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THE IRON WARRIOR

THE NEWSPAPER OF THE UNIVERSITY OF WATERLOO ENGINEERING SOCIETY

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# Waterloo Hybrid Overcomes Challenges to Excel at the SAE Formula Hybrid Competition


**The Waterloo Hybrid team celebrates with their car at the 2014 Formula Hybrid Competition. From left: Chris Steel, Ronnie Wan, Tarjot Chagger, Mark Leslie, Jerry Li, Rishi Chatterjee (Business Lead), Karan Bir, Jake Kononiuk (Mechanical Lead), Justin Hilroy, Caleb Amleson, Ping Cheng Zhang, Keith Lau, Krzysztof Kohar, Sven Wehrmann (Team Lead, Electrical Lead).**

**RISHI CHATTERJEE**
WATERLOO HYBRID TEAM

Waterloo Hybrid's car won 3rd place in GM's Hybrid Design Category and placed 10th out of 24 teams at the Formula Hybrid Competition in Loudon, New Hampshire April 28 through May 1.

It all started back in 2012. Waterloo Hybrid was a brand new team with members who were more family than friends. They took on one of the greatest and the most difficult engineering challenges for students in University. They committed more than just hours of their time; they dedicated their entirety to design, build and compete a hybrid Formula One style race car at one of the most prestigious international competitions in the world. Now, 2 years later, Waterloo Hybrid has done it again.

There have been a lot of changes in Waterloo Hybrid since 2012. Most of those committed members graduated, some left to take on other endeavours and some just became swept up with work. Early 2013, the team was questioning the idea of continuing as a design team since there was a lack of information from the previous team, a lack of resources and not enough hands to complete the project on time. But this didn't stop them. Waterloo Hybrid thrives off commitment and dedication; in essence it is a team that "leads by example". Without giving up, the new team was comprised of just around 10 students give or take the couple of people who showed up only on meetings. They set their goal to compete in the 2014 SAE Formula Hybrid Competition held in Loudon, New Hampshire on the April 28, 2014.

Starting May of 2013, the mechanical team took to the drawing board. Sven Wehrmann, Jake Kononiuk, Mark Leslie, Daniel Kaufhold and the rest of the mechanical team set out design packages with heavy sets of criteria and constraints. In four months, they were able to design a new chassis and drivetrain, as well as re-design most of the mechanical systems from the previous 2012 car. The electrical team led by Chris Steel dedicated their time in designing the most efficient electrical system. They designed the Battery Management System (BMS), the High Voltage system, the Low Voltage system, and numerous other electrical systems. This is the difference between Waterloo Hybrid and other teams. Waterloo Hybrid needs an equally strong electrical team to be able to build a high performance and efficient hybrid race car.

In September 2013, the team grew in numbers. Many new and curious first-year students signed up in groups to be part of Waterloo Hybrid, but soon realized the time commitment the team required, and most individuals just didn't have the time to continue. But some stayed on-board and were ready to take on the challenges as they came. This marked the start of the manufacturing stage, where more hands meant faster manufacturing. The team had also hired a new co-op for the fall of 2013, Karan Bir. Karan immediately understood what was at stake and jumped into manufacturing components and designing more parts. The team started the manufacturing process by putting together the jig table first. This is used to weld the chassis together so it doesn't warp. After that, the steel tubing for the chassis came through from Waterloo Hybrid's exceptional sponsor, Cartesian. After post-profiling and cutting the tubes into correct lengths, it took two long weeks to weld the whole chassis together. While this was taking place in the mechanical team, the electrical team, including Caleb Amlesom, Alex Bondarenko, Tarjote Chaggar, Stephane Lee, Jerri Li, Michael Thiessen and Sven Wehrmann, were all busy building the critical low voltage system and high voltage system.

Once the chassis was completed and painted, the mechanical team dove into manufacturing the rest of the subsystems. This meant the A-arms (the rods that connect the wheels to the chassis), the steering system, the suspension and the hundreds of spacers and inserts were to be manufactured. Waterloo Hybrid wasn't the only team working on a project however; the machine shop resources were shared with Formula SAE, BAJA, Rocketry Team and many others. Coming in early and leaving late, the team was able to finish manufacturing most of the subsystem parts by the end of January 2014. The start of the term marked the employment of two new co-ops, Keith Lau and Ronnie Wan, who dedicated endless hours to machine, manufacture and assemble the rest of the car. Most of the members from the previous term were on co-op starting 2014. This led to problems with transportation and coming to the Bay (located in Engineering 5) to work on the car, and the lack of hands once again marked a challenge for the team.It didn't hold Waterloo Hybrid back, though.

With the return of Jake Kononiuk from co-op, he became the acting mechanical lead as Sven left for co-op. With Jake's leadership and management, and the dedication

**Continued on Page 12**

# Letter from the Editor

**NINA FENG**
EDITOR-IN-CHIEF

Hello dear readers! Thanks for grabbing an issue of your friendly neighbourhood official Engineering Society Newspaper, *The Iron Warrior* (even if it's mainly for the crossword). Hope you're all well and ready for this summer term! Get ready for beautiful sunny days spent sitting in class, gorgeous weekends spent studying, and leisurely walks spent dodging geese poop and also the geese themselves.

Nina at your service, the brand-spanking-new Editor-in-Chief (EiC). I'm honoured to be in this position this term, and I'm grateful for everyone who's helped me get involved in this along the way, ever since I first joined as a young Padawan in 1A. I've had a lot of fun with this in the past, and I've met so many fantastic people along the way. I can only hope to offer an equally good time this term, while continuing to output a sort of kick-ass newspaper.

This is the first issue, coming at the end of the first month of term. It's been almost as exciting as it was stressful. I can credit much of my survival thus far to the wonderful IW staff (top notch people, all of you), and some über-resourceful previous EICs, specifically Alex Lee, Spenser Good, Lucas Hudson, and Jacob Terry. Thank you for putting up with all my e-mails, and I hope that you haven't noticed my fake-it-'til-you-make-it attitude.

We're always looking for new writers, photographers, and editors to join our team! If you want to get involved with us, participate in our many brainstorming conversations (they all somehow find their way to Game of Thrones though...), and munch on FREE FOOD, come to E2-2347! Meetings are every Tuesday at 5:30! We especially need FIRST YEARS. Y'all are super important if we want to keep this paper running in future years, so come on out 1B'ers! Anyone can contribute to our paper as well, just e-mail your articles to *iwarrior.uwaterloo.ca*, if you have something you want to publish!

Most of our regular columnists are back again to inform and entertain. These including Nancy Hui's ever-amusing movie review column, "Take Five", Alex Toth's "Album of the Week", and Elizabeth Salsberg's sports column "The Benchwarmer Report." You can find a lot of advice you should totally definitely use in your life in "How to Talk to..." and the new "Whether Report," a weather-based horoscope where the temperatures are arbitrary and the advice even more so. Another new column to look out for is "The Oil Change," for insightful reflection on the use and development of energy. Some previous IW staples have departed with the graduation of their writers however, and will be sorely missed in this term and in future terms. A parting salute to TOPZ, for example, their handsomeness no longer gracing the pages of this newspaper.

There's been a lot going on (as usual), both at Waterloo and in the world, and this issue attempts to give some of the highlights. Our student design teams have been up to some amazing things, and now's a pretty good time to get involved with one of them and have an amazing experience working hard with some of engineering's brightest. Exciting updates from Waterloo Hybrid and the Concrete Canoe team can be found in this issue.

This issue's world news takes a much darker turn though. From the 276 abducted schoolgirls in Nigeria, to the 301 that perished in the Turkish mining disaster, and the those who had their lives washed away by flooding in the Balkans, there's certainly no shortage of human suffering. No matter how much we've advanced since the appearance of our species, there will always be sobering reminders of our enduring vulnerability to both natural and man-made calamities, the latter of which we can only try to minimize over time.

There's been a lot to handle transitioning into these new responsibilities, and therefore a lot to stress over. Everything from advertisers, to article management, to even food, and finally, the infamous production weekend. This weekend actually wasn't quite as bad as I thought it would be, though I did waste an inordinate amount of time on Saturday planning and figuring things out. Furthermore, despite using the new computer (a monster of a machine), the dreaded blue screen still occurred three times, leading me to believe that our previous problems might not, in fact, have been the cause of an aged computer. Sunday was a lot better thanks to Krishna Iyer, layout-editing master, and having finally received the majority of articles. No blue-screening occurred that day. Not all of the gosh darn articles came in though, which I suppose is something I should plan for in future issues.

I'll admit, the thought that perhaps I've bitten off more than I can chew has crossed my mind more times than there are articles in this issue. It's been a pretty hectic few weeks, and it's only going to get worse. I was repeatedly warned about the 3A Environmental term, but I guess I figured that if I cut out all my Redditing hours I could make room to manage a newspaper as well as complete all the numerous weekly lab reports and assignments. It's actually sort of working so far, and I've only had one 'late' night, and it was only 3 am so it wasn't that bad. Time management is definitely something that I'll learn this term. Maybe it'll even break my internet addiction and tendency to procrastinate. Thank goodness our class has access to a fourth year study lounge, as I couldn't be doing this without the help of the lovely people always working there. Shout out to the 3A Enviro/Geo class for being such bomb-tastic human beings!

To be absolutely honest, my main goal this term is simply not to mess things up too much. I want to keep this thing going as it has been for so long. That being said, there's a few improvements that I can think of addressing, depending on time constraints and whether or not I actually feel like it. This past term saw plenty of room improvements, where the furniture got upgraded, a new computer was assembled, and things were rearranged. It looks fantastic, and there isn't really much to do there. My sights have turned on our website, which is starting to glitch a bit, for unknown reasons. If I can figure out what's going on, I'll fix it. Our current version of Wordpress could use a bit of an upgrade as well, which is something I want to look into, although if it goes wrong it will go really, really wrong....

Aside from the actual successful running of the paper, I think my biggest fears lie in making potentially bad judgements. I find that a combination of an appreciation for stupid humour and an over-willingness to accommodate requests might result in some questionable decisions for what is appropriate for the paper. I genuinely hope that there won't be any controversies or scandals during my term. As a writer, I myself have had some interesting moments over the past few years. Without going into too much detail, there was a certain politically-charged article in particular that was written in 1B (or was it 2A?) that sparked the ire of a university faculty member. The hour-long debate that followed was nerve-wracking, but a great learning experience on the power of language, especially how even the subtlest syntax choices might influence the overall tone and therefore the interpretation of the reader. I pride myself in my ability to write generally unbiased pieces when needed, and have tended to stay away from divisive topics. To be honest, I was mainly surprised that someone had read something that I wrote. There was another more heartening instance where I did a piece about feral cats and got some fairly positive external feedback, something I found very encouraging. I've since taken these experiences and have concluded that while I should not write about politics, I can definitely write about cute animals. Or more seriously, that potentially controversial articles (i.e. ones about politics, or social issues) should be expected to ignite disagreements and interesting discussion, and that it's something to keep in mind when publishing. I think that it's not always a bad thing, though. Short of blatantly offensive content, I believe that any well-researched opinions supported with valid logic and sound arguments are worthy of publication, even for the sake of discussion and debate.

All in all, I'm really excited to be the EIC this Spring 2014 term, and will do all that I can to make this a good one!



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Send your submissions to *iwarrior@uwaterloo.ca*
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THE IRON WARRIOR

The Newspaper of the University of Waterloo Engineering Society

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# Beginning a New Chapter of Indian History

NACHIKET SHERLEKAR
3A NANOTECHNOLOGY

India, the world's largest democratic nation, recently completed a marathon five week election cycle to determine the next prime minister of the country for the coming five years. The elections began on 7 April, and after nine phases of polling, the results were announced on 16 May. The two major competing alliances were the incumbent United Progressive Alliance led by the historical Indian National Congress, and the National Democratic Alliance led by the Bharatiya Janata Party. The NDA won the elections by an unprecedented margin, sweeping 336 of the total 543 seats, with the BJP alone gaining 282 seats, enough to rule without an alliance.

Elections in India are almost always a grand and sensational affair, with enough political drama and intrigue to put Game of Thrones characters to shame. Media portrayals of the event consist of allegations and counter-allegations flying like arrows from one political rival to the next, with everyone having their own opinions and estimations. The political scene in India is a unique one, having evolved to fit the varied demographic of this diverse nation. With there being twenty-eight states (roughly divided on the basis of language) and several religions and societal classes, identity politics plays a big role in India during elections. There are numerous regional parties that claim to cater to the needs of certain sections of population, whether it is religious minorities or 'backward' classes. This almost always results in the need for coalition governments, with various parties of otherwise differing ideologies needing to come together to create an alliance in order to form a government.

Enter Narendra Modi, the prime ministerial candidate for the BJP and the next prime minister of India. Modi served as the chief minister of the state of Gujarat for the past ten years as part of the BJP. With humble beginnings as a tea-seller, he quickly rose through the ranks to become an expert statesman, reforming the economy of Gujarat while simultaneously reducing corruption. While contesting for the national elections, Modi decided to put less emphasis on identity politics and more emphasis on uplifting the spirit of the nation and its people as a whole. He worked on the assumption that citizens were tired of hearing the standard spiel of divisive rhetoric so widely used by Indian politicians that more often than not equated to unfulfilled promises after they were voted into power.

Unfortunately, however, Modi has a controversial past. In 2002, during his first year as chief minister of Gujarat, the state witnessed a bloody communal riot between the Hindu and Muslim communities, which left more Muslims dead than Hindus, leading to allegations that Modi incited Hindu mobs to rally against and attack Muslims. The fact that the BJP follows a traditional 'Hindutva' ideology did not help. A special investigative team that was set up by the Supreme Court of India to investigate Modi's involvement declared that he was innocent. Despite this, his political opponents never stopped accusing him, and the accusations only grew louder in these past few months. Instead of addressing these allegations, Modi decided to focus his attention on the faltering economy and the political system plagued by corruption. Using the development of Gujarat as an example, he campaigned all across India to convince people of his eligibility (he even addressed rallies via hologram, Tupac style!). While highbrow intellectuals on media channels both in India and across the world predicted his downfall and cried for people to boycott him, the jaded lower middle class of the country decided that they were tired of the current state of affairs, with scam after scam under the previous government only confirming their state of mind.

What makes the results of these elections so amazing is that Modi has managed to defy all odds and predictions, leading the BJP to an overwhelming majority never seen before in the history of Indian elections. The voters of India have proved that they have matured enough to be able to see past the ploys of identity politics, which has usually been the dominant factor in Indian elections. These elections might also spell the end of dynastic politics that is prevalent in most of the major political parties (including the BJP). With the promise of a stronger economy, a better livelihood for the common man and a new reason to be proud of the country, Modi is all set to bear the crown of leadership for (at least) the next five years. It is hoped that, unlike a majority of his predecessors and contemporaries, he well keep his promises.

