technologies are inextricable from the social systems that necessitate them. This goes beyond the physical realm of just ergonomics; the tools we decide to create to empower ourselves are driven by core values of what it means to be human or a member of a society. If we can accept that engineers are at once as much involved in society as technology, we can start looking at the role of the engineer to serve society in a more direct way.

Efforts to change society always require a political stance and can lead to contentious arguments propped up with select facts carefully placed within an ideologically-driven argument. Researching this article, I came across some formidable flame wars and I can tell many stories about people simply refusing to talk to me about issues no more political than trade and labour standards. Not every social problem can be fixed with a technological solution. In fact, very few can be mediated so simply and objectively. For an example close to Waterloo, Engineers Without Borders, the organization I am now writing for, was founded by two Waterloo mech eng grads who believed in "human development through access to appropriate technology" for quite a few years until they realized that such a narrow scope of problem-solving wasn't getting them anywhere. They now don't actually build any physical infrastructure anymore, and instead focus on applying engineering skills to create change, through things such as market facilitation of smallholder farmers and incubating startup social ventures.

Seeing the navigation of political and social issues as a minefield is a bit of a straw man. There are such things as research in economics and policy that can inform decisions in an objective way. However, this objective analysis is largely missing from politics; there are only 2 engineers in federal parliament, and even institutions as big as the World Bank pursue policies not held up by substantial evidence (for example, that austerity policies can stimulate economic growth in GDP-poor countries). Although there are many highly-contentious issues in politics, there are also many scientifically-justified, "no-brainer" ideas that don't get through parliament due to a lack of political leadership by people more concerned with propagating an ideology than doing something useful. This ignorance of science was protested this past summer by scientists across the country following the federal budget bill, notably with the "Death of Evidence" demonstration on Parliament Hill (which Waterloo students were part of organizing).

In 1959, in the thick of the Cold War and repressive McCarthyism, Paul Lazarsfeld conducted one of the first big studies on the political orientation of university professors in The Academic Mind. I concede that the majority of engineers and certainly P.Engs work outside of research, but this was an interesting study as it spurred a whole subfield analyzing how "subjective" political leaning was related to "objective" scientific progress, and that it was given heavy weight given the political atmosphere on campuses at the time. Note also that although the 60s and 70s are largely idealized as a golden age of activism (especially campus activism – immortalized by such event as the Kent State Massacre), the 10th anniversary of the largest anti-war protest in history was just last month (over 3 million demonstrated against the US-led invasion of Iraq in Rome).

A 1972 study in Science by Lad and Lipset following in the tradition of Lazarsfeld found that engineers are typically more conservative than natural scientists who were more conservative than social scientists, but that generally the more successful and influential scientists and engineers are more liberal than their peers. Nearly 30 years later, a 2005 paper by Rothman, Lichter, and Nevitte published in the Berkelely Forum finds that the rankings haven't changed much, with percentages of professors declaring a left-leaning allegiance as: humanities: 81%, social science: 75%, engineering: 51%, and business: 49%. When I think of conservatism, I think of caution, safety, and reliability – all things integral to designing things with public safety in mind. Similarly, the sciences can afford to be more liberal because they are not directly involved in affecting the public. However business is a field that is just as politically conservative yet gambles a lot more than engineering can afford to.

The issue is obviously much more complicated than a bipolar spectrum can explain, but given my experience around engineers, engineering profs, and engineering students, engineering as a profession feels safer leaving politics and social issues up to other people and focussing on things we know we have been good at in the past. On one occasion when EWB was first attending an event in the E5 student design centre as a student design team, another student team remarked that the main difference between our teams was that theirs didn't brainwash you. Although this was probably not intended maliciously, I think it shows the tip of the iceberg that engineering students don't feel like they have any place engaging politically.

Similarly, with NEM, I feel like "a new direction for the profession" was taken in a pretty tokenistic way, just one more thing to make posters about and throw cheap plastic knickknacks at. I think NEM has the potential to be more than just adspace on posters and pens that are pretty cool but are going to break and get thrown out in a few weeks, but it would take a concerted effort by the profession. If the most successful engineers in technical advances get there by going against the grain and striving for something new, can we not seek to be similarly active in social spheres?

Unlike businesspeople or scientists, engineers are bound by a professional code charging them to make decisions in the interest of society. This gives a legal argument for making the decisions above the status quo that need to be made to change society for the better. Currently, engineers aren't typically sued for malpractice beyond technological design failures, but what if the public became a lot more critical of engineered solutions and precedents were set for prosecuting engineers that didn't think holistically about their designs – not considering the carbon footprint of a building, economic effects on working people when building a new condo in a downtown neighbourhood, or the mental health effects of the layout of a school? Currently, the only things that compel engineers to act on these more social dimensions are government regulations and orders, contractual agreements, and professional liability. None of these mechanisms are currently enough to force engineers to speak against the status quo and for new directions required by society. It is true that some people choose to develop and hold to strong ideals in their work, but without solidarity across the profession, those who stand out will simply get bumped out for the lowest bidder. The choice is entirely ours as to whether the next generation of practicing engineers will push the envelope for designs that perform as well socially as they do technically and establish a new legacy of professional conduct.

Commissioner Applications and Policy Manual

YASSER AL-KHDER
PRESIDENT

I'm going to make this short and sweet, like me. (I'm 5'5" and I may be covered in sugar at the moment)

Commissioner Applications

It's not too late!! Commissioner applications are still open until midnight. We might even extend the deadline if we're in a good mood.

Commissioners are directors who work very closely with the exec and/or are in charge of multiple directors. The commissioner roles that are available for the Fall term are Speaker, Communications Commissioner, Student Life Commissioner, Waterloo Engineering Competition (WEC) Commissioner, Outreach Commissioner, and First Year Commissioner. More info can be found on the application form at bit.ly/f13commissioner.

Policy Manual

The addition of the Policy Manual back to the Society's documents, as well as some changes to the Society's Bylaws will be up for a motion at the EngSoc meeting today at 5:30 PM. The Policy Manual includes procedure to some of the more important operations of the Society, such as allocation of funds via sponsorships or the Engineering Capital Improvement Fund (ECIF), and elections and referenda. Changes to the Bylaws include allowing students to run for a position on the society that they will be part of in the future, regardless of whether they are in that society at the time of nomination. So Nanotechnology and ECE students will be able to run for an executive position on the society that they will be switching to due to their back-to-back academic terms. If you have an opinion regarding these changes, talk to your class rep. Or better yet, come to the EngSoc meeting and voice your concerns.

Well that's all I have for now. See y'all in two weeks!!

Yasser.

Course Critique Kickoff

ORYSIA SOROKA & MEGAN MCNEIL
VPS EDUCATION

The term is starting to wind down. Finals are fast approaching. This term sure went by quickly!

In the upcoming couple of weeks you will be completing course critiques for each of your engineering courses. Course critiques are an excellent method to give direct feedback on the courses that you are taking. The results from the critiques are reviewed not only by the professor but the department and the faculty as well. The critiques are split into three sections: characteristics of the instructor, characteristics of the course, and instructor feedback on the reverse. The results are then compiled and a weighted average is calculated for each question.

While you are completing the critiques, remember to pay attention to the format of question that you are answering. Question six, eleven, and twelve are centre-weighted. This means that they are weighted on a different scale which favors the middle response as the best answer and A/E as the lowest weighted responses. Another tip to keep in mind is that while all of the questions are important, questions ten to seventeen are the best indicators of the quality of teaching and the overall course which are often the most important factors for students.

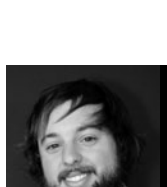
For those of you who don't know, the results from past course critiques are available online for all Waterloo Engineering undergraduate students at eng.uwaterloo/critiques/ or via course the critique link from engsoc.uwaterloo.ca. The results can be filtered by term (FALL, WINTER, SPRING), instructor or by course. Next time you are considering a course, think about heading over to view the course critiques and looked at what previous students thought about the course or instructor.

Last but not least, a huge thank you to our amazing course critique director, Shari King. She is an organisational superstar.

Did you know, the word "lethologica" describes the state of not being able to remember the word you want?

Keep Smiling, Megan

½(NEM) = A\/\/3$oM3



KRISTINA LEE
VP EXTERNAL

March is designated as National Engineering Month (NEM), and is celebrated by teaching Canadians about engineering. NEM events teach the creativity and diversity of the engineering profession by reaching out to young Canadians through different events that take place across the country. Engineering is relevant to everyone in one way or another, and NEM hopes to spark interest to allow the profession to grow.

The University of Waterloo hosts multiple events that aim to engage students and help them figure out which area they enjoy best in engineering. The Rube Goldberg Machine and CANstruction took place this past weekend and were a great success. Thank you so much to the CANstruction director, and Rube Goldberg Directors who have put their time and efforts towards making these events happen.

There are a few more NEM events happening later in March. Join the Grand River Chapter PEO at THEMUSEUM on March 23, for a K'Nex bridge building event. If you're interested please contact terrygomez@rogers.com. Also on the 23 is the Girl Guide Badge Day: come out and help girl guides earn their engineering badge!

If you noticed campus got busy earlier this week, it's because of the March Break Open House! High school students came for one last look at our engineering programs before making the big decision! Thank you to everybody who took time off to promote Waterloo engineering and organize the day.

But what else is there to do in this city?? Well I'm glad you asked! The City of Waterloo has something for your inner athlete, environmentalist, and artist! For those who are interested in art, the Ballet Jorgen Canada will be performing Swan Lake on March 16 in Kitchener.

Do you want to make Waterloo a greener city? Attend the ClimateActionWR Community Forum Series and give input on a plan to lower greenhouse gas emissions over the next 10 years. The Series will being held March 19, 21, 25 in three separate locations in the Waterloo Region.

Whoever thought golf was for summer weather, think again! The Mid-Winter Indoor Golf Classic is running from March 21 to March 23. All proceeds from this event will go towards the Brain Injury Association of Waterloo-Wellington.

Enjoy the rest of NEM!

Mo' Money, No Problems!

PETER ROBERTSON
VP FINANCE

The money is good! So far this term we're operating well under budget and I see that trend continuing. This is due to a couple things, including more income from student fees than was projected, some events being cancelled because of scheduling conflicts (there just aren't enough weeks this term!), and mostly that a lot of directorships haven't submitted expenses yet. The moral of the story? Directorships should keep submitting expenses! There are forms on the wall behind the door of the Orifice. Fill one out and leave it in my mailbox and I'll get back to you.

NOVELTIES HAS NEW THINGS! This term we've added a couple items to the Engineering Novelties inventory. You can now purchase the Waterloo Engineering pull-over or zipped hoodies in PURPLE! That's right, PURPLE! And we just got in brand new BOTTLE OPENERS! They're professional bartender-style and look awesomely sleek in glossy black stainless steel!

BUT WAIT THERE'S MORE! And this is the big one ... PURPLE PLAID PAJAMA PANTS! Novelties now has purple plaid Waterloo Engineering pajama pants. And from experience I can tell you that they are the most comfortable things in the world. Come in to Novelties today and get a pair!

Look for where this term's EngSoc Sponsorship has been allocated in the next issue of *The Iron Warrior*.

Joe Dykstra

New black, stainless steel bottle openers are now available in the Noveties Shop

Waterloo Engineering: Bringing Out the Artist in You

CATHERINE DECLARO
VP INTERNAL

As the stress of midterms melts away and we wait for finals to hit us, now is a great time to appreciate some of the finer things in life. EngSoc isn't all about meetings, hockey, and puppies! We've got some great things in store for you fine, sophisticated folk.

