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THE IRON WARRIOR

THE NEWSPAPER OF THE UNIVERSITY OF WATERLOO ENGINEERING SOCIETY

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St. Jacob's Market Catches Fire

BRIAN CHAN
2A NANOTECHNOLOGY

Arnaud Simon

Frequent visitors to St. Jacob's were shocked to hear Peddler's Village burned down this month.

Happy families, fresh produce, and friendly interactions are some of the many things that one can find at Kitchener – Waterloo Region's renowned St. Jacob's Farmer's Market. Located south of King St N and east of Weber St N, it was a popular market for residents in St. Jacob's and other communities located in the KW region; however, on September 2, 2013, the market suffered a great blow. Early in the morning, the building burned down. Damages are estimated at 2 million dollars, causing panic to both the shop owners and communities who frequent the friendly market on a regular basis.

The market was opened by eight individuals in April 1975 by merging two stockyards together. By the later 1970's, preparations were made to construct a two story 2,200 square metre building, made of the best Douglas fir beams that British Columbia had to offer.

The market consisted of the Peddler's Village building for the flea market and some food vendors, and other buildings housing a single retailer with up to 150 vendors set up shop from Spring to Autumn.

The two-story building that burned down was part of the original construction and was owned by the Mercedes Corporation till this day.

On September 2, 2013, the call came in at 1:49 a.m. that the market was burning. The fire started in the main barn, and thankfully it did not spread to its other surroundings; however, it was no small fire. It took 45 brave firefighters located around the building to control the blaze and stop it from getting out of control, but it was so huge that the fire was still blazing until 6:00 a.m. that morning. After it had been put out, nothing remained of what was once a famous landmark in the KW region.

All hope is not lost; there is always a silver lining. As long as there are things to sell and a location, there will still be a market but with more than 60 vendors affected by the fire, some are still bound to go out of business. Currently, the neighbor who lives across from the marketplace has offered the vendors some of her space to reopen the market during the interim. Fortunately, it has been decided that the market was a landmark in the KW Region and will, in someway or another, be re-opened so future generations can enjoy what the market has to offer as well.

Arkells and Passion Pit Rock Waterloo

ALEX TOTH
3B CHEMICAL

Since it was recently the first week of university for many students, there were a number of campus events going on around Waterloo. Most notably, on the Friday of Welcome Week, the University hosted three bands on the V1 Green for a free concert. The bands playing were three fairly notable Canadian bands – The Beaches, Mother Mother, and Arkells. For a free concert, it's nice to see bands of this calibre playing, and they all seemed legitimately excited to be there.

Opener The Beaches is comprised of four females from Toronto who play fuzzy alt-rock/riot girl punk. From what I can glean through the little information available about them, they are only just out of high school. Their set on Friday was very energetic, and a lot heavier than I expected from a band named the Beaches. The band seems to take their cues from The Pixies and Bikini Kill, and know the power of guitar feedback and adenoidal vocals. They seemed excited just to be playing, and they all spent a good amount of time whipping their hair around as they played. My expectations for them were nearly zero, and they exceeded them in every way. However, at the time they were playing the crowd was still filing in, and crowd response was a little lacklustre, although that's to be expected when the band is nearly unknown.

The next act on the bill was Mother Mother, who are a jangly indie-pop band hailing from Vancouver. Since I have a soft spot for boy-girl duet vocals, this was actually the band I was most excited to see and they came through in terms of musicianship and crowd engagement. The two lead vocalists spent much of the time between songs chatting to the crowd and even taking crowd suggestions. They played all of their well-known songs including "Wrecking Ball" and "O My Heart" but the biggest response from the crowd came when they decided to cover Nirvana's "In Bloom." It was an extremely well done cover and probably the highlight of my night; however I'm not sure if their intent was to honour the 20th anniversary of *In Utero*, but in retrospect playing a song off of *Nevermind* probably wasn't the best way to do it. The crowd reaction to Mother Mother was a lot more intense than the reaction to The Beaches, with an unexpected number of people knowing most of the words to the full set.

Lastly, Arkells took the stage as the final act of the night. People in the crowd seemed most enthused about seeing them, probably because they are the most recognizable of the three bands, at least in Southwestern Ontario. However, even early on, people were throwing the free glowsticks that were so abundant at the show. Eventually, they began throwing them at the band, even hitting the guitarist a few times. But the band brushed off the poor behaviour, and played happily despite the cold weather. They played most of their well-known songs, including "Oh, The Boss is Coming!" and the Tragically Hip-esque "Kiss Cam." However, what I was most impressed by was the lead singer's knowledge of Waterloo and the surrounding area. I know he is from Hamilton, which obviously isn't far away, but it seemed like he'd done his research before he took the stage. He gave shout-outs to Village 1, Chainsaw, and even Starlight. Unfortunately, I left the set early due to the increasingly cold weather, but what from what I heard from others who stayed, The Arkells kept the energy levels up until the very end.

The highlight of the week did not occur, for me at least, at the concerts at Waterloo. On Wednesday, Passion Pit played at the Turret bar at Laurier. They were supposed to play outdoors, at Laurier's athletic complex, however it got moved indoors due to thunderstorms. The smaller venue suited Passion Pit just fine, and the close quarters allowed everyone to feed off of each other's energy. Passion Pit played through all of their hits from *Manners* and *Gossamer*, starting off with the uplifting "Make Light" and ending their incredible two song encore with a massive rendition of "Little Secrets." I was approximately seven people away from Michael Angelakos and was possibly sweatier than I have ever been.

The city welcomed some great bands during this Welcome Week, both at Laurier and Waterloo. It was a great way to get the new students comfortable with the school, and I hope that both schools will continue to attract bands of this calibre in the future.

Letter From the Editor

ALEXANDER LEE
EDITOR-IN-CHIEF

Dear Readers,

Welcome back to school, and thanks for reading the first issue of the Fall 2013 *Iron Warrior*. I'm Alex Lee, and I will be your Editor-in-Chief (EIC) for the fall term. I'd like to thank all the hardworking staff and writers who write for *The Iron Warrior*, who put a lot of time and effort in this weekend to make sure everything was edited at least twice, and for helping with layout. I'd especially like to thank Jacob Terry and Farzi Yusufali, previous EICs who provided me a lot of help and passed their knowledge onto me.

We have several new or returning columnists. this term. Alex Toth is a 3B Chemical who will be doing a music "Album Review" column. Myles Tan will be writing a column titled "Five Places You Need to Know', listing interesting places in Waterloo. This will be especially helpful for first years looking for places to eat or hang out. Elizabeth Salsberg will be taking on an additional column on top of her sports-oriented "Benchwarmer Report", called "The Networking Engineer," which is about, you guessed it, networking. And Meagan Cardno will be writing a new column called "The World in a Nutshell" which will focus on informing people on the nuances and facts of notable events. As an example, this first issue will be about the Syrian civil war.

I have a few important things to inform you of before we get into the meat of the article. First of all, our publishing schedule has been modified from its original incarnation. Previously, we were publishing issues on September 18, October 2 and 23, and November 6 and 20, but now we are publishing on September 25 (this issue), October 9 and 30, and November 13 and 27. There are several reasons for this. The first reason is that it gave us barely any time to work on the first issue; if we had to publish on September 18, it would be much less polished than this. The second reason is that we would be working on the paper both on Thanksgiving weekend and right before Hell Week.

However, this created another issue. EngSoc had planned their election schedule around publication, and now there would not be an issue during the campaign season for the candidates to put their platforms in. As a result, this term, and this term only, we will be holding a special election issue! This 4-page issue will have none of the usual news or crosswords, and instead will only be a vehicle for the candidates to get their messages and platforms out. Now I know how much you guys love the crosswords, but that shouldn't be a reason not to pick this issue up! It is said that a government is only as strong as the people who participate in it. EngSoc speaks for all engineering students, including you, dear reader. However, representation requires participation, and the most basic form of participation is to vote. The election issue will hit the stands next week on October 2.

Finally, we are recruiting! If you are interested in writing, doing layout, etc. for *The Iron Warrior*, especially if you're a first-year, feel free to come by. As some of our staff graduates every year, we are always looking for fresh blood to join our ranks. So if you want to work with us, or even if you haven't made up your mind but are interested, come to our next meeting! We hold weekly meetings every Tuesday at 6:30 in our office, located at E2-2347.

Well, I'm glad that's out of the way. Being EIC is a pretty large time commitment, and entails quite a bit of responsibility. I have just finished my first production weekend as EIC, and I was here for roughly ten hours on Saturday and Sunday, as well as for five hours on Friday. I spent the last two weeks desperately trying to gather enough ads to balance the budget, and was only just able to do it. It seems one of my unofficial duties is to harass people until they finally send me in the articles they promised me by 6 on Friday (I'm just kidding I love you guys…but please try to send them in earlier.) Whenever I have free time between labs and classes, I'm usually in the office. Now, I have nothing against the office. It's a pretty nice office. It's got some nice chairs and the main computer has 2 pretty large monitors. However, I still spent the last 2 weeks practically living in the office waiting for ads to come in.

All of this, on top of my course load, is a lot of work, to put it lightly. So why did I take on this enormous responsibility? Well, the first reason is that I probably wasn't thinking straight when I accepted. But I think the deeper reason was that I wanted to challenge myself. I personally found myself stagnating during my first year of university. I didn't really do too much, and I found myself uninterested in school or really too much of anything. I felt a little like I was just going through the motions of life. It got hard to even focus in class. I realized that the reason I had ended up that way was that I had not been challenging myself. I had been avoiding trying new things, and I was sticking to the comfortable and familiar. As a result, I was losing energy and motivation to do much of anything.

I'm trying to make this term different. This term I feel reinvigorated, partially due to the excitement of taking on the mantle of EIC. I feel motivated for class, and I really want to do well this term. I've been reorganizing my life, cutting out a lot of wasted time. There's a long way to go, but for the first time in a while, I feel alive.

This got me thinking about the importance of change in life. It always feels comforting to stick to the familiar, because it's predictable and you know you can do it. Often change and challenge feel scary, because there is uncertainty involved with it, and there is always a chance of failiure. I don't know if our fear of challenge stems from a prehistoric survival instinct, or if it is because of natural laziness, but what I do know is that many people ARE scared to challenge themselves.

But on the other side of the spectrum, change is what prevents life from becoming boring. As I experienced, going through the same things over and over again, clinging to the familiar, becomes boring and stagnant. It is in change and challenge that we improve ourselves as humans, and there is a certain satisfaction and personal reward that comes from successfully overcoming them. In fact, we need to change to improve our lives. It's easy to fall into the trap of sticking with what you know, as I explained above. But we need to constantly remind ourselves to look for challenges, because that's the only way to improve, and to truly live life.

I once watched a VSauce YouTube video that I don't quite remember the main topic of. What I do remember is that near the end of the video, the topic of time perception was being discussed, and a hypothesis was brought forth that perhaps the reason time seems to go by faster as we get older is because that when we're younger, everything in life is new to us, and so every day meant change and a new adventure. As we get older, we start falling into routines and because we've seen it all before, time seems to go by faster as our brains take less time to analyze the new material. This was a hypothesis, but if it is true, it only cements the fact that to get the most out of life, we need to accept change when it happens or is offered to us, and maybe even to actively seek it out.

So, long editorial short, change is what makes life enjoyable, because we as humans want to experience new things. However, we have a tendency to settle in routines because they're safe and comforting, and there's little chance of failure. We need to try to avoid settling into routines for too long or else life will start to feel boring and stagnant. So next time you feel like you feel like life is becoming too predictable, get off your arse and go do something totally new, as that will probably make your life exciting again. That's all I've got for this issue, so until next time, thanks for reading *The Iron Warrior* and try to challenge yourself this week (and every week!)

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

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The Iron Warrior encourages submissions from students, faculty and members of the university community. Submissions should reflect the concerns and intellectual standards of the university in general. The author's name and phone number should be included.

All submissions, unless otherwise stated, become the property of *The Iron Warrior*, which reserves the right to refuse publication of material which it deems unsuitable. *The Iron Warrior* also reserves the right to edit grammar, spelling and text that do not meet university standards. Authors will be notified of any major changes that may be required.

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Ottawa Bus-Train Collision: Freak Accident?

LEAH KRISTUFEK
2T CHEMICAL

A commuter's worst nightmare came true for the passengers on an Ottawa bus last Wednesday when a collision claimed six lives. Like millions of people worldwide, they undertook their daily commutes to school or their job assuming that their mode of transport was safe. Unfortunately, that is not always true, and something went wrong causing the bus to intersect the path of a passenger train headed to Toronto with catastrophic results.

Emergency brakes applied seconds before the impact did little to prevent the train from continuing to barrel forwards, shearing off the front of the double-decker bus and derailing the front of the train. Five people were pronounced dead at the scene with a sixth person later passing away in hospital. Another thirty were injured.

There is a feeling of shock and extreme sadness as people share their stories of the victims. The dead are representative of the city that now mourns them, well rounded and contentious citizens proud of their work and communities. Dave Woodard (45) the caring bus driver who offered to drive Ottawa's more vulnerable people in his own vehicle during bus strikes. Rob More, (35) who despite suffering from cerebral Palsy led a fulfilling life working at IBM. Karen Krzyzewski (53) is typical of many of our parents, a mother of two grown up children she had worked at Library and Archives Canada for 28 years. Two Carleton students, Connor Boyd and Kyle Nash (21) were in the midst of using their studies to build on seemingly lifelong passions. Michael Bleakney (57) frequently skipped the bus in favour of doing the 30 km bike ride from his home to the Public Works and Government Services Canada where he worked as an engineer.

In the few days that have passed since the disaster, investigators have just begun to do their work looking at recorders from the crossing gate, train, and bus. On behalf of the Transportation Safety Board, Rob Johnston, the lead investigator, has said that according to the data recorder in the crossing the gate, it was fully horizontal and had been for 25 seconds when the bus struck it. The crossing gates, bells and lights had all engaged 47 seconds prior to the crash meaning that the driver had nearly a minute to stop the bus. Despite traveling only 75 km/h, well below the posted limit of 161 km/h, train engineers were only able to apply the brakes 2 seconds before impact. The data recorder from the bus sustained substantial damage in the impact and might be difficult to obtain data from. Reports from bystanders in cars stopped at the crossing seem to vary; some have the bus accelerating into the train while others report it braking, but too late to prevent the collision. People on the bus remember screams for the bus driver to stop just prior to the impact but once again, whether he was trying to brake is unknown.