# Rain in the Balkans Causes Flooding and Destruction

MEAGAN CARDNO
2B NANOTECHNOLOGY

Two weeks ago, Bosnia, Serbia, and some parts of Croatia saw rainfall of nigh-Biblical proportions, falling continuously for four days— the equivalence of nearly three month's worth of rainfall. This is the largest amount of rainfall seen in the region's 120-year records.

Even after the rains ceased, water levels of the Sava, Tamnava, and numerous other rivers continued to rise. Their banks eventually burst, resulting in massive flooding throughout the Balkan Peninsula. No less than forty-four people have been killed as a result of these floodings, including the more than 2000 reported landslides in the afflicted regions. Over 100 000 homes, as well as 230 schools and hospitals have been destroyed, and nearly one million people are without access to clean drinking water. The number of residents evacuated from their homes is estimated around 32 000.

While the state of emergency has since been lifted in Serbia as the Sava and the Tamnava rivers steadily recede, the Balkan regions have more than just multi-million dollar damages to worry about. The flooding and landslides have uncovered over 100 000 land mines that have remained in the area from past wars, being washed away to new, unmarked locations. The United States has dispatched disposal experts to help with their removal, as up to 70% of the flooded area is thought to be in risk of containing land mines.

In addition, the governments have worries concerning disease outbreak due to contaminated drinking water, as well as the countless dead animal carcasses that float in the receding waters, which often decay beyond recognition before they can be incinerated. There have also been reports of criminals taking advantage of the tragedy, heading out in boats to raid the unoccupied houses of citizens during their displacement.

Fortunately, according to National Crisis Management, there is no present danger of re-flooding.

Following delayed reporting on the disaster, much criticism has been directed towards mainstream western media. For most large news agencies, first reports of the flooding did not appear until three days after it began.

There is also much criticism towards Serbia, Bosnia, and other Balkan states in their lack of maintenance and development of embankments and dams to prevent such disasters. Only the Serbian government showed plans for such infrastructure, proposing to build 34 dams whilst still a part of Yugoslavia. However, at present only five of these 34 have been built.

Proper estimates of the national expenses for the entire disaster are expected to be made within the next ten days.

# Kidnapped Girls in Nigeria

ALEXANDER LEE
2B NANOTECHNOLOGY

On the night of April 14, 276 teenage girls were kidnapped from the Government Secondary School from Chibok, Borno State, Nigeria. The attacks were carried out by the Nigerian terrorist group, Boko Haram, which aims to end western influence in Nigeria, and re-institute Sharia law.

Boko Haram was created in 2002, and since then has never stopped being a thorn in the Nigerian government's side. Boko Haram started targeting schools in 2010, and the attacks have prevented at least ten thousand students from receiving an education. In addition, Boko Haram has been known for kidnapping girls and turning them into slaves.

In 2013, the Nigerian government declared a state of emergency in Borno State, where Chibok is located. The group has stepped up their attacks since the beginning of 2014, with the most major attack prior to the kidnappings being on the military barracks in Giwa.

The school had actually been closed in the four weeks prior to the kidnappings due to the all the attacks. However, 530 students had been at the secondary school to write their physics final exams. The school was lightly guarded by military troops, but the insurgents were able to overpower them and break into the school, killing one soldier in the process. Though the military had four hours advance warning on the attack, there were no reinforcements in the area and the military had already been overextended.

It is not entirely clear what condition the girls are in, and what Boko Haram plans to do with them. Conflicting stories are coming from the region, with some reports saying that the girls were forced to convert to Islam and being sold as brides, and other reports saying that the insurgents are holding them hostage, offering their freedom in exchange for releasing captured insurgents.

The kidnappings have shocked the world, refocusing the attention of the media on the instability in Nigeria and the plight of the civilians and innocents who are caught in the crossfire. The United States have already sent a team of experts to help locate the kidnapped girls, and Israel, the United Kingdom, and France have said they would do the same. However, the Nigerian government has been sluggish in their response to the situation, and blame has been shifted back and forth between the government and the parents, with the parents saying the government was not using all of their resources, and the government saying that the parents had not been forthcoming with information to aid the search. The government has also been criticized for even allowing the attack to happen in the first place, and as a result the Nigerian government has been labelled ineffective and incompetent.

Information coming from Nigeria is naturally murky, and because of this, many details involving the kidnappings are not clear. What is known for sure is that the terrorist insurgency in Nigeria has been growing in power, and that their actions have devastated the families of 276 schoolgirls.

# Turkish Mining Tragedy

ALEX TOTH
4A CHEMICAL

Eight people have been arrested by a Turkish court last Monday following the deadliest mining disaster in Turkey's history. Among these people are the general manager and Chief Executive of the mine, which is located in Soma, a city in the far west of the country. The tragedy, thought to be caused when a coal fire filled the mine with carbon monoxide, has sparked outrage and protests throughout Turkey, aimed at both the Turkish Prime Minister and the executives in charge of safety at the mine site. The mining company is being accused of sacrificing safety standards for the sake of company profits, while the PM has taken heat for the country's lax safety standards and close relationships with high ranking industry executives. Both the mine officials and the PM have denied any negligence.

Turkey, where economic growth over the last decade has greatly outpaced safety standard evolution, has one of the world's worst industrial accident records. This disaster has left 301 confirmed dead and is not an isolated incident; however it seems to be the catalyst for an organized push by the citizens to implement stronger safety laws. There have been protests in Soma and other Turkish cities, including riots where people have been throwing stones and fireworks at the police. At least 40 people have been detained for actions relating to the protests so far.

Detractors of the PM have been quick to blame him for privatizing mines which were previously state owned, selling them to profit minded entrepreneurs who have been accused of taking advantage of the relaxed security standards in order to maximize their profits. However, the PM and the mine owners have denied any blame, saying that there were no loopholes in the mining safety regulations and that the mine passed all its biyearly safety inspections.

Mustafa Karaman

**The aftermath of the Soma mine disaster**

# What's Up: Spring '14!

**ALLYSON FRANCIS**
PRESIDENT

Welcome back to campus, B Society! My executive team and I are very excited for our first on-term as your exec, and hope all you fine people are too!

We have lots coming up in the remaining 12 months we have left in office, so I have put together a work plan to make sure that all of my promises to you, the engineering students, are met.

The overall vision I have for the Society in its current state is to prepare it for the future. I want to focus on long-term benefit, and establish changes that will promote rapid growth of the Society from this point forward. To do this, I have broken my ideas into groups by orientation, and laid out actions to take and metrics to gauge success.

The first thing that I want to prioritize is improving the Society's image significantly, with the majority of this change needing to come from the membership itself. The divide between those who regard EngSoc as a primary source of student support and those who hardly even consider themselves a member is ever-present, and although the Society has come a long way in recent years, drastic change is still required if the Society ever wants to be taken seriously. It is my goal to orient the Society in a more professional and business-like manner, and to continue to try to reach each student through the development of more meaningful services. I have also undertaken an initiative this term to interact more regularly with the general membership face to face, and also hear students' concerns and feedback in an informal setting. If you are around CPH on Fridays at lunch hour, make sure you come to the POETS patio to meet exec and grab a freezie at this new event!

My work plan continues to discuss plans for Society communication strategies, branding, online presence, and Engineering 7 plans, and if you are interested to read more about what I am working on, my work plan will be published shortly on the Society's new website – you heard that correctly! Farwa Naqi, the web development director, has been working hard over the last month and a half to put together a new website for EngSoc and so far it is looking fantastic! I can't wait to release the site for user feedback. Stay tuned for more, and for the release of our exec work plans with the new site!

As far as bigger projects go, the Governance Review Committee (GRC) that was established last Fall is beginning to wrap up and prepare its recommendations to bring to Joint Council (to take place Sunday June 22nd at 10am in DC 1351 – come on out!). These recommendations will be presented with a motion to adopt changes to the Society's current governance structure, including such items as the adoption of a Board of Directors and General Meetings. Updates on this will be published as the Joint Council meeting approaches, so keep an eye out for that!

This article is already too long, so if you have anything else you'd like to hear about or ask me, please shoot me an email at president.b@engsoc.uwaterloo.ca, or come by the orifice and/or out to the POETS patio next Friday at lunch! I look forward to hearing from you, and meeting those of you who I haven't met yet. Take care B Soc!

# VP Ed Update

**PERMEG KENTH**
VP EDUCATION

Hey there, beautiful B-Socers! Welcome back to campus! I hope everyone is having a great term so far (minus the lousy cold days that Mother Nature has thrown at us). I am working on a number of projects this term, and I will be continuously updating you about sessions and education-related news.

Academic rep coaching is being introduced with the help of the new academic rep advisors. This session will be held on Thursday, May 29, 2014, and will focus on training class reps to effectively communicate with professors. First year representatives will have a chance to interact with upper year class reps to get an idea about their responsibilities. So if you're a rep, SHOW UP! (Food will be provided).

As most of you may know, WaterlooWorks is coming! Jobmine is soon going to be replaced, and a pilot program is going to run for the architecture students this spring. I am currently talking to the Co-operative Education & Career Action (CECA) to put a booth in CPH for the students to look at the website and get a feel of what to expect in 2015.

Are you in first year? Are you looking to get involved? Scared that you don't have time for fun? Well be afraid no more…ENGSOC is introducing a First Year Personal Development Panel! This is where you will get to ask upper year students about how they balance school work and extracurricular activities, and they can give you an overview of different activities happening on campus. It's NOT TOO LATE to get involved.

Alright, that's my blurb! I will keep you posted about any interesting educational thangs that come up during the term. Feel free to approach me via email (vpeducation.b@engsoc.uwaterloo.ca) or pop by the Orifice (CPH 1327) to chat about any questions or concerns.

# Engineering Society "B" Budget - Summer 2014

| Income | | | | |
|---|---|---|---|---|
| **Item** | **Requested** | **Proposal #1** | **Proposal #2** | **Proposal #3** |
| **Student Fees** | | | | |
| Estimated Student Fees | $ 40,000.00 | $ 40,000.00 | $ 40,000.00 | $ 40,000.00 |
| **Orifice** | | | | |
| Estimated Orifice Sales | $ 600.00 | $ 600.00 | $ 600.00 | $ 600.00 |
| **Total Income** | **$ 40,600.00** | **$ 40,600.00** | **$ 40,600.00** | **$ 40,600.00** |

| Expenses | | | | |
|---|---|---|---|---|
| **Item** | **Requested** | **Proposal #1** | **Proposal #2** | **Council** |
| **Fixed Costs** | | | | |
| Photocopies | $ 1,200.00 | $ 1,200.00 | $ 1,200.00 | $ 1,200.00 |
| Telephone | $ 440.00 | $ 440.00 | $ 440.00 | $ 440.00 |
| Postage | $ 400.00 | $ 400.00 | $ 400.00 | $ 400.00 |
| Supplies | $ 1,400.00 | $ 1,400.00 | $ 1,400.00 | $ 1,400.00 |
| Cable | $ 50.00 | $ 50.00 | $ 50.00 | $ 50.00 |
| Casual Payroll | $ 6,000.00 | $ 6,000.00 | $ 6,000.00 | $ 6,000.00 |
| Monthly Payroll | $ 12,000.00 | $ 12,000.00 | $ 12,000.00 | $ 12,000.00 |
| Bar Services | $ 975.00 | $ 975.00 | $ 975.00 | $ 975.00 |
| Iron Warrior - 1% of Student Fees | $ 400.00 | $ 400.00 | $ 400.00 | $ 400.00 |
| ECIF - 5% of Student Fees | $ 2,000.00 | $ 2,000.00 | $ 2,000.00 | $ 2,000.00 |
| **Total Fixed Costs** | **$ 24,865.00** | **$ 24,865.00** | **$ 24,865.00** | **$ 24,865.00** |
| **Executive** | | | | |
| Exec Discretionary | $ 1,000.00 | $ 1,000.00 | $ 1,000.00 | $ 1,000.00 |
| President | $ 1,000.00 | $ 1,000.00 | $ 1,000.00 | $ 1,000.00 |
| VP Education | $ 500.00 | $ 500.00 | $ 250.00 | $ 250.00 |
| VP External | $ 500.00 | $ 500.00 | $ 250.00 | $ 250.00 |
| VP Finance | $ 500.00 | $ 500.00 | $ 250.00 | $ 250.00 |
| VP Internal | $ 500.00 | $ 500.00 | $ 250.00 | $ 250.00 |
| **Total Executive Costs** | **$ 4,000.00** | **$ 4,000.00** | **$ 3,000.00** | **$ 3,000.00** |
| **Directorships** | | | | |
| Academic Rep Advisor | *$ 200.00* | *$ 200.00* | *$ 90.00* | *$ 145.00* |
| Advertising | *$ -* | *$ -* | *$ -* | *$ -* |
| Archineering (SCUNT!) | *$ 520.00* | *$ 502.40* | *$ 22.40* | *$ 24.00* |
| Arts | *$ 311.00* | *$ 274.60* | *$ 149.60* | *$ 158.00* |
| Athletics - Workout Time! | *$ -* | *$ -* | *$ -* | *$ -* |
| Athletics - Hockey | *-$ 113.55* | *-$ 109.95* | *-$ 109.95* | *-$ 107.55* |
| Beach Day | *$ 40.00* | *$ 40.00* | *$ 40.00* | *$ 40.00* |
| Canada Day | *$ 630.31* | *$ 531.66* | *$ 317.10* | *$ 387.10* |
| Charities | *$ 6.60* | *$ 6.60* | *$ 1.20* | *$ 2.00* |
| Course Critques | *$ 12.00* | *$ 12.00* | *$ 6.00* | *$ 6.00* |
| Directorship Appreciation | *$ 1,750.00* | *$ 1,750.00* | *$ 1,000.00* | *$ 1,000.00* |
| Engineering A Difference | *$ 130.00* | *$ 60.00* | *$ 30.00* | *$ 30.00* |
| EngPlay | *$ 211.98* | *$ 210.38* | *-$ 19.62* | *-$ 18.02* |
| Exam Bank | *$ -* | *$ -* | *$ -* | *$ -* |
| Frosh Mentoring | *$ 173.00* | *$ 143.00* | *$ 77.00* | *$ 83.00* |
| Genius Bowl | *$ 430.00* | *$ 376.20* | *$ 289.20* | *$ 297.00* |
| Glow Liaison | *$ -* | *$ -* | *$ -* | *$ -* |
| Hackathon (EngHack & EngSoc Hack Day) | *$ -* | *$ -* | *$ -* | *$ -* |
| Historian | *$ -* | *$ -* | *$ -* | *$ -* |
| International Experience | *$ -* | *$ -* | *$ -* | *$ -* |
| Jazz Band | *$ 547.40* | *$ 547.40* | *$ 497.40* | *$ 499.00* |
| LAN Parties | *$ 381.70* | *$ 138.60* | *$ 108.60* | *$ 111.00* |
| Media | *$ -* | *$ -* | *$ -* | *$ -* |
| Mental Health | *$ 188.00* | *$ 183.60* | *$ 183.60* | *$ 186.00* |
| Music | *$ 250.90* | *$ 250.60* | *$ 95.60* | *$ 96.00* |
| Outreach | *$ 300.00* | *$ 181.00* | *$ 153.60* | *$ 156.00* |
| P**5 | *$ 953.00* | *$ 801.20* | *$ 601.20* | *$ 604.00* |
| POETS | *$ 372.60* | *$ 328.80* | *$ 263.80* | *$ 269.00* |
| Pride Parade | *$ 540.00* | *$ 540.00* | *$ 540.00* | *$ 540.00* |
| Resume Critiques (and Interview Skills) | *$ 304.00* | *$ 203.00* | *$ 153.00* | *$ 153.00* |
| Scholarship Bank | *$ -* | *$ -* | *$ -* | *$ -* |
| Secretary | *$ -* | *$ -* | *$ -* | *$ -* |
| Semi Formal | *$ 1,370.00* | *$ 1,213.20* | *$ 514.23* | *$ 817.00* |
| Sleepover In POETS | *$ 160.76* | *$ 159.56* | *$ 85.40* | *$ 87.00* |
| Speaker | *$ 1,700.00* | *$ 1,700.00* | *$ 1,700.00* | *$ 1,700.00* |
| Student Deals | *$ -* | *$ -* | *$ -* | *$ -* |
| Student Teams Advisor | *$ 70.00* | *$ 70.00* | *$ 50.00* | *$ 50.00* |
| Student Workshops | | | | |
| AutoCAD | *$ 32.80* | *$ 23.20* | *$ 23.20* | *$ 24.00* |
| Ice Ice Baby (Ice cream making!!) | *$ 127.25* | *$ 53.50* | *$ 33.00* | *$ 33.00* |
| TalEng | *$ 251.80* | *$ 1.20* | *$ 1.20* | *$ 122.00* |
| TSN | *$ -* | *$ -* | *$ -* | *$ -* |
| Webmaster - Functionality | *$ -* | *$ -* | *$ -* | *$ -* |
| Webmaster - Development | *$ 2.00* | *$ 2.00* | *$ 2.00* | *$ 2.00* |
| WEC | *$ 1,800.00* | *$ 1,771.20* | *$ 1,652.20* | *$ 1,653.00* |
| Women in Engineering (WiE) | *$ 499.00* | *$ 449.00* | *$ 361.00* | *$ 361.00* |
| Year Spirit - 2015 | *$ 233.00* | *$ 136.20* | *$ 106.20* | *$ 107.00* |
| Year Spirit - 2016 | *$ 145.00* | *$ 145.00* | *$ 95.00* | *$ 95.00* |
| Year Spirit - 2017 | *$ 60.00* | *$ 50.00* | *$ 39.00* | *$ 39.00* |
| Year Spirit - 2018 | *$ 112.00* | *$ 86.00* | *$ 42.00* | *$ 42.00* |
| **Total Directorship Costs** | **$ 14,502.55** | **$ 12,831.15** | **$ 9,104.16** | **$ 9,647.53** |
| **Total Expenses** | **$ 43,367.55** | **$ 41,696.15** | **$ 36,969.16** | **$ 37,512.53** |