If you missed the first coffee house, don't be sad! The second one of the term is going to be held on Wednesday March 27 at 8:00 PM in POETS. It's a great time to relax and enjoy some sweet tunes and delicious caffeine. Bring your friends! Bring your homework! Anything goes. If you'd like to play, check the Orifice doors for the signup sheet!

If you're looking for something on a bigger scale, TalEng is coming up on Sunday, March 24! If you or anyone you know has an amazing talent they'd like to share, this is the perfect opportunity to do so! On top of that, if you and any of your friends are coming to the Winter Leader Retreat that day, this is the perfect place to chill before you all go your separate ways. Come out to WILF's Restaurant & Bar (at WLU) at 8:00 PM for some food, drinks, and a good time. All ages are welcome and they'll even have the same food and drink deals that are available on PubCrawls. If you'd like to perform, there's a sign up sheet available on the Orifice doors!

If neither of these seem like your thing, you should give EngPlay a shot! Your fellow engineering students have been slaving away for the whole term to put on this year's musical and comedic drama: Standardized Testing! There are three showings, so you have plenty of chances to watch the hilarity ensue: Wednesday, April 3, at 8:00 PM, and Sunday April 7, at 2:00 PM and 5:00 PM. More details will be announced soon, but be on the lookout for tickets! It's always a great time, so be sure to bring your friends too!

Feds GM to Pass Refined By-Laws and Fee "Increase"

ANDREW FISHER
FEDS COUNCILLOR

The Feds General Meeting (GM) happens twice a year to provide public oversight and give students a chance to make decisions about the direction of Feds. The second GM for the current executive team will be taking place Thursday March 28, at 12:30 PM in the SLC Multi-Purpose Room. All full-time and part-time undergraduate students have the right to participate and vote at this general meeting.

Two of the main items on the agenda which are up for vote is the approval of a refined set of By-Laws as well as an "increase" to the Feds student fee.

The By-Law changes do not impact the spirit of the items in the By-Laws, but rather clean them up to make them clearer, more concise, and to remove contradictories. This is a very similar process which took place this past year with the Engineering Society governance documents. The By-Laws have already been endorsed by Executive and Feds Council, so it is expected this topic will pass without issue.

The second main topic is a proposed Feds fee "increase". The reason for this stems from the new contract Feds signed with the university to take over the management of the SLC. The costs of operating the Turnkey Desk in the SLC is currently covered through a fee which the University collects on behalf of Feds. This fee of $2.45 per student comes out of the Student Services Ancillary Fee we pay and is transferred to Feds. Now that Feds has full control of the SLC, the University has cancelled the collection of this fee. As a result, Feds now needs to collect the fee from students. Our Feds fee will be increasing by $2.45, while the ancillary fee will be decreased by the same amount. This does not change the amount of money we pay.

On top of this $2.45, Feds is proposing an additional $0.50 increase per student totalling $2.95. This $0.50 increase will be used to pay for additional staff in the accounting department to help cover the new workload generated by taking over the finances of the SLC. It will also be used to pay for a full time staff member under the VP Education who will focus on advocacy within the University and in the City of Waterloo.

On top of these two items, Feds will also be going through the standard items of the meeting including ratifying the newly elected executive as officers of Feds and electing the Board of Directors for the upcoming year.

It is highly encouraged to attend to accurately voice the opinions of the engineering student body. If you arrive on time at 12:30 PM, your name will also be put into a draw for a BlackBerry PlayBook!

Further information about the meeting including the agenda and proposed motions will be available on the Feds website at feds.ca/about-us/general-meetings/.

EngSoc CANstructs an N64 CANsole and CANtroller

CLARISSE SCHNEIDER
1B SOFTWARE

This past Saturday, Waterloo engineers gathered at Conestoga Mall to participate in a modern edition of the Hunger Games. These brave individuals put their reputation to the test with the ultimate challenge: build something exciting out of canned goods in a matter of hours. The structure, an N64 CANsole and controller, proudly displayed the triforce in all its old-school glory with the help of Pepsi Max (for the caffeine-hungry engineering student) in addition to plum tomatoes, pasta sauce, tuna, and hot chicken sauce (for the broke engineering student). The iconic buttons of the popular yellow controller were made with chip bags, the joystick with a larger-than-should-be-humanly-possible can of tuna balanced on a tiny can of cranberry sauce.

After going through a voting period by judges and crowds alike, the scrumptious sculptures will be commended for traits such as "Best Meal," "Structural Ingenuity," "Best Use of Labels," and "Public's Favourite." Then, after a week of glorious display in Conestoga Mall, the cans will be taken down and sent to Waterloo Food Bank to help those that need it most.

This stacked team of Waterloo Engineers had humble beginnings, initiated under director Clarisse Schneider. The original plans called for Pokemon balls and the Sydney Opera House but were passed up for the eventual victor, the N64 CANsole. After a couple sketches (which were, to be completely honest, a bit sketchy), over 2000 cans were ordered and the preparation began. Though initially unsure of their ability to do justice to the most revered gaming console in history, our engineers worked hard to make sure that no other structure standing can hold a CANdle to our N64 shrine.

If you'd like to show support and help us achieve at least one major award, go to http://goo.gl/OCyfa and vote for your favourite engineering faculty and favourite gaming console! You can also vote by filling out a ballot at the CANstruction display in Conestoga Mall.

Most importantly, make sure that you venture to the mall to take a look at amazing feats of engineering and raise awareness for community hunger and the Waterloo Food Bank.

Clarisse Schneider

Waterloo Engineers created an N64 console and controller using over 2000 cans and non-perishables at the annual CANstruction event

Upcoming Events Calendar

Wednesday March 13 Charity Pancakes 8:30 AM CPH Foyer EngSoc Meeting #5 5:30 PM CPH 3607	**Thursday March 14**	**Friday March 15** 2014 Year Spirit Event 1:00 PM POETS Pubcrawl #4	**Saturday March 16**	**Sunday March 17** St. Patrick's Day	**Monday March 18**	**Tuesday March 19** Iron Warrior Meeting 6:30 PM E2 2349A	**Check out up-to-the-day event postings on the EngSoc website at engsoc.uwaterloo.ca**
Wednesday March 20	**Thursday March 21**	**Friday March 22**	**Saturday March 23** Gradball 6:00 PM St. George Hall	**Sunday March 24** Winter Leader Retreat 3-On-3 Road Hockey 2:00 PM C-Lot TalEng 8:00 PM	**Monday March 25**	**Tuesday March 26** Iron Warrior Meeting 6:30 PM E2 2349A	

Crunch Time!

KEVIN VELOSO
4C SOFTWARE

THE GRADUATING WARRIOR

It's that time again in the term where you're two months in and you realize that a lot of work has been poured onto your plate (or bowl, whatever). Midterms have been wrapped up and final projects and assignments are due. Whether you feel you're behind on material after those midterms, or whether you're caught up yet still working on all your projects, we can all agree on this: it's crunch time! Whether you're a graduating student or not, it's possible that this term could be "the hardest term ever", as dubbed by your upper years. For me, it was my 3A term, although after 3A, the difficulty of the term mostly depends on the Technical Electives (TEs) or Complementary Studies Electives (CSEs) you take. Some people take as many TEs as they can so that they can make room for easier courses in 4A and 4B. Some may have to spread out their TEs because they're going for an option, but I digress.

What's crunch time like for fourth years? Like their previous terms, they also have midterms and final assignments to finish up before the end of the term. A lot of upper year TEs tend to remove the regular assignments and labs and assign one or more projects to be completed throughout the term. Sometimes they come without specific due dates or deliverable dates, which makes it interesting when planning out when to do work.

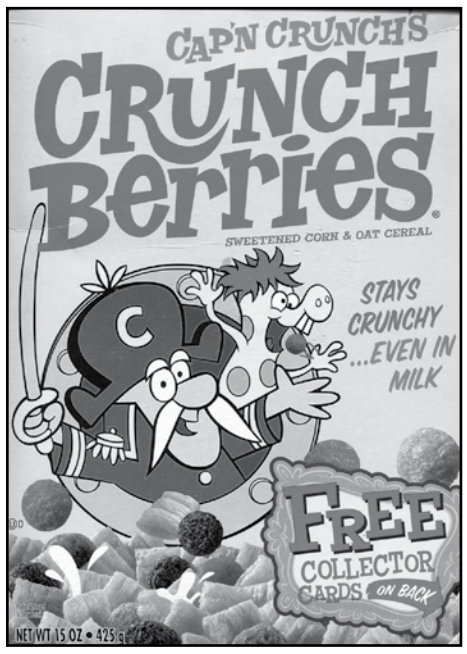
One of the major things that make up the fourth year terms is the Fourth Year Design Project (FYDP), which isn't quite the same across all engineering programs. Some programs have students start in 4A, while others start in 3B. Some programs have students work in groups to complete this project, while other programs have students do their final project individually. FYDP ends for some students at the evening of their Design Symposium, while other students may have to hand in final reports, either at the end of lectures or at the end of the term. With most design symposiums happening the week following this issue of the Iron Warrior, many fourth years find themselves crunching more than before, spending long hours in their fourth year rooms, borrowing more books from the library, getting acquainted with their lab equipment, or realizing that Mel's is back and that they're open 24 hours a day on Fridays and weekends! A lot of late nights can be had just to meet deadlines for deliverables, as well as accommodating for any group members whose work schedules are just as interesting as your own.

Even in 4B, it seems as if the stress that comes with being an engineering student never ends. The Dean of Engineering, Pearl Sullivan, has often used the word "suffering" when describing the struggle many undergraduate students face while completing their degree. No matter what the term is, there can always be things that can make the term a little more difficult. Maybe the interview process hasn't been going well, and you don't have a job yet (whether for full-time or for the next co-op term). Maybe all the deadlines and deliverables are all within a small amount of time, leaving you to juggle with scheduling. With fourth years, there's all the additional planning that happens as their final term wraps up, such as planning the last set of class parties, organizing GradBall and grad trips, and dealing with the lease for the house or apartment in Waterloo where they might have lived in since second or third year. They have their project poster to print out, clients to contact (if their fourth year project relies on collaborating with professors or with companies in the industry), and rehearsals to arrange for their presentations. Some of these tasks can be put aside for later, but by doing so, sometimes you find that you have more tasks than you thought you did. It can be a mess!

When times get you down in fourth year, it helps to try to think about the positives. In less than a month, you'll be finally rid of having to attend lectures and working within tight deadlines! I remind some students of this, but sometimes it makes them feel bad as they realize how little time they have to complete the rest of their work. There's convocation to look forward to, as well as GradBall, the end of the design symposium, and a lot more! Spring's also around the corner! (Hey, I'm trying to help here by looking at the bright side!) Go outside if you need to!

Sure, things looks difficult right now for fourth years. Someone out there might have two or more projects to work on, one of them being a group project, while trying to find someone to take over their lease, while trying to study for the upcoming midterm while having enough sleep so that you don't look like a zombie during the interview you're having tomorrow for a full-time position happening in another province. If this is actually you, it's probably just a coincidence that I'm paraphrasing your current life predicament and that I'm not stalking you. If you remind yourself that you have a month left, and if you want to think positively and look forward towards Convocation, take the crunch time you have and just grind through the work. Grab an extra cup of coffee, and possibly go ahead and do an all-nighter for the umpteenth time this term (that is, if your body can take it -- and please avoid doing one if you don't think your body's up to it) and get your work done. It'll all be worth it in the end!