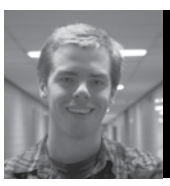
Could this have been prevented? That's first and foremost for many after concerns for the affected families and friends is the search for answers. The list of causes is endless. Was it a design flaw, mechanical failure, or maybe human error? People make mistakes, it is only human, but could this have been an accident just waiting to happen? Already media has narrowed in on a noise bylaw that prohibits trains from sounding their whistles before crossings between 8 p.m. and noon which may have silenced that critical last warning signal before disaster. They also note that sight lines coming into the railway track crossing were not the best. However, stopping may have been impossible anyways due to faulty breaks or a faulty clutch. An anonymous bus driver has admitted that the extra weight on the double-decker buses makes slowing down considerably more difficult, and failure to compensate for the weight may prove to be a fatal design flaw.

In Canada there are an average of three Canadians killed on the job every day, often because of inadequate training or unsafe working conditions. It is easy in the midst of heightened emotions to blame the bus driver. Was he distracted and acted too late? Did he suffer a medical emergency, perhaps falling unconscious behind the wheel? Ideally in case of such lapses safety measures should be built in both the layout of the transit ways as well as the bus design to prevent these sorts of tragedies from occurring.

Although freak accidents happen it is important to remember that something can always be learned that will make that technology or professional practices safer. When we graduate and receive our iron rings, it should somberly remind each and every one of us of the importance of our work. A part you design might someday end up being the critical component that fails in a situation similar to this. Finding and admitting to mistakes could save lives.

The Salvage of the Costa Concordia

An Engineering Marvel for the Ages



SPENSER GOOD
3N MECHANICAL

For over 20 months, the rusting wreckage of the massive Costa Concordia has been marooned off the shore of Isola del Giglio — an Italian island off the coast of Tuscany — a sombre warning of the dangers of naval irresponsibility. It remains a national embarrassment for the people of Italy, as well as an eyesore for local residents, who claim it has damaged the tourism industry which the island relies upon. The ship ran aground on January 13, 2012, after a crass decision by Captain Francesco Schettina to steer closer to land. This took the ship off the preprogrammed route, at the behest of tourists who wished to have a closer look at the scenic island. This was combined with a series of obtuse actions made in an effort to cover up his mistake after the hull of the ship had already been pierced by the shallow seabed. All in all, the accident cost the lives of 32 people and nearly caused an extreme environmental disaster on an ecologically protected seabed.

Fortunately, the Captain will go on trial for his crimes and likely pay for his insensitivity and selfishness. For the people of Isola del Giglio, the local economy and environment remains at stake until the ship is removed. For the Italian people as a whole, the removal of the ship likely represents a rare chance to salvage their national reputation that remains damaged by the shenanigans of fugitive ex-Prime Minister Silvio Berlusconi and withering economy. The righting of the ship began on September 15th, and the success will likely prove to be not only an enduring source of pride for Italians, but also an engineering marvel not soon to be forgotten.

The technical phases of this display in human ingenuity began on April 21, 2012, when the Italian government granted Titan Salvage (American marine salvage and wreck removal company) and Micoperi (an Italian engineering consultant that specializes in offshore projects) to manage the tender for the removal of the colossal ship. The task was an overwhelming one. The ship, weighing over 15,000 tons, weighed on an ecologically protected seabed. Beyond this, the structure of the ship was not only compromised by the initial collision with the shallow seabed, but also by the weight of the ship itself. Laying more or less on its side, the starboard (the right side when looking to the front, or bow, of the ship) side of the ship was being gradually compressed by the weight of the rest of the vessel.

Furthermore, the capsized ship was filled with water, adding further weight to the already gargantuan vessel. An elegant but powerful plan was needed as the success and widely publicized righting of the ship was only a small part of the process.

The first step consisted of stabilisation. The vessel laid precariously on a sloping, rocky seabed, prone to sliding further into the depths of the sea if disturbed, which would have further increased the difficulty of the salvage operation. In order to prevent this, a series of anchors were secured to the seabed, and cables were fastened to these anchors as well as along the length of the starboard side of the hull of the ship; this would prevent the ship from sliding further. Later, twelve turrets were installed along the seabed on the starboard side, and chains were run under the hull of the ship. This was fastened between the turrets and to the port side (left side, when looking to the bow) of the vessel. The movement of these chains was controlled by strandjacks, devices that could be individually controlled by computers. This would be developed in the future for the usage of balancing the ship during righting.

Another major obstacle facing engineers was that the ship had lost much of its natural buoyancy and there was little guarantee that the ship would not roll onto its other side upon righting. In order to prevent this, a resting station for the ship was needed for a more permanent stabilisation upon righting. Constructing this false bottom consisted of two steps. First, a series of grout bags were wedged against the hull of the ship, creating a level portion jutting out from the seabed in an area too close to the ship for supports to be placed and secured. Next, three platforms were placed beside the grout bags, jutting out further into the sea and providing the final stretch of leveled false bottom for the ship to sit on after righting. In order to preserve the ecologically fragile area, both the grout bags and the piles for the platforms were filled with environmentally friendly concrete. After the completion of the false bottom, sponsons (temporary projections off the side of a marine vessel) were welded to the above water port side of the boat. These sponsons provided a longer, leveled bottom for the boat to stabilize after righting.

It was not until after these stages had been completed that the most widely publicized part of the process, called "parbuckling," took place. Parbuckling, or righting of the ship, begins by attaching another set of chains to the sponsons on the port side of the boat. These chains were then tightened (also controlled by strandjacks) while the chains that were fastened to turrets on the starboard side were used for stabilisation. The tightening of these chains gradually rotated the boat to an upright position in a fragile operation that occurred over a span of 19 hours.

However, the process is not yet complete. A process of "refloating" still needs to take place. This will be performed by fastening yet another series of sponsons to the boat, this time on the now accessible starboard side. These buoyant sponsons will provide enough buoyancy to sufficiently refloat the boat after a pneumatic system has removed all the water from the boat. At this point the vessel will be towed to port to be dismantled for scrap metal. This is scheduled to be completed sometime in the summer of 2014.

The Costa Concordia saga has displayed two sides of mankind: the first being the shipwreck that showed us incompetence, selfishness and cowardice. Hopefully it will be the second that we as engineers and people try to emulate: one of boldness, cunning and creativity. For more information on the salvage of Costa Concordia, feel free to visit *www.theparbucklingproject.com*.

International Exchange

Apply now for 2014-15

PETER H. ROE
DIRECTOR OF INT'L EXCHANGE

International Exchange is one of the privileges and opportunities available to Waterloo Engineering students. You need to take action this term if you want to go on exchange in Fall 2014 or Winter 2015. Exchange is primarily for third-year students. But the lead time for application can be long. Don't put it off. If you miss the opportunity, it doesn't come back. I have had lots of students come to me too late to apply, after they heard from their classmates about their experiences on exchange. So, if you expect to meet the academic criteria (complete 2B; be in the top half of your class, or at least with a three-term GPA over 70) take the first step: make an appointment to see Cindy Howe, the Administrative Coordinator for Exchange (Faculty Exchange Office or FEO, CPH 1320 or cindy@uwaterloo.ca); she can help you sort out where in the world your best choices may be.

There are very firm deadlines. If you are in 2B this term, you need to get the Engineering part of the exchange application completed by mid-November if you want to be sure of a place. You can't be sure of going unless you meet the due date. Getting the information together to fill in the forms (available on the Engineering Exchange website: search 'engineering exchanges' from the UW page and follow the links to the forms) can be both time-consuming and arduous; once you have done that, filling the forms in is a snap, but you have signatures to collect and a pre-acceptance interview before it's all done. You have exams, and then you'll be leaving for Christmas and a work term, so use the spare time now to get the application done.

If you are in 2A this term, you may have more time available. Plan ahead. You can think of exchange terms to replace 3A or 3B (or both), which will normally take place in Winter and Fall of 2015. In some departments it may be possible to do an exchange term in place of 4A. Note that the term or semester dates of our partners typically don't match ours; essentially, our co-op system puts us slightly out of sync with the rest of the world. So you have to figure out how to make them fit. Many people don't know that when you go on exchange you can change the normal sequence; for instance, you can take fourth-year tech electives on a third-year exchange, and make up the core program on return, or you can interchange a work term and an academic term if it's more convenient from the point of view of finding appropriate courses at our partner institutions. These take a bit more work to arrange and you have to get the appropriate approvals. But there's nothing 'set in stone' about the order in which subjects are taught, or about when you must learn them. We merely require that each term is completed and that you end up with the correct number of satisfactory work terms.

All of this may seem complicated but we in the FEO are here to help. And in your department there are professors, particularly the undergraduate Associate Chair, and their support staff, who will help you in various parts of the process. You can also contact returned exchange students, who are in 4A this term.

Whether you are in 2A or 2B now, or whether you are still in 1A, one important matter is to get yourself 'on the list' for an exchange to your chosen destination. Each of our partners sets strict limits to the numbers of students that we can send them. Even though we have more than 80 possible destinations, some are more in demand than others, and we fill the spots on a first come first served basis. You should not fill in the application before contacting the FEO, for there may not be a place available. But when you make it on to the list, you are blocking later applicants, so be sure about your choice. If you change your mind you may have stopped another student from fulfilling a dream, so don't apply before you have made a firm choice for exchange.

International Exchange is worth all the trouble. Whenever I meet students who have returned from exchange they tell me, without exception, how much they enjoyed the experience. All of them agree that Exchange was a highlight of their education. In fact I haven't met one in the last decade who wasn't enthusiastic about the experience. Typically, they say that international exchange was an experience of a lifetime.

A Big Nickel, and Some Even Bigger Ideas

#BRIANHOWE
ESSCO PM DELEGATE

Two weekends ago, I had the honor of attending the Engineering Student Societies Council of Ontario Presidents' Meeting along with my fellow delegates Allyson Francis and Sarah-Rose Lancaster, and VP External, Kristina Lee. The ESSCO Presidents' Meeting is an annual meeting that brings together executive members from each of the Engineering Societies within ESSCO for the purpose of discussing new ideas and initiatives from each of the member universities. This year's conference was hosted by Laurentian University in Sudbury, the home of the Big Nickel. It involved a diverse range of workshops and guest speakers spread out over two days.

The first workshop I attended dealt with the topic of managing the Engineering Society's image on campus, both among engineering students as well as among students from other faculties. We talked about common problems that engineering societies often have, such as the image of being a group dedicated to drinking, or being a clique of a few close friends. Ideas to overcome these issues were discussed, such as creating a broad portfolio of events that do not include drinking, and lowering the barrier for involvement in Engineering Society to encourage participation of new members. Another topic that was broached was the image of engineering students among the broader community. I feel that Waterloo does this quite well with our efforts in the community, specifically through the efforts of our talented outreach and charities directors and commissioner.

The next workshop I participated in was structured around informing delegates of the new accreditation process that PEO has outlined and that will be coming into effect shortly. PEO will no longer be specifying the required number of instructional hours in subjects and will be moving toward outcome based judgments. In particular they will be looking at 12 skills that graduates will be expected to possess: knowledge base for engineering, problem analysis, investigation, design, use of engineering tools, individual and team work, communication skills, professionalism, impact on society and environment, ethics and equity, economics and project management, and lifelong learning. Universities will also have the option of adding additional criteria specific to them if they desire. The discussion centered around which of the skills require more development, how to measure whether these skills are taught successfully, and how the skills can be worked into existing courses.

I learned that the skill that employers typically say is the most important, and also the least developed among new graduates, is communication. The general consensus among those present is that more could be done to improve how communication is taught in university, such as by adding questions to assignments that require students to explain their thought process in solving the problems.

Another session focused on what could be done in the realm of academic initiatives by the Engineering Society. Many ideas were shared and debated, such as a tutor training and matching programs, to ensure that tutors being hired were quality instructors, encouraging professors to ask their peers to review their instruction and provide feedback, and organizing skills workshops on campus in the interest of teaching students desirable skills like CAD or MATLAB.

I also attended a workshop on how to attract sponsorship for Engineering Society events. It detailed many tips, tricks, and techniques for contacting companies and getting them to support events financially. I felt this session was of particular value, as many of the skills were transferable to other situations where you would be soliciting help from an individual or group outside of EngSoc. I feel like these skills would be quite useful in convincing professors and administrators to help or support initiatives that the Engineering Society would like to run.

Finally, I had the opportunity to attend presentations by Professional Engineers Ontario (PEO), and the Ontario Society of Professional Engineers (OSPE). PEO is the licensing and regulatory body for professionals within Ontario, while OSPE focuses on advocating and lobbying on behalf of engineers. Both presentations talked about the respective roles that the organizations play and the benefits of a student membership to each. OSPE's student membership must be purchased, but allows access to scholarships, networking sessions, workshops, and certain job postings. PEO's student membership is free, and provides information about licensing, local events and presentations, as well as a reminder to start the licensing process after you graduate.

Overall, I felt the conference was well worth the long drive to Sudbury, and that I came away from it with more knowledge of what other schools and EngSocs are up to. The weekend was jam packed with some excellent discussion on some very important topics, and I feel that I will be able to bring back much of this knowledge and leverage it to make the Waterloo Engineering Society even better.

Student Design Centre Renamed After Adel Sedra

JACOB TERRY
3B NANOTECHNOLOGY

Only three years after it initially opened, the Student Design Centre in Engineering 5 will be renamed after Adel Sedra, the faculty's previous dean. Sedra held the role of Dean of Engineering from 2003 to 2008, and again from 2009 to 2012, taking the year between to go on sabbatical.

Sedra earned his B.Sc. from Cairo University, before moving to Canada to earn his M.A.Sc. and Ph.D. at the University of Toronto. He then joined the University of Toronto as a faculty member, moving on to become the Chair of the Department of Electrical & Computer Engineering, followed by nine years as the provost and vice-president academic. He joined the University of Waterloo afterwards as Dean, where he contributed greatly to the Vision 2010 plan that brought us Engineering 5 and Engineering 6. He also oversaw the introduction and accreditation of three programs: Management Engineering, Mechatronics Engineering and Nanotechnology Engineering.

In the student community, Sedra had a reputation for being supportive of student events and traditions. Sedra is arguably best-known outside of the Waterloo community as the co-author of Microelectronic Circuits, often considered one of the definitive textbooks on the subject.

Finding a Computer Lab!

KYLA RODGERS
2A CIVIL

Have you ever walked between RCH, E2, CPH, or anywhere else on campus just to find an available computer? Or what about those days where you headed to your favourite lab to get some homework done only to find it overflowing?