| Sponsorship | | | | |
|---|---|---|---|---|
| Sponsorship Meeting | $ 6,000.00 | $ 6,000.00 | $ 6,000.00 | $ 5,000.00 |
| **Net** | **-$ 8,767.55** | **-$ 7,096.15** | **-$ 2,369.16** | **-$ 1,912.53** |


Lucas Hudson

# Smell my Duties!

**SARAH-ROSE LANCASTER**
VP EXTERNAL

Hello, my name is Sarah-Rose Lancaster, and I am your new Vice-President External. "What does the Vice-President External do?" you may ask. Read ahead to see my plans for the upcoming term, and you'll be sure to find out.

VP-External is responsible for generating interaction between the Waterloo Engineering Society and organizations in the Kitchener-Waterloo area in order to promote the image of the Society. I intend to do this through the Engineering-A-Difference Program. The goal of Engineering-A-Difference is to get Waterloo Engineering students to actively volunteer in the Kitchener-Waterloo community. Several volunteer opportunities will be available to Engineering students throughout the term. The first Engineering-A-Difference event, The Walk to Fight Arthritis, will take place on Sunday, June 8th in Kitchener. If you are interested in volunteering, please email me at vpexternal.b@engsoc.uwaterloo.ca.

Another duty of the VP-External is to liaise with professional engineering organizations, such as Professional Engineers Ontario (PEO) and Waterloo Alumni, in order to provide opportunities for career development to Waterloo Engineering Students. To accomplish this goal, I am organizing an Alumni Speaker Series where former Waterloo Engineering students will share advice and insight with current undergraduates about what they can do to be successful in their future careers. The alumni speakers are currently being contacted, so look out for events in June and July.

The VP-External also sits on two important councils that represent the interests of Undergraduate Engineering Students at the Provincial and National level. These are the Engineering Student Societies' Council of Ontario (ESSCO) and Canadian Federation of Engineering Students (CFES). Unfortunately, not many Waterloo Engineering Students know that these organizations exist, nor do they know what services these organizations provide for them. Each term, Waterloo pays a feww to be part of these organizations. As such, they should be able to use the services provided to their full potential. My goal for this term is to heavily advertise and promote what ESSCO and CFES can do for our Engineering Undergraduates through the use of an information board and potentially a PowerPoint presentation.

Some other responsibilities of the VP-External include developing outreach programs for prospective Waterloo students, coordinating Women-in-Engineering events and overseeing the Waterloo Engineering Competition. All of these programs are currently off to a successful start, and updates will be provided in future articles!

If you have any questions about topics discussed in this article, or simply would like to make a new friend, please email me at vpexternal.b@engsoc.uwaterloo.ca. Have a great summer term!

# VP *Win*ternal Update

**MATHIEU TREMBLAY**
VP INTERNAL

Well hello there B-Soc, how have you been? I hope you've all had a good co-op term and first few weeks! A lot of stuff has been going on, and this term is shaping up to be an awesome one!

In the next couple of weeks we've got some sweet events planned. These include a euchre tournament in POETS (which happens to be licensed that day as well!), a LAN party for any gamers out there, and a coffee house where you can listen to your fellow Plummers perform.

Later on in the term we've got a couple of new exciting things that we're trying too! Semi-formal this term is going to be held in conjunciton with MathSoc, which should be super awesome! TalEng is going to be held at the Bombshelter Pub here on campus, which hasn't happened for a while so that's pretty neat, and the other big thing I'm involved with is running a trip to march in World Pride Parade Toronto this year!

That's right, it's not just Toronto Pride Parade, it's World Pride Parade this year, which is going to be crazy and EngSoc will have its very own contingent going! The plan as it stands is to have 2 busses full of students go to the parade and march behind a "float" (really just a pickup truck with decorations) that will have The Tool and Toolbearers in the back, as well as a PA system to blast sweet tunes as we march. Look out for more details in my update for the next Iron Warrior issue!

# VP Fine Update

**MELISSA FERGUSON**
VP FINANCE

Hello fellow engineers!

My name is Melissa Ferguson and I am your current VP Finance. I am very excited to be serving you as part of the Engineering Society executive team, and I have a lot of plans for the upcoming term.

My number one goal for the term is to ensure that every engineering student feels like they are benefiting from their EngSoc fee. The main action I will take to ensure that fewer students are feeling irritated by the EngSoc fee is to really pump up the Student Deals program. For those of you who are unaware of this program, there are many restaurants in the University Plaza that give special deals to Engineering Society members. All you need to do to be a part of this deal is bring your WatCard to the Engineering Society office (CPH 1327) and ask for a Student Deals sticker. To use this sticker you just need to show your WatCard to an employee at any of the participating restaurants to get a deal!

My second goal for the term is to increase awareness of the Engineering Capital Improvement Fund (ECIF). I am currently working on a Facebook page for ECIF awareness where I will create a summary of everything that has been purchased using ECIF funds, such as the furniture in POETS, and all of the board games in the Orifice that are free for everyone to use.

My final major goal for the term is to improve the quality and variety of the Novelties merchandise. A design competition for new Novelties merchandise started on Monday which will hopefully bring in many great ideas for new swag. The competition will be running for an entire month, so you have lots of time to submit whatever ideas you may have. I also intend to introduce department-specific patches based on previous feedback. Finally I am in the process of improving the functionality and layout of the Novelties Facebook page to make it easier to find out what Novelties has to offer.

The Engineering Society budget for the term was passed at the most recent EngSoc meeting, and we are looking to be in good shape. There are many new events that are being funded this term, such as the AutoCAD workshop, Ice Cream workshop, and sleepover in POETS, which are all exciting!

If you have any suggestions or questions for me please do not hesitate to email me at vpfinance.b@engsoc.uwaterloo.ca. I look forward to hearing from you.

# Upcoming Events Calendar

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Wednesday May 28**<br>EngSoc Meeting #2<br>17:30 - 19:30<br>*DWE 2402* | **Thursday May 29**<br>Academic Rep Workshop<br>17:30 - 19:00 | **Friday May 30**<br>ESSCO AGM<br>Freezie Friday<br>11:30 - 13:00<br>Professional Photo Day<br>11:30 - 13:00 | **Saturday May 31**<br>ESSCO AGM | **Sunday June 1**<br>ESSCO AGM | **Monday June 2** | **Tuesday June 3**<br>Charity Grilled Cheese<br>11:30 - 1:30 | **Check out up-to-the-day event postings on the EngSoc website at engsoc.uwaterloo.ca** |
| **Wednesday June 4**<br>WiE Business Workshop<br>17:00 - 19:00 | **Thursday June 5** | **Friday June 6**<br>Freezie Friday<br>11:30 - 13:00 | **Saturday June 7**<br>LAN Party<br>15:00 - 23:59 | **Sunday June 8**<br>Engineering-A-Difference Walk to Fight Arthritis | **Monday June 9** | **Tuesday June 10**<br>Charity Grilled Cheese<br>11:30 - 1:30 | |

# Interested in Going on an International Exchange?

**KEITH BURNS**
DIRECTOR OF ENGINEERING
EXCHANGE PROGRAMS

Calling all first years and second years (third years can also read up and learn, but fourth years should only read to hear about missed opportunities)! One of the great things that UW offers is the ability to be at school in a completely different country while earning credits toward your UW degree! We, as engineering students at the University of Waterloo, have the opportunity to be a guest student at over 70 schools in Asia, Europe, Australia, South America, and even Mexico. Why should you go on an exchange you ask?

Well, why not? Having been on an exchange in Denmark during the fall 2013 term, I can (and do) recommend a wild, unknown experience to mostly everyone I meet. I was not only able to get to know beautiful Copenhagen intimately, but also to visit many places I've been itching to go to for a long time. From Denmark, I went to 11 cities in 7 countries. I also lived with and met hundreds of other exchange students from all over the world. We had regular group dinners, where people would cook food from their home countries. I got to meet and hang out with the awesome Danish locals. I did all this while also (kind of) being in school as I normally would. It was an experience of a lifetime for sure, and it's still hard not to bring up things that remind me of Europe on a daily basis.

But what about my money? What about my grades? What about my friends and family? Well, kind soul, let me tell you about it. Of course, you will most likely be paying more money on an exchange than if you were to be in school at Waterloo – but probably not as much as you think. Because UW has a bilateral agreement with these schools, you are actually paying UW's tuition fees, so you are paying the same amount of tuition as you normally would.

As far as food and accommodation expenses, they vary greatly depending on which region of the world you are visiting. Some places will be more expensive than Waterloo, and conversely, some will be cheaper. What you almost certainly will be paying money for is the best part: travelling. Travelling can cost a lot of money (again, depending on the location and the mode of travel…try taking a super cheap boat between Indonesia and Singapore!!!), but it is up to you to travel as much as you want. It is important to live within your means, but these are experiences that you are paying for. I'm honestly not sure if there's a better way to spend your money.

If we are talking grades, you do need to have a minimum overall 70 average for UW to accept your exchange application. However, some schools may have higher averages required, especially if it is a popular school with a limited number of exchange students. Of course, the higher average you have the better, but if you have a 70 average you still shouldn't feel discouraged. There are many schools that want to have you!

The deadline to apply for a Fall 2015 exchange (1Bs: your 2B term; 2Bs it will be your 3B) is this November 1st! So you should get a move on now and do research on the schools you want to go to! To learn more about exchanges, how to apply, and have all your questions answered by the right people, please come to an Information Session on Tuesday, June 3, 2014 at 5:30 PM in CPH 3607.

cdni.condenast.co.uk

**Exchange programs offer students an awesome experience living and studying abroad.**

# Change is the Only Constant: Canadian Conference on Student Leadership

**AMER ABU-KHAJIL**
MASC CIVIL ENGINEERING
CANDIDATE – TERM 2

The Canadian Conference on Student Leadership is an annual conference that brings student leaders from universities and colleges from all across Canada to share ideas, engage in discussions, and inspire one another. Students and staff members came to Hamilton, ON all the way from institutions in Northwest Territories, British Columbia, Alberta, Ontario, Quebec, and Nova Scotia.

I thought it would be a great opportunity to lend you some of the wisdom I absorbed and encourage you to attend the conference in 2015 if you are engaged in student leadership at the University of Waterloo in any capacity.

This year, I had the pleasure of attending the conference which was held at McMaster University from March 6 – March 8. Although students are able to attend independently, I was sponsored by the Organizational and Human Development department at the University of Waterloo through my role as a Student Leadership Program Facilitator (more on the Student Leadership Program here: https://uwaterloo.ca/organizational-human-development/student-leadership-workshops).

## Theme

The main theme of the conference was "Change is the Only Constant," which was at the core of each of the sessions and keynote presentations.

Interestingly, each session had a different format: learning lab, idea exchange, show and tell, panel, and think tank. All workshops were facilitated by students, for students.

I was able to attend 7 student-run sessions throughout the conference; however, there were 3-5 concurrent sessions in each time-slot (over 30 sessions to choose from in total!). Some of the topics discussed were: mental health, expanding your comfort zone, experiential learning through service, personal leadership branding, leadership and sustainability, and the list goes on and on!

I also found that the conference provided a significant networking opportunity through tons of breaks, meals, and a swag swap/coffee house night. Although I was one of the very few engineering students attending, I engaged all the student leaders around me as student leadership isn't constricted by your background/degree/program. Some of the people I met and conversations I had will stay with me for years to come!