Just one quick note: don't forget to take care of yourself during crunch time. Get as much rest as you can, take some days off if you're not feeling well, and make accommodations for yourself if you feel you have absolutely too much work on your plate (or



cerealfix.com

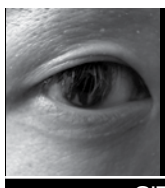
Cap'n says it's crunch time!

bowl, whatever). It's sometimes easy to lose track of your health when so many things are being thrown at you.

I would like to thank the Student Relations Officer, Robin Jardin, for helping me come up with the idea for this issue's article. She suggested that I talk about the "light at the end of the tunnel" where the tunnel is the crunch period that most students are in. She suggested writing an article that would pull people out of the sad slump that is the crunch period of the term, continuously reminding me about the "light at the end of the tunnel". Although it started as her idea, I took the idea, changed it a bit (or a lot) and added as many words to it as possible. Robin will be on maternity leave again at the end of the month, and I wish her all the best. I also wish everyone else the best in getting through this crunch period. It's almost over!

Fun fact: Cap'N Crunch's full name is Horatio Magellan Crunch!

The Big Apple: New York City



ALEXANDER LEE
1B NANOTECHNOLOGY

CITY SHOWCASE

This issue we take a look at a place much less exotic, and much closer to home: New York City. But just because it's a lot more familiar doesn't mean there isn't a lot to see. New York City might actually have the most to see of any city I've visited so far. New York City is located in the United States, which were initially British colonies. However, NYC actually started off as a Dutch colony based in Manhattan and was named New Amsterdam. The English seized the colony in 1664. However, the Dutch were shrewd traders and bankers, and New York City has never forgotten that part of its heritage. After the Revolutionary War, New York's population just kept growing and growing, and once the Industrial Revolution hit full swing in the mid 1800s, the population exploded. Millions upon millions of immigrants fled the pollution and poverty of Europe, for the chance at a better life in the New World. As they arrived by the boatload, many decided to stay in New York.

New York today has a population of 8 million, and 22 million in the metropolitan area. It is a shining beacon of American democracy and prosperity. It is a world-class city, and is one of the financial, cultural, and technological pillars of civilization. There are near limitless things to see and do in New York, but these ones stand out:

The Empire State Building

Completed in 1931, The Empire State building is one of New York's most iconic structures. Standing at 381 metres, and spanning 102 floors, the building was the tallest in the world for about 40 years. It is exemplary of the American Art Deco style. When it was being constructed, it was actually competing with the Chrysler Building and 40 Wall Street for the title of "New York's tallest building." Surprisingly, it is one of the exceedingly rare cases where a building was actually completed ahead of time and under budget... though this was largely because prices dropped due to the Great Depression. So the moral of the story is: If you want to construct a building efficiently, plan for a recession.

New York Stock Exchange

Located on the famous (or infamous if you prefer) Wall Street, the NYSE is the largest stock exchange in the world, at over 14 TRILLION dollars. The current building was constructed in 1903, and is constructed in the neoclassical style. The building has a 1400 square meter trading floor, and has a 22 meter skylight. So if you want to see the hustle and bustle of 153 billion dollars being traded daily, or merely want to see where our most recent recession started, look no further than the New York Stock Exchange.

Ground Zero

Ground Zero is the common name given to the site of the former World Trade Center, which was destroyed on September 11, 2011. The area spans about 65 000 square meters. In the spirit of rebirth and recovery, reconstruction of the World Trade Center is actually underway on the site, and in fact, will start opening offices this year. Ground Zero will humble all visitors, reminding all of the two glittering beacons of civilization that once stood tall and proud, a testament to the uncertain world and times we find ourselves in.

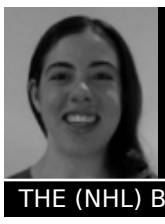
phoenixmasonry.org

The Statue of Liberty represents America's core values: Freedom, Opportunity, and Prosperity

Statue of Liberty

Arguably New York's most famous icon, The Statue of Liberty was actually gifted to America by France on October 28, 1886. The sculpture stands 46 metres, and, including the base, stands 93 metres. The statue is constructed of copper and steel, coated with copper, and is constructed in the image of Libertas, the Roman goddess of freedom. The statue represents the values America was founded upon: freedom, opportunity, and prosperity.

Fighting: Every Punch is a Sucker Punch



ELIZABETH SALSBERG
1B NANOTECHNOLOGY

THE (NHL) BENCHWARMER REPORT

Greetings Hockey fans! We're past the halfway mark in the shortened season and from here on in every game counts. While there is variability in almost every game to create excitement, it appears that there is one consistent factor that keeps fans glued to their scream and hammering on the glass. What's this, you may ask? You tell me: What happens in every NHL hockey game that isn't goal scoring, winning or losing? Why do guys like Colton Orr, Chris Neil, or perhaps a more infamous example, Matt Cooke, play in the NHL? It's not because of their skill or speed, that much is obvious. No my friends. It's because they can fight.

There has been much debate in the NHL as to the appropriateness of fighting in the game. The raw facts are that fighting can result in serious injury, suspensions, and in serious cases, legal action. What this adds to the game truly mystifies me. This is supposed to be hockey, not UFC! If I want to see a fight, I'll change the channel to boxing.

For example, David Dziurzynski, 23, got a concussion after a fight in the Leafs-Sens game this past Thursday night. The worst part about this is that it was wholly unnecessary. I won't go into the cumbersome details on concussions, but in short, they are often very serious and result in tons of missed time (just ask Sidney Crosby). Sidney and other exciting, skilled players are the face of the NHL, and it is in the league's interest to ensure their safety, since fans like skilled guys that can move the puck and create scoring chances. Nobody actually likes the goons. They are simply there for entertainment purposes.

Other arguments for keeping fighting in the game are along the lines of 'Hockey is a tough-guy or manly sport'. If I had to guess, I'd say most parents who have their kids in hockey would rather see their children simply have fun at the rink with their teammates instead of seeing who is big and tough enough to crush all the other players. I also don't find fighting particularly 'manly'—honestly, it's just idiotic. Yes, we all get mad, but when was the last time you got angry on the job and decided to punch your co-worker in the face? You'd certainly be fired- unless. of course, you worked in the NHL (or the UFC).

All in all, the NHL needs to grow up and put an end to this fighting nonsense. It would result in fewer injuries and hopefully reduce the frequency of other dangerous plays outside of fighting, such as blindside hits and head shots. Ultimately, the quality of hockey will be better, bringing up young guys to play at the NHL level rather than having those spots taken up by goons who really shouldn't be there at all. This would compensate for any loss of fan base due to banning fighting. It would also set a better example for younger kids playing competitive hockey—it's always better to hurt the other team on the scoreboard.

Cyclists Pay for Infrastructure Through Bike Tax

KEVIN LIANG
3B CHEMICAL

BOTTOM BRACKET

On February 20, Washington State house democrats released a proposed $10-billion transportation package that would increase taxes on gasoline, car-tabs, and even introduce a bicycle fee in order to raise money to fund improvements to their transportation infrastructure. The bicycle fee would impose an additional $25 fee on all bikes $500 or more. This would put a 5% tax on a bike costing $500, whereas the proposed vehicle excise tax in the package is 0.7%.

When Dale Carlson, owner of Bike Tech shops in Olympia, Lakewood, and Tacoma, voiced his concerns, Representative Ed Orcutt wrote "You claim that it is environmentally friendly to ride a bike. But if I am not mistaken, a cyclists [sic] has an increased heart rate and respiration. That means that the act of riding a bike results in a greater emissions of carbon dioxide from the rider. Since CO_2 is deemed to be a greenhouse gas and a pollutant, bicyclists are actually polluting when they ride."

The email quickly spread around the cycling community which caused outrage and disbelief. This prompted an apology from Orcutt, the ranking Republican on the state House's transportation committee, for making "a point [not] worthy of even mentioning."

However, the larger debate still looms: should cyclists pay taxes like car drivers do? Cyclists discuss their distaste about the lack of safe bike lanes in cities, yet when a bill is introduced to provide these funds they don't want to pay it. The bill includes $60 million for improvements for pedestrians and bicyclists; the bike tax is projected to raise $1 million.

"The idea of bicyclists paying for some of the infrastructure they are using is one which merits consideration," Orcutt stated in his apology email.

The biggest problem that Carlson has with the bill is that the bicycling tax targets small-business owners while leaving larger retailers unscathed like Wal-Mart that sell cheaper models. "It penalizes people for buying a nice bike, and it puts all the burden on a small segment of the industry, the struggling small-business people – 'Oh, here we go, here's another thing we have to comply with and pay our accountants to deal with,'" Carlson said. "It's kind of the same as a $1000 [tax] on a $25000 car."

An obvious argument against the bike tax is the reduced emissions produced from riding a bicycle. The US government even provides tax credits on electrical vehicles, up to $7500 depending on the value of the vehicle. I do not ride my bike because I am an environmental activist. I ride my bike because it's my only option. I would support a bicycling fee if it meant an improvement on the current state of bicycling infrastructure. But I don't think this flat rate fee on expensive bikes is the best way to implement it.

A bike tax should be based on the value of the bike, and it should include all bikes.

The Newest Gener.... Lost Connection with Server

JON MARTIN
OBI JON1138

FUTURE OF GAMING

In the last couple of weeks there's been no new information on the Playstation 4, nothing about the new Xbox, and little from Nintendo. There have been some changes on the portable front, as Sony introduced a substantial price cut on the PS Vita in Japan. The main frustration for a lot of people in the last week or two has been the new DRM issues that are showing up with the recent release of *SimCity*.

So first, let's touch on the price drop of the PS Vita, this was a marketing move by Sony to try and increase sales in Japan, where they have so far been relatively stagnant. Sony chose to drop the price from 30,000 yen for the 3G version and 25,000 yen for the Wi-Fi only version to 19,980 yen for both versions, a substantial change of about 33%, and has since reported sales increases of 400% (with some estimating the actual figure to be 600%), hopefully still making a profit from the units they are selling. Nintendo followed a similar pattern for the Nintendo 3DS, which retailed for $250 before the price was slashed to $170, resulting in increased sales. In both of these cases, the companies involved have realized that their technology was not worth the price from the public perspective. Unfortunately, this stated price versus acceptable purchase price is an issue that has plagued the hardware industry for many years. When a new console or portable system is released the manufacturer is normally looking to make profits off of the system for eight to ten years, but they will likely only make money off of the system itself late through its project life cycle. In order to make the system last for the projected lifespan, the manufacturer has to future-proof by implementing the best technology they possibly can into the system so that it will not be out of date the moment it hits store shelves. This does have a drawback: if you are putting in top of the line technology, you are going to have to pay the inflated price for that technology. If the company is lucky, they can reduce the costs of manufacture over time, start to actually make a profit off the system, and offer price cuts to the purchase price to stay competitive. If the company is unable to reduce costs of manufacturing over time they may never reach a profitable price because they have to keep offering discounts to remain competitive with their competition. This is the problem that Microsoft ran into with the original Xbox. Despite the system being built using off-the-shelf computer parts, it did not own the intellectual property of any of those parts. This prevented them from changing manufacturing processes, changing chipsets, improving efficiency, and many other cost savings methods. They also had to keep paying the manufacturers of each of the parts the same price. These problems led to the price of manufacturing an Xbox constant, while price was reduced.