Have no fear, faithful IW readers! There's a tool available to you to check the occupancy status of many of the engineering labs. Just make your way to the hallway of E2 outside of the WEEF TA office and turn your eyes to the glowing screen of knowledge!

Once you wait long enough, several rows of pie charts will appear on the right hand side of the screen. For you visual learners out there, the green portion of the chart indicates how much free space is in the lab. The red, of course, shows how many computers are being used. For those of you who prefer cold, hard statistics to visuals, look below each chart to find the fraction of free computers left in each particular lab. However, be warned that while this is an amazing tool, it is prudent to give a tolerance of plus or minus a few computers to take into account update time, or people logging on or off while you are on route to your computer lab destination.

One last question – how many of you have dealt with a less than ideal print job where the whole toner fusion process really wasn't in favour of your last minute print job? Well, there's some great news for you too! In addition to the TV screen displaying the number of free computers in a lab, it also gives the status of the lab's printer.

Best of luck with your on campus computer lab hunting this term!

Ghana Way: My Summer Co-Op Abroad

ROB REID
RESEARCH TEAM LEAD

Although I could have worked for a tech startup right here in Waterloo, this past summer I chose to do so far, far away. Coordinating through Engineers Without Borders Canada's Junior Fellowship in Human Development program, I was placed with *VOTOmobile.org*, a software-as-a-service for mobile mass communications for citizen engagement and data-driven decision-making. We were based in Kumasi, Ghana, a commercial center of 2.5 million people and home to the prestigious Kwame Nkrumah University of Science and Technology. There, I was working on product development (functionality and usability) and business development (pilots projects and marketing) with a team made up of Ghanaian computer scientists and some Canadian staff. In some ways, it was a much more engineering-focussed position that most EWB jobs, which tend to focus on change at an institutional or market level rather than technical. However, it was a long way away from historical projects of EWB and many other organizations, which rallied around sentiments about how free service or product provision was the way to develop Africa.

Having returned from Ghana, my perception of it and more broadly of the African continent has changed a lot from what I was exposed to from my life in Canada; notably advertisements for NGOs raising money, movies like the Last King of Scotland and District 9, and what I'd read from development literature. To me it seems entirely natural that a vibrant tech scene exists in Ghana and all over Africa, that 10 of the top 20 fastest growing economies are in Sub-Saharan Africa (and all 20 are in Africa or Asia), and that the diverse cultures and sometimes radically different worldviews of people have Africa poised to develop innovative solutions to global problems. However, coming back and being exposed to Canadian media has made me uncomfortable with how our culture looks at the world. Here are some of my biggest beefs. These are not just my complaints; I truly believe that humanity's issues are global and must be addressed globally. We have a lot of unlearning to do to look at the world outside us in a realistic and constructive way.

Africa is homogenous

"So, how was Africa?" – I've heard this so many times. Seen silhouettes of the continent on shoes and shirts. Although Panafricanism is a powerful idea, by-and-large I see the way we look at Africa as one thing in Canada as a gross generalization. In Ghana alone there are over 100 linguistic and ethnic groups (a challenge and business opportunity for VOTO's voice services) and landscapes ranging from smoothly rolling savannah to mountainous rainforest. Even communications of EWB bug me – posters for an upcoming fundraiser feature a large silhouette of Africa and the words "Run to End Poverty". To me this is problematic on a few levels- it's calling all of Africa impoverished, it's showing it as homogenous, and it's creating the perception that actions by Canadians are what's going to end poverty. At at least one other Canadian university, these same posters were removed after complaints by that institution's African student's association. Fun fact – the previous version of these posters made the Africa silhouette into the sole of a foot by adding toes, despite this being pretty offensive in Muslim countries.

Africa is poor

Like Canada, Ghana had poor neighbourhoods and rich neighbourhoods. The rich bubble didn't see the poor so much and the poor were poor for a number of reasons: not working hard enough was not one of them. I lived in a 16 bedroom house with ensuite bathrooms in each bedroom, and this was the cheapest office/living space we could find. Yes, by standard indicators of human development, on average there is a lot of poverty in many African countries. There are, however, people living in the same conditions for the same reasons in every country in the world. There are kinds of capital or potential not accounted for in metrics like the GDP or HDI that set up African countries to succeed where more industrially-oriented countries (to whom the indicators are tailored toward) are failing.

Africa needs help

"I get by with a little help from my friends" is a statement that is probably true on several levels for most engineering students, and indeed even at a country level we benefit from help. Internationalism is fine; what's not fine is this communication that impoverished African countries need Western intervention with Western ideas to improve. Such solutions rarely work on a technical level, and feed a bigger and more dangerous perception problem. Let's look at Toms shoes for instance, which you can buy all over Northern Ghana, with your very own "Not for resale" stamp on the footbed and a slightly cheaper workmanship than the Western consumer variety. Toms sells the idea of helping Africa to Western markets, but buys shoes from manufacturers in China. Really helping Africa might include supporting a healthy, regulated market economy like we expect our own country to have by investing in the manufacturing industry - something that we actively don't do through various trade regulations and loan conditionalities. But the happy idea of helping Africa with donations is a lot more likable. The technical outcomes of the Toms development programme are unsustainable at best, market disabling at worst, but it also feeds the attitudes that keep such simplistic and paternalistic approaches to development popular, which is possibly even more harmful.

A corollary to the "Africa needs help" perception is the "You should be the one to help: idea. This is a hard topic to navigate: I'm passionate about people being active and empathetic, but in the development sector there is an implicit idea than Western volunteers are "better" or "more suitable." This is something I really struggled with, trying to make myself sound humble when I was given so much unwarranted agency by privilege. In reality, outside volunteers have a valuable beginner's eye and can more easily be critical and hypersensitive... but they cost a lot more, get sick all the time, can't speak the language, and generally have no idea what's going on at the nuanced level at which change needs to be carried out. Ignoring everything outside my personal experience, my placement was the most challenging and gratifying co-op I've had, and something I'd recommend trying out for anyone who thinks they have a good handle on how the world works. Applications for 2014 Junior Fellows go out this month: visit *uwaterloo.ewb.ca* to join the mailing list they'll be on.

Elon Musk and the Lack of Women in Waterloo Engineering

FILZAH NASIR
RESEARCH TEAM

Editor's Note: This article has been modified from it's original form. Previously, this article contained a quote from an engineering student that was not intended for publication, and has been removed. We apologize for the inconvenience.

-Alex Lee (EIC F13)

The founder of Tesla and co-founder of PayPal, Elon Musk, was recently quoted in a Queen's University Alumni Magazine stating that one of the reasons he choose to attend Queen's over Waterloo Engineering was because he visited the campus, "and there didn't seem to be any girls there. So I visited Queen's and there were girls there. I didn't want to spend my undergraduate time with a bunch of dudes."

Although it would be nice to pretend that Musk's comments were made because he believes that a more diverse classroom enriches the learning experience, there's a reason he asked for this specific comment to be off the record: because he knew it was inherently sexist. Musk made a decision to attend a university where he would have a better chance of meeting women (to date, it's assumed). Because, of course, men go to university to learn, and women go to university so men can have something pretty to look at, while they learn. But regardless of the sexism of Musk's statement, it was made in an offhand comment that was quite honest in what affected his decision about where to attend university.

In response to Musk, Waterloo Engineering made a video that was half-satire, half-serious and mostly cringe-worthy (enough to go viral on Reddit). The video admits that Musk was right – back in the 90's when he visited the campus there weren't a lot of women. But since then, they've "spruced the place up," by setting out flowers and spraying perfume on textbooks. Most comments on the YouTube and Facebook page make it clear that viewers aren't sure whether or not to take the video seriously. If the video was meant to be a lighthearted joke, it's clear that Waterloo Engineering missed the mark – by a lot. They also missed what could have been a perfect opportunity to discuss the lack of women in engineering at Waterloo.

The tone of the video makes it clear that the Waterloo Engineering administration has no plans to acknowledge that Musk's comments are actually based in fact. I am sure the numbers of women in engineering have gone up since the 90's – but as any second-year student taking a stats course will tell you, that's a useless statistic. The statistic that actually matters is: 18.5% of undergraduate engineering students in 2012 were women. That's an embarrassing statistic for the Waterloo Engineering regardless of how it compares to the 90's or to other engineering faculties in the country.

Not acknowledging these numbers also makes it clear that the University will not do anything to attract more women to its engineering program – or to provide support for the ones that are already here. Waterloo Engineering is dominated by male students and male culture. This is an uncomfortable reality that many women in engineering live with. From personal experience I can acknowledge that Waterloo Engineering is not always an inclusive environment for women. And this video, which lightheartedly brushes over the very real issues faced by women in Waterloo Engineering is incredibly insulting. Yes, Waterloo Engineering has turned out some amazing engineers, many of whom happened to be women. But, they made it against the odds, not because of them. Because at Waterloo, the odds are stacked against female engineers.

It was only two years ago that the University of Waterloo was terrorized by an anonymous propaganda campaign against women using Marie Curie as their poster woman for why women shouldn't be allowed to gain higher education because "they'll nuke the whole Planet." While those posters were dismissed by the Waterloo administration as the actions of a single person, they didn't take into account comments like those made by a Waterloo student online who claimed that there are fewer women in Waterloo because "most girls don't want to give the effort or sacrifice needed to go through the Engineering or Math program at Waterloo." While the poster attacks may not say anything about male culture at Waterloo, these comments certainly did.

Waterloo Engineering has not even attempted to take on the most basic of responsibilities that would make this campus a more inclusive place – such as providing gender and inclusivity training to first-year engineering students during Orientation week.

Sexism on university campuses is not limited to Waterloo. The University of British Columbia and Saint Mary's University in Halifax have recently been highlighted in the news for orientation week chants about rape. But both University administrations have seriously responded to the incidents and have taken actions to prevent such incidents from reoccurring. At Waterloo, we force a laugh.

Inc.

Elon Musk recently commented on choosing Queens over Waterloo

Budget Approved!

PETER ROBERTSON
VP FINANCE

Welcome back BSoc! I hope your co-op term treated you well. My name is Peter Robertson and I am serving my second term as VP Finance for the Engineering Society 'B'. This will be my last term and although I will be sad to see it end, there's still lots of time left in the term and I look forward to making it as enjoyable as possible for you.

Things have started off quickly and I'm happy to tell you that our termly budget was passed by Council at the first EngSoc Council meeting last Wednesday. In the table to the right, you can see the budgets that were requested by directors on the left, and the approved budget on the right. If you're interested in more details please feel free to email me at *vpfinance.b@engsoc.uwaterloo.ca* or come and visit the Orifice.

You can see that $9000 has been set aside for EngSoc Sponsorship this term. The Sponsorship Committee selection was tabled from Meeting #1 and will now be done at Meeting #2. Once the Committee has been selected we will able to choose a date for both Sponsorship proposals and presentations, and I will inform all Student Teams when these dates have been chosen. Engsoc Sponsorship is available for any student group or team, all are welcome to submit a proposal, and the final decision will be made by the Committee before the end of the term.

Like always, ECIF (Engsoc Capital Improvement Fund) Applications are open throughout the term and we welcome any suggestions you may have on where money can be spent to improve the quality of Engineering student life. This term we have $9000 to allocate to capital improvements. Past improvements include the outside POETS patio furniture, the bike repair stand, repairs to POETS furniture and equipment inside, the soon-to-be-installed LCD screens used for EngSoc advertising, and many more. You can submit proposals through the EngSoc website (*engsoc.uwaterloo.ca*). There is now a direct link in the left-hand menu on the homepage.

If you ever have any questions about the financial state of the Society or want to become more involved, don't hesitate to email me or stop by the Orifice for a chat!

EngSoc B Fall 2013 Budget

Income		
Item	**Requested**	**Accepted**
Student Fees		
Estimated Student Fees	$ 60,000.00	$ 60,000.00
Orifice		
Estimated Orifice Sales	$ 800.00	$ 800.00
Total Income	**$ 60,800.00**	**$ 60,800.00**

Expenses		
Item	**Requested**	**Accepted**
Fixed Costs		
Utilities	$ 750.00	$ 750.00
Supplies	$ 2,400.00	$ 2,400.00
Operating Costs	$ 4,400.00	$ 4,400.00
Payroll	$ 18,201.00	$ 18,201.00
Iron Warrior - 1% of Student Fees	$ 600.00	$ 600.00
ECIF - 5% of Student Fees	$ 9,000.00	$ 9,000.00
Total Fixed Costs	**$ 35,351.00**	**$ 35,351.00**
Executive		
Exec Discretionary	$ 1,000.00	$ 1,000.00
President	$ 1,000.00	$ 1,000.00
VP Education	$ 500.00	$ 500.00
VP External	$ 500.00	$ 500.00
VP Finance	$ 500.00	$ 500.00
VP Internal	$ 500.00	$ 500.00
Total Executive Costs	**$ 4,000.00**	**$ 4,000.00**
Directorships		
Archineering	$ *359.20*	$ 345.60
Arts	$ *145.00*	$ 145.00
Athletics - Workout Time!	$ *22.50*	$ 15.70
Athletics - Squash League	$ *55.00*	$ 52.40
Charities	$ *99.38*	$ -
Course Critques	$ *178.00*	$ 178.00
EngPlay	$ *656.12*	$ 656.12
First-Year Services	$ *874.46*	$ 350.00
Genius Bowl	$ *440.00*	$ 292.00
Hackathon (EngHack & EngSoc Hack	$ *961.00*	$ 761.00
Historian	$ *150.00*	$ 150.00
Jazz Band	$ *1,075.00*	$ 875.00
LAN Parties	$ *280.00*	$ 260.00
Mental Health	$ *348.50*	$ 308.50
Movember	$ *110.00*	$ 51.40
Music	$ *1,088.10*	$ 1,088.10
Outreach	$ *152.00*	$ 152.40
P**5	$ *895.00*	$ 855.00
POETS	$ *1,260.00*	$ 1,240.00
Rememberance Day	$ -	$ -
Resume Critiques	$ *718.54*	$ 718.54
Santa Claus Parade	$ *727.75*	$ 677.75
Secretary	$ -	$ 5.00
Semi Formal	$ *665.00*	$ 665.00
Speaker	$ *4,372.25*	$ 3,732.25
Student Workshops - Cupcakes	$ *198.00*	$ 194.40
Student Workshops - Jorts	$ *72.50*	$ 72.50
TalEng	$ *500.00*	$ 430.00
TSN	$ -	$ -
WEC	$ *1,742.00*	$ 1,713.40
Women in Engineering (WiE)	$ *1,000.00*	$ 800.00
Year Spirit - 2014	$ *2,404.00*	$ 200.00
Year Spirit - 2015	$ *689.30*	$ 192.10
Year Spirit - 2016	$ *142.50*	$ 127.50
Year Spirit - 2017	$ *245.00*	$ 180.00
Year Spirit - 2018	$ -	$ 200.00
-	$ -	$ -
-	$ -	$ -
Total Directorship Costs	**$ 22,626.10**	**$ 17,684.66**
Total Expenses	**$ 61,977.10**	**$ 57,035.66**

Sponsorship		
Sponsorship Meeting	$ 9,000.00	$ 9,000.00
Net	**-$ 10,177.10**	**-$ 5,235.66**

What's New in Novelties?