## Keynote Speakers

The keynote speakers were Dr. Roberta Bondar, Kristine Stewart, and Adam Kuhn - they each came from a different leadership background.

Dr. Roberta Bondar was the first Canadian woman to fly in space; her talk was candid, inspirational, and filled with amazing pictures of earth – both from space and on the ground! She encouraged students to ignite their energy, pursue education, and, using those tools, become engaged in their communities. Dr. Bondar ended the session by taking a massive group 'selfie' with all the participants – a great way to end her very personable talk.

Kristine Stewart is the Managing Director for Twitter Canada and the former Executive Vice-President of CBC English Services. Her massive experience in running corporations and businesses provided delegates with a unique insight into leadership and entrepreneurship. She encouraged students to always be on the side that is new and different. Not only that, Kristine also believes in the phrase "You are where you are meant to be" – that regardless of what you are doing or planning to do, your present and the path it follows into the future are meant only for you and are controlled only by you.

Finally, Adam Kuhn, a student affairs professional who has had a wide-range of experiences in many different universities, shared some of the wisdom he has borrowed over the years. He encouraged students to always ask themselves: "what would you do if you were not afraid?" to truly tap into your inner passion and desire. Adam also presented the 5-5-5 Rule: when you are faced with failure, stop and think – will this matter to me in 5 minutes, 5 months, or 5 years?

## CCSL 2015

The next Canadian Conference on Student Leadership will be held at the University of Manitoba in November 2015 – which is still more than a year away! If you are interested in attending, be sure to keep this date in the back of your mind! For more information on the Canadian Conference on Student Leadership 2014, go to theccsl.ca.


**The UW Delegation at the CCSL.**
**First row from left to right: Mayer Tanuan, Lackshy Thambiaiah, Lindy Van Vliet,**
**Second row from left to right: Lucas Goodenough, Deanna Pri, Nicole Joron, John Fedy, Theresa Nystrom, Amer Abu-Khajil**

POINT

# Point Vs. Counterpoint

COUNTERPOINT

## Should the Provincial Government Build High Speed Rail To Kitchener-Waterloo?

**MATT MCLEAN**
4A MECHANICAL

The Liberal Provincial Government recently announced a proposed High Speed Rail (HSR) line from London to Toronto, with stops in Kitchener and at Pearson Airport. Funding for this project would be a piece of the non-greater Toronto area transit budget of $14 Billion over 10 years. About two-thirds of that money would come from dedicated revenue tools, including restricting tax credits for large corporations and redirection of gas taxes, about a quarter of it from provincial borrowing and the rest from the federal government. The High Speed Rail project should cost $2-3 billion, but the Liberals expect to recover all but $500 million from fare revenues.

The Progressive Conservatives (PC's) are pushing for better integration of Go Transit and TTC subway by transferring subway service to Metrolinx, the same provincial agency that runs Go Transit. The PC's also want to expand both Go Train service and expand highways. Like the PC's, the NDP is focusing mostly on Subway expansion, but they are also interested in expanding rail service in Northern Ontario. Both opposition parties have been non-committal on service to Kitchener-Waterloo so far.

The Liberal plan of high speed rail would take passengers from Kitchener to downtown Toronto in 48 minutes for a 'competitive price'. For comparison, Via costs $25 and the Go Train is $16, they both take about two hours to reach Union Station. The exact route has yet to be determined, but a speed of 320 km/h has been provided.

High Speed Rail has the potential to transform Waterloo, Ontario, and even all of Canada. A HSR link between London and Toronto is but only the first step in a proper (ie. European) rail network that could connect 18 million people from Windsor to Quebec City. This could drive our economy, make our population more fluid, and connect people who never dreamed of being so close. HSR along the corridor between Windsor and Quebec City has been studied since the 70's, with very little progress.

This project doesn't offer that grand solution of connecting half of Canada's population, but it creates momentum. Once one portion of the entire route is built, the concept of HSR in Canada can be proven and expanded on.

Granted, this is not the busiest portion of the route, but it is the most feasible. The 200 or so kilometers of track connecting London and Toronto would serve about 875,000 people outside of Toronto. This compares to 430 kilometers of track serving 1,500,000 people in Belleville, Kingston, and Ottawa. Hamilton's 720,000 inhabitants could be connected by only 70 kilometers of track, but this brings up the question of appropriate technology.

Someone from Hamilton can currently catch the Go Train and get to downtown Toronto in about 70 minutes. This could of course be improved with HSR technology, but the effectiveness of HSR is dependent on its ability to cruise at top speed over long distances. The great distances from London to Kitchener and Kitchener to Pearson Airport allow a train to be at top speed for a larger percentage of the entire trip than a Hamilton to Toronto route. A good alternative would be to electrify the current route to Hamilton to allow the trains to accelerate faster and save time with every stop.

Now is the time to start building improved connections to Toronto. With the arrival of light rail transit in Kitchener-Waterloo in 2017, someone could go door to door from KW to Toronto, all onboard the comfort of rail transit. Light rail transit will funnel people from the outer reaches of the system at Conestoga Mall and Fairview Park Mall to the train station in downtown Kitchener. These two new transportation systems could be at the forefront of a massive change in KW.

KW's thriving tech industry has been pleading for better transit connections for years now. Google is even bussing employees in from Toronto to their Kitchener office. Right now just one meeting in Toronto can cripple an entire day of someone who works in KW. If they were to take the train, they would have to wait an entire day to catch the return train. Even with all day Go Train service, upwards of 4 hours is spent in transit for a return trip. HSR would cut that time in half, and allow any working person to reclaim their day after a meeting out of town.

The ability to access funding on Bay Street is so incredibly important for the start-ups that will eventually lead our city. Just as important is access to Silicon Valley funding. A direct link t0 Pearson International Airport makes that trip so much more bearable, you wouldn't even have to park your car at the airport. With the recent cancelation of direct flights from Waterloo to Ottawa, the future of air travel from Waterloo comes into question. A direct link to Canada's largest airport will put a nail in the Waterloo airport's coffin, and allow people living in KW to have easy access to a much larger selection of flights from Pearson.

The Provincial Liberal's high speed rail proposal is the only one on the table that would benefit London. Just as KW's industry would benefit from increased connectedness, so would London's.

Finally, the largest impact of HSR is the benefits for the environment. We are all aware of the contributions of automobiles to greenhouse gasses. HSR provides the best incentive possible to get people out of their cars. Not only will someone be able to reach their destination faster, they will be able to do it in comfort. Trains offer a space where work can be done, books can be read, or even some shut eye can be obtained. High Speed Rail offers the ultimate convenience, and has the best chance to get people to change their transportation habits.

**AARON ROEPER**
4A CIVIL

Creation of a High Speed Rail (HSR) connection between London, Kitchener, Pearson and Union Station could do wonders for transportation in Central and South-Western Ontario. To be able to travel from London to Downtown Toronto in just over one hour would be a huge step forward from where we are now. Not only would travel times be better through the corridor via the HSR, but it would free up additional space on the 401 through the west side of the GTA. This is touted as benefitting not only the regions on the rail line, but also surrounding regions through transportation service improvements. However, this is not necessarily the case.

Not only is this HSR line not needed, it is also a bad idea.

I am not saying that an investment in transit is not needed (as a transportation student in Civil Engineering that would go against my knowledge, training and understanding of how transportation works), but this is not the right project. I have several reasons for thinking this. Primarily, all of these regions are serviced with other modes of transportation. Each of these regions has an international airport with quite a few planes travelling between Toronto and London daily. Kitchener has a GO Train line with two trains departing in the morning and returning at night. Pearson and Union station are soon to be connected by the Union Pearson Express (airport rail link) which will drastically improve transportation access for travellers and tourists. Additionally, the London to Kitchener portion of the 401 is lightly travelled, at least compared to the Kitchener to Toronto portion of the 401.

There are clearly other options, as there have been for years. The largest benefit to London and Kitchener would be the speed at which this HSR would travel (around 320km/h) resulting in a much reduced commute and much greater connectivity between these cities which are geographically far apart. Unfortunately we can't just pull HSR out of the sky and make it pay for itself. A price tag of 2-3 billion dollars is enough to make anyone think twice, even if the net cost in 15 years is only 500 million (which I find quite difficult to believe). As there is a provincial election coming soon, many candidates will think of better ways to spend that capital to get more votes.

Adding an HSR between cities already connected by air and rail will not be an efficient use of these funds, as it will result in redundancy and competition which would likely end in losses of flights from London and reduced GO train service. The only way that this would make sense is if there were plans to connect this rail line to another regional airport, to reduce the demand on both Pearson and Toronto Island Airports. Unfortunately, this is not in the plan, so I have a difficult time understanding the choice for this particular configuration when there are many other options.

GO Transit operates both bus service and train service in Kitchener already, which is especially popular here on campus. The rail line through Kitchener is very underutilized, especially given the need for an HSR connection. I think that a much more feasible and economical solution to this transit problem could be an expansion of the Kitchener - Union rail line. One of the main benefits of the HSR plan is the time savings compared to an average trip on the 401. If the Kitchener GO line was upgraded, expanded and prioritized, the same time savings could be present. The main benefit of rail over roadway is the exclusivity and priority of the line. Taking the GO Train during rush hour would clearly save time, as there would be no gridlock, no stoplights, and no stops aside from stations. If more trains were used and the tracks were upgraded to support a higher travel speed, the net effect could be identical- not to mention the additional regions that would receive full rail service. With the current HSR plan, larger regions like Guelph, Brampton, Sarnia, Mississauga, Woodstock and Milton would get no benefit aside from reduced traffic on the 401 corridor. This benefit may seem good, but if the 401 is less clogged, more people will drive to fill up the holes. No new mode of transportation can entirely solve this issue, but making the existing transit more accessible and increasing capacity is a good and relatively inexpensive way to start.

The current HSR plan is just getting started, with an Environmental Assessment and Feasibility Study taking four years to complete. Since there is no finalized layout, I cannot comment on the infrastructure requirements for this project, but I can only imagine what routes they have come up with already. Any route along the 401 will restrict 401 expansion and will require substantial structural rebuild. Any route north of the 401 will intersect with the GO Transit line and the 407 already passing through the area in the same direction, not to mention Brampton and Guelph which will be in the way. Any route south of the 401 (it will definitely have to cross the 401 to get from Pearson to Union) will pass through some major population centres like Milton and Mississauga. Each one of these routes will require demolition of relatively new structures and will create delay to each municipality that the tracks will pass through. It becomes very difficult to justify the inconvenience when the HSR will only have 4 stops.

A project I could possibly get behind would be a HSR built between Toronto and Hamilton with local routes travelling to Kitchener, London and St. Catharines, but that wouldn't necessarily solve the 401 traffic problems. However, the proposed High Speed Rail link between London and Union Station in Toronto is extremely expensive, quite unnecessary, will provide service to limited regions outside of the GTA, and will inconvenience many other regions in the process. This, is in my opinion, not a good investment.

# Waterloo's Concrete Canoe Team is 'The Dark Horse'

**JARED MURPHY**
4A CIVIL


**The University of Waterloo Concrete Canoe Team**

Just over 20 years ago, engineering students from Eastern Canada met and founded a highly unique competition involving the design, construction, and racing of concrete canoes! This event, the Canadian National Concrete Canoe Competition (CNCCC), stems from the ASCE National Concrete Canoe Competition originating in the 1960's. Each year, competing teams must design a concrete canoe that holds up to four paddlers during the race. Universities are judged on an oral presentation, technical report, final product, and how the canoe performs on race day.

The University of Waterloo's concrete canoe team was formed in 2013 and just finished competing for the first time at CNCCC 2014 in Sherbrooke, QC. The team was formed by the captains of Waterloo's multi-award winning concrete toboggan team. Together, these form the two sides of the Waterloo Concrete Design Team. Waterloo's canoe team placed 7th out of the 11 schools in the competition, ranking 5th for the oral presentation and 5th for final product. The team was praised by judges and fellow competitors for the build quality of Waterloo's first concrete canoe. Overall, the team is very proud of their placement in the competition.

Students involved in the concrete canoe team have the opportunity to gain exposure to the following:

-Hull design using computer assisted design software

-Mix design analysis to create a concrete mix that is less dense then water

-Scheduling and other aspects of project management

-Fundraising to send students to the annual competition

-Help with designing and updating the team website

-Formwork design and construction of a concrete canoe

Students from any engineering department are more than welcome to join and contribute to the team. If you're interested in joining Waterloo's concrete canoe team, shoot an email over to the team captains at c*oncretecanoe@uwaterloo.ca!*

# Waterloo Hybrid

**Continued from Front Page**

and commitment of Keith, Ronnie and Rishi, the team was able to have a rolling chassis by March. The competition was slowly easing in on Waterloo Hybrid and the value of time rose significantly.

March was a significant hurdle for the group. The electrical team faced the most serious challenges. With the outage of the Power Supply, the death of two Li-Po batteries, the increasing amount of noise in the system, and the numerous competition rules that were currently being broken by the systems in place, the team could not yet fully assemble the car. This was serious since the competition was merely a month and half away. Sven, the mechanical team lead is almost gifted with knowledge. He had just finished 2B Mechatronics but he had the knowledge of any leading professional in the industry. He committed himself to fixing the issues. Coming in every night during the week, he was redesigning systems and rewiring almost everything. The electrical team, almost entirely on co-op at the time, joined him on weekends. They traveled from Toronto every weekend and made Engineering 5 their second home.

While March tested patience, April tested commitment. In the first weeks, Waterloo Hybrid was on track for completing assembly. By mid-April, with the help of new involved and dedicated team members Ping Cheng Zhang and Krzysztof Kohar, Waterloo Hybrid had a running car. Time was critical; competition was only 2 weeks away. Rigorous testing of the car was needed. By the third week of April, the team had tested the car enough to have a buckled differential mount and a bent A-arm. The week before competition tested commitment. Since the last two weeks of April are between terms in the University of Waterloo, everyone was done co-op and done school. This led to the whole team staying till 5am in the morning every day of the week building spare A-arms (a lengthy process), new differential mounts (built by Ping Zhang), and new firewall. Finally by April 26th 2014, the team was packed and ready for competition. Leaving early the next morning, Waterloo Hybrid had three cars, one trailer and 14 stoked team members awaiting the experience of a lifetime.

Embarking on a lengthy journey to Loudon, New Hampshire, the next week was to test all the hard work the Waterloo Hybrid team had put in. Arriving at competition a day early on the night of Sunday April 27, Waterloo Hybrid was the first team to arrive at the New Hampshire Motor Speedway and wasted no time setting up camp and the trailer. That night, the team met up and discussed how the week was to go, making sure that everything was ready for the big technical inspections that were to occur in the week.