With the Xbox 360, Microsoft designed their own system entirely, and since its release there have been numerous revisions such as the Xbox 360 S. While the S was a complete hardware revision, there had actually been many subtle changes over time that would only be noticeable if you actually compared a Launch system versus a Zenon system (one of the last before the S was released). The number of USB ports increased, HDMI output was added, and the processor was changed every time to make it smaller, faster, and more efficient. This change over time led to the elimination of the overheating issues that plagued the original system. Sony likely had a similar advancement throughout the PS3's life cycle. The most well-known were ones that caused complaints among owners, namely the removal of the hardware module allowing PS2 games to be run on the PS3. The cell architecture used in the PS3 has also led to difficulties in price reductions and game development. It's more complicated to build, there are fewer people researching ways to improve it, and its harder for people to program. No wonder Sony is abandoning it for the PS4.

At this point in their life cycles, both the Xbox 360 and PS3 are still very good systems from a technological standpoint: if you were to buy a computer with similar system specifications you would pay a lot more than $200. So how much do you think a brand new system is going to cost? There is no way that Microsoft or Sony will attempt to price their next gen systems anywhere close to the $800 launch price of the PS3 - that was just insane. But they will need to price it high enough that they aren't losing an unrecoverable amount on each sale, and to give themselves enough room for price cuts in the future.

Now, on to Digital Rights Management (DRM), the bane of many gamers' existence. DRM was heralded by developers as the final solution to piracy in the gaming industry, by tying a game license to a specific user or machine. The simplest DRM is an activation code, which may or may not have multiple uses. This can be frustrating for gamers as a computer failure may require a reinstall that is then blocked by the access code having already been redeemed. The next level is using an access code to tie content or permissions to run a game to a specific account. The benefit of this system is that a company can sell a new activation code separately. Newer systems, which have been getting the most flak from the public, rely on a continuous connection to the publisher's network to validate the license. This can be absolutely maddening to people with a poor internet connection or to everybody if the publisher's servers are the issue. That is the problem that is hitting EA right now with *SimCity* - people have been abandoning the game as long login times prevent them from even playing. With all of these issues, EA released a statement stating that anybody could request a refund if they felt they had not been provided with the product they were promised, but it appears they also modified their return policy at the same time. The end result is that people trying to redeem that refund policy are being denied. Not cool, EA.

Other developers have reported that they will not be using DRM in future games, because in many cases it causes more problems than it actually solves. In many cases, the only people that are actually affected are those who legitimately purchase the game but then suffer from the issues described, the people who actually want to pirate the game can easily get around the added security. The issue then shifts from the sales lost to piracy to the sales lost by avoidance of the DRM problems. Another perception of publishers that often comes up is the idea that every case of piracy is a lost sale. Yet if a person wants the game, they are more likely to buy the game than to purposely pirate it. If the person is casually interested in the game but would never consider actually buying it then they may pirate it as a curiosity. Some of those people may still never purchase the game, but some may actually decide to buy it. Piracy does not result in lost sales, in fact, it may increase sales. I will never say that piracy is an acceptable practice, but I have found a number of games that I purchased many years ago that no longer work on my current operating system that I have downloaded for nostalgic purposes and still love to play. Now, it appears that *Age of Empires 2* is going to be released on Steam! Am I going to buy it or continue with a pirated copy? Of course I will buy it, since it is supposed to support Steam's Workshop system, allowing the public to create mods and additions to the game.

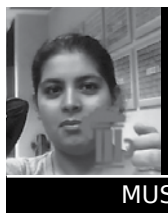
That is where I think publishers need to focus to combat piracy, by making the game worth buying through their continued support and advancement. If a company is continuously creating new content, or allowing the public to create new content, then people will actually want to buy the game and they will be more likely to keep the game rather than selling it. Downloadable content is a great way to encourage this, but it actually needs to be a quality product that adds to the game experience rather than something tacked on for an hour or two of diversion for $20. Another potential improvement is by actually making demos a good representation of the finished game, rather than being a specific level that either tricks people into buying the game, or drives them away from a game they would actually enjoy.

So that is my rant for this week, keep an eye out for news about the Playstation 4, the next Xbox, and I hope anybody who got burned by *SimCity* is having some measure of success with getting a refund. Until next issue - Keep on Gaming.

engadget.com

The PS VITA dropped 33% in price sparking a 400% increase in sales

Great Solo Albums by Lead Singers



NOUHA JAVED
3A CIVIL

MUSICAL MUSINGS

Alex Turner of Arctic Monkeys

Here's a cool connection between my two favourite British things: Alex Turner's only solo EP was written for a movie directed by Richard Ayoade, who played Moss on *The IT Crowd*. Though it's technically a soundtrack, the EP could effortlessly be imagined as being released as Alex Turner's debut album. In spite of that, the album fits the movie *Submarine*, perfectly. You can almost picture Turner recording this on the sea floor in a old school diving suit; guitar in hand and upturned goldfish bowl on his head. 'Piledriver Waltz' instantly makes you feel as fifteen and heartbroken as the protagonist; "I heard the news that you're trying to shoot me out of a cannon".

Alex Ebert of Edward Sharpe and the Magnetic Zeros

Any fans of Breaking Bad out there might recognise Alex Ebert's 'Truth' off his debut album *Alexander* (it was the closing song of the season 4 premiere). Though Ebert, or his alter ego Edward Sharpe, is widely recognized for the indie rock stylings of his band the Magnetic Zeros, he takes a slightly different, more folky approach on *Alexander.* Ebert wears many hats on this album, dabbling with reggae and pop, with semi-consistent success. Attempting to not whistle along with 'Truth' is futile, ditto with the finger snappy 'A Million Years'.

Brian Borcherdt (aka Dusted) of Holy Fuck

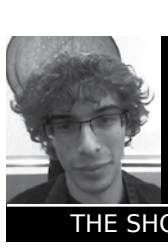
If Brain Borcherdt of Holy Fuck is tough enough to match his band's name, then the Borcherdt of Dusted is the other side of the coin: light and cloudy. Compared with Holy Fuck's jumpy, grinding beats, Dusted is a great make out soundtrack for a boy-with-tight-pants-meets-girl-with-ugly-sweater type scenario. Though some songs may come off as slightly melancholy with names like 'Bruises', 'Pale Light' or 'Cut Them Free', Borcherdt manages to incorporate a sense of comfort between the lines, whether its in the guitar of '(Into The) Atmosphere', or the hazy vocals of 'There Somehow'.

Emily Haines of Metric

You can almost see a trend forming here, of bad-ass lead singers exposing their sensitive, adolescent side with solo projects. Emily Haines is probably the most obvious example of that, with the abilty to sing 'Hangman we played double dutch with a hand grenade' and croon 'Heartbroken, I've been for you / You left me in a bar at the bottom of the world' with the same nonchalance. As Emily Haines & The Soft Skeleton, she makes really really beautifully depressing music with brilliantly subtle lyrics.

Honourable Mentions: Beyonce Knowles of Destiny's Child, Gwen Stefani of No Doubt, Justin Timberlake of *NSYNC

The Harlem Shake



JOSHUA KALPIN
2N SOFTWARE

THE SHORT SHORT REVIEW

Hello, readers, and welcome back to another edition of The Short Short Review. Just as a reminder, in this column I attempt to review a short film or story in a really short number of words. This week, due to a horrid case of writer's block and the desire not to absolutely butcher a review of *Paperman* (which, is an amazing film), I'll be reviewing the song related to an incredibly short fad, the elusive "Harlem Shake" in about 300 words (see writer's block above). Yes, I know it's horribly cliché and overdone. Oh, look: 100 words!

Ignoring the horrible meme, fad, or whatever you want to call it for now, the actual song called "Harlem Shake" by the American DJ and producer Baauer (not sure if spin on the hockey supplier or not…) was released on May 22, 2012 to very little acclaim. The song itself contains the following words/slang in order of appearance: "Ey", "Shake", "Ta", "And", "do", "the", "Harlem", "Con", "los", "terroristas". As you can see, this song has some deep intellectual stuff going on here, but in all seriousness it was not actually created for its words. The song is more classified as a dance number with the typical electronic sounds and occasional growling noise that seems to be associated with most pop music these days.

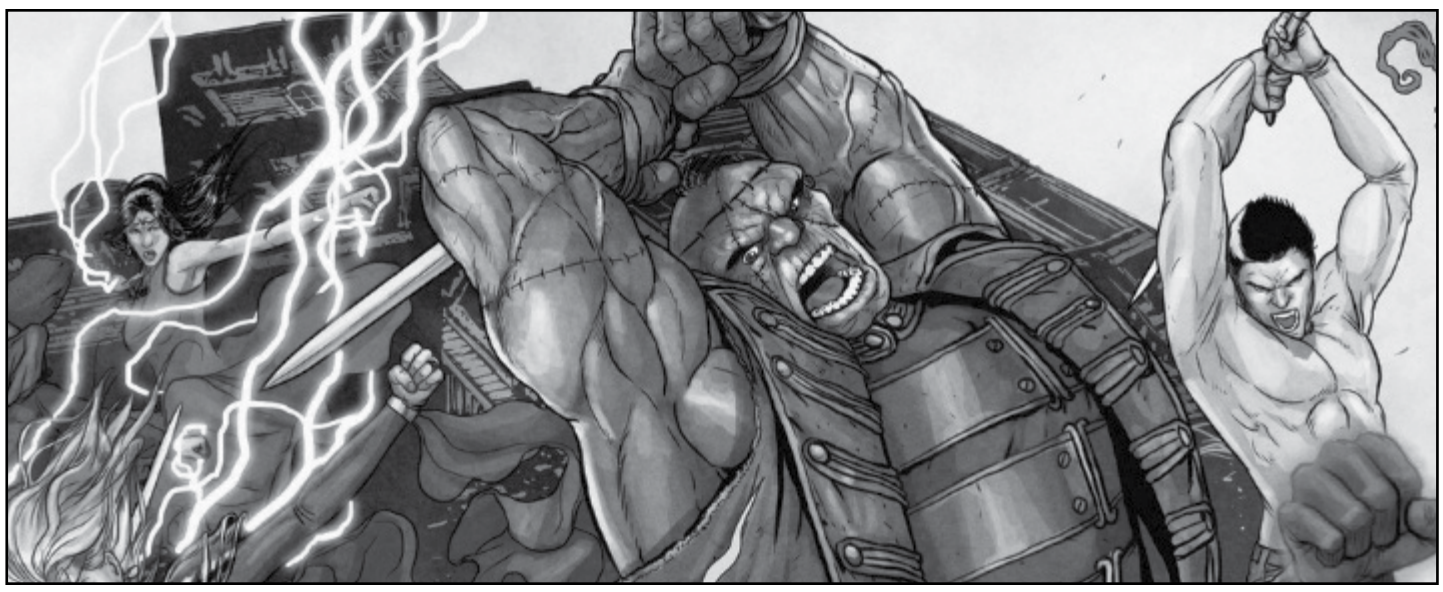
The song is horrendously repetitive and is quite unpleasant to the ears. Most electronic based pop music actually resembles traditional music with chord progressions and some semblance of a normal pitch. "Harlem Shake" sounds like a cacophony of rubber gloves being rubbed onto a bathtub with a lion sounding pissed about it every so often. Also, since the meme took off after some Australian teenagers posted a video of them "doing it" on Youtube. I'm going to fully blame the Aussies for this one.

Hey look, I've managed to hit my word count and talk coherently for over 300 words, which means it's time to wrap up. Overall, I'm going to give the "Harlem Shake" half a spastic person out of five only because the videos making fun of those who actually did the videos were hilarious. Next week, we'll be back to the more regularly scheduled form of this column (or maybe even this one if people like it). Time will tell…

Frankenstein, Agent of S.H.A.D.E.