MELISSA FERGUSON & STEPHEN KRAEMER
2B MECHANICAL
& 4A MECHATRONICS

Hello! We would like to extend a warm welcome to the graduating class of 2018 and a friendly welcome back to all upper year students.

For those of you who do not know, Novelties is where you can buy all of the glorious engineering swag. It is located next to POETS (CPH 1337), and is open from 11:30 to 1:30 Monday through Friday. We are also pleased to announce that we have some exciting events happening through Novelties this term.

OH MY GOSH WE ARE HAVING A FIRE SALE. OH THE BURNING, EVACUATE THE SCHOOL CHILDREN!! Haha. The fire sale will be on September 23rd during the normal Novelties hours.

September 25th and 26th will be when you can come to CPH foyer and get your very own custom coveralls ordered. The prices for Coveralls are as follows:

Coveralls: $70

2 lines of embroidery on the sleeve: $5

5 patches ($25 dollar in store equivalent): $15

Later in the term we will be having a design contest, so start coming up with some neat designs for patches and t-shirts!

More information on any of the events run through novelties this term can be found on the Novelties Facebook page *https://www.facebook.com/uwengsocnovelties* or by emailing *novelties.b@engsoc.uwaterloo.ca.*

Things to Learn

ORYSIA SOROKA & MEGAN MCNEIL
VPS EDUCATION

Hi everyone! For all of the first years, welcome to Waterloo! For the rest, welcome back. Classes have begun, assignments have been distributed, and for some of us who aren't used to the large class sizes or the new concepts that are about to be covered, I'd like to share some academic tips for you so that this term goes smoothly. First of all — don't fall behind! With all of the fun events going on, it is easy to forget about your classes and assignments, but midterms will creep up very quickly, I promise! To avoid falling behind, listen closely during classes, and try to review everything you've learned that day. Reading ahead can also help you to digest the material your professor teaches the next day, and will leave you feeling less overwhelmed.

Aside from classes, t'is the season to work on your resumes. Depending on what stream you are on, some of you will be on your first coop term as early as this winter. The Engineering Society offers resume critiques every term, and through the Tatham Centre you can also organize resume critiques by appointment. It is highly recommended for all students to get their resumes critiqued to ensure it is ready to be viewed by potential employers. Also, for those who have not been on term for the past few months, all resumes uploaded to Jobmine are now in PDF, not HTML. This was implemented to prevent many formatting grievances previous students have encountered, so it should be a much smoother process.

Throughout the term I will be writing *Iron Warrior* articles updating you on academic issues, and I strongly encourage you to contact me or find me whenever I'm not in class to discuss whatever concerns you may have. My email address is *vpeducation.b@engsoc.waterloo.ca* and I'd love to get to know the engineering student body better, so do not be afraid to stop me in the halls :). Best of luck in your studies! In the next issue, look forward to details regarding a change in the coop application process, and a new undergraduate engineering degree being offered the the University of Waterloo.

EVENTS!

CATHERINE DECLARO
VP INTERNAL

Hello everyone!

Welcome back to campus, and I hope your first few weeks of school have been going well. This term we have a lot of new events and services to supplement the traditional ones.

New this term we have Engineering Athletics. If you want to participate in Crossfit style workouts, you can join them every Monday and Thursday at 6:30 pm in the PAC Red Warrior Zone. Also new this term we have a comprehensive First Year Mentoring program! There are several workshops and sessions in the term for interview skills, study skills, and more! To find them, just look for the First Year Mentoring events in the EngSoc calendar.

As for the usual events, there are some changes! This year, Semi is being held at The Turret (Laurier's club) on Thursday, October 8. The Semi directors are working crazy hard and I'm sure it will be nothing less than spectacular. Keep an eye out for posters because ticket sales will be starting soon!

The music events are getting pretty intense this term as well! Coffee House is happening on Thursday, October 3rd at 8 pm in POETS. If you like warm beverages, listening to some chill stuff, or playing chill stuff feel free to come out and enjoy a casual evening! This term, EngSoc is hosting a Battle of the Bands! This will be happening sometime in early November, so if you've got a band, make sure you're ready!

If you're wondering how you can get involved with any of the things going on this term or just have any questions, feel free to shoot me an email at *vpinternal.b@engsoc.uwaterloo.ca.*

Cheerio!

Kewl Konferences

KRISTINA LEE
VP EXTERNAL

Hello and welcome! My name's Kristina Lee and I'm going to be your VP External for the next four months. My portfolio has two main areas of focus: representing you to external bodies, such as Preofessional Engineers Canada, PEO and the Engineering Student Society's Council of Ontario, ESSCO, and the community, and to oversee the Outreach/Charities directors and the Waterloo Engineering Competition (WEC).

So far this term I've attended two different conferences, ESSCO President's Meeting (PM) and the Canadian Federation of Engineering Students (CFES) PM. If you're interested in attending a conference this term there are two more before exams: PEO-Student Conference (SC) and the National Conference on Women in Engineering (NCWiE). PEO-SC is a conference on professional development and engineering as a profession and NCWiE is going to be an amazing conference this term about diversity and women in engineering. As well, there will be sessions with tangible outcomes to bring back to Waterloo. Applications are open on the Engineering Society website.

If you're interested in getting more involved with ESSCO there are two positions available! Connor, the VP Services, is looking for two directors. The Director of National Engineering Month (NEM), who will help facilitate an Ontario wide event, a Rube Goldberg Machine, and the Director of Wonderland Math and Physics Day, who will manage and facilitate Wonderland Math and Physics Day. Application can be found online at *essco.ca/activities/directorships/*, NEM is due October 15 and Wonderland is due November 15.

Also happening this term is the Women in Engineering Mentorship program, the Santa Claus Parade, Engineering A Difference, and many more charity events! If you're interested in helping out or attending an event please feel free to contact myself ad *vpexternal.b@engsoc.uwaterloo.ca*.

That's What's Up

YASSER AL-KHDER
PRESIDENT

To all the first years, welcome! As for you non-first years, welcome back!

My lovely executives and I will have reports in every issue of the *Iron Warrior* to update everyone on what's going on. If you can't wait for the *Iron Warrior* issue to come out to hear from us (cuz you can't get enough of us, right?), you can sign up to our mailing list (*bit.ly/mailinglistb*). You can also check us out on Facebook (Waterloo Engineering Society) and Twitter (@engsoc).

Now then, here's what's up:

Ask the Dean

As executive, we get to meet with Dr. Pearl Sullivan, our Dean, and talk with her about issues pertaining to students and student life. This term, we want to know what questions you have for the dean, and relay those questions to her during our meetings so you can get an answer. If you have a question for the dean, go to *bit.ly/whatwouldyouaskthedean* and fill out the Google form.

Elections

This is our last term as your executive *sniff*, and we need to elect the new executive team. That means you get to vote on who will be the next exec.

Madelaine Liddy, our Chief Returning Officer (AKA person who runs the elections), will properly bombard you with all the information you need for the elections. But just in case you want yet another place to get the elections schedule, here it is.

September 23 – 27: Nominations

This is when students who are interested in running will submit the nomination form. The nominees will need 15 engineering students to sign their nomination form, so be on the lookout for who's running around asking for signatures, because soon enough they'll be asking for your vote.

September 28 – October 4: Campaigning

Posters, class visits, webpages, Facebook pages, and swag (maybe). This is when the candidates will tell you all about themselves, their platforms, and why you should vote for them. Read their platforms, listen to them, and ask them tons of questions.

October 5 – 9: Voting

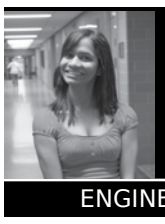
That's when you decide who had the best platforms, and who deserves your vote. Each and every one of you should get an email with the link to the voting webpage during that period. There will be voting booths at CPH Foyer as well. Don't forget to vote!!

October 10: New exec is Announced at Semi-Formal

Come out to Semi-Formal, dance, be classy, and have fun. Also, we will announce the winners so you can congratulate them and maybe buy them a beverage of some sort.

Well that's all from me for now.
Stay safe kids.
Yasser.

5 Resources You Probably Aren't Taking Advantage Of



ANJALI GOPAL
4A NANOTECHNOLOGY
ENGINEERING WELLNESS

Welcome, or welcome back, to campus! By now, the first two weeks of the semester have already flown by, and you've probably been bombarded with a ton of information about clubs you can join, courses you need to focus on, socials you need to go to, or other commitments that are vying for your time or attention.

If you're feeling overwhelmed already, take a moment to relax and breathe: having too much to do is an inevitability of being at any fast-paced and dynamic institution. However, it's important to develop coping mechanisms and strategies to deal with the stress of university life.

The university offers a wide variety of resources to help you deal with any challenges you may face in your time here. In this article, we'll tell you about the top 5 resources that you should take advantage of while at school; it will make your time here both fulfilling and manageable.

1. Counselling Services

Located in both Needles Hall, and the CPH First Year Office, Counselling Services are free and confidential. If you need professional guidance or support, counselling is your number one resource. You can book an appointment in person or through the phone (519-888-4567 ext 32655).

2. Health Services

Health Services is like your on-campus physician. You might have used them for a verification of illness form, but they also offer a wide variety of other services, including emergency walk-ins, flu vaccinations, sexual health or pregnancy concerns, and prescription renewals. Health Services also employs trained psychologists, who can help you with mental health concerns or disorders. You can book an appointment with health services in person or by phone (519-888-4096).

3. The AccessAbility Office

AccessAbility Services, formerly known as the Office for Persons with Disabilities, is a resource for students who would like formal assistance with managing their disabilities at the University of Waterloo. AccessAbility can assist in both physical disabilities, and mental disabilities such as clinically diagnosed depression or other mood disorders. AccessAbility can formally petition instructors for accommodation requests, from extensions on assignments or labs, to providing alternate final exam arrangements. AccessAbility can be found in Needles Hall, room 1132. Appointments can be booked in person or by phone (519-888-4567 ext. 35082).

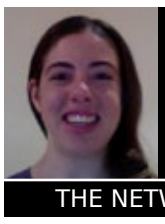
4. Stress Management Workshops

One of the best way to reduce your stress is to develop additional coping mechanisms. Stress Management Workshops, run through Counselling Services, can teach you how to do just this. Counselling Services offers a variety of workshops, including: a Mindfulness Based Stress Reduction program, which can help you develop coping strategies and increase focus and concentration; a Coping Skills 101 seminar series, which is commitment-free, but easy to attend; a procrastination workshop, which can help you deal with your unhealthy last-minute habits; and much more. To learn more about the stress management workshops, visit the Counselling Services website, at *uwaterloo.ca/conselling-services*.

5. The Engineering Society

The Engineering Society is an amazing resource, which offers fantastic services like the exam bank, cheap food from the CnD, a scholarship bank, a work term report bank, and much more. Recently, EngSoc has also started running a series of mental health awareness events, including Stand Up for Stigma campaigns, Puppies in POETS, and study skills workshops in collaboration with the SSO. The Engineering Society also has a plethora of dedicated and enthusiastic upper-year members who can point you in the right direction if you need guidance or advice. EngSoc is one of the best resources to go to if you don't know where else to go; at the very least, the EngSoc Office ('the Orifice') has executives and staff who can point you in the right direction. The orifice is located in CPH, Room 1327.

What's in Your Network?



ELIZABETH SALSBERG
2A NANOTECHNOLOGY

THE NETWORKING ENGINEER

And so it begins. The job hunt for the next work term. Yet only 4 (or 8) months from now, you'll be right back at it. If you're lucky, you'll find a job over your work term and be co-op stress free through your next study term but how? What about after you graduate? It seems so far away… That's where networking comes in. We all hear the word thrown around, but what exactly is 'networking' and how can you as a co-op student get the most out of yours?

Your network consists of everyone you legitimately know and personally interact with on a regular basis. Not that random person on Facebook you haven't talked to in the last eon. Your network is your friends, family, co-workers past and present, and by extension, everyone connected to the aforementioned groups. All of these people can help you on your career path if you use them wisely.

The first step to utilizing your network is identifying one or a few specific fields you'd like to get into. Once you've done this, ask everyone in your network if they know anyone who works in that particular field and get their contact information. Even if none of your contacts can give you anyone's name, remember that they may know someone who knows someone, if you catch my drift. Over my work term I asked my manager if she knew anyone in the mineral/metal elemental analysis field. As it turns out, she did not know anyone but directed me to a full government directory listing employees in the Ministry of Mining and Northern Development, who do a fair amount of mineral testing. I got the contact info of the Senior Lab manager in the blink of an eye.

Congrats on your first network contact! Next, you need to request an informational interview: a time to meet or phone your contact. If you got the contact's name from someone else you know, make sure you refer to the person's name in the request. Keep these invites to relatively short e-mails. In addition to indicating your interest in the field, make sure you assertively tell the contact that you will be calling them to arrange a time to chat within the next couple of weeks and follow through! I cannot stress this enough—working people, especially those in senior management and company leadership positions may not respond. Don't let them get away with it! You only need 20-30 minutes of their time to ask your questions, and you're not after them for a job (yet).

Now that you have booked a time to actually talk to your contact, come up with a list of questions to ask. Remember, your goal is to find out what working in the field is like, and NOT to get a job. That's not to say you shouldn't ask what kind of opportunities exist though. This is arguably one of the most important questions as it gives you an idea of how the industry is doing. It is important to do some background research on the your contact's company as well—this will not only allow you to ask more useful questions (i.e.: you couldn't have found the answer on Google) but it will also show genuine interest. I will discuss relevant questions in more detail next issue so stay tuned!

In the meantime, start thinking about your own fields of interest and ask around. You'd be surprised at who can help you—if you've read this far, you're well on your way to a more effective job search.