Starting the competition off on early Monday morning, the team registered and set out to one of the dedicated student bays provided by the organizers. Wheeling in the car and all the tools brought by the team, everyone immediately went into going over inspection sheets. As there were still minor problems with the electrical system due to all the changes that took place during the months of March and April, the team was still trying to fix things up at Competition. Looking around, the team was surrounded by equally dedicated and committed students from schools such as Yale, Carnegie Mellon, and Dartmouth College. Later on in the day, the team took the car out for the electrical pre-inspection and was immediately overwhelmed with corrections that had to be taken. This meant that there was still a lot of work to be done. There was no curfew. A night's sleep only lasted a couple hours for most of the students because the day became so long. The team worked on the car, troubleshooting and rewiring till 3 am before finally calling it a day.

The next day involved the great business presentation which was to be delivered to a group of judges consisting of professionals from companies including Tesla Motors. The presentation was prepared and delivered by Rishi Chatterjee, whose professionalism and sharpness drove the team to 7th place in the presentation event out of 24 teams. While Waterloo Hybrid was focused on fixing all the issues detailed from the pre-inspection, the rest of the day consisted of design presentations, driver meetings, and other compulsory congregations.

Wednesday was the most promising day the team had ever seen. Starting the day early in the morning, the number one objective was to pass the electrical technical inspection. The team was first in line for the inspection, but there were a lot of problems. The inspector marked off small issues that had to be addressed before they could pass the inspection. Rushing back to the bay, the team immediately started fixing every little issue, all of which were located right inside the complicated High Voltage box. This took almost 4 hours of the day, but the team was able to go back in line for the technical inspection. While waiting for their turn, the word got out that only one team had passed the electrical technical inspection so far. If Waterloo Hybrid was to pass the inspection this time, it would be closer to competing on the track than the majority of the other teams. With high hopes, the team rolled the car into the electrical technical inspection.

The inspection lasted 2 hours and by the end of it most of the members on the team had fingers that were starting to hurt from crossing them so hard. After detailed discussions, rigorous inspection and testing, Waterloo Hybrid passed the almighty electrical inspection. They were only the 2nd team of all 24 to pass the electrical inspection. No time could be wasted however, and the team rolled the car to the mechanical technical inspection right away. Time was running out and the team was still hoping to compete in the Autocross event scheduled to end in just minutes. The team flew through mechanical inspection and was onto the next test, the tilt test. This test rotated the car 65 degrees on its side with the driver, Sven Wehrmann, comfortable sitting inside. The team had no trouble passing the tilt test, but unfortunately time wasn't on their side and the Autocross event had ended.

Thursday was the big day and the last day of competition. Waterloo Hybrid rolled out early and went over to the last test, the rain test. This test was made to ensure that the car was waterproof due to the severely rainy weather. The car was fuelled with 95 Octane racing fuel and the drivers, Sven Wehrmann, Jake Kononiuk and Keith Lau, were ready to hit the track for the final and most important event of the competition: the endurance run. This was a 44-kilometer track, which tested the cars manufacturing quality and the team's final overall build. Waterloo Hybrid was the 2nd car ready to compete in this event of the 24 teams. The team finished the endurance event with a 4th place title, astonishing even themselves. The rest of the day entailed cleaning up, packing up and attending the Award Ceremony. By the end of the Endurance event, the team was dead tired but not ready to give up just yet.

The Award Ceremony brought surprising results. Waterloo Hybrid was presented with a 3rd Place trophy in GM's Hybrid Design Category and placed 10th overall out of 24 of the world's best student engineering teams. The team was thrilled because, even with the upsets, Waterloo Hybrid finished incredibly strong for a team without any competition experience. The accomplishment was especially impressive as all the other teams consisted of many 4th year and Masters students who not only had more knowledge, but could also provide more resources. Waterloo Hybrid consists only of 1st year, 2nd year, 3rd year students and Krzystof. It still came out on top of 23 other teams to have a functional, safe and competition-eligible car, something the team is incredibly proud of.

Returning to the University of Waterloo, Waterloo Hybrid is focusing on winning it all next year in 2015. The design phase has just started, the criteria and constraints have been set, and the team is ready to do it all over again. Anyone who is interested in joining Waterloo Hybrid can attend the weekly meetings held at 7:30 pm every Wednesday in room 2007 at Engineering 5. Visit Waterloo Hybrid at *www.waterloohybrid.com* or email the team at *uwaterloohybrid@gmail.com*. Waterloo Hybrid thrives off passion and innovation, the team is always looking out for those daredevils who are ready to take on challenges and become a part of the Hybrid family. It is not expected from anyone to know everything; but it's expected that they are willing to learn. Come be the "future on track" as a part of Waterloo Hybrid.

# Why You Should Care About Net Neutrality

**PATRICK WHITE**
2B SOFTWARE

Imagine, if you will, that the Internet delivered content like television: a very small amount of tightly regulated content is available, and if you want to see different content, you have to pay more. It sounds ridiculous, but it's not too far-fetched.

Net neutrality is the concept that nobody should have an advantage over how their content is delivered. If one company has the same capacity for outgoing bandwidth as another, a customer should not be able to notice any difference when accessing either site. This principle is being threatened by proposed new FCC rules (the FCC is the US government agency in charge of network regulation). Under the new rules, ISPs would be allowed to offer a premium rate to companies to give their content priority. Ever experienced lag in your online game because your roommate wanted to download the latest episode of Game of Thrones on Netflix? Under the new rules, it would be possible for your content to simply not arrive until someone with the same ISP next door finished downloading their show.

For now, that's not the case, and these rules only apply to US-based ISPs. But from here, it's only a few steps away from the internet-becomes-television situation. If ISPs can make money from companies willing to pay for faster access, there's no incentive to even serve small, independent websites that don't pay them. Take a look at your browser's history. How many of your most recently visited sites either don't or haven't always had the capacity to pay for faster access? My history has things like Facebook, Google, and YouTube - sites which wouldn't be able to exist had these rules existed since the beginning of the Internet. Major Canadian ISPs like Bell and Rogers are well-known for not caring much about customers if it means they can make an extra dollar, and if these rules come to fruition, you can bet they'll be pressuring the government to let them do what their southern counterparts will be doing.

There is hope for an open Internet. In 2012, the controversial anti-net neutrality SOPA and PIPA bills were quietly withdrawn among vast public outcry. In Canada, public advocacy group OpenMedia led a campaign to stop telecom companies charging per byte for home Internet use. The group continues to react against Canadian threats to net neutrality and privacy, fighting against the Trans-Pacific Partnership's Internet censorship efforts, helping to defeat Canadian 'online spying' bill C-30, amongst other campaigns. To find out more about protecting the Internet, visit *openmedia.ca*.

besttechie.com

**Proposed FCC rules threaten to drastically change net accessibility.**

# Natural Gas? Sounds Promising. Fracking? Maybe Not.

**ELIZABETH SALSBERG**
2B NANOTECHNOLOGY

THE OIL CHANGE

If you've been keeping up with oil and gas news (and if you haven't that's okay because you are clearly interested in reading this article), you'll know that natural gas extraction has recently been a subject of heated debate.

Why is this a big issue? Well, natural gas presents a promising alternative to our conventional energy resources. Natural gas can be used to heat or cool your home, generate electricity, and even fuel your vehicle—perhaps not the vehicle you have (or wish you had) at this moment whose engine is most probably suited for gasoline, but you get the idea. In fact, natural gas burns far cleaner than coal (a typical source of electricity) and oil, roughly 45% and 30% fewer carbon dioxide emissions respectively (Source: naturalgas.org). So clearly, natural gas is an environmentally friendly alternative source of energy.

But surely the environment is not the only reason why we are so suddenly interested in natural gas…You guessed it: China needs natural gas. Additionally, Canada has also been a major supplier of natural gas to the United States.

Joking aside, natural gas is an increasing valuable commodity and also represents an opportunity for job creation and economic growth throughout the West (British Columbia, Alberta and Saskatchewan) as well as in New Brunswick and other parts of the marimitimes. Though all this is all well and good, tapping this new resource is quite the challenge.

Like oil, natural gas is a fossil fuel, formed from decayed plant and animal remains that underwent high temperature and pressure for millions of years. Chemically speaking, natural gas consists primarily of methane, though trace amounts of other alkanes, carbon dioxide, hydrogen sulfide and nitrogen may also be present in varying amounts. Natural gas is typically found in rock formations (shale is one example), which is part of what makes it such a difficult resource to tap into.

The natural gas extraction process is called hydraulic fracturing, (also known as fracking). First, a well is drilled into the shale formation, hundreds or even thousands of meters down such that there is sufficient natural gas to justify the extraction. Fracking fluid, a mixture consisting mostly of water and sand is pumped through the well, increasing the pressure in the surrounding rock, thereby causing it to fracture. Following the end of the pumping stage, sand grains get into these cracks, keeping them open and allowing the natural gas to escape into the well. The natural gas then travels up the well and is recovered at the surface.

Unfortunately, these shale formations contain a significant portion of groundwater. The natural gas is located several hundred meters below the groundwater. So if the part of the well in the groundwater region is just a little leaky, the groundwater (aka drinking water) can be severely contaminated. This is the major issue with fracking.

Industry is adamant that the cement casing surrounding the well near in the groundwater region and for several hundred meters below is sufficient to ensure the prevention of leaks. However, a recent report on the environmental impacts of shale gas extraction in Canada reveals that improperly formed well casings and high pressure are in a major source of leaks. Furthermore, the report found that wells had not been monitored sufficiently well to properly assess the risk of leakage, and the potential impacts on the surrounding geology, which will vary. Human health risks associated with the process are also to be assessed.

It should be noted that there are regulations in place that pertain specifically to natural gas extraction. The major drilling provinces, British Columbia, Alberta, Saskatchewan and New Brunswick, each claim that their regulations are up to snuff and industry is confident that the regulations are stringent enough to deal with the risks associated with natural gas extraction. Scientists are skeptical of these regulations, claiming that the regulatory regime in these provinces is skewed to support the economic development of natural gas extraction.

Whatever the case may be, the reality is we just do not know enough about the risks and consequences associated with groundwater contamination from fracking to justify its regular use. Just because we don't know specifically what those risks and consequences may be doesn't mean we should go ahead and do it anyway (experimental determination anyone?). That being said, the environmental and economic benefits associated with natural gas are not to be overlooked. If we are serious about natural gas, a commitment needs to be made to understand and assess these risks. Further research should be done to improve extraction technology so as to protect the groundwater from contamination. Local residents need to be made aware of potential contamination issues. The list goes on. At the end of the day, it needs to be decided whether or not natural gas is an investment worth making.

# Coldplay - *Ghost Stories*

**ALEX TOTH**
4A CHEMICAL

ALBUM OF THE WEEK

**Coldplay tries a different style in their new album, *Ghost Stories*.**

Coldplay is not a band that tends to elicit moderate feelings from people. Everyone has an opinion, and that opinion normally takes one of two forms: vehement dislike or rapturous adoration. Some people, myself included, have even spent time on both sides of this fence (although I'm a firm believer in the latter opinion now). The detractors always argue that Coldplay is a one-dimensional (false), melodramatic (true) facsimile of Radiohead or Oasis or U2. But to say this is to miss the entire purpose of the band, which is to make friendly, arena-ready pop that still sounds intimate. It isn't supposed to make you think, it's supposed to make you feel. The world needs Coldplay, for any number of different reasons: they're the band preteens listen to as a gateway to Bon Iver or Bright Eyes or James Blake or Arcade Fire, or they're the band you can put on when you've had a terrible day and want something familiar and warm and entirely unintimidating.

This isn't to say Coldplay evolved or surprised throughout their 16 year run. Dissociating yourself from the argument presented above and focussing on what they've achieved is fascinating: five studio albums (excluding Ghost Stories, the topic of today's article) ranging from their hushed, acoustic 2000 debut Parachutes to the lush, bright pop of 2012's Mylo Xyloto. During this span, they've produced hits (Parachutes, A Rush of Blood…, Viva la Vida) as well as misses (X&Y, about half of Mylo Xyloto) but it would be silly to accuse them of never straying from the proven path. They've also managed to create some of the most enduring and likable singles of the 00s: their introduction to the world in "Yellow," the endless piano of "Clocks," the heartbreaking "Fix You" and "The Scientist," all the way to the grand imperial march of "Viva la Vida." And in doing this, they were the torchbearers for the second wave of Britpop, inspiring and elevating countless bands (Keane, Gomez, Doves, Snow Patrol), if only for a brief period.

**Coldplay-*Ghost Stories***

Recently, Coldplay released their sixth studio album, entitled Ghost Stories. It is unmistakably a Coldplay album; however it is also unmistakably different than any previous Coldplay release. Chris Martin, the band's singer, separated from his wife, actress Gwyneth Paltrow, and that event sets much of the album's tone. However, even as this is definitely Coldplay's break-up album, it is also filled to the brim with the decidedly non-breakup things Coldplay deals in: soaring falsetto, shimmering piano, and unbridled hope. Take "Magic," Ghost Stories' early single and strongest song on the album: "I just got broken/ Broken into two/Still I call it magic/When I'm next to you." The song ripples and pulses in the background, and Martin's voice sails into that wordless, crystalline coo that he does so well. The song is downtrodden but also glistening and optimistic, and the purest distillation of the album's themes.

The rest of the album spends most of its time dealing in mid tempo ballads of one form or another. The Aviici-assisted "A Sky Full of Stars" is the most obvious single here, with the piano and bells building to an arms-in-the-air climax which takes its cues from the build and drop style of EDM that Aviici deals with. The strongest vocal melody on the album is probably on "Ink," which ties a clumsy tattoo-as-permanent-love metaphor ("Got a tattoo and the pain's alright/Just one way of keeping you inside") to a sprightly harpsichord melody. The back half of the album, especially after the aforementioned "A Sky Full of Stars," gets mired in a bit of sameness which is exacerbated by the fact that "O" is reprised at the end of the album, three songs after it makes its first appearance. Mostly, however, the uniformity works well, giving the album a cohesiveness that was missing from Mylo Xyloto.

With Ghost Stories, Coldplay mines a different aesthetic than the bright and experimental pop of their last two albums, deciding instead to focus of shimmering piano textures and a sparser arrangement. While it's definitely not Coldplay's strongest album, it was a necessary bloodletting for Chris Martin and the rest of the band. It's difficult to say how this album, or its singles, will stand the test of time, but I don't think that's what Coldplay cares about here. They've created a set of songs where you can share in their sadness, their troubles, and their hope for the future. I still believe in the magic of Coldplay, whether they're aiming for the rafters or staring at their feet. Of course I do.