DANIEL OSORIO
2T NANOTECHNOLOGY

UNSUNG HEROES



DC Comics, Inc.

DC's incarnation of Frankenstein has the body of a monster, but the courage and valour of a knight.

The honor and valor of a knight is hard to find nowadays. Even amongst comics now today its hard to find that Lancelot type character. The one that is honorable, a person of integrity and respect. Its hard to find that type of character in a day and age where the people wanna see a witty and cunning hero on the big screen. But there is one hero that keeps a quite literal meaning to "Chivalry is dead", his name is Frankenstein.

First let me just address anyone reading this article who is bound to say "What is this guy an idiot? It's Dr. Frankenstein and then its Frankenstein's monster". Although this is true in Mary Shelley's original novel Frankenstein, and yes This Frankenstein has an identical history to that novel, there is one slight change. So his origin starts off exactly like the book (Warning Spoiler from the novel) he's created by Dr. Frankenstein and is rejected because he is hideous. Through having a childs mind and having the body of a full grown, 7 ft tall, man accidentally kills some of his creators family until ultimately beginning a quest for vengeance against his master for not accepting him or creating him a bride. The two eventually end up at the north pole where Frankenstein (the Monster) kills his creator and feels nothing but remorse for killing his "Father". He agrees to kill himself and the book ends with the monster floating of on an ice raft where he "dies". This is where the comic begins, it turns out since Frankenstein was never "alive" he can't die, so he falls beneath the arctic circle and is frozen there until World War II. Unfrozen, and finding his world torn apart by war, he wants to redeem himself of his sins against his creator, taking on his name to bring it honor. He sides with the Americans to combat what he considers "Abominations of man's worst sins" (a.k.a the Nazis). He eventually meets an entity known as Father Time, who has taken many life forms throughout time. He enlists Frankenstein to a program called Super Human Advanced Defence Executive or S.H.A.D.E. Within S.H.A.D.E he quickly rises through the ranks and becomes a senior officer teaming up with the Creature Commandos, Seven Soldiers, Justice League Dark, and a woman named The Bride (this is his wife revived by S.H.A.D.E, sometime after Dr. Frankenstein destroyed her). Throughout time Frankenstein participated in every American War and has gone on countless secret missions. Today his comic has sent Frankenstein through trials that have tested every aspect of his heroism. Throughout fighting his own son, the son of Satan, one of his best friends, the Leviathan, and the army of the undead, he still keeps a vigil and honorable standpoint, always taking the high road and doing what is right for mankind and not himself.

The best part about Frankenstein is not the adventures he goes on but more to the fact that of what he brings to the table. Lets start off with his natural power set. He has Rotting physiology which basically means he's a zombie, but he can be killed with a simple shot to the head, the only way to really kill Frankenstein is to either dismember him or hit him with an electric bolt at the exact same frequency he was brought to life with. He doesn't require sustenance or rest, he can constantly keep moving forward as in a relentless onslaught. Through the bolts in his head he can pick up electric signals and track them with ease, he has also discovered he has mild abilities of telekinesis, although he usually uses this power to call his gun to him or his sword, nothing really more. Being an agent of S.H.A.D.E he was given cybernetic enhancements which can allow him to hack into computer systems just by thinking about it. Throughout living through 4 different wars, and going on secret missions in between Frankenstein has always chosen his two favorite weapons, the sword of Michael (Michael the Archangel's actual sword) and his Steam Pistol (a modified and enhanced pistol that runs off steam power not gunpower). Being alive for so long and having access to S.H.A.D.E's resources he has become a master fighter in hand-to-hand combat and use of all of his weapons.

However, besides Frankensteins long list of traits, or villains he has fought, nothing compares to the personality that he brings to the table. He always speaks in perfect english and is respectful of all of his allies. He is never condescending nor is he quick to blame others for their failures. He cares and cherishes human life and will do anything to protect it. In fact during the events of "Rot World", an alternate timeline where the world has been over run by an undead army and 99% earths heroes were killed, Frankenstein was chosen to be the new Green Lantern purely because of his indomitable will and refusal to ever give up fighting for the human race.

At the end of the day Frankenstein is a hero not just because he can kick a lot of ass, but its because is a tortured soul trying to redeem himself. He can never take back his sins, he can only atone from them. He was born in a baptism of fire and will never stop fighting for what he believes in and what he cherishes most, and that's the life of all living things.

Love Makes You Evil

NANCY HUI
3A CIVIL

TAKE FIVE

Love is not all butterflies and sunshine. It alters your brain chemistry. It leads to bad decisions. Sometimes it makes you evil. Not intentionally, of course. There are easier ways to obtain a villainous outlook on life than to fall in and out of love.

Either way, love and evilness lend themselves to some nice examples of situational irony. Here's five movies where love made good people evil, ordered by my personal preference.

Labyrinth (1986)

Sarah (Jennifer Connelly), a LARPer, is resentful at having to babysit her toddler brother Toby. The Goblin King Jareth (David Bowie) overhears her plea, kidnaps Toby and gives Sarah thirteen hours to traverse a Labyrinth and reclaim him.

Labyrinth is a cult classic. I don't really know why, but I really wanted to know when I was watching it, so that I could enjoy it. Maybe it's the way David Bowie plays with (levitating crystal) balls throughout the film. Maybe it's the orgy scene in *Requiem for a Dream* 16 years after. Maybe it's the mystique of late director Jim Henson, creator of the Muppets and the film *Dark Crystal*. I have no idea. Isn't this movie aimed at children?

And even that point is contentious: David Bowie's pants are way too tight. He puts Sarah through a labyrinth because he loves her and it was for her own good? The message of this movie seems to be that someone only has the power that you give to them, which you could have learned in PD7: Conflict Resolution. It's possible this whole thing is an Aesop about abusive relationships. Or an Aesop about being careful what you wish for, or an Aesop against spending too much time LARPing. Ugh.

Movies don't always need to have an overarching lesson, but if they're as unentertaining and bizzare as this I *expect* a takeaway for my time. Watch this movie if you're in the mood for David Bowie's balls, puppets, and Connelly's eyebrows because you probably won't get anything else away from this movie.

Thor (2011)

Thor (Chris Hemsworth), prince of Asgard, son of Odin, and brother of Loki, is exiled to Earth for arrogantly upsetting the peace between the Asgardians and the Frost Giants. He lands in New Mexico and is found by physicist Jane Foster (Natalie Portman). Meanwhile, Odin falls into a godly coma, and Loki (Tom Hiddleston) discovers that he's adopted. To compensate for not being a "real" son and to prove that he is at least the equal of Thor, Loki puts a dangerous series of plans into motion, wreaking havok across Asgard and Earth.

I felt that *Thor* was actually the least enjoyable of the Marvel Cinematic Universe. Natalie Portman's character may have a PhD, but in terms of personality, she's no Pepper Potts. Thor expresses neither the nobility of Captain America, nor the charisma of Iron Man, nor the raw power of The Hulk.

Loki and the supporting characters of SHIELD (Nick Fury, played by Samuel L Jackson; and Agent Coulson, played by Clark Gregg) are the only redeeming features of this movie. The SHIELD operatives are clever and professional. Loki exudes instability and insecurity as the black sheep of the Asgardian family, which is critical in establishing motivation. "I just want to be loved!" On a smaller scale this would have been an episode of *Full House*.

The Mummy (1999)

Imhotep (Arnold Vosloo) is buried alive after consorting with the Pharoah's mistress Anck-su-Namun. Millenia later, at the turn of the 19th century, archaeologist Evelyn Carnahan (Rachel Weisz) accidentally resurrects him. Imhotep rampages across Egypt in search of his long-lost love, while Evelyn, her kleptomaniac brother (John Hannah) and adventurer Rick O'Connell (Brendan Fraser) seek to rectify their mistake.

When Arnold Vosloo was approached by director Stephen Sommers to fill the role of Imhotep, Vosloo agreed, but under the conditions that he would be allowed to play the role absolutely straight - no hamming, no knowing glances, no genre-awareness. The rationale was that Imhotep saw himself as the tragic protagonist of a skewed version of *Romeo and Juliet* looking for his happy ending, whereas the supporting characters and audience see him as a monster who lingers beyond his appointed time.

Alternately, you may simply enjoy *The Mummy* for the simple pleasures it provides. Imhotep's reconstitution of his corporeal form by stealing parts from the living is gruesome, but effective. Weisz's character is clumsy and delightful, but remains competent, much like Stephanie Meyer probably intended Bella to be. And Brendan Fraser chews the scenery of five actors, even when his character is about to get hanged. Who needs irony?

The Dark Knight (2008)

Bruce "Batman" Wayne (Christian Bale) faces off against the Joker (Heath Ledger). It's difficult.

I assume most readers have already seen *The Dark Knight*, since it ranks #14 in worldwide box office gross, unadjusted for inflation. It was a big thing in 2008. It had some memorable scenes (the boat confrontation, the pencil scene, and the ending chase come to mind) and no obvious missteps. If you haven't seen it already, this review won't convince you to see it. Either way I don't really care about spoilers at this point.

The transformation of Harvey Dent (Aaron Eckhart) into antagonist Two-Face after the death of Rachel Dawes (Maggie Gyllenhaal) is... well, tragic, as situational irony often is.

Cruel Intentions (1999)

Stepsiblings Kathyrn (Sarah Michelle Gellar) and Sebastian (Ryan Phillippe) make a wager that Sebastian will be able to seduce the headmaster's innocent daughter, Annette (Reese Witherspoon). If Sebastian fails, then Kathyrn gets his vintage jaguar. If Sebastian succeeds, his stepsister will allow him to "put it anywhere." Drama follows in their wake.

The most famous scene in this movie is the inconsequential makeout between Kathyrn and Cecile (Selma Blair), but I most enjoy the end sequence - where Annette ruins Kathyrn's reputation and drives into the sunset while "Bittersweet Symphony" plays. It's an interesting example of "love makes you evil", because it represents a reversal of roles between the originally evil Kathyrn and good Annette. There is also a great deal of situational irony.

Is it worth the rest of the movie to get to possibly my favourite end sequence of all time? Definitely. It is self-indulgent, occasionally clever, and devoid of responsible parental supervision. *Cruel Intentions* is the great-grandaddy of modern rich teenager exploitation movies.

Getting Grouchy About the Oscars

KEVIN JOSEPH
3T NANOTECHNOLOGY

This year at the Oscars, the most controversial honour bestowed by the Academy was probably that of host to Seth MacFarlane. This was widely viewed as an attempt to court younger cinephiles by hiring the man behind the evil talking gayby and pot-smoking teddy bear. While his performance garnered scores of criticism, the ploy was a success as the Oscars enjoyed an 11% boost of viewership from people aged 18-49. As someone not a part of that bump, I recently watched the show to see exactly how offensive MacFarlane really was.

A number of Seth's one-liners visibly ruffled attendees' dresses' feathers. When he described *Django Unchained* as a date-movie for Chris Brown and Rihanna (for those unaware, the former beat the latter, but was forgiven and taken back) it made the audience palpably uncomfortable. I would like to defend the move, as anyone who has seen the pictures of Rihanna post-abuse would understand that discomfort is best directed at the community of our famous superiors for embracing Brown with open arms after his actions, and even perhaps Rihanna for setting a sterling example for her young fans that bloody bruises are just his special way of saying he loves you.