Resurrecting Rubella

NANCY "ACE" HUI
3B CIVIL

In the United States, the Centre of Disease Control reports that there have been 159 cases of measles from January to August 2013, including 8 domestic outbreaks accounting for 77% of all cases.

The CDC characterizes an outbreak as a transmission chain with three or more confirmed cases. The largest outbreak in 2013 to date involved 58 cases of measles in New York City. During 2001 to 2012, there were a median of 60 measles cases in the US, with a median of two outbreaks.

The interesting thing here is that measles was declared to be eliminated in the US in 2000, though 20 million cases occur every year in the rest of the world, including a 2011 Quebec outbreak of 725 cases. As a result, American health professionals are no longer trained to identify and treat measles.

Measles (also known as rubella) is a viral illness characterized by fever, cough, runny nose, red eyes, and most distinctively, a body rash. It is spread through respiration and is highly contagious: this leads to distinct, localized outbreaks of infection in a largely vaccinated population. It rarely causes death but can result in deafness and pneumonia.

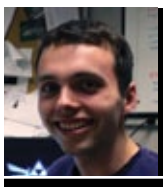
82% of those who contracted measles in the US this year so far were unvaccinated, and 9% were unsure of their vaccination status. Persons who can't or won't get vaccinated due to medical or philosophical reasons rely on herd immunity to protect themselves: if none of their peers can get ill, then they won't either. Herd immunity is a form of collective immunity of a population, developed when a large enough proportion of the population is resistant to the disease to prevent the disease from forming long chains of transmission. The percentage of individuals that must be resistant to the disease to prevent its spread through a well-mixed population is dependent on the basic reproduction number (R0) of the disease, through the relationship %Vaccinated=1-1/R0.

R0 is a parameter that represents the number of individuals an infectious organism can produce during its lifetime. R0 depends on factors like the longevity of the organism, and type of transmission. Measles is infectious for four to nine days, and is airborne, thus has an R0 of 12 to 18. Consequently, 92 to 94% of a population must be vaccinated against measles for outbreaks to be prevented.

However, in the United States, the vaccination rate among young children is only 91%. The vaccination rate for measles in Canada is 85%. The vaccination rate for measles in Britain, the birthplace of the anti-vaccination movement, fell from a peak of 92% to 73% today.

The modern anti-vaccination movement began in the late 1990s, when British physician Andrew Wakefield warned that measles, mumps, and rubella vaccines caused autism in children. His claims have since been refuted but the fear remains. Activists such as Jenny McCarthy and Robert F Kennedy Jr. still campaign against vaccinations for children. Today, 80% of unimmunized individuals refused the vaccine for philosophical objections.

iOS 7 Brings App Design Renewal



JACOB TERRY
3B NANOTECHNOLOGY
T CUBED

Last week, Apple released the newest version of iOS 7 worldwide, introducing their overhauled designed language to iPhones and iPads. The change has been divisive, with some praising the new look and others believing it looks worse. But in the couple days following release, the number of iOS 7 users surpassed the number using iOS 6.

iOS 7 works on models as early as iPhone 4, however, many of the features that are touted in recent versions of iOS are unavailable on the older phone models due to technical limitations. The AirDrop and Siri functions, as well as the 3D-like parallax effect on the home screen are unavailable on the earlier iPhone models.

The icons that appear on the home screen have received mixed to negative feedback, as they appear somewhat inconsistent and sloppy in terms of how they were designed, but the part of iOS 7 that was designed really well was the default app design. Gone is the old extreme gradient that was on the old tab and navigation bars, replaced with a very simplistic and clean header and footer. The status bar with the battery life and network status is no longer a harshly delineated black area, but instead matches the colour of the navigation bar to make a more seamless header for the viewer. This behaviour was introduced in iOS 6 as an options for developers to implement, but is now the default behaviour across the entire operating system.

The new app design has encouraged third-party developers to rethink how their applications look, with companies like Facebook and Evernote creating new layouts that fit the aesthetics of iOS 7. This can be good for new entrants as well, as the old methods for app design had matured to a point that it became more challenging for newcomers to find imaginative layouts that would hook potential customers.

The trend of simplicity introduced in iOS 7, Android 4.0, Windows Phone and Windows 8 are ways that developers aim to reduce the frame around the content the user needs while keeping it consistent. By removing gradients, thicker buttons, and the size of on-screen controls, developers can make it easier for users to focus on the content of their apps and only notice the system elements as they need them. However, the designs are still primitive since all the major operating system developers are attempting to find ways of representing concepts without using real-world equivalents. For example, attempting to find a way to represent mail without using an envelope or a stamp can be challenging and will require many years of trial-and-error before finding something that represents it well (perhaps an @ sign would be a good place to start?)

Jacob Terry

iOS 7 introduces many new visual changes

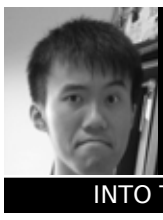
A common criticism levelled against iOS 7 and Windows 8 in particular, which both aim for ultimate simplicity in their user interface, is that due to the quasi-yearly release schedule for major system upgrades, they seem a little unpolished. This could be from having to write a complete rewrite of the visual code in under a year. After using iOS 7 for a while, it becomes evident that there are many small little design oversights that were made that will need to be rectified in future revisions, but any overhaul of that magnitude is hard to get right on the first try, no matter how successful a company may be normally at implementing such changes.

In future updates, Apple and Microsoft will certainly find out how to make their ideal designs more practical for consumer use. The jarring switch between the traditional Windows desktop and the newer Start screen experience in Windows 8 is something that will clearly be removed at some point in the future. Until that transition, there will still be an awkward period where it's uncertain how the new design will change to fully supersede the old design. The Desktop's ability to run multiple things at one time and offer access to the filesystem is convenient for many users who are fans of Windows, but if the Start screen included a simple way to navigate it (for users who have interest in accessing it) and allowed more configurations for how to combine applications into one screen, it might replace the Desktop entirely.

iOS 7 doesn't have that issue to quite the same degree, but there are parts of the user interface that are unclear, although the solution is uncertain as they try to stay away from common, real-world representations of concepts. For example, the buttons in iOS 7 are often simply strings of coloured words with no clear difference from non-button text, but in future versions they may find be a way to represent it (perhaps by bringing back the surrounding box) that works for their new interface.

As with Windows 8, iOS 7 may not be perfectly polished but it's a step in a new direction for Apple's operating system, laying groundwork for versions to come. It's an interesting and friendly system to use and indicates that we will be seeing more neat concepts out of Cupertino.

Perovskites



BRIAN SO
2A NANOTECHNOLOGY
INTO THE NEW WORLD

MIT researchers have recently greatly improved energy storage and delivery systems by engineering a new family of materials that delivers record performance through the Oxygen Evolution Reaction (OER).

These new materials, called double perovskites, are actually just a variant of a mineral that already exists in abundance in the Earth's crust. It has the ability to split water (into H and O) to promote oxygen evolution. This work was conducted by Yang Shao-Horn, the Gail E. Kendall Professor of Mechanical Engineering and Materials Science and Engineering; postdoc Alexis Grimaud, and six others. Shao-horn says that this new family of materials is a clear step forward from the previous record-holder catalyst for electrochemical water splitting. Perovskites have shown a greater level of stability in its structure during the chemical process, as compared to the old material.

This new material has great potential in applications to current renewable energy generation. Wind and solar power sources use a catalytic system, where electricity from the turbine or solar panel can be fed into a tank of water, and the resulting streams of hydrogen and oxygen from the water-splitting can be collected into separate tanks. These two collected elements can then be recombined at our convenience to produce electricity and water. Perovskites can be easily integrated within the existing catalytic system, being economically viable, easily manufactured, and efficient in carrying out the conversion without too losing much of the original power.

The compounds used in this research were made by combining lanthanide (praseodymium, samarium, gadolinium or holmium) with barium, cobalt and oxygen. The result was a crystal structure that had distinct molecular sites for barium and lanthanide. Shao-Horn says, "There's lots of flexibility in the chemistry and structure," allowing for a large variety of materials. Shao-Horn and her team have shown how changing the specific lanthanide isotype has a strong effect on how rapidly water could be separated into its atomic components.

The researches have not only found a single element that produces this new family of catalysts, but a family of compounds as well. This means that they can conduct further research by testing the effectiveness of the other compounds, which could lead to more active catalysts. The perovskites that the team was using were synthesized through a simple process with powders of constituent materials, by "grind[ing] them up and put[ting] it in a furnace at high temperature," Grimaud says.

Jean-Marie Tarascon, a professor at the University of Picardie in France and director of its laboratory on reactivity and chemistry of solids says, "This work is significant as it offers an alternative to costly noble-metal catalysts" for the oxygen evolution reaction. That's important, because "there is a huge demand for an OER catalyst for direct solar and electrolytic water-splitting."

Voyager I: Out of this World

JESSICA KEUNG
2A CIVIL

Space. The final frontier.

After three decades of travelling through the massive vacuum of space, Voyager 1 has left the solar system and Voyager 2 is relatively close behind.

The National Aeronautics and Space Administration (NASA) sent two unmanned space probes in 1977 to take advantage of a favourable alignment of the planets during the late 1970s. The Voyager probes both carry a golden record in the event that either spacecraft is ever found by intelligent life forms from other planetary systems. These discs carry photos of Earth and its lifeforms, a range of scientific information, spoken greetings from people such as the President of the United states and a medley of sounds from Earth such as whale songs and Mozart. Voyager 1 and Voyager 2 were sent to study Jupiter and Saturn but they continued on their mission even after they passed it. Now both Voyagers are in the Heliosheath, the outermost layer of the heliosphere where the solar wind is slowed by the pressure of interstellar gas. Voyager 1 used Saturn to help slingshot its way past Pluto and Voyager 2 travelled past Uranus and Neptune.

Now after 36 years, travelling through space at a velocity of 17 kilometres per second, NASA's Voyager 1 probe has left our solar system. This plutonium-powered probe has entered interstellar space and has travelled farther than anyone or anything Earth has ever sent. Voyager 1 has travelled beyond the reach of the sun's solar winds, and as of writing this article, 18.8 billion kilometres from Earth.

The probe carries cameras, magnetometers, and other instruments that send data and photographs back via radio waves in the form of 0's and 1's which take 17 hours to reach Earth. Voyager 1 is now sending back data from the boundary range between solar winds and interstellar wind, passing the debris of thousands of exploded stars in the Milky Way Galaxy.

The instruments on Voyager 1 that were meant for directly detecting the transition zone between where the solar winds end and where interstellar space begins died in 1980 and researchers have been relying on indirect measures of magnetic and electrical activity from other instruments on board to find the answer.

One of the key identifiers of the boundary between our solar system and interstellar space is the difference in the density of charged particles between the solar wind and the interstellar space. This is because the density is about 50 times greater in interstellar space than in the region with solar winds. Scientists still believe that the telltale sign that Voyager 1 has left the solar system would be a change in direction of magnetic field lines. Last year, scientists monitoring Voyager 1 noticed strange events that meant the spacecraft was broken. Charged particles streaming from the sun had vanished but at the same time, there was a spike in galactic cosmic rays. Since there was also no change in the magnetic field line direction, scientists believed that the probe was still in the heliosphere. Many are still waiting for the direction of the magnetic field lines to change as it might still be too early to judge.

One of the most iconic pictures the Voyager probe has taken is the Pale Blue Dot from Valentine's Day, 1990. The cameras on the probe have since been turned off to save memory and power and even if they were turned back on, they would mostly not work after years of being exposed to very cold conditions. Voyager 1 is escaping the solar system at a speed of about 3.6 AU per year, 35 degrees out of the ecliptic plane to the north, in the general direction of the Solar Apex, and in the year 40,272 AD, Voyager will come within 1.7 light years of an obscure star in the constellation Ursa Minor.

Much like in *Star Trek: Voyager,* Voyager 1 is the first man made object to enter an unknown region of space and has very weak line of communication with Earth. Unlike *Star Trek: Voyager*, this spacecraft is unmanned and will not be coming home. Voyager 1's first mission outside of our solar system will be to explore interstellar space. Voyager 1 will now study exotic particles and other phenomena in an unexplored part of the universe and radio data back to Earth. Meanwhile, Voyager 2 has travelled 15.3 billion kilometres from Earth and is expected to reach interstellar space in 2016, but the amount of power available to the probe has been decreasing since its launch and is expected to be unable to power any of its instruments by 2025.

Twisted Light

IOANA CRAICIU
3T NANOTECHNOLOGY

MANDATORY SMALL TALK

There are two kinds of angular motion an object can have: about its own axis, and about an external axis. One example is the earth spinning on its axis, and the earth spinning about the sun. Due to its spin around its axis, we can say the earth has spin angular momentum, and due to its orbit around the sun, we can say that it has orbital angular momentum.

Photons, the particles of light, also have angular momentum. These tiny quantum wave-packets can spin about their axes and also orbit around their direction of propagation. Given the particle-wave nature of photons and other quantum objects, it's difficult to envision, and also to talk about, just what it means for a photon to spin or orbit. Nonetheless, in observed cases of photons interacting with other particles, the conservation of angular momentum and other fundamental laws look like they're obeyed if photons have spin and orbit angular momentum.

Spin angular momentum in photons is actually the reason light has polarization. The photons that make up a beam of light have one or both of two quantized spins, +1 or -1 (in units of hbar). If all the photons have one kind of spin, then the light is circularly polarized, while if all the photons have both kinds of spin (a quantum superposition of +1 and -1), then the light is linearly polarized. Wikipedia has a page on circular polarization with a helpful animation.

Photons can also have orbital angular momentum (OAM). If you think of a group of photons, you can imagine them spiralling around the centre of the beam, to create a vortex shape. However, you don't need a group of photons; a single photon travelling in space can have orbital angular momentum, too. This angular momentum is also quantized: you can have OAM values of 0, +/-1, +/-2, … all the way to infinity. I again direct you to the Wikipedia page on OAM light for visualization purposes. While this was theoretically known for a long time, it was not until 1992 that scientists realized you could produce light with OAM in a lab. Since then, groups around the world have been making and studying light beams with OAM, and using them for a wide variety of applications.

OAM light, that is light having orbital angular momentum, can be created in a lab using special phase plates. This is a piece of glass with strategically placed thicker and thinner areas. Passing laser light with no OAM through this phase plate is enough to create light with OAM. Recently, researchers at SLAC (Stanford's Accelerator Lab) have developed a new way of creating OAM light using their synchrotron. A synchrotron is an accelerator that speeds up electrons on a circular track, which creates electromagnetic radiation, just like moving electrons in an antenna creates radiation at radio frequencies. The synchrotron method of creating OAM is more complicated. However, it can create OAM light at many frequencies, all the way up to XRays. This broadens the range of applications for OAM light.