# The Twilight Saga

NANCY HUI
4A CIVIL

TAKE FIVE

After years of enthusiastic disdain for undead teen-bait Edward Cullen (Robert Pattinson) and the incredibly passive and useless girlfriend, Bella Swan (Kristen Stewart), I watched all the Twilight movies in the course of a week. Not ironically - Twilight doesn't qualify for a "so bad it's good" sense since the leads are too awkward and earnest. I watched more with an an "eye candy and background noise" attitude.

The primary appeal of The Twilight Saga, I find, is in the cinematographical opulence: tall trees in the Pacific Northwest! Lingering shots of the Cullen's house, a.k.a the Modernist Barbie Dream House! Heavy-handed, CGI-assisted symbolism! Clearly normal film review characteristics don't apply to vampires and their brethren.

So for this edition of Take Five we'll be ranking the five Twilight films, based on the following criteria:

- How hot everyone is
- How nice the cinematography is
- How offensive it happens to be
- The soundtrack
- How the film treats my favourite characters
- How abnormally stupid Edward and Bella are acting. Not just regular stupid.

We will not be considering the following criteria:

- Run-of-the mill teenage angst
- Pecularities of the Meyer universe

These are my personal rankings of the Twilight films, from worst to best. Spoilers abound.

### Breaking Dawn Part 1 (2001)

Bella and Edward get married.

Welp how's that for wish fulfillment? Thousands of girls now aspire to one day hold dream weddings in the woods with rustic seating and tastefully strewn petals beneath a canopy of spring blossoms. Carlisle could only afford this because he played the stock market for centuries.

Not much else happens in this movie - Bella and Edward finally consummate their relationship, Bella gets knocked up, Bella gives birth, and so on and so forth. This is equivalent to a filler episode in television - the bit where the producers run out of money and the protagonists spend their time doing normal things that are easy to film without CGI. For example, "Fly" in Breaking Bad, in which Walter White spends 50 minutes trying to kill a fly, is a filler episode. To an extent, so is "Shindig" in Firefly.

There is no shame in being a filler episode, which is good because Edward is carrying a lot of shame around his shoulders in Breaking Dawn Part 1. He feels guilty for bruising Bella during sex, even though she enjoyed it, guilty for getting her pregnant, and then acts like an unsupportive llama and tries to push her to abort the baby. Ugh.

Anyways they brought Carter Burtwell back to score Breaking Dawn Part 1 after passing the reins to Alexander Desplat (New Moon) and Howard Shore (Eclipse). He refines the themes from the original Twilight, but also brings a sense of closure and optimism to the score in addition to the lilting ethereality of "Bella's Lullaby". His score and the scenery are amongst the best in the trilogy, and they still can't overcome the distastefulness of Edward's actions.

### New Moon (2009)

Edward breaks up with Bella. Bella takes up extreme sports and gets close to Llamaface/Jacob Black.

Traditionally speaking, I am on Team Jacob, all the way. He's a nice dude. Way fewer issues than the undead dude that Robert Pattinson plays as a self-hating manic depressive. Unfortunately, Jacob can't pull the weight of Bella Swan's wet blanketiness through two hours of New Moon. Bella finds that when she does dangerous things, she literally hallucinates Edward whispering things like "don't do it" when in fact he's thousands of miles away. This leads to things like getting on motorbikes with sketchy catcalling bikers, recklessly driving a motorcycle, and cliffdiving with all her clothes on. I'm sure if New Moon wasn't PG-13 she'd probably be slicing her wrists open to induce hallucinatory visions of Edward.

Summit Entertainment

**Edward smells something from Bella**

Alexander Desplat's score is also generically pretty and empty-headed - lacking the dissonance that made Carter Burtwell's Twilight score interesting and suspenseful, although grating. Alternately, it's far too subtle and delicate for the subject matter at hand.

Anyways the best part of this movie is the part where Alice drives a yellow Porsche 911 in Italy, because it's soothing to watch expensive sports cars tear down winding rural roads, especially after having to watch Bella do literally nothing for months.

### Twilight (2008)

Girl meets vampire. Vampire is played by an actor who interprets him as a self-hating manic depressive with a virginity complex.

The first Twilight film is incredibly awkward to watch. It thinks it's being profound but it's too predictable and cheesy to be that. It's like the cinematic equivalent of a teenage gosling at the "holy macaroni that's ugly" stage, with down feathers and flight feathers mixed together so that it looks like a mouldy, miniature version of a grown-up goose. Also, Kristen Stewart looks like she's constipated throughout - if not literally, then emotionally.

Carter Burtwell's score is also pretty grating, but the main Bella theme ("Bella's Lullaby") is a beautiful, meandering, otherworldly theme. If only the rest of his soundtrack - and the entire movie - could express the same alien, spine-tingling emotions as the score, instead of being as unbelonging, unsubtle, and unfeeling as Edward Cullen's rock-hard gelled hair.

Despite the awkwardness, Twilight ranks as high as it does because the actors are still relatively fresh-faced, and it's easier to forgive Bella Swan when she looks 17 going on 18 rather than 25 going on eternity.

### Eclipse (2010)

Bella, Edward, and Jacob get into a love triangle. Meanwhile, the vampiress Victoria builds an army to take revenge on Bella for the death of her mate.

I like Jacob, man. This movie makes him out to be a rapey jerk. It's just not cool. Jacob doesn't handle jealousy really well either. He was perfectly sane in Twilight and New Moon - being a supportive friend. Now he turns out to be a prototypical "nice guy". Way to ruin my enjoyment of the character. Still, there's no such bad thing as publicity, and he has some interesting, if strange scenes with Edward.

The redeeming point of Jacob's fall from grace is Howard "Hobbitses" Shore's theme for poor, shirtless Llamaface. The third Twilight composer just goes straight for big, bold melodrama and heartstring-tugging, forgoing the meandering lullabies and pretty, delicate piano. This is not a bad thing, since he makes good of his collaboration with Metric when devising his themes, rather than veer off into his own corner of classical music like Alexander Desplat, who simply couldn't handle the concept of incorporating pop music somewhat homogenously into his score.

Anyways I think there was (gasp) some foreshadowing in this movie, and a sense of continuity. Twilight really makes one appreciate plot elements taken for granted in other films.

### Breaking Dawn Part 2 (2012)

Bella and Edward's newborn child is mistaken for a monster by a visiting vampire. The Volturi arrive to investigate, and the Cullens work to gather witnesses.

I welcomed Carter Burtwell's return to score the final film in the quintology. Like Hans Zimmer, his orchestral elements play nicely with the synthesizers and electric guitars, whereas Howard Shore, much as I like him, couldn't implement them as well into the Eclipse soundtrack and Alexander Desplat hardly tried. This time, Burtwell also incorporates some motifs introduced by his predecessors to a great degree of success.

FINALLY Bella gets some agency over her own body / her life decisions / her kid. This has some unfortunate implications but it makes her character more tolerable. Sassy Momma Bear Mary Sue Bella Swan is much more palatable than Wimpy Human Bella. You go, girl.

Other advantages of Bella's level-up include less whining, more shots in nice forests in the Pacific Northwest, and being hypothetically able to perform in wirework-assisted action scenes. Disadvantages include unflatteringly pale foundation and off-handed rejection of her father, who is my favourite character in the entire "saga." But it's a small price to pay for not having any more Twilight movies.

# More Construction on Campus

**NANCY HUI**
4A CIVIL

In Canada, it is said that there are two seasons: winter, and construction. Since winter is clearly on its way out, construction is in. You can't swing a goose without hitting a crane on campus.

The largest and most central of the ongoing projects is the Science Teaching Complex connecting to B1 and B2, which began construction in late 2012. The five-story, 120,000 square foot building will be dedicated to undergraduate education, and will include lecture halls, a 425-seat amphitheatre, teaching laboratories, student lounges, and a student cafe. On the flip side, that extremely photogenic greenhouses that make it onto all that high school promotional material will be removed. The complex has a target opening date of April 2015.

To the south of the Science Teaching Complex is another large construction site. A new wing of Needles Hall, which was originally built in 1971, is being constructed. The three floor addition, with 50% the floor area of the existing building, will include administrative areas, 20 absolutely luxurious below-grade parking spaces. Construction will be completed in 2015.

This will not be the first time that Needles Hall has undergone construction - legend has it that in the early 1970s, electricity was so cheap that Needles Hall didn't have light switches until the electrical system was retrofitted in 1977.

In the north, Fed Hall is undergoing renovations! Fed Hall was funded by students and built as a nightclub in 1984 - in fact, it was the largest campus nightclub in North America. It leased the land from the University for the nominal sum of a dollar a year. And, believe it or not, it was incredibly successful. Laurier students flocked to the UW campus to get a piece of the 700-person capacity club, as opposed to the other way around (holding TalEng at Wilf's? Sadface.).

But on New Year's in 2003, an individual beat another individual close to death. UW repudiated Feds' liquour licence for both the bomber and Fed Hall. Feds sued the university. The same year, OAC (grade 13) was removed in Ontario, and Fed Hall became flooded with frosh too young to slosh. The university changed the terms of the Fed Hall lease in 2008, and Feds lost the lease of the building in 2010.

Some oldtimers on campus might still fuzzily remember some concerts or perchance a ceremonial viewing of the Tool in that facility during orientation week. But no longer - since 2013, Fed Hall has been undergoing renovations to subdivide the large central room into two multipurpose rooms seating up to 156 each. A kitchen facility will also be added. The renovations will be completed in 2014.

To the west, the library at Conrad Grebel University is opening a new chapter in its history. An $8.7 million, 4-storey chapter that was six years in the making, to be exact. The library and Mennonite archives will be expanded. Music studios, community areas, and administrative spaces will also be expanded.

And, most visibly, the dirt path from DC to MC was paved with interlock this month! Interlock is more expensive and time consuming to install than asphalt, but also blends in better with surrounding pedestrian walkways, and promotes good drainage - also reducing that accursed spring puddling.

Happy construction season to all!


**Buildings going up fast at the Science Teaching Complex**

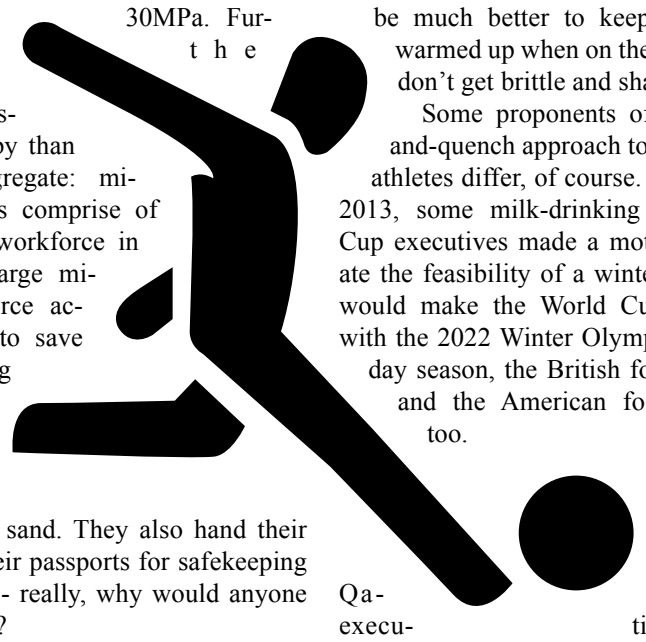
# Qatar's Qup Qualifications

**JACKIE MEOW**
4A CIVIL

In 2009, Qatar won the bid to host the 2022 FIFA World Cup, beating out Japan, South Korea, Australia, and the dear old US of A. Its victory had nothing to do with totally false allegations of bribery, favoritism from the president for potentially being the first of the 22 Middle Eastern nations to ever organize the World Cup, or general administrative quackery: Qatar won because it is absolutely the best choice to host the FIFA World Cup.

For one, Qatar has a low population: 2 million residents (World Bank, 2012). They must be very lonely there. The FIFA World cup is expected to bring in up to 1 million football fans, increasing the population of Qatar by 50%. In order to support these people for the duration of the World Cup, Qatar will be making extensive investments in its infrastructure: new roads, a new railway, new hotels, and a brand spanking new 260,000 resident city called Lusail to surround the stadium hosting the first and last matches of the tournament. Other cities just build Olympic Villages, but Qatar gets a whole city with the population of Kitchener, which will also incorporate luxury shopping malls and an all-giraffe zoo. Who will they populate it with once the games are over, I wonder? Perhaps retired FIFA officials with large pensions.

Naturally, this is a huge 220 billion USD undertaking, but Qatar plans to save money by using the bones of migrant workers for the foundations of its stadiums and transportation infrastructure. In 2013, 185 Nepalese workers died during construction for the World Cup, and it is estimated that at least 4000 more will die for the cause. Bones are an unlikely construction material, but they have a compressive strength of 170MPa, tensile strength of 120MPa, and shear strength of 50MPa. In comparison, granite has a compressive strength of up to only 140MPa, and regular-strength concrete is 30MPa. Furthermore, in the desert, bones are much easier to come by than quarried aggregate: migrant workers comprise of 94% of the workforce in Qatar. The large migrant workforce actually helps to save money during construction, since they are paid with sunshine and sand. They also hand their employers their passports for safekeeping in perpetuity - really, why would anyone want to leave?



Secondly, Qatar is warm and sunny in the summer: a pleasant 50 deg C out of the shade. This would passively help to increase athlete performance during the games. everyone knows that heating substances causes molecules to move more quickly because E=0.5mv2.

Initial plans proposed having the stadiums would employ unprecedented solar-powered cooling technology, because the shock of going from 50 deg C to 20 deg C was thought to jump the athlete's systems into responding to the game like a fight-or-flight situation, thus keeping them on their toes and improving their reflexes. However to save money, Populous, the architectural firm retained to design the air-conditioned stadiums have decided that "the system is too expensive and 'notoriously unsustainable' for the environment when used on a large scale", plus it would be much better to keep the athletes warmed up when on the field, so they don't get brittle and shatter.

Some proponents of the temper-and-quench approach to forging great athletes differ, of course. In September 2013, some milk-drinking FIFA World Cup executives made a motion to evaluate the feasibility of a winter event. This would make the World Cup concurrent with the 2022 Winter Olympics, the holiday season, the British football season and the American football season too.

Homosexuality is generally illegal in Qatar, but FIFA executives and Qatar officials have been willing to meet halfway on that point: Gay football fans and alcohol consumption will be tolerated in designated "fan zones." However, FIFA president Sepp Blattar politely requests that gay people "refrain from any sexual activities" during their stay in Qatar, so that they don't trigger the persecutional instincts of the police and accidentally get stabbed with a pitchfork.

Speaking of which, Qatar's neighbour Kuwait plans to use a new screening process to "conduct routine medical checks to assess the health of expatriates... and detect gays." Qatar and the other members of the Gulf Cooperation Countries have also agreed to adopt this test. It's heartwarming that the Gulf Cooperation Countries take such interest in the plight of LGBT persons, and it would be brilliant if Kuwait could share their screening process with the rest of the world as well, so that I can use the gaydar for my love life.