Another joke which did not go over well was describing nine-year old best-actress nominee Quvenzhané Wallis as being sixteen years away from being too old for George Clooney. Many have claimed that this constituted sexualisation and was especially heinous given that she was being directly addressed in the audience that night. If Wallis perceived being "too old for Clooney" as meaning "too old to have sex with", and not "too old to date", then there was no innocence being robbed, only a reminder that it's a bit of a double-standard that old men are socially permitted to date women significantly younger than them.

Mel Gibson's voicemails were claimed to be the inspiration for *Django's* screenplay, referencing his infamous strings of drunken, anti-Semitic ramblings. When his joke garnered boos it was MacFarlane's retort of "Oh, so you guys are on his side" which was really poignant. To act as though his slurs are defensible is itself shameful and mockery is hardly off-limits (though the choice of venue was, admittedly, debatable).

Yet another major source of ire was Seth's musical number "We Saw Your Boobs". Many saw this as an attack of misogyny by the patriarchal hegemony. I would like to think that, contrary to being anti-woman, the song was very pro-woman in a satirical condemnation of Hollywood's own appetite for female stars' physical appearances. For example, it is appalling that Wes Anderson's brilliant short-film *Hotel Chevalier* is arguably best known as the movie in which Natalie Portman gets naked. Since when was acting ability so strongly correlated with hip-to-waist ratio? But again, I would like to think that this was the motivation behind the move, but it's hard for me to give that credit to the ham-hand responsible for taking the humour out of "reference humour". But even if MacFarlane was not trying to make social commentary, it is hypocritical to criticize him for being direct about one of the film industry and audience's greatest anachronisms.

One of the jobs of a satirist is to tell the emperor that he has no clothes, but an important caveat is that he does so in a manner that is funny. And that is why I, personally, am offended by MacFarlane's performance. Just as with his most famous work, *Family Guy*, MacFarlane can often have good points, fun references, and valid critique, but his delivery is so clumsy and obtuse that it is just embarrassing to watch. Brown, Clooney, Gibson (which isn't even topical anymore), and boobs are not even low-hanging fruit: they've fallen to the ground and are fermenting, producing entertainment drunk on populism. The material that MacFarlane brought to the table for one of the most watched television events included jokes so bad and so unoriginal that his introduction-joke for Meryl Streep was one I heard used at my sister's wedding. For an award-show performance that doesn't feel like a poor man's Ricky Gervais, I would recommend checking out Tina Fey and Amy Poehler at this year's Golden Globes, or Andy Samberg at the Independent Spirit Awards. Unfortunately, the Oscars just reminded us that it seems today that all you see is uninspired writing taking over TV.

Bob D'Amico, ABC

Seth MacFarlane hosts the 85th Acadamy Awards

Silver Screens, Silver Linings

MEAGAN CARDNO
1B NANOTECHNOLOGY

THE FINER POINTS OF FINE ARTS

Coming from the many wonders and marvels of the world of literature that we explored last week, there are many who find the next logical step to be transferring the written art to a visual spectacle on the silver screen. Of course, this gigantic leap has, more often then not, fallen much sort of the original grandeur of the original text in the eyes of many audiences, but the finished product does, on occasion, turn out to be a work of art in its own right.

Sometimes, it seems as if the public forgets the amount of artistry that goes into a good film. The medium often overlaps with many of the previously discussed categories, and must weave them into a quite literally sensational piece. The literary aspect is conveyed through the dialogue and script, either from an original screenplay or an adapted work from a worthy, previously written story. The latter leads to the delicate and difficult path of choosing when and how to deviate from the original material. Some directors wish to stick as loyally to the original text as possible to properly flatter it and bring it to new audiences, like Peter Jackson did with *The Lord of the Rings* trilogy (compared to his slightly more liberal adaptation of *The Hobbit*). Some directors, on the other hand, keep very little of the original works and work with complete liberty on the film, such as *O Brother, Where Art Thou*? and its original work, *The Odyssey* by Homer. As I talked about one of my favourite novels of all time last issue, *Shoeless Joe*, it is worth mentioning that it was turned into a cinematic wonder with *Field of Dreams*, which takes a completely different sort of artistic view on the novel but in a completely acceptable way.

Even after dialogue and adapting is complete, there is still much planning to be done before the filming process can begin. The realm of cinematography is one of my personal favourite aspects to explore in films, as it can not only be a truly breathtaking visual splendor, but can also add many subtle implications to the nature of the films. I often think of it as the filmmakers rhetoric, as simple changes to lighting, positioning of props and actors, weather, focus and saturation of the scene can make a much more significant emotional impact on the audience. Some of my personal favourite films that play with this in very different and effective ways include *Tinker Tailor Soldier Spy*, *Black Swan*, and *Schindler's List*. Of course, the plain-and-simple visual spectacle of the film can play a huge role even when it doesn't have ulterior motives-- take any of the good old Disney, hand-animated films (some of my favourites for artwork are *Sleeping Beauty*, *The Hunchback of Notre Dame*, *Hercules*, and *Pocahontas*). Eye-candy in the scenery is a must-have for any sort of fantasy or sci-fi epic-- take the *Harry Potter*, *Star Wars*, *Lord of the Rings* sagas and any Studio Ghibli film as evidence enough.

Once you've got the scene all planned out, your recipe is going to need some damned good actors to pull it off-- and not only 'good actors'. You need an actor that suits the role well, because they can make or break the mood that the script, lighting and shooting are all trying to build. Sometimes, this can be purely a matter of taste-- my favourite vampire film of all time, Interview with the Vampire, often receives criticism for it's choice of Tom Cruise in a major leading role, but I did not find it as horrible as many people make it out to be. On the opposite hand, though, there are some actors who just ensnared a role so perfectly that there could be no finer substitute-- for example, Heath Ledger's portrayal of The Joker, Harrison Ford as Indiana Jones, and Christopher Lee as pretty much anything.

Now the time comes to start putting the final touches on the film-- perhaps most importantly, the audio aspect to the film. As discussed in previous articles, the soundtrack and music of a film adds such emotional depth to scenes that the film would be nowhere near as effective without them. When I go to watch a film in theaters, I always wait in the credits to make sure I see the composer's name, because there I tend to get a little jolt of happiness whenever I see familiar names like Alan Silvestri, James Newton Howard, Howard Shore, John Williams, Thomas Newman, Hans Zimmer, or my personal favourite, James Horner. There are also films that centre around already well-established pieces of musical art, and incorporate them into the film with new meaning and purpose (two great examples of this being the use of Chopin in *The Pianist,* and Mozart in *Amadeus*).

This is what makes films so incredible-- the fact that so many different forms of art must come together in order to make one immense, gigantic masterpiece. Of course, this does not mean that everything that gets pushed to the big screen is exactly "art", but there is definitely much genuine effort and creativity to be appreciated many of them.

How NPOs Really Work

FARZI YUSUFALI
3T NANOTECHNOLOGY

You, as a student in the 21st century, are more aware of the world and its problems, now that advances in communication have allowed you to access that kind of information. With this information comes the social responsibility of contributing in some way to the betterment of those less fortunate. Given the lack of time and ability to commit to a long-term volunteering project as an engineering student (with co-op), the first inclination would be to donate a small amount of your purchasing power to a charity. If you're fortunate enough to have that spending ability as a student, then it is also imperative that you thoroughly research your options before committing yourself to a cause.

A not-for-profit organization (or NPO) is a body that uses its economy to achieve its purpose rather than distributing it as profits or dividends. NPOs are allowed to make a surplus revenue but must be retained within the organization for the purposes of self-preservation, expansions, and to achieve the goals set out by the body. Most NPOs do have a large paid staff but also have a number of volunteers who do work for free or for a token amount. Some types of NPOs include charities, services, trusts (being a specific type of charity), co-operatives, supporting organizations and foundations. For simplicity, the charity and the foundation will be focused on as it is most relevant to the engineering populace.

A charity is an NPO that revolves around philanthropy and social well-being as its main purpose. Financially, charities are eligible for complete exemption of taxation. In Canada, a charity must be registered with the Canada Revenue Agency to acquire this status. A few well-known charities include the Red Cross, the United Way, and the Salvation Army. When looking into donating to a charity, there are a couple of things that you should look for. For one, do the necessary research to find out how much of the donation actually goes to the cause and how much is used for other purposes. For instance, a recent event to learn from is the investigation into Wyclef Jean's misuse of charitable funds from the Yele Haiti charity. He was accused of using the funds to pay the expenses of Jean-owned production houses, paying for luxury travel, accommodations as well as food, and employing people for exorbitant amounts. Especially in times of crisis, like the 2006 tsunami and the Haitian earthquake, a number of charitable organizations (both real and fake) will arise. Even more prominent are websites that are made to duplicate those of existing organizations. Your best bet is to research the organization thoroughly, look up the organization in the Charities Listings under the Canada Revenue Agency, or if all else fails research-wise, donate through CanadaHelps (a foundation that runs an online donation site to any registered charity). I've found that Charity Intelligence Canada and *list.moneysense.ca* are great references when researching a charity.

A foundation is different from a charity in that it donates funds or support to other NPO bodies and provides funding for its own charitable purposes. They can be considered as both public or private of which a private foundation is set up by an individual, a family, or group of people for a philanthropic purpose. The difference is that a private foundation will not solicit funds from the public while its counterpart would. They also aren't subject to the same number of tax exemptions as charities. It may be useful to donate to foundations as they distribute their funds to the entities that are most promising in fulfilling the goals of the organization. However, there is no choice into what exactly you are donating to when doing so through a foundation so it may be better to invest directly into the philanthropic cause of choice. Personally, it may be better to invest in foundations if the cause is of a larger scale (like a cure for cancer) while a charity might be better for something smaller (like the Food Bank). The benefit of this type of investment is the fact that the money goes where its most promising since charities and organizations can fail before reaching their goals. Of course, one of the largest foundations currently in operation is the Bill and Melinda Gates Foundations which boasts roughly $38 billion in its endowment which is then donated to organizations like the Global Health Program, Global Development Program, and United States program.

If you are thinking of giving to charity, don't do so without conducting thorough research first. While it may be nice to have someone take care of your philanthropic causes, the only way to be truly satisfied as a worldly person in society is to invest your time and your money in tangible purchases rather than giving money itself. In this way, you are sure of what is going and how much of it is going to help others. For example, I would much rather pay for someone's school fees, books, uniforms, etc. myself than give it to someone to use it for those means. While giving is something that is fulfilling, doing so the right way and with as much control over it as possible ensures that your investment, as such, is giving you the best return possible.

A Highly Variable Scalloped Potatoes Recipe

CAITLIN MCLAREN
1B CHEMICAL

A HIGHLY VARIABLE X RECIPE

Exams are over. Or mostly over, if you're taking some weird course that has nothing to do with engineering. Whatever. Settle yourself down and have a nice hot meal. You deserve it.

What does a nice meal consist of? Well, cheese, for a start. No meal is complete without cheese in some form or other. Unless it's a bowl of cereal…. Or sushi… Or stir fry….

Ahem. The best meals contain inordinate amounts of cheese. Also, you will need some starch. No, not bread. This is not a grilled cheese recipe. You don't need a recipe for grilled cheese. Anyway, scalloped potatoes are far, far better than grilled cheese. If you don't believe me, give it a try.

You will first need butter, flour, and a saucepan. Melt the butter in the saucepan, and stir in an approximately equal amount of flour. Don't burn it. Use only a few tablespoons of each. Add a cup or so of milk to the sauce, and stir it in with a whisk if you have one.

Cook your sauce on a low heat until it is thick and smooth. It should be boiling. Then, reduce the heat even more, and stir in some cheese. Lots of cheese. I trust you to be reasonable here.