There already exist several applications for OAM light. One of them is to use the optical angular momentum degree of freedom to multiplex signals transmitted by light. In optical fibers or in air, you can transmit multiple messages at the same time by encoding each message into a different bands of wavelengths (exactly like different channels on a radio). You could also separate them into different polarizations, which allows you to send two times as many messages. If you also give each message a different OAM, then you can have many more times the number of messages going at the same time. One group in Italy showed that they could transmit 2.5 terabits of data over 1 meter in air using radio waves with OAM. Another group, with contributors from the US, Denmark and Isreal, showed that they could transmit 1.6 terabits of data over 1.1 km in an optical fiber.

Other applications range from the grand to the miniscule. Researchers in Scotland have proposed detecting the OAM of light reflected from distant astronomical objects to determine the speed with which they're spinning, while a group in Australia has been using laser beams with OAM to trap and spin microscopic particles. It seems that ideas for how to make OAM light, and how to use, it are popping up everywhere simultaneously.

Clinical Trials Show That HIV Vaccine From Western University is Probably not Harmful

NANCY "ACE" HUI
3B CIVIL

The phase I clinical trials of the first preventative HIV vaccine were completed with no adverse effects on patients. Other HIV vaccines are developed to prevent an HIV-positive individual from transmitting the virus to others, or remove the virus from the individual's blood altogether: this vaccine aims to stimulate an immune response in uninfected individuals to prevent HIV from taking hold. Developed by Dr. Chil-Yong Kang in partnership at the Schulich School of Medicine & Dentistry at the University of Western Ontario and Sumagen Canada, the vaccine SAV001-H is a genetically modified killed whole virus vaccine. The phase I clinical trials took place from March 2012 to August 2013.

To create the vaccine, healthy cells are infected with genetically modified HIV-1. The infected cells produce many viruses, which are collected, purified, and deactivated using radiation and chemicals so as to not cause AIDS in recipients but still trigger immune responses.

The vaccine was tested on 24 healthy men and women 18-50 years of age who were HIV-positive. 18 received the killed whole HIV-1 vaccine, and six received the placebo. Volunteers recorded the adverse effects after vaccination for seven days in a diary. Afterwards, the volunteers visited test sites for blood work, urine tests, and physical examination by the investigators. No adverse effects, including local reactions, symptoms, and laboratory toxicity were found.

The presence of HIV antibodies and surface antigens were also measured and found to have increased drastically. This bodes well for future clinical trials, since the increase in antibodies and antigens show that even subtherapeutic doses of the vaccine trigger strong immune responses from the human body.

SAV001-H is also the first killed whole virus vaccine, like that for polio, influenza, rabies, and hepatitis A. HIV vaccines are difficult to develop because the virus has a high degree of genetic divergence, a long latency period, and does not retain its antigenicity - the creation of antigens - when it is killed.

While a pronouncement of "probably harmless" doesn't seem especially exciting, it is important to remember that not all HIV vaccines have been able to clear Phase I of clinical trials. In 2004, a 3000 participant clinical trial for V520, a Thai vaccine using a weakened adenovirus carrying three HIV gene segments to provoke a cellular immune response to kill HIV-infected cells was discontinued after the vaccine appeared to increase HIV infection in some volunteers. This is why Phase I of a clinical trials determines whether or not a drug is safe to check for efficacy.

Phase II tests the drugs on patients to determine if the drug can have any efficacy at all. Phase III determines the drug's therapeutic effects. Phase IV occurs after vaccine distribution, and determines the drug's long term effects.

If further clinical trials are successful, Sumagen hopes to distribute the vaccine within five years.

HIV has killed 28 million people worldwide. 34 million individuals currently live with the infection.

Around two dozen other HIV vaccines are being tested worldwide.

Point Vs. Counterpoint

Should we Boycott the Sochi 2014 Olympics due to Russia's Stance on Homosexuality?

POINT

MEAGAN CARDNO
2A NANOTECHNOLOGY

Before I start this one, I need to make it absolutely clear that I am in complete opposition with Russia's laws against 'homosexual propaganda'. Discrimination against sexual orientations is not a grey-area of morality; it is simply wrong and sickening to see anywhere in the world. Working to adjust Russia's bigoted attitudes, however, is a far less absolute matter. With the upcoming 2014 Olympics in Sochi, many people are eager to protest and boycott the event to make a statement about the unjust law. While I commend the attitude and desire for change, it must be made clear that such actions would lead to less favourable outcomes than some might expect.

For many, the Olympics represent the highest and greatest moments of sporting and human capabilities, and so quite understandably, they are held to the greatest standards of human rights. However, they are far more than that. First and foremost, they are an immensely massive force of international economy. It has already been estimated that $50 billion dollars has been invested into the Olympic host site, clearly with the expectation of profits of similar magnitudes from the events, but that is only the tip of the economic iceberg. Even the smallest of factors involved in the tourism industry - from hotels and resorts, to airlines and public transportation, construction and other services - is anticipating and preparing for a rapid volume influx. Advertising and sponsorship contracts have already been signed. News sites, broadcasting companies, and all other forms of media will have already made extensive plans for coverage of the games. The monetary backlash from a boycott could cause financial crises in every economic sector imaginable. It may be easy to see these high stakes as a way of making a 'bigger point' when protesting, but bankruptcy is no small matter for the lives of many.

Causing such a large disruption is also not the sort of message protesters should be trying to send. Social media alone has already made it apparent that this is a very serious issue for a large percent of people, so it is no longer a matter of raising awareness - action is the next step. Yet, protesting and seeking to actively hinder the Olympic processions is detrimental to many personal lives. For many athletes and their families, the upcoming games should be an incredible moment of pride, perhaps a generational act of legend, or historic milestone for an unacknowledged community. These people should not be the ones punished for Russia's unacceptable opinion on homosexuality, and activists should be seeking to bring about change in the world without such consequences.

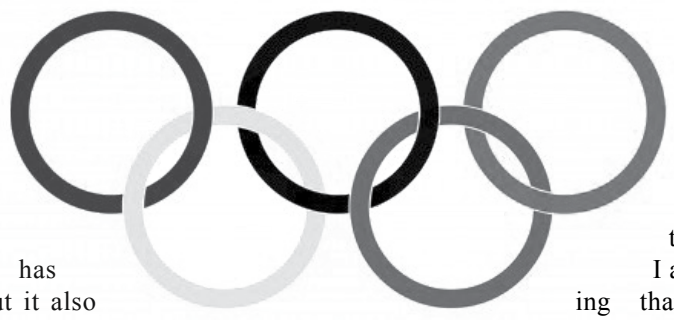
The International Olympic Committee's recent Olympic Charter has defined many rules and goals of the Olympic Games, as well as the now opt-cited Rule 50: "No kind of demonstration or political, religious or racial propaganda is permitted in any Olympic sites, venues or other areas." Russian officials have actively asked the International Olympic Committee (IOC) to enforce this rule, and discourage any sort of demonstrations criticizing the Russian anti-gay legislature. From an official perspective, this is the most logical choice-- not only should the IOC seek to uphold the rules it has mandated, but it also would want to avoid protests of such emotional and controversial natures, which can quickly become destructive and dangerous to property and individuals alike. While many have scorned this choice as contradicting the IOC's Role to "act against any form of discrimination affecting the Olympic Movement", critics must remember that the IOC cannot become the forefront of activist movements, openly opposing national governments for popular opinion.

Even if it seems unjust, the Olympic Games are neither the time nor place to open up this can of particularly messy beans.

COUNTERPOINT

SPENSER GOOD
3N MECHANICAL

Sadly, most of us get up every day thinking little of the freedom of choice, lifestyle and religion we enjoy in Canada, one of the most tolerant and multicultural countries in the world. It is a tragedy that few other nations enforce the level of tolerance that Canada stands by, and unfortunately there is little we can do about it. In most cases, we can only hope that as the world becomes smaller and more modern that things will change for those citizens are less lucky then us. When I speak of these unlucky ones, I speak mainly of those that are born into a lifestyle they cannot choose in countries that are not tolerant of said lifestyles. In Canada, I cannot conceive the difficulties somebody would face growing up gay, and this is in a nation where we are overwhelmingly approving of gay lifestyles. Imagine facing all of these difficulties while growing up in Russia, where it is illegal to publicly display homosexual activity. Fortunately for us, Canada has finally been given an opportunity where we can do more than hope that things get better.



I am endorsing that Canada should boycott the 2014 Winter Olympics in Sochi. The first argument against this would of course be, what possible difference could Canada, a relatively weak country militarily and not an economic power, make by abandoning a two week sporting event. It may be true that Canada does not have a strong military, or overwhelming economic influence, but if we are a world power in any way, it is in winter sports. A Winter Games without Canadian skiers, speed skaters, figure skaters, and most notably, hockey players, would not be a Winter Games at all. We are the reigning Gold Medal Champions of hockey and were number one at being number one last Games, there is no doubt that a Canadian boycott in Sochi would send a message, perhaps far greater then a boycott from any other nation.

Many others will argue that even if every nation were to boycott the Games, it would do little other than embarrass Russia for a couple months before they continue to discriminate gays, dissenters and other minorities. This may be true, but that hardly justifies providing two weeks of positive propaganda for the Putin regime that, after the Games, will be used to sweep negative practices under the carpet and away from public attention. If we go to the Games we send a message to the Russian people that discriminating gays is acceptable. If we don't, we embarrass them and hopefully help them realize it is 2013, and banning homosexuality makes the entire nation seem medieval, cruel and petty. At the very least, we take a rare opportunity to stand by our beliefs beyond our own borders and show that Canada does not stand by intolerance and discrimination.

It is also worth stating that Canada is not a traditional enemy of Russia. An American boycott would be likely be portrayed by Russian leaders as further hypocrisy from a long time enemy with a superiority complex, a role Putin is giving America in the Syrian conflict. This adds value to a specifically Canadian boycott, especially if Canada is first to do so. We could not be labelled simply as followers of America if we do it first, and Putin would not have the fallback criticism he uses for America. It would force him to either answer for his discriminatory policies, or try to label Canada in a demeaning way such that Russian citizens do not take our boycott seriously. This would likely be a difficult task.

Furthermore, a message needs to be sent to the International Olympic Committee that it is time to stop choosing host countries that go against the values of freedom that IOC bigwigs so often preach. After choosing China for the 2008 Summer Games, a nation rife with corruption and human rights issues, they continued down a path of questionable choices by selecting Sochi. It is time for the IOC to realize that by providing authoritarian nations with the Olympics, they are simply giving tyrants a plethora of glittering positive propaganda they can use to fool their citizens that they are running the country fairly and freely. If we were to boycott these games, it would also cause a moment of pause for IOC members before they select nations with questionable human rights watches to host such a grand spectacle.

The naysayers may be correct. A boycott could have minimal effect except for the downside of all of us sports hungry Canadians missing out on two weeks of winter sports domination. However, what many of us fail to realize is this could be a critical time to define the Canadian identity. We have a history of standing up for our own citizens and treating them fairly and without discrimination. Without a strong military or a huge economy, our sanctions or threats mean little. Yet, we have a golden opportunity to show the world what being Canadian is all about by boycotting these games. It is time for Canada to stand up for what we know is right, because we finally have a chance to be players on the global stage, in a different, more important sense of the word.

Molasses: Sweeter than Oil, Almost as Destructive

NINA FENG
2B ENVIRONMENTAL

LEAFY THOUGHTS

We started class on Monday, September 9..Something even worse happened that day in Hawaii. A pipeline carrying molasses to transport ships ruptured, spilling its contents into Honolulu Harbour. An estimated 233,000 gallons of molasses has now leeched into the water, killing more than 26,000 fish and destroying huge swaths of coral reef. The reefs around Hawaii generate a large portion of the State's tourism revenue and are worth at least $3 billion. They also serve to protect the islands from tsunamis and erosion.

The dark, sugary mass is soluble, and much of it has been mixed into the water, changing the pH. The water is denser with the added solute and light is less able to penetrate, blocking out the sun and effectively smothering the ecosystem. A large portion of the substance, being denser than water, sank and dispersed into deep pools at the bottom of the harbour. Therefore, unlike oil, molasses cannot be cleaned by skimming it from the water's surface. Extraction has been deemed impractical by scientists, and so the primary treatment plan is simply to wait for it to be broken down or diluted, something that would usually be ill-advised with oil. The process may take years, as the water circulation in the partially-enclosed harbour is much less than that of the ocean, though the currents will eventually carry it out.

The sudden influx of sugar (mainly sucrose) has caused a surge in the bacteria population in the warm harbour waters. This has both advantages and disadvantages. Most bacteria can break down the sugar, using cellular respiration to oxidize the carbon into carbon dioxide. For this reason, the remediation process is sped up as the molasses is consumed, allowing for a natural healing process that cycles the matter into other parts of the ecosystem. However, the process sucks up large quantities of the oxygen dissolved in the water, which is essential for species survival. This lack of oxygen is the reason behind the deaths of the fish and reefs. The growing number of dead organisms has also brought on more trouble. Predators such as sharks, barracudas, and eels are often lured to such scenes of disaster to feed on the dead fish. Already an uncharacteristic number of sharks have been spotted in the harbour, bringing up concerns about public safety, and for the safety of the animals themselves.

The shipping company, Matson Inc., responsible for the operation and maintenance of the pipeline, has shut off all molasses transport and is willing to permanently terminate the processes should they be unable to operate in an environmentally safe manner. Furthermore, in stark contrast to oil companies with similar spills, they have pledged to cover all costs of remediation, shielding taxpayers from having to fund the correction of their mistake.

The strange thing is, this isn't even the first major molasses accident that has occurred in the United States. The Boston Molasses Disaster of 1919, in which a giant tank burst, releasing a wave of molasses 8-15ft high, travelling at 56km/h into neighbouring streets, was arguably even more destructive. 21 people and several horses were killed, 150 were injured, cars were smashed and buildings swept off their foundations. It is clear that shipping and handling of molasses needs to be more regulated.

The Blue Jay Makeover: What Went Wrong?