Furthermore, Qatar is generously relaxing its rules on alcohol consumption. Alcohol is illegal for consumption in Qatar except when sold by luxury hotels for consumption by expatriates and tourists. For the first time, Qatar will also be establishing 'fan zones' in which alcohol will be distributed. Football hooligans will need to sign a code of conduct promising to exercise their self control and not stray outside their designated drink consumption areas. Inebriatedly rioting in the streets and passing out on the doorstep of a mosque is strictly prohibited. These are eminently reasonable conditions that any diehard football fan would follow out of respect for the dignity of their sport, or fear of the po-po. In either case, celebrations shall be solemn and dignified, as befits the most popular sport in the world.

All in all, Qatar is clearly an exciting choice to host the 2022 FIFA World Cup. Their economic and technological innovations, inspirational climate, and attention to brotherhood are awe-inspiring. While the western world certainly cannot hope to emulate Qatar, we can learn much from hosting the 2022 FIFA World Cup in Qatar.

A round of applause to everyone involved.

# Stanley Cup Final Picks

**ELIZABETH SALSBERG**
2B NANOTECHNOLOGY

THE BENCHWARMER REPORT

Hockey fans! It's that time of year again – with the round 3 of the NHL playoffs well underway, the big question that needs to be asked is: who will make it to the finals, and who will win the cup? The 2014 playoffs have been a showcase of phenomenal hockey, full of upsets and surprises, but the most important and exciting part is yet to come.

To get you up to speed, the Montreal Canadiens and the New York Rangers are squaring off in the Eastern Conference final. As it stands, the Rangers lead the series 2-1. Though this original-six matchup did not have the same hype and hatred as either of the Montreal-Boston or as the New York-Pittsburgh series in round 2, big hits and injuries to key players have ensured that these teams will remember each other well regardless of the outcome of this series.

In game one, Rangers winger Chris Kreider collided awkwardly with Habs go-to goaltender Carey Price. Price was pulled from the game in the third period and has not played since. Habs players and coach Michel Therrien were furious; claiming the collision with Price was most probably intentional, given Kreider's track record (just ask Marc-André Fleury). Of course this is a huge loss for Montreal, who called up newcomer Dustin Tokarski to start game 3.

Despite the fact Tokarski had only 12 NHL games under his belt, his play was absolutely fantastic as the Rangers dominated most of game 3. He robbed Martin St. Louis twice, denied Daniel Carcillo at the back door and made superb saves on Rick Nash and Benoit Pouliot as part of a 35 save effort on the night.

Nevertheless, it will be difficult for Montreal to even this series without their star goaltender and arguably best player, Carey Price. With Lundqvist (the King) in net and depth throughout their forward lines, the Habs will be hard pressed to keep the Rangers at bay. The Montreal defence will need to step up—Subban committing fewer turnovers would be a good start.

**The verdict: Rangers in six.**

In the Western Conference, the defending Stanley Cup champions, the Chicago Blackhawks face off against the blue-collar L.A. Kings in a very exciting matchup. The series is tied at one game apiece, with game 3 set for Saturday night in L.A.

The Blackhawks took game one 3-1, dominating for most of the game with the exception of the third period. Jonathan Teows put the game away with a gorgeous one-timer on a 3 on 1 breakaway (the Hawks don't miss very often on those) in the third. The Kings played well in the later stages of the game, but the Hawks held on for the win.

Once again, the Kings were dominated through most of the first two periods of game 2, until forward Justin Williams banked one in to cut Chicago's lead to 2-1 after 40 minutes of play. The Kings then took advantage on back-to-back power plays at the beginning to the third. Jeff Carter tipped in a Drew Doughty shot from the point on the first man-advantage and defencemen Justin Muzzin converted on the second to give the Kings the lead. The Kings charged on and never looked back: 3 goals later Jeff Carter had himself a hat trick and the Kings evened up the series, taking game 2 by a score of 6-2 and stunning Chicago fans in their home building.

These teams know each other very well and are both experienced in comeback situations. In the first round, the Kings went down 3-0 to the San Jose Sharks. In a series they seemed destined to lose, they staged a comeback that will go down in hockey history, winning the next four games to advance to the second round. Though the Blackhawks did not pull off a comeback of that magnitude in these playoffs, let us not forget that they were down 2-0 to division rival St. Louis Blues. They went on to win that series in six games. This one could really go either way, but Kings have a distinct advantage in goaltender Jonathan Quick over Cory Crawford. If the Kings can keep it together and limit the defensive mistakes that plagued them in game one and the first two periods of game 2, their scoring should get them past the Hawks.

**The verdict: Kings in seven.**

nhlnfa.com

**A Rangers-Kings match-up is predicted for the 2014 Stanley Cup finals**



# Summertime is Bike time!

**MATT MCLEAN**
4A MECHANICAL

It's the spring term, the birds are chirping, the sun is shining, and you are feeling great. This term you might think you are going to ride your bike to class every day to get some exercise and treat the environment a little better. That's perfect, but there are few things you should consider first.

### Locking Your Bike

At the beginning of every spring term, I'm tempted to walk around campus with a small pair of bolt cutters and "obtain" a $1000 bike in less time than it would take you to unlock it. And I'm not alone; there are other people who will do exactly this. The easiest bikes to target are those that are locked through the front tire only. Take a look around campus; every time you see just a tire locked to a bike stand, the rest of the bike was stolen. Always lock your bike to a secure post and the frame.

The next least effective method of locking your bike is a cable lock. These things are absolute garbage; a bike thief can quickly cut it with a small pair of bolt cutters that can be concealed easily. Get a U-Lock; even better, get two, the smaller the better. Personally, I use a U-Lock and a cable lock so a thief would need two types of cutting devices. A general rule of thumb is that your lock should cost at least 10% of the value of your bike.

Finally, lock your bike in a well-populated area, to a bike rack if possible. Locking your bike to trees kills them, and your bike blocks wheelchair access if you lock it to a railing.

### Riding Your Bike

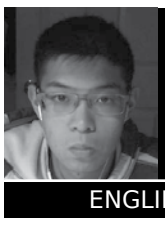
Ride your bike as if you were driving a car. Signal your turns, be predictable, and respect the (car) rules of the road, and it will be a much safer ride for you and those around you. Please also stay off the sidewalks. The bike lanes in Waterloo are great, and even if there isn't a bike lane, there is enough room for you on the side of the road. You may think it's safer, but people have been killed from cyclists riding on sidewalks. Remember, always wear a helmet.

### Fixing Your Bike

Waterloo has an amazing bike centre in the basement of the SLC (entrance is by the loading bay). You can go there and have all the tools you could possibly need to fix your bike for just a couple dollars. If you are not quite as handy, there are volunteers there to teach you how to fix your bike (they won't do it for you). If you need parts, accessories, or just want someone to tune up your bike, I highly recommend McPhail's or King Street Cycles in Uptown.

Now you are ready to ride your bike to class! If you're looking for more of an adventure check out the Hydro Cut (hydrocut.ca) just west of Waterloo for some quality mountain biking, or the Kissing Bridge Trail (kissingbridgetrailway.ca) to the north of Waterloo for a calmer and more beautiful ride.

# Move More Sit Less: A Healthy Reminder



**BRIAN CHAN**
2B NANOTECHNOLOGY

ENGLIFE IMPROVEMENT

So, there are currently hundreds of us here at UW studying the many streams of engineering. For the majority of us, we fall into the category of the "typical" engineering student. We sleep, eat, and breathe all for the sake of studying for our midterms and finals. On the odd occasion, we do enjoy a night out and go to an EngSoc hosted event or to some club in Uptown Waterloo; but let's be real here, being an engineering student essentially means being a person who is constantly up late, completing those blasted assignments and studying for quizzes, tests and exams.

Along the way, it is not uncommon for the side effects of the engineering student lifestyle - stress and the large amounts of physical inactivity - to arise and cause us to gain more than the "freshman 15" that we were supposed to gain during first year. Think about it: we sit through an average of 5-6 hours of class a day, studying or completing assignments for another 5-6 hours, consuming at least 3 square meals a day (more or less) and snacking in between while going about these daily monotonous and mind-boggling tasks. All of that food we consume can't possibly just vanish, because all we do is sit around, so where does it go? Well, according to the law conservation of energy, it cannot be created or destroyed, only transformed, and in our case it gets converted into the many extra pounds we have put on throughout these stressful times.

Another thing: remember the times when you were a kid and you were always full of energy? Each day, no matter how much food you ate or sleep you got, was always full of new surprises that you were happy to find and explore. There would be running, laughing and jumping. You would be screaming for joy, and each new day would be just as welcomed as the last one. For some reason though, as time flew by, the days became more of a drag. Longer days would be spend in front of the computer, on Facebook and Twitter or studying. Every new day would be worse than the last: you'd feel more sleepy, tired, and groggy as time flew on and this resulted in sleeping in class (Don't DENY IT!). No matter what you did, whether you ate more food for energy or slept for longer, each day seemed too long and the nights were too short.

What if I told you that there is a simple solution to these dreaded issues: it's exercise! Yes, we all have heard the term before. It's something we used to do as kids: laughing, jumping, skipping and running at the park, in the backyard or even around the house. So the ultimate question is: when's the last time you had any? I don't mean just walking from class to class, or from UW campus to your respective residences. I mean exercise that will get your heart pumping, your blood racing, and make you feel alive again. According to Harvard's School of Public Health, that daily exercise will not only help keep off the weight you would gain by consuming the food you eat every day (This has been preached countless times days in and out by many professionals), but with exercise you also gain more energy. So the mindboggling paradox is: how does using energy during exercise help you gain energy? That sounds absurd! We should be losing energy when you exercise because you need it to move muscles! The answer is actually very scientific; it requires a lot of oxygen delivery/ cardiovascular human body knowledge, but you are not reading this article to be even more mind boggled, but as a reprieve from all those boggling assignments from the professors.

So the question remains, what types of exercises should I be doing, and for how long? Well according to Harvard professionals, a normal person should be getting approximately 2 to 2 1/2 hours of exercise a week. So that is approximately 20 minutes of exercise a day. Now for the type of exercises one should do: it is said that moderate intensity aerobic activity should be done, but what in the blazes is moderate intensity aerobic activity? Well in layman's terms, it is activity that makes your heart beat faster than normal. So in reality, if you were walking at a brisk pace (speed walking) around campus and to and from campus and it encapsulate around 20-30 minutes worth of time, you have completed your daily exercise quota and man by the end of the first week you should be brimming with energy. From personal experience, I would advise a light 30-minute jog. If you like sports, there are countless of intramurals and drop-in sports schedules that you can go to in order to meet this quota. 20 minutes of exercise a day. That's all you need to stay healthy and be brimming with energy. How hard could this be? We already spend at least 10-12 hours sitting studying, learning, and increasing our brains information capacity. What's another 20 minutes a day in order to make sure the rest of our body is functioning properly?

# Burning Away the Winter Blues

**KRISTINA LEE**
3A ENVIRONMENTAL

As the warmer weather descends upon us I'm reminded of the cooler weather elsewhere in Canada. This past winter I spent my co-op term working in Whitehorse, Yukon. When people hear that I worked in the Yukon the first thing they joke about is the weather, specifically how it must compare to the weather that was experienced here in Southern Ontario. I'll let you in on a little secret, the Yukon is possibly Canada's best kept secret.

Every year tourists from across Europe and Asia flood to the Yukon while other Canadians choose to travel abroad. Going to the Yukon was like traveling to another country to me; coming back though, I'd have to say I've never felt more Canadian. I didn't understand why people traveled to the Yukon when I first got there but it soon became obvious.

I was surprised that the Yukon stereotypes I had imagined were true. Everyone up North owns a dog and a pick-up truck, dog sledding is a common pastime, as is cross-country skiing and snowshoeing. There is a large sense of community up North; there's always a helpful smile and frequent events.

The Yukon is a spectacular place. Fortunately for me, another UW student found a job up north and we became roommates. Between the two of us we managed to find opportunities to volunteer in the community and travel. My first adventure in the Yukon was just outside of Whitehorse, acting as a dog handler for a co-worker in Haines Junction. That weekend I stayed in a log cabin with no running water and 12 dogs. It was the first race for the white spotted pups in the photo. As per tradition, the team came in last and won the red lantern.

Another highlight of my trip was viewing the Northern lights on multiple occasions. I'll let the photo speak for itself.

The Yukon is home to Dawson City, the heart of the gold rush. Dawson City is also home to a unique tradition, the Sourtoe Cocktail. This is not a drink for everyone, even though it is a shot of any alcohol you'd like. The catch is you have to kiss a dead, human toe. Cringing? It's not as bad as it seems, dead toe aside. It's typically donated from a lovely person who had the unfortunate luck of losing a toe to frostbite. It's not the most beautiful sight but once you've kissed the toe you are one step closer to becoming a true Yukoner!

I love the Yukon and will definitely be back there. Next time you're in a new place, whether for co-op or not, get involved and travel! You won't regret it.


**Top: Dogsled in the Yukon**
**Bottom: The Northern Lights**

# Ontario Young Professional Engineers Award won by Waterloo student

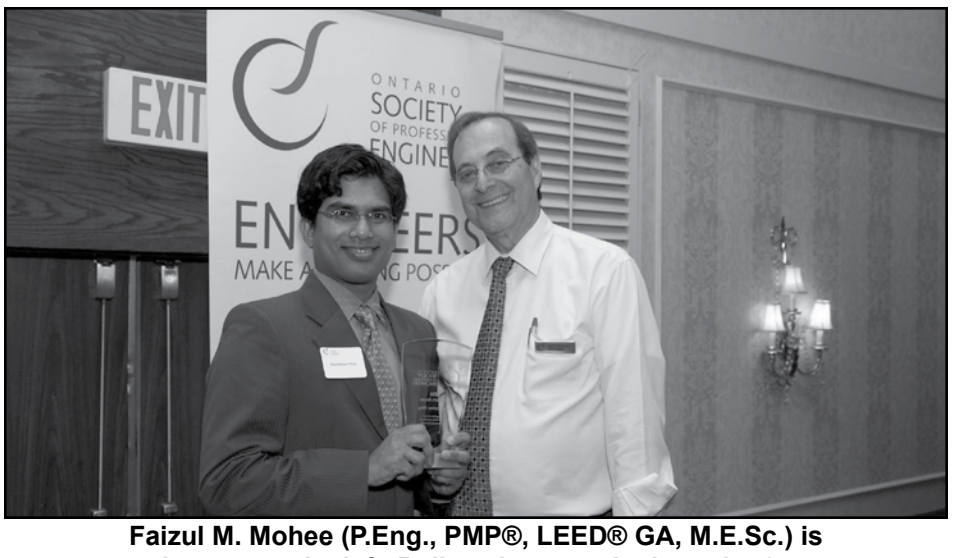
**CHING O'MALLEY**
2B ELECTRICAL

This year's OSPE (Ontario Society of Professional Engineers) award for accomplished professional engineers under 35 was won by Faizul M. Mohee, P.Eng., PMP®, LEED® GA, M.E.Sc., a PhD student in Civil Engineering at the University of Waterloo. According to OSPE, "the Young Professional category recognizes an exceptional OSPE volunteer who has served as an advocate for the engineering community through various roles during academic studies and following graduation." According to Mr. Mohee (P.Eng., PMP®, LEED® GA, M.E.Sc.), this award is "more than just money."