Spice it up. Put in some paprika, herbs, elemental sulphur, cinnamon (yes, cinnamon- it may sound odd, but it's fine), olives, and whatever else you feel like. It doesn't matter what spices you do or do not use, but don't forget to put in a teaspoonful of salt.

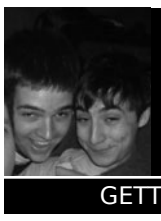
You should have sliced some potatoes beforehand. Line your pan in whichever dish it pleases you to use; the dish should be greased. A Bundt pan is non-ideal. Pour half the sauce over the potato lining, and build up another layer on top of the sauce. The rest of the sauce goes on top of the second layer.

Remember what I said about cheese? Get some more cheese and sprinkle it on top of everything. Bake the whole thing at 350 Fahrenheit for about an hour- you can be the judge of how soft you want the potatoes to be. Stab them with a fork to judge.

Take out your potatoes and eat them while they are hot. I recommend pairing this dish with a dry red.

The excellent thing about scalloped potatoes is that they stay good for several days, both hot and cold. You can have quite a few excellent lunches this way (Although if you have class, I do not recommend a dry red).

Tap 357 Canadian Maple Rye Whisky



GRAEME SCOTT
3T CHEMICAL
ERIC EVENCHICK
3T ELECTRICAL

GETTING GOOD HEAD

Good morning/afternoon/evening everyone (or, if you're reading this in the future; good night, because the internet is projected into your dreams). I do hope everyone is well since we last spoke, and if all isn't well, the product I'll be discussing will certainly heal many of your woes. That's right folks, this week I'll be writing about Tap 357 Canadian Maple Rye Whisky.

"Now just wait a minute!" many of our sharper-eyed readers will say, "this is a beer column, but I don't think Tap 357 Canadian Maple Rye Whisky is a beer." Well, eagle-eyes, you're quite right there, Tap 357 Canadian Maple Rye Whisky is in fact not a beer… BUT A WHISKY!

"But how could you betray my trust in such a way?" says our one hypothetical reader, "I expected a column discussing beer, I feel very misled." And for this I must apologize, but there are two very good reasons for this.

1. Tap 357 Canadian Maple Rye Whisky is delicious.
2. I forgot I had an article due this week, and…well, it's what I had.
3. Wait did I say there was two reasons?…never mind.

Now, again our hypothetical reader may be asking, "How did you come by such a concoction? Canadian Maple Rye Whisky sounds like something a wizard makes." And you may be right. As I'm sure you are aware (based on the fact that you're reading this, I can only assume you have good taste), maple things are delicious. Whiskey is also delicious. Literally nothing could be wrong with this.

I came by this particular brand whilst doing the ever exciting task of my laundry. While awaiting the finishing of my load I began to examine my surroundings, which, while being not very interesting (a Laundromat connected to a shawarma restaurant) I happened to notice a spattering of magazines, most of which appeared quite silly, but one of which, caught my eye. It was about whiskey. Featured on the front page of this magazine was the rock band The Trews. On the second page was an article regarding Canadian Maple Rye Whisky, and in particular, Tap 357 Canadian Maple Rye Whisky. Needless to say, I was sold.

My load finished, and I quickly transferred it to the dryer. Now finding myself with an hour to spend I decided to venture down to my local LCBO, to see if I could rustle up some of this mysterious maple concoction. I found it, and rushed home to open it, like Charlie Bucket after finding the golden ticket.

The bottle itself is a lovely shape, almost like a big bottle of syrup, very pleasing to the eyes, with the whiskey inside being a lovely light golden colour. Upon opening the bottle, the smell of maple is distinctly noticeable, but not overwhelmingly so, smelling very much like an alcoholic sugar shack. If someone made a candle of exactly that smell, I would buy several of them.

The rye flavours aren't very strong in this but the maple flavour sure is. The maple flavour is very rich as well as an almost foresty taste. It's almost what I imagine licking the outside of a maple sugar shack would taste like, in the best of ways. The flavour really lingers and has a very nice warm finish, an excellent sipping experience all around, particularly for those of you who like maple… which should be everyone.

On the whole, this was a lovely drink to have and a great accompaniment to the show Justified, which I just started watching (it's really good). It isn't overwhelmingly strong, and is great to have either when kicking back to relax, or while doing WatPD. It also seems like it would be a great whisky to mix fancy cocktails with. Overall I give it a whopping 4.78 Surly Bartenders out of 5 Surly Bartenders.

Join me next week when I will be discussing the pluralisation of the word Platypus.

Using Na+ and H+ For Maximal Flavour

LUKE VAN OORT
3B MECHANICAL
PARTH DAVE
4B MECHATRONICS

MODERNIST MIXOLOGY

Balancing flavours is probably the most challenging part of creating a tasty comestible. Put simply, technique can be easily taught, flavour balancing cannot. Due to supply issues with some ingredients of the planned cocktail for this column, instead of writing about an off-the-wall cocktail created using esoteric modernist techniques, we are going back to the basics to talk about flavour balancing in cocktails from an analytic perspective; specifically, we are going to discuss how salt and acid can be used to develop a better cocktail through one of the simplest (and tastiest) cocktails in existence - the Gin and Tonic. Unsurprisingly, a classic G&T is composed solely of gin and tonic water (this isn't the same thing as soda water!) in varying proportions. We like our G&Ts with a 1:1 volumetric ratio of gin to tonic water, but everyone has a different personal preference.

Observant readers of the "Aberdeen Hiflier" column will recall the seemingly odd addition of a pinch of salt to the concoction. In fact, the quantity actually used was far less than a pinch, closer to 6 mg than the ~0.6 g in a pinch. One might think that such a tiny amount of anything would be imperceptible; however, salt plays a much subtler and more influential role in flavour than just the mere addition of "saltiness" that one gets in high concentrations. The easiest demonstration of one of these effects is the gradual addition of tiny amounts of salt to a bitter liquid such as coffee or tonic water. At a certain concentration, the Na+ ions from the salt will interfere with the tongue's ability to detect bitterness, resulting in the beverage losing all trace of its previous bite (this is a really useful trick for rendering otherwise undrinkably over-extracted Starbucks or trade convention coffee tolerable). The blocking of bitterness isn't the only subtle flavour effect of salt at low concentration, but it is the easiest to describe and demonstrate. For a more practical demonstration, the same experiment can be performed with a gin and tonic, which is a complex herbal, floral, fruity, astringent, and somewhat bitter beverage. The loss of bitterness will occur as expected, but the flavour of the cocktail will also develop into a fuller, richer, more complete profile as salt is added, up until a point at which it becomes "salty." As these concentrations are ludicrously small (just a few grains of salt for a cup), it's difficult to give guidelines as it is impossible to measure such tiny amounts without laboratory-grade equipment, so just experiment using the finely calibrated eyeball and tongue.

Acid plays a similar role to salt in allowing the full flavour of a foodstuff to be perceived. In modern mixology, this often takes the form of adding purified citric or malic acid to the cocktail; however, the juice of any acidic fruit can be used as well, although one has to take into account their flavours as well. Lime and lemon juice are ideal for this due to their very low pHs (around 2-2.5), but there are many other culinary acids such as tamarind or even vinegar that could be used if the flavour of the drink were conducive to their addition. By slowly adding lime juice to the basic gin and tonic, the effects of pH on flavour can be observed, although this experiment is complicated by the additional flavours the juice introduces. The effect of acid tends to be more subtle than that of salt, especially as there are no extremely dramatic transformations like the bitterness blocking effect, but the tuning of a drink's pH still plays a critical role in turning a "good" cocktail into a "great" one. Once again, experimentation is required, but the quantities used are high enough that it is reasonably easy to actually measure and record instead of eyeballing everything as is necessary with salt.

Correct salt content and pH are two of the most fundamental components of making anything, not just cocktails, taste better. In fact, often what makes a restaurant dish taste better than one from a home kitchen is an increased salt content. So, if your cocktail or dish is tasting "flat" or is missing something that you can't quite identify, just try adding salt or acid.

thedesktopwallpaper.com

Less than a pinch of salt and some lime juice can go a long way to make a good Gin and Tonic great

Gretchen, Leggings Aren't Going to Happen

MOMMAKNOWS-BEST
3A MECHANICAL
3B SYSTEMS DESIGN
2A ENVIRONMENTAL

There has been an outbreak in our society causing the widespread acceptance of leggings as pants. This has caused the sanity of the female population to be called into question, it may even go as far as to question the judgment of women outside of the fashion world. But don't you worry because mommaknowsbest is coming to save the day with a simple and instructive guide to the ins and outs of wearing leggings.

The first question you should ALWAYS ask yourself is:

Does the shirt you're wearing end above your bum? In order for your leggings to be considered pants, they MUST cover your bum!

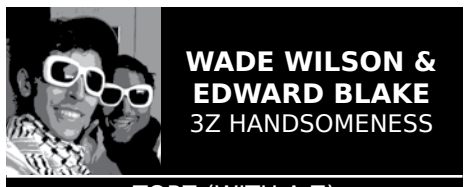
Before you leave the house in the morning, if you answer "yes" to any the following questions DO NOT WALK OUT THE FRONT DOOR.

- **Are you wearing shorts over your leggings?** Really?! Wait another three months until it is actually appropriate to wear shorts.
- **Are your leggings ripped, frayed or have any holes in them?** Please do the world a favor and spend ten dollars on a new pair.
- **Are your leggings transparent?** Those aren't leggings, those are tights. Tights are never and will never be pants. Ever.
- **Are your leggings the same colour as your skin?** Now, not only are you trying to wearing leggings as pants...you look naked.
- **Are you going to work, an interview, your grandmother's house, or a funeral?** Leggings are not and never will be formal wear. A nice pair of pants would do well for these occasions.
- **Do your leggings fit?** Does your muffin-top have muffin or is your butt suffering from saggy butt syndrome (or diaper butt)? Fit is extremely important in leggings, as they should be form fitting and comfortable, not too tight but not too loose either.
- **Are strangers likely to compliment you on your underwear?** Are you a lingerie model? Cool beans, please put on pants after you're done work.
- **Do they have pockets that are painted on?** What you are wearing are leggings masquerading as pants. Leggings are not pants and therefore don't have fake or real pockets.

The moral of the story is to use your best judgment while trying to wear leggings as pants. Wearing a long shirt, sweater or tunic is always a good standard to start with and then build from there. If you are ever in doubt of the validity of an outfit including leggings, err on the side of caution and put on a pair of real pants.

Signing off, #mommaknowsbest

Top Ways to Write Right



WADE WILSON & EDWARD BLAKE
3Z HANDSOMENESS
TOPZ (WITH A Z)

During his acceptance speech at the Academy Awards, Quentin Tarantino declared this to be a year of the writers': between Tarantino's own *Django Unchained*, Chris Terrio's *Argo*, Wes Anderson's *Barely Legal Teens 7*, and many other outstanding screenplays, Mr. Tarantino has a point. We here at *Topz (With a Z)* have always held ourselves to the highest of literary standards, which is why we are proud to be consistently positioned on *The Iron Warrior's* front page … in the second section hidden at the very end of the paper next to ads for Chainsaw.

Write What You Know

"'There are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do no know. But there are also unknown unknowns – the ones we don't know we don't know.' – Donald Rumsfeld" – Sammy J. We at *Topz* knew that sentence, hence the ability to write it. Researching heavily is a bad habit of some writers, making the work unrelatable to readers, requiring much needed research. It's the common English secondary school teacher perspective of the intention of every author ever, except their students. If you have been following our column for the last several sun cycles, you know we never use the term sun cycles, but also that we write about many common day-to-day situations. Keep note of your daily activities and try it, anything from going out partying, travelling or commuting, to chronic masturbation sessions (this applies to you too women).