ELIZABETH SALSBERG
2A NANOTECHNOLOGY

THE BENCHWARMER REPORT

Welcome back readers of Engineering's most renowned/only sports column! This term, the Benchwarmer will be covering news from the world of athletic activities, starting with the MLD, Major League Doping (or would that be major league baseball?) Though steroids have been the highlight of the MLD season, as they have usually been of late, there is a more pressing issue at hand. How in the name of A-ROID did a Blue Jays team that looked so spectacularly undefeatable on paper unravel within the blink of an eye?

Back in the winter and early spring, Blue Jays General Manager Alex Anthopolous went on a roster change rampage that made the sports gamblers down in Vegas go wild. To start off, he acquired steroid-plagued outfielder Melky Cabrera as a free agent. In spite of his use of steroids, it seemed as though Melky would still be able to get on base and hit for average, thus making him a good fit at the top of the batting order. Then came the R.A. Dickey trade, which sent super prospects Travis D'Arnaud (catcher) and Noah Syndergaard (pitcher) along with catcher John Buck to the Mets. Coming off a National League Cy Young season, it was reasonable to think Dickey could manage the nitty-gritty of American League East.

However the biggest trade of them all was a the 12 player blockbuster deal that sent a flurry of Jays prospects down to the Miami Marlins in exchange for pitchers Mark Buerhle and Josh Johnson as well as the number one active shortstop in all of baseball, Jose Reyes.

And so it was done. This was by far the most complete Jays roster Toronto fans had seen in years. Yet there was one key item missing… that would ultimately be the cause of the dismal season to come: A manager.

Shortly after the Miami trade, Alex Anthopolous signed John Gibbons to a three-year contract. Following the utterly disgusting departure of former manager John Farrell, Alex thought that Gibbons would not be tempted by a wink of an offer from more fashionable franchises such as the Boston Red Sox (cough, cough). Not that he would ever get one, that is.

Though this logic is sound, Gibbons was fired as Jays skipper several seasons back. Why? For not winning enough games. Of 50 candidates with managerial experience, why on earth would your organization pick the one that you just let go?

The reality is, the sport is a business, and a manager who can't manage will not win regardless of the team's collective abilities. Take Yankees GM Joe Girardi for example. The Yankees have managed to scrape together a solid season despite an aging and overall weaker roster than in previous years. Through all this, they are still very much in the hunt for the A.L. wild card spots.

The Jays will be a good bet for next season if and only if they cut Gibbons loose. Other managers with experience will most likely be available and if we're lucky, perhaps Anthopolous will be able to find someone who has already worked with several of the players. The Jays have gotten to know each other through this topsy-turvy season. Now they need some real guidance to get to know how to win.

The World in a Nutshell: Syria

MEAGAN CARDNO
24 NANOTECHNOLOGY

WORLD IN A NUTSHELL

The world is one busy place. In fact, you might consider it one of the largest and most complex systems imaginable. Understandably, it can become difficult to keep properly informed on all the events that are happening around the globe. This column is here to help ease the burden of ignorance from your shoulders by explaining these extended issues in brief, while remaining as thorough as possible.

To start, this week we will be tackling the very complex and tense situation in Syria that has risen to the spotlight in the realm of international news. With all of the daily updates on the matter, it can be difficult to understand what spawned the original conflict, and why it has grown into such a large, international mess.

The best place to start understanding the complexity of the conflict is to gain an idea of the diversity of the Syrian population. Sunni Muslims account for a significant majority of the population -- around 60% -- while other religious groups are in the significant minority. Most important of these religious minorities are the Alawites, a subsection of the Shia Islam faith, who comprise approximately 12% of the Syrian population. Shia Muslims and Sunni Muslims typically hold each other in very negative lights, due to historic disputes that lead to the original division of their faith.

This becomes a very key point to keep in mind when we consider that the vast majority of governmental powers in Syria are Alawites, including the current President of Syria, Bashar al-Assad. Unfortunately, the Assad government does not take the equality of all religions in mind, giving Alawites privileges and trusting positions of power in the country only to other Alawites, along with several other corrupt actions.

Syria is not the only country to have experienced an unjust government; various other Arab nations have been under oppressive regimes and, starting in late 2010, began a massive wave of revolutionary protests that we now know as the Arab Spring. Perhaps inspired by some of these actions, Syrian protestors began their own demonstrations against Assad in early 2011.

Despite the protests being rather small and peaceful in nature, the Syrian government was unforgiving in their response to the actions, and the military crackdown was swift and brutal with large-volume arrests, explicit torture of activists, and the use of lethal force against any opposition; many of the large-scale conflicts resulted in the death of civilians. This violent reaction only stirred more hatred for the government, prompting more and more unrest, eventually to the point where the Assad government deemed it necessary to use military force.

The peaceful temperature of the protests quickly vanished, along with any hope of a civil resolution. Some officers from the Syrian Army defected from the government (reports stated that soldiers who refused to open fire on civilians were subject to summary execution). They joined armed civilians in the formation of the Free Syrian Army, with an aim to usurp the Assad regime. This marked the point in time when the conflict in Syria reached the status of a full-out civil war.

The situation is far more complex than a set of 'good' rebels seeking to overthrow a 'bad' government, though. The affiliations and political beliefs of those seeking to change the government are vast and varied — in reality, the only real factor that ties the rebels together is that they despise the current government more than anything else. Unfortunately, many experts speculate that this could mean a recipe for disaster when Assad almost inevitably falls, as the appointment of a new leader could then spark another bloody struggle between different groups within the rebels themselves. The opposition is not morally clean, either — members of the Free Syrian Army have captured civilian villages and taken the inhabitants as hostages. All in the aid of tactics like cutting off supply routes and preventing the arrival of reinforcements t0 ongoing clashes between rebels and the Syrian Army.

Things then get even messier when we take a step outside of Syria, to look for external factors in the issue. Both Russia and China have strong ties with Syria, and have used their own vetoing power to halt any possible UN interference in the Syrian conflict. The nuances of these relations alone are incredibly difficult surmise, but in short the alliances are based with the idea that keeping the current Assad government is in the best interests of the respective countries.

Matters have gotten even worse with the recent introduction of chemical weapons into the fray, the pro-Assad forces using Sarin gas (a nerve agent which inhibits a synaptic transmission terminating enzyme, leading eventually to fatal lung muscle paralysis) killing over 1400 people at the end of this past August. The Geneva Protocol that was signed back in 1925 served as a 'norm' for warfare around the globe to prohibit the use of such weapons as a means of settling conflicts, based around the fact that, rather unlike 'traditional' means of warfare, these kinds of weapons kill vast numbers of people indiscriminately. Combatant and non-combatants alike are wiped out, and with little to no damage to the infrastructure — forces employing chemical weapons could capture entire cities without damaging any of the precious power supplies or facilities that would result from an area or carpet bombing with the same number of opposition casualties.

The United States is put into a very difficult position with Assad's breaking of this protocol. President Obama has made it clear that he cannot allow for the act to go unpunished, especially if Assad continually refuses to cooperate — after all, what good is a worldwide standard against such weaponry if it is not enforced? But in order for the US to make any sort of militant action, it would have to ignore the decision of the United Nations, and make incredibly risky moves within the morally complex strife. Either action will be met with controversy, and either action will come with its own consequences.

Out of all the Arab Spring uprisings, Syria has by far been the bloodiest, accounting for three-quarters of all casualties in all of the protests throughout the Arab Spring. While the multiple layers of intricate issues that envelop the entire situation muddle out the details, a bleak prediction has been accepted by most analyses of the situation: Assad is not likely to fall quickly, and the bloodshed will not come to an immediate halt when he does. The conflict is far from over.

Top Myths about Waterloo

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

Welcome to Fall 2013, the beginning of the end of all that matters to Waterloo Engineering (i.e. the graduating class of 2014). Not to sound dramatic, but we think it's fair to assume that nothing interesting or innovative will happen after April 2014. Yup, it's pretty much all downhill from here, just like Mythbusters, which we assume has gone downhill since we stopped watching it because solipsism. Therefore, it is now trendy and nostalgic of us to be busting myths while busting nuts: myths about Waterloo ('cause we're nuts about you, Waterloo). We're sure you frosh out there have heard all the bric-à-brac about how Waterloo has no girls, or that everyone uses weird toothpaste, or about all those handsome hunks writing for the engineering newspaper (there are actually only two hunks: these guys. Myth … BUSTED). Luckily for you, we're here to sift through the pabulum and reveal the truth regarding the top myths about Waterloo.

There are No Girls

We're sure that most of you have heard of the nefarious slander made by Elon Musk in the major news outlet (and the only periodical we hold to be on par with *The Iron Warrior*), the Queen's University alumni magazine. For those of you fortunate enough to have not yet heard his anti-Waterloo tirade, it is our difficult duty to inform you that Elon (that bastard who wishes to take money out the pockets of rosy-cheeked oil executives) made a "passing joke" about how when he was the enlightened age of seventeen he chose not to attend Waterloo over a lack of girls present during his tour of campus. Well rest assured, we sure showed him! Engineering's undergraduate office put on their official YouTube page a passive-aggressive video in which they were able to find six girls on campus (well, five plus a picture of one), thus disproving teenage Elon's remark that there were literally zero girls on campus when he visited, lit-er-al-ly. And to add insult to injury, the video is so awesome that it hit the top page of Reddit's r/cringe subreddit, presumably because of how cringe-worthy it proved Elon to be. If only he had the balls (or ovaries) to be honest and say something along the lines of how as a teen his priorities were a little gauche and during campus visitations there were statistically more women at Queen's, we wouldn't have had to make such a big deal of it. But Elon chose to be a vicious instigator … in passing … after admitting that it might be taken poorly by some. Fudge you, Elon, consider your myth … BUSTED!

Waterloo Doesn't Have a Night-Life

A common complaint about Waterloo is the lack of things to do after hours. Unlike at schools such as Queen's or Brock or Laurier, the city here is just dead. Ever hear of Beta? Sure, the EDM is excellent, but the alcohol is too expensive and it's not like a bouncer would let in someone that had consumed alcohol prior to going out. Phil's Grandson's Place may have cheap drinks and genre nights, but what if you only feel like hip-hop on Tuesdays? What then, Phil's? If you're into salsa you might want to check out Flying Dog, except that one time Wade was turned down by a pretty (a fact disputed by Edward) girl (another fact disputed by Edward) there. Kickoff's might count except everyone knows that's in-between-class life. A lot of people say good things about Rev, but when we went it was just a bunch of stinking dormitories, full of girls who also turned us down! And then there's the rest: Bomber Wednesday, Fox and the Fiddle, Wilf's, Turret, Starlight, Davis Centre Library, Jane Bond, Chainsaw, et cetera. They all freaking suck … because no one ever invites us there! Myth … PLAUSIBLE.

Waterloo Wants to Plaster its Logo with Cheesy Lasers

Seriously, this happened four years ago, and admin unilaterally conceded to the student body. This battle was pretty much won before the oldest students currently on campus were even frosh, and they are the only ones left who were at all associated with effing "waterpew". Myth … NOT RELEVANT ANYMORE.

There's No Parking in Waterloo

A lot of people with cars (i.e. those rich enough to go to Queen's but chose to attend the big sausage-fest … held every October in Kitchener) complain that there's nowhere affordable to park around Waterloo. We went out to bust this myth, but were unable to find anywhere to park the Topzmobile. So, okay, maybe they have a point, but we commend the University for reducing carbon emissions without resorting to that bastard technology, the electric car, thus promoting Tesla and Elon, the motherlover. Myth CONFIRMED!

Waterloo is "too Asian"

Some of you may recall a 2010 article by Macleans magazine (those bastards who wish to take money out the pockets of rosy-cheeked oil executives) in which they suggested that Waterloo is "too Asian". Although we're sure most people are aware of Macleans' flagrant anti-Waterloo bias (or so we assume, we've never actually read Macleans, frick them), this is still a sentiment held by too many people. We were going to write a paragraph in which we tackle this myth in a mature and honest manner, but instead decided to team up with the undergrad office (because they really have nothing better to do) to create a passive-aggressive YouTube video in which we tally off all the successful non-Asians we could find on campus and make snide remarks through creepily tented fingers. Myth … BUSTED!

So now that you know the truth, be sure that in the future you snoop out any rumours you might hear about Waterloo. While some myths, like evolution, can be innocuous enough, others can carry the Musky odour of wanton destruction. In fact, there are even myths about this very paper! Some suggest that *The Iron Warrior* has pitifully low standards, and that's just freaking ridiculous.

Nearby Eateries

MYLES TAN
4A SYSTEMS DESIGN

Welcome, Class of 2018! I hope you're settling in well, and you are enjoying the first few days of what will be a long and exciting ride here.

Moving to a new place is always exciting - you get to rebuild your 'network'. My personal favourite is learning all the cool places a city has to offer, and believe me, Kitchener and Waterloo (KW) is full of them.

Over the term I'll try to produce lists of places that myself and my friends have enjoyed over our years here. They will be themed, and seeing as you're still fresh on campus and have a million other things to worry about, the first theme is 'places close by to eat'. Whether you're sick of V1 Food, or KD after realizing it's the only thing you are capable of cooking, or you just want to try something new, there are tons of places to eat around campus. Some of the greatest establishments are a bit more hidden away - not as obvious as 'the place to get great food.' Here are four unsuspecting great places to eat close to campus.

Al Madina's

This place is located in the plaza just on the other side of Phillip Street. This is one of the better shawarma spots in town, and is renowned for their variety of great toppings (just go, you'll understand). This place is great if your taste buds are looking for a change. Grab-and-go as well as sit-down.

MeetPoint

This place is located on University just on the other side of Phillip from campus. MeetPoint serves up some unreal Turkish and Turkish-fusion food at unreal prices - it's hard to find a dish over $15. The patio and relaxed atmosphere make it a great spot for a sit-down dinner with friends, made even better with their cheap beer! If you've never had Turkish food, now's the time.

Vegetarian Fast Food

The name is self-explanatory, but the food…you need to try the food. They have an interesting take on Pad Thai which is a must-try. Plus, once you have your EngSoc sticker on your WatCard (go to the Orifice!) you get 10% off!

Chen's

There are a good load of Chinese restaurants in the plaza, but for some reason Chen's seems to stand out. It's a solid sit-down place, but their take-out is super-quick as well. Anything off their specials menu is great, and they have a super-spicy Pad Thai if you're up for it! Also check out China Legend, Mikey's and Mr.Panino's for decent Chinese.

Well, there you have it. Four places you should give a shot close to campus. I'd love to hear your feedback, send me an email at *mymtan@uwaterloo.ca*! Next issue it will be five spots, what other kinds of places would you like to hear about?