Faizul M. Mohee (P.Eng., PMP®, LEED® GA, M.E.Sc.) is doing his PhD in Civil Engineering, with a major in Structural Engineering. He earlier finished his masters degree at U of T. Furthermore, he is also a licensed Engineer, Project Manager, and LEED Green Associate in Canada, which explains his wanton use of the alphabet. He started his PhD in Waterloo in January 2013 with the late Professor Khaled Soudki. Currently, he is working with Professor Adil Al-Mayah (Civil Eng.) and Professor Alan Plumtree (Mechanical Eng).

Mr. Mohee (P.Eng., PMP®, LEED® GA, M.E.Sc.) was also delighted to be congratulated by some federal MPs, one of whom who paid him the singular honour of mentioning him in a monthly newsletter. Not to be outdone by politicians, we also congratulate Mr. Mohee, (P.Eng., PIMP®, LEED® GA, M.E.Sc.) on his achievement. We predict that he will go far, due not only to his long list of achievements (and it is indeed staggeringly long; check him out on LinkedIn), but also due to his indefatigable self-promotion. We can all take a lesson from the proactive route Mr. Mohee (P.Eng., PMP®, LEED® GA, M.E.Sc.) has taken in getting his name out there.

With unabashed self-confidence that is rarely seen, Mohee (P.Eng., PMP®, LEED® GA, M.E.Sc.) has expressed a hope that his achievements will "inspire" current Waterloo undergrads, and has been eagerly forthcoming with information. Thank you very much, Mr. Mohee (P.Eng., PMP®, LEED® GA, .Sc.).




**Faizul M. Mohee (P.Eng., PMP®, LEED® GA, M.E.Sc.) is the one on the left. Believe it or not, he is under 35.**

# An Advice Column for the Meteorological

MADAME FOUR FLOWER
WHETHER REPORT

**May 29**

Sunny, with brief showers, with a high of 23. If you were born on this day, expect to find that your missed chances will grow into new opportunities. Welcome conflict on this day, but be prepared to compromise. Make sure that you call your parents and grandparents!

**May 30**

Golden sunshine all day, with a high of 21. Good day for suntanning, swimming, and slaying vampires. Avoid grapefruit. May 30 birthdays will find everything going right for them on this day, except for the gift that your aunt will send you. Send her a thank-you card anyway.

**May 31**

Hot and muggy, some thunderstorms. Just high. Stay inside. Don't open your door or windows. Don't look outside. Don't investigate that knocking. As long as you are inside, you are safe. Whatever you do, do not let down your guard. It is always watching....

**June 1**

Cloudy, somewhat colder. High of 22. Social awareness is at its highest today. Stick with a group when traveling. Appreciate your friends and business relationships. If it is your birthday, happy birthday!

**June 2**

Cloudy and even colder. High is not an appropriate word. Wear a sweater, but not earmuffs – today you can't afford to look ridiculous. Watch for a tall man with a penchant for hats. If today is your birthday, wear a hat, and possibly stilts, so that others will watch for you.

**June 3**

Sunny, but still cool. High of 18. On this day, wear sunglasses – they make you look cool. Prepare for a moral dilemma. When faced with a difficult choice, choose the path of greatest resistance. Use your self-confidence to succeed, and nothing will stand in your way. Bluster through with confidence, rocking those shades every step of the way.

**June 4**

Finally, some nice warm weather! High of 22. People born on this day will find that they can't seem to get anyone to listen to them. If you want your voice to be heard, there is only one solution. Be firm, and speak out confidently! Rip out people's earbuds and roar at the top of your voice. Use a megaphone if necessary. Whatever it takes to get your point across.

**June 5**

Cloudy and depressing. High on crack. Sit around and mope. Today is a good day for feeling sorry for yourself. If it is your birthday today, you suck. Binge eating and drinking seem increasingly attractive.

**June 6**

Both sunny and cloudy, with a high of 23. Your life is looking up. Prepare for exciting news, both positive and less positive. Face everything with a grin. Talk to new people, catch up with old friends, and reconnect with family – above all, do it with a huge grin on your face. Make those teeth shine.

**June 7**

Sunny, with just a few clouds. High of 23, again – you'd think the weather had more imagination. Today is a good day for creativity. If it is your birthday, you will find that your internal power has increased greatly over the past year. Use it wisely. Generate electricity with it, or heat up a room. Don't let that energy go to waste. Lower your consumption, and increase productivity. Above all, don't let anyone bring you down. Stay at the top of that damn crane, no matter what anybody says. Keep up your confidence, and the world will lie at your feet, roll over, and play fetch.

# How To Avoid Writing An Article for a University Engineering Newspaper

CHANG O'MALLEY
8H ENG SCI

If you are ever given the responsibility to write an article for a university engineering newspaper and don't want to procrastinate but really want to avoid writing anything then this article will provide you with helpful tips for this one very particular situation. This will teach you how to be part of the staff, have something to put on your resume and not have to write anything you have been assigned.

The first step is to be illiterate. If you are illiterate, how are you reading this? How did you get into university? You have to be able to pass the ELPE and get at least a 70% in a grade 12 equivalent of high school English. Could your English teacher read? In this day and age, why do we even need writing and reading? Just Vine it or text and emoji to convey the emotion and thought you have. But seriously, if you are illiterate, you should learn how to read and write. Being literate is critical to the professional development of an engineer and that is what being in uWaterloo engineering is all about. If you can't read then how would you experience the banality of my writing?

When asked to write an article and you don't want to procrastinate, you can just leave the country for a week every time. Show up on Tuesdays or whenever the meetings are, get the free pizza and beverages then when you get an email asking to write something from the Editor-in-Chief, book a week long trip to Hong Kong or Dublin or Venezuela. If you don't respond to the Editor-in-Chief's emails, do you exist? Yes, to yourself but not to the Editor-in-Chief. Jackpot. All you have to do is pull a "Secret life of Walter Mitty" and go on spontaneous adventures around the world claiming you are looking for pictures for the University Engineering Newspaper and watch The Secret Life of Walter Mitty on the flight to Greenland.

Another way is to change your name to Chang O'Malley. My name is very common especially on the University of Waterloo campus, O'Malley is a very common family name. If everyone is Chang O'Malley, are we human or are we dancers? If everyone is called Chang O'Malley, everyone's uWaterloo Nexus email accounts would be *cOMalley@uwaterloo.ca*, how can the editor in chief contact us now if we all have the same name? WHAT NOW, EDITOR-IN-CHIEF? WHAT NOW? HOW CAN YOU TRACK OUR MOVEMENTS IF YOU DON'T KNOW WHO IS WHO? CHECKMATE!

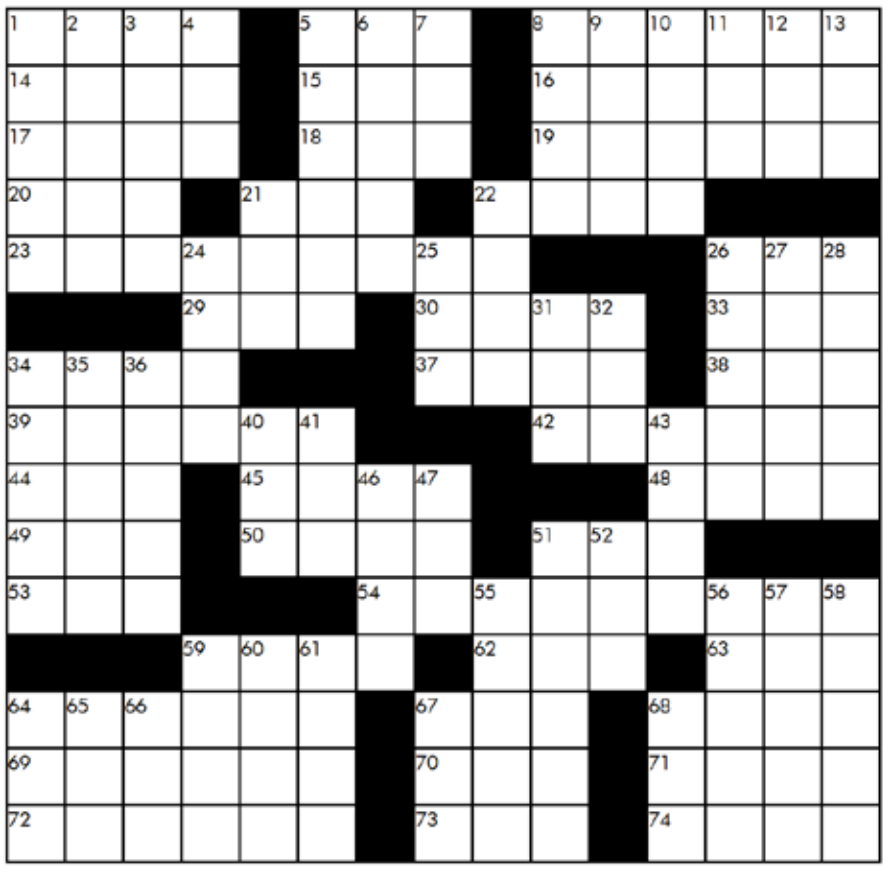
In closure, my personal method of avoiding was because of a terrible accident from my top secret co-op work term at the [redacted]. It was a great work place, I got paid VERY well to be a test subject for the [redacted] experiment to change my scrawny, Captain America pre-super soldier body to a rock-hard bod like The Thing. The experiment did not work and I am still trying to get more gainz but thanks to the medical testing done to my body, I can now become the Incredible Hulk. The gamma radiation and lasers that they directed at my body, changed my cell structure so under certain stimuli, I will have an Incredible Hulk-like reaction. The trigger? Newsprint. Every time I come into contact with newsprint or see a newspaper, I will become inhumanly strong and grow so muscular that all my clothes rip off except for my pants.

On the official reports, I don't exist and my experiment was supposedly terminated after the first two people became ghostly wraiths haunting and killing people in the test facilities. When I go to the Iron Warrior meetings, I can't walk into the room without reacting, becoming the not-so-Incredible Hulk and speaking in the third person. An actual quote from one of the last meetings I went to (not really because do I even exist?), "CHANG O'MALLEY SEE NEWSPRINT, CHANG O'MALLEY BECOME THE INCREDIBLE HULK, THE INCREDIBLE HULK AVOID WRITING FOR THE UNIVERSITY ENGINEERING NEWSPAPER, HULK THANK YOU FOR THE PIZZA AND JUICE." That is when I stomped out and tore out some walls cause E2 really needs to do some renovating anyways. Now if you can't maintain your control of the monster inside when staring as newsprint, when are you ever going have time to write a newspaper article?

# The Iron Crossword

## Hobbit Meals

**NANCY HUI**
4A CIVIL



**ACROSS**
**1** Shellshock (abbv.)
**5** A drink with jam and bread!
**8** A cold version of 69-across
**14** The nickname James Vegas gives BroShep
**15** &
**16** Correction
**17** Stratford-___-Avon
**18** Browser add-on for "the front page of the internet" (abbv.)
**19** The capacity to make choices
**20** They wear black sometimes
**21** Not bright
**22** Partial instruction
**23** The first meal of the morning
**26** Some beancounters (abbv.)
**29** Pixie
**30** Use a keyboard
**33** Glycolic acid, for example (abbv.)
**34** He had a late night show
**37** You can measure it in truths that she learned or in times that he cried!
**38** Sine qua ____
**39** A dirty planet
**42** 42-across 23-across: meal following 23-across.
**44** Negating word
**45** Potter's patronus
**48** Afresh
**49** Summer time in Iowa
**50** 1815 Jane Austen novel
**51** Cohen character ___ G
**53** Fat Albert interjection
**54** One eats it at eleven o'clock
**59** Actress Madeline from "Blazing Saddles"
**62** Proof finale (abbv.)
**63** Headman's weapon
**64** Painter of genitalia-shaped flowers
**67** Pelt
**68** Custard dessert
**69** Meal at end of day
**70** Not trans
**71** Misfortunes
**72** Bestows
**73** Monkey see, monkey do
**74** b

**DOWN**
**1** Perfectly vertical
**2** A Lush
**3** Baked good that goes well with 5-across
**4** Mafia honorific
**5** Import duty
**6** Colon cleanser
**7** They help fund the iron warrior
**8** Election goal
**9** Impulse
**10** Posh kind of school
**11** Trash in a review
**12** An abbreviation for the lazy
**13** A drop of golden sun!
**21** 10L
**22** Eyelash infection
**24** A long time
**25** Pig house
**26** Not fanfiction
**27** Home or cell
**28** Home of the burger family
**31** ___ de deux
**32** Before
**34** Midday meal
**35** Deteriorate
**36** Dapper
**40** Utilize
**41** Counterpart to SAN (sewer)
**43** First murderer
**46** "So mote it be"
**47** A woman
**51** Not so inclined
**52** Set the pace
**55** Furnish with gear
**56** Failed bank ___ Mae
**57** Venerate
**58** Taste or feel
**59** Number-pickin game
**60** Not many
**61** Not his
**64** Where one might use 32-across
**65** Relations
**66** Completion
**67** Company formed by merger of Fiat and Chrysler (abbv.)
**68** White lie

# Humour for Geeks

**JESSICA KEUNG**
2B CIVIL


THE IRON INQUISITION
*Jessica Keung, 2B Civil*

## *"What was your most memorable co-op experience?"*

***"Watched fireworks in Hong Kong during Chinese New Years."***
Amrose Lau, 1B Mechatronics

***"Finding out Amir Johnson [Toronto Raptors basketball player] was our neighbour."***
Nikhil Ramakrishan, 3B Electrical

***"I met my girlfriend who I've been with for 2 years."***
Jason Sparks, 3A Geological

***"The free food for Christmas lunches."***
Joe Dykstra, 3A Mechatronics

***"Going from floor to floor, searching for free coffee."***
Alexander Mok, 2B Computer

***"Lifelong friendships from co-op!"***
Jinny Tran, 3A Planning