Write What You Don't Know

Readers experience their day-to-day lives…well daily, so why would they want to read about it as well. Don't be a boring Benjamin, do some research for some fascinating sci-fi, or if you're lazy, just write fantasy. Fantasy gives you the added bonus of making Deus Ex Machina more acceptable. You can learn from the eagles in *The Hobbit*, the coincidental destruction of all the time-turners in the end of the fifth *Harry Potter* book, or the extra-large spicy Italian sausage in the pizza delivery boy's pants in *Barely Legal Teens 7* (also *2*, *3*, *4*, and *6*; *BLT 5* was a dark stain on an incredible franchise). Speaking of segues, if you write porn, it becomes art and socially accepted by most middle-aged women, especially when you don't know what you're talking about, you lonely engineer you.

Booze It Up

Ernest Hemmingway once said, "write drunk, edit sober." This is a philosophy we wholeheartedly embrace: once you get better acquainted with Mr. Daniels and Belvedere, you'll be surprised to see all of the drama with your friends and family around you. Somehow, when sober, you must have been to all of their wacky "interventions" and "rehabilitation pamphlets". If you don't drink, just pretend. The following is straight-edge Wade's attempt at sounding like intoxicated Edward: *What, you think you're better than me? I love you man, you're a much better person than me! Shots shots shots! I'm so down for some chicken and waffles right now. Here's my debit card, my pin is LTTE, go to the bank and withdraw $100. You know, a hole is a hole, why does society have to make things so complicated with labels like gay and straight? How did that carrot get there? I'M NEVER GOING TO DRINK AGAIN!* Publishable! (Edward would like to clarify that he was not drunk, but rather tipsy at the time that any similar proclamations to those above were made.)

Writing Dry

We wanted to write a point about boring dry patents, research papers, theses, law CSEs, etc. But even that was too dry for us.

Actually Write

Instead of plagiarizing all the time or relying on group partners for the writing portion of projects, try to actually do some of the writing yourself. How do you expect to get better if you don't practice? Some excuses for not writing that are valid in backwards places is being a lefty, but lefties deserve it so we at *Topz* don't accept this as an excuse. It is common to know people who have been identified as being born with the ability to write, so if you are not one of those people, fake it till you find something you're actually good at.

Write Well

Writing well doesn't mean you have to write good. A simple trick that many use is writing in calligraphy to develop an underserving respect for what is actually being written. Another trick around this is to write in comic sans to engulf the reader in anger distracting them from the poor writing.

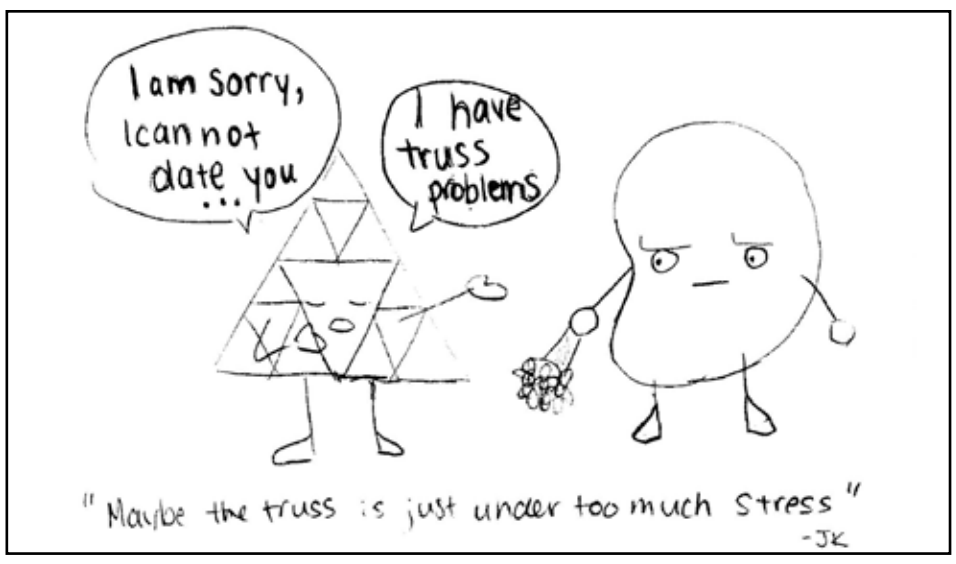
Inspiration

Popular locations for inspiration in the KW area include the Starbucks at Uni and King, the Starbucks in Uptown, and if you're feeling like trying something new, the Starbucks in downtown Kitchener is the place for you. There you'll find a lot of other inspiring writers, the difference between you and them is that they are being inspired by other writers. Let them inspire you to get inspired by others, individuality is for losers.

Using this article you can probably become a great secondary school English teacher, picking favourites, thinking something doesn't make sense because students probably aren't deep enough rather than your poor teaching, showing no support what so ever for kids who aren't natively excellent writers, poorly attempting to embarrass students in front of their peers, and believing poor writers will not get anywhere in life especially not co-writing a column for a university faculty paper. FUCK YOU MS. MANNY! YOU ARE THE WORST THING THAT'S EVER HAPPENED TO ME!

Note: All characters appearing in this work are fictitious. Any resemblance to real persons, living or dead, is purely coincidental. Especially Ms. Manny, you bitch!

The Iron Comic

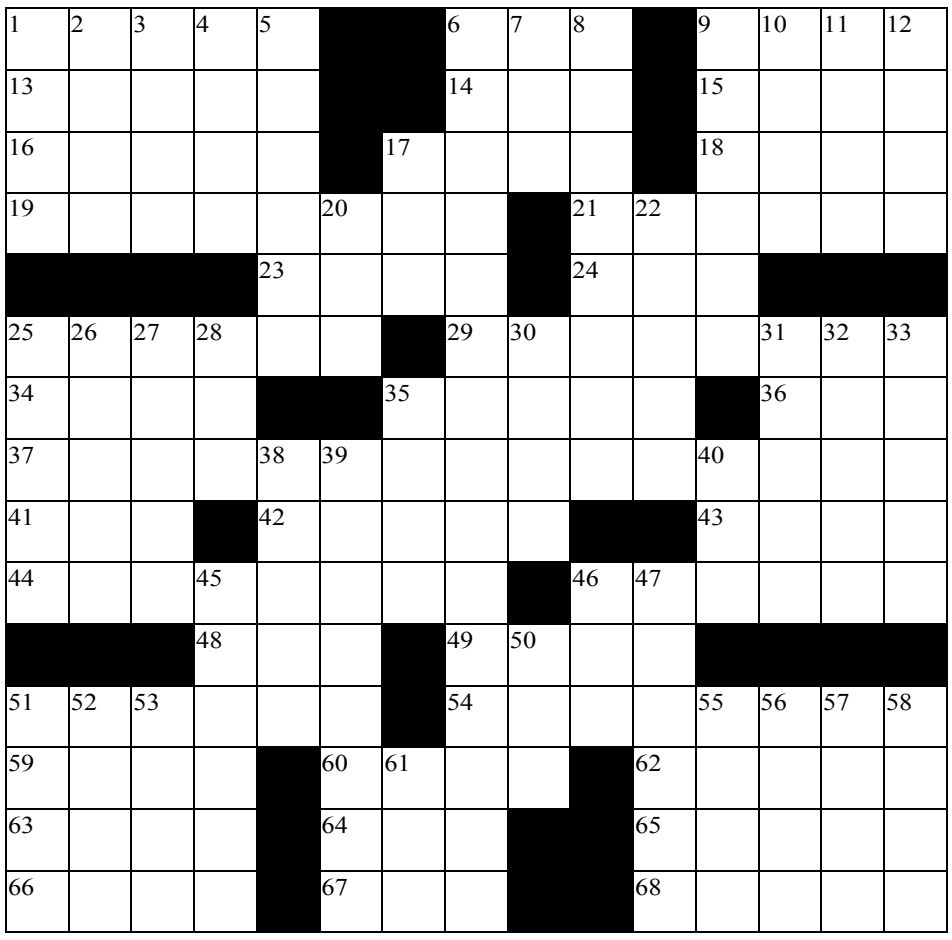


Jessica Keung, 1B Nanotechnology

The Iron Crossword

Something a Little New

NANCY HUI
3A CIVIL



ACROSS

1 Giant mud guardian
6 ___ de deux
9 Four farthings worth
13 A rotated H-pile?
14 When anglophiles argue
15 Jai ___
16 Swashbuckler in black
17 Generic dark soft drink
18 Bad Luck Brian, Good Guy Greg, and friends
19 Hypersensitivity disorder.
21 Winter weather reflex
23 Two
24 Count of Exodus plagues
25 A pronounced inactivity
29 Shapeshifting teenager with a death wish
34 Programmers, for short
35 Major Japanese port
36 An excellent grade of beef
37 Persons seeking meaning in an
41 Jean-___ Picard
42 Castor plant toxin
43 Editor: "Let it stand"
44 Reproductive hormone
46 Creepy girl from The Ring
48 Chemical structure of water
49 Swedish film: F**king __
51 Let it be
54 Counting in fives
59 Cowmuniqués
60 Homeric in scale
62 Masticator
63 Restaurant listing
64 Concept of self
65 Wormtongue
66 Multiple singles?
67 Nickname for person who set this puzzle
68 Bath salts

DOWN

1 Great Pyramid locale
2 Six to a drachma
3 ICAO: Ciudad Real Central Airport
4 Ye olde hearinge organe
5 WoW, Runescape, etc
6 The most powerful nation in the world
7 Geriatric internet provider
8 Buddhist peace sign
9 Black Keys album: El ____
10 Ht. above sea level
11 Moniker
12 Wedding cake layer
17 102, to Cicero
20 Her team cured toddler's AIDS
22 Blood-related
25 Pluvial pyromaniac?
26 UW computing network
27 Expel as landlord
28 Web feed format
30 Town in Labrador near Voisey's Bay, as studied in ERS 215
31 One who follows the religion with origins in Jamaica
32 Father, to Vergil
33 ___ la vista, baby.
35 One time
38 Boy scout group
39 Quebec drinking age
40 Philosophical suffix
45 Important blood type factor
46 Futurama moon janitor
47 Claim groundlessly
50 Physical addr.
51 Usually bullets
52 Director brothers
53 It holds ice cream
55 Convincing response to "Sergeant Angel's been taken care of?"
56 Post-smorgasbord somnolence
57 One lost clownfish
58 Metric mass unit
61 Tiger Woods' league

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

Sudoku

#2013-04

ANDREW FISHER
4B CIVIL

Easy

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

Medium

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

Hard

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

Issue #5 Deadline:
Friday, March 22 at 5:00 PM
Send your submissions to:
iwarrior@uwaterloo.ca

THE IRON INQUISITION
Kevin Veloso, 4C Software
Yola Harsono, 1N Mechatronics

"St. Paddy's Day?"

"Not remembering it."
Cody Bechberger, 2N Nanotechnology

"Connect with my Irish roots, but I'm not sure if I have any."
Jay Foster, 4B Environmental

"Studying physics. Urrgh!"
Jessica Ly, 1B Nanotechnology

"Drink and LoL (League of Legends)."
Rick Lu, 2N Nanotechnology

"Turn myself into a leprechaun!"
Sarah-Rose Lancaster, 1B Mechanical

"Hanging onto the floor for dear life!"
Mike Magliocchi, 2A Computer