Kanye West-Yeezus

ALEX TOTH
3B CHEMICAL

Although this album came out over two months ago, and therefore cannot be described as "new" exactly, I was asked (possibly sarcastically) to write my first article for *The Iron Warrior* on Kanye West. I am more than happy to oblige, not only because he's put together possibly the best six (or seven, if you count Watch the Throne) album run in the history of music, but also because he is my favorite artist ever.

How could Kanye ever hope to follow up his last record, 2010's absolute classic 'My Beautiful Dark Twisted Fantasy'? It nearly perfected gloriously detailed maximalism, with endless producers and collaborators, soaring vocals and wildly varying themes. If he were to make another album in the same vein, I'm sure it would be effortlessly great but also a bit derivative, especially for someone as creative as Kanye. So instead of just settling down and rehashing this technique, Kanye has done what he does best, in music or his personal life: he created something completely different, equally ugly and enthralling, a stark reminder that Kanye West is probably never going to settle down like us normal people. This record is his way of lashing out, against the media, against expectations, against himself and his new family.

Remember the opening to The College Dropout? A children's choir giddily backing up Kanye in his introduction to the world. Late Registration? Adam Levine crooning overtop sparkling piano. MBDTF? A spoken word intro from Nicki Minaj and angelic harmonies. But then there's Yeezus, whose opening track "On Sight" discards any notion of prettiness with huge, buzzing synths which careen wildly and abruptly drop out. In some ways, it's a re-introduction, with Kanye erasing the persona he built for five albums to replace it with someone dark, disgusting, and captivating. In his own words "how much does he not give a ****" anymore? Little enough to insert one of his trademark soaring soul samples jarringly halfway into the song, only to have it swallowed up into the maw of those synths thirty seconds later. It seems symbolic, and I'm sure it was meant to be. Kanye always hinted he could be this raw and punishing, but until now had always hidden it with his shiny production flourishes. He successfully wipes that away after the first song.

The rest of the album proceeds in much of the same dark fashion, amalgamating elements of electro-, industrial (it was only a matter of time until Kanye found Throbbing Gristle) and most notably, a huge slathering of Jamaican dancehall. It is a deeply personal record (even though the songs titles – "Black Skinhead", "New Slaves" – are politically charged), with Kanye reflecting most notably on his inability to form lasting relationships. As a note, this record came out a week before the birth of his first child.

Following up "On Sight," we have "Black Skinhead," which was debuted ferociously by Kanye on SNL. There, Kanye punctuated the huge Marilyn Manson drums with equally huge screams. On the album, however, the screams are muted, as is the first verse, which is still the most political on the album. Next comes "I Am a God," which is a lot of the same, with a rumbling bass leading Kanye on his journey to massages, ménages, and even croissants. It's less about Yeezy being a god than it is about letting everyone know how nice his human life is. Most notably though, "I Am a God" opens with a short, threatening verse from Jamaican dancehall artist Capleton, which Kanye merges seamlessly with the rest of the song. Regardless in the style departure of this album, Kanye's production talent remains untouched.

After these first two songs, the sludgy production is gone, out mostly in favor of bleary electro and in-vogue trap courtesy of Hudson Mohawke. Kanye shows that he can still use his collaborators to the best of their ability even when he isn't using twenty of them at a time. Bon Iver and Chief Keef (!) show up to sing a faded duet on "Hold My Liquor," with Keef playing the role of sad, menacing gangster and Bon Iver lending his angelic falsetto to break the tension of the verses. In between, Kanye weaves a tale of a crashing relationship marred with substance abuse – "Still ain't learn me no manners/ you love me when I ain't sober/you love me when I'm hungover" – and tension from outside family members: "Then her auntie come over/skinny b**** with no shoulders/ telling you that I'm bogus/b**** you don't even know us." It is an extremely bleak song, and possibly the best on the album.

Later on, Kanye employs another Chicago upstart, King L, to lend a verse on "Send It Up." L takes the opportunity by the horns, spitting possibly the best rap verse on the album. His dead-eyed delivery works perfectly with his tale of dropping out and pushing cocaine, which is juxtaposed well with Kanye's story of excess and wealth. The song is also bookended by lines from another Jamaican dancehall great, Beenie Man. It's telling that 2/3 of Kanye's guests are products of the dangerous Chicago South Side's drill scene, he's trying to give his city a chance any way he can.

The other contender for best song on the album is "New Slaves" which is carried by little more than a pulsing steel drum. It is huge contradiction of a song, with Kanye wailing against new and old racism, corporatism, and the lifestyle which he himself leads. In spite of this, it's thrilling, with lines like "Y'all throwin' contracts at me/y'all know that n***** can't read" delivered with such a rage that you can physically feel the disgust. Despite the heavy subject matter, Kanye keeps the pace up and things interesting at the end, when the song breaks at the seams and Kanye goes full 808s and Heartbreak mode with orchestral backing and a Frank Ocean wordlessly crooning over it all. In addition, "New Slaves" contains the best part scream-a-long lines of any song this year (with all respect to Future and his Bugatti): "F*** YOU AND YOUR HAMPTON HOUSE/I F***** YOUR HAMPTON SPOUSE". Ouch.

Throughout the album, as I'm sure you've already heard, Kanye makes some questionable choices both lyrically and musically. Apart from the aforementioned croissants, he's adding sweet and sour sauce to sexual acts with Asian women, using the Black Power fist for some decidedly less than moral activities, speaking Swag-hili, and using Nina Simone's song about lynching ("Strange Fruit") to underline a tale of adultery and MDMA. But you've got to remember, this is Kanye and it wouldn't be a Kanye album without these missteps. They allow the listener to dive into the conflicted id of the one and only Kanye West. Kanye recently removed all his tweets from Twitter, and this is his Twitter now, uncensored and completely stream of consciousness. It's marvelous and terrifying to behold.

Finally, there's "Bound 2" containing a soulful Charlie Wilson sample which is pure old-school Kanye. It's the light at the end of this tunnel, with Kanye finally letting up and allowing "And hey, we made it, Thanksgiving/Maybe we can make it to Christmas." After thirty five minutes of hatred, dejection and immorality, he's "bound to fall in love." It's as if after nine songs that were completely unlike anything we expected of Kanye before, he decides to reconcile with us, to let us know the old him won't be gone forever. His cleansing is over, he endured his three days in Hell, and he has risen. Praise Yeezus.

Writer's Block

NANCY "ACE" HUI
3B CIVIL

TAKE FIVE

Writer's block is painful. Work term reports are painful. Writer's block whilst writing a work term report is deadly. Last week I spent so much time editing my report that my eyes teared up (from boredom or strain, we'll never know) the words blurred together into lamentable configurations, and then I got a cold. But with Herculean effort I prevailed against the evils of WKRPT 300 and completed not only my report, but this column!

Here's five movies about the poor, lost souls who struggled towards literary perfection.

Ruby Sparks (2012)

Calvin (Paul Dano) is a former child prodigy who at the tender age of about nineteen produced a novel of astounding genius and has been struggling on his followup novel for a decade since. Following a prompt from his therapist, he writes about a manic pixie dream girl - Ruby (Zoe Kazan) - who one day appears in his house exactly as Calvin had written her. But Ruby is more than the archetype Calvin imagined, and he struggles to keep up with his creation.

Ruby Sparks is not quite as good as 500 Days of Summer, but it's a damn sight better than most of the romantic comedies I've seen. Dano allows Calvin's neuroticism to unfold to something more sinister, without ever losing sight of the floppy-haired foreveralone he began the movie as. Zoe Kazan (also the script writer) is radiant as Ruby. The climax of this otherwise sweet movie is truly disturbing. And Antonio Banderas makes an adorable appearance as Calvin's new stepdad, a hippie driftwood furniture carver!

Ruby Sparks follows through on its whimsical high-level premise, and is worth a watch.

Shakespeare in Love (1998)

Shakespeare (Ralph Fiennes) is having difficulty writing his new comedy, Romeo and Ethel, the Pirate King's Daughter. In a better part of London, Viola de Lesseps (Gwyneth Paltrow) is betrothed to Lord Wessex (Colin Firth) but yearns for a life of theatre which her station does not permit. Thus she disguises herself as a boy and auditions for the part of Romeo in the guise of "Thomas Kent". Shakespeare soon discovers Kent's true identity, and romance ensues. You already know if you're going to like this movie or not.

This film won the Oscar for Best Picture at the 1998 Academy Awards (the first of only two films to do so, the second being 2011's The Artist). It beat Saving Private Ryan and The Thin Red Line. I am not sure which film was more deserving, but am glad that the enchanting period comedy prevailed over the war movies. Shakespeare in Love is pluckier than it is melodramatic, with a modern humour and sensibility thinly disguised in doublets, hose, and literary allusions. Ralph Fiennes and Gwyneth Paltrow pull lovely and sympathetic performances, and Judi Dench won the Best Supporting Actress Oscar for her eight minute performance as Queen Elizabeth.

Adaptation (2002)

Screenwriter Charlie Kaufman (Nicolas Cage) has bitten off more than he can chew when he gets the assignment of adapting Susan Orlean's (Meryl Streep) best selling novel The Orchid Thief for the silver screen. Unfortunately he later finds that The Orchid Thief has almost no plot, consisting mostly of the author's ruminations and facts about flowers. To rub salt into the wound, Charlie's twin brother Donald (also Nicolas Cage) strains his artistic integrity by fluttering around his house and writing a million-dollar thriller script made of cliches.

I found Adaptation to be a brilliant and meta piece of film. The parts of the film chronicling Susan Orlean as she writes The Orchid Thief in flashbacks is itself is an interesting journey, but the star of Adaptation is Charlie's increasingly tortured creative process. By watching this movie we are privy to his internal struggles (should he eat a muffin, or write the first scene?) and watch the film unfold as he does - first erratically and aimlessly as Charlie drains the source material of the little inspiration available, and then into unknown waters.

It's also fun to watch Nicolas Cage play both the self-loathing genius and his twin dudebro.

The Shining (1980)

Jack Torrance (Jack Nicholson) accepts a position as the Overlook Hotel's winter caretaker and moves into the sprawling building with his wife (Shelley Duvall) and son, Danny (Danny Lloyd). As he looks forward to nursing his long-neglected habit in the peaceful solitude of the sprawling estate, the head cook (Scatman Crowthers) warns Danny: the hotel has a habit of influencing its winter staff.

I prepared myself for this movie by reading the plot summary and was still terrified by the first three quarters of the movie. Director Stanley Kubrick's sinuous shots are unsettling and beautiful. The use of early 20th century avante-garde compositions in the soundtrack is suitably eerie and tumultuous, but used subtly rather than for jump scares. Jack Nicholson's portrayal of Jack's descent into psychopathy is also stunning. I was very glad to see that Danny Lloyd's character was not an idiot, but displayed some admirable intelligence for a 6 year old with powerful latent psychic abilities.

The naivitee of Shelley Duvall's character was extremely irritating and I don't know why she couldn't have been written more perceptively but all in all The Shining is extremely deserving of its reputation as one of the greatest horror films ever.

Barton Fink (1991)

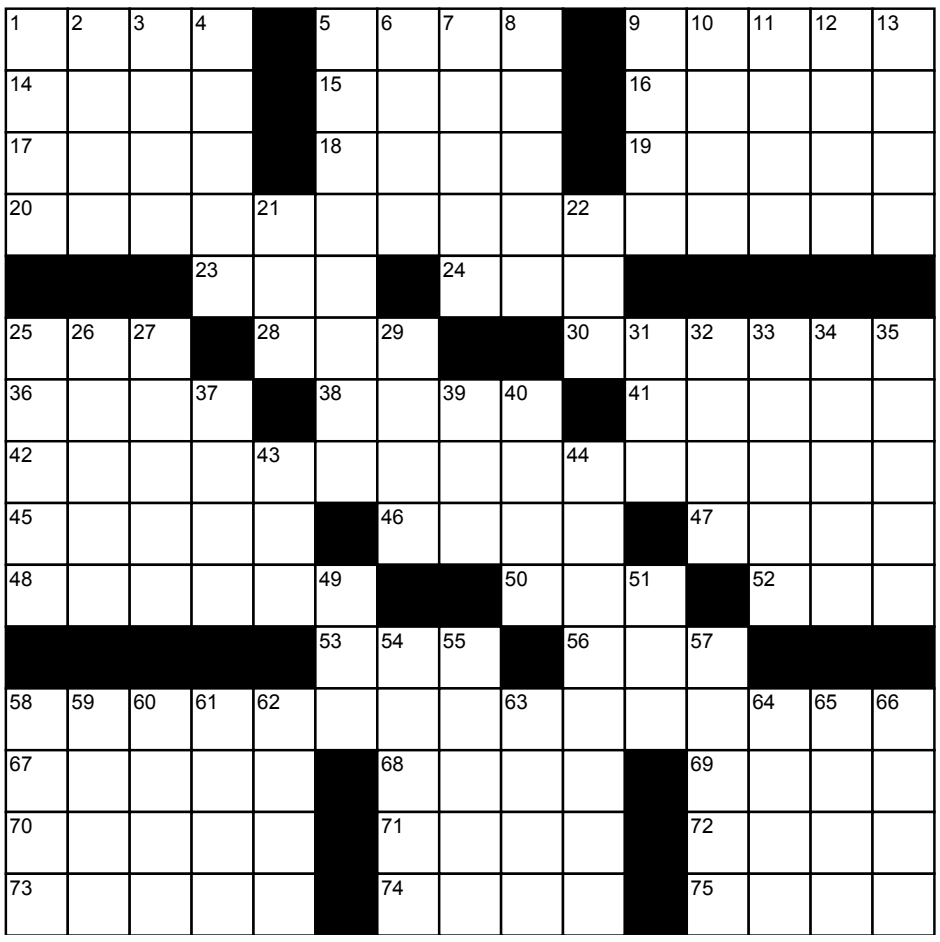
It is 1941, and Barton Fink is a screenwriter who lands a cushy job at a LA studio, despite his reservations about becoming separated from his muse: "the common man." However, his first assignment is to write a movie about wrestling, and Barton keeps getting distracted - first by his insurance-salesman neighbour (John Goodman), and then his alcohol idol's secretary. Things don't get better for his writing career.

I have to admit that I don't enjoy the Coen Brothers, critically acclaimed as they are. A Serious Man made me bored and sad. O Brother, Where Are Thou? was unsatisfying. I didn't enjoy Barton Fink very much, either. There is a point in the movie where Barton's life goes spectacularly pear shaped and his living quarters are lit by an apocalyptic fire, which was fun. However, the remainder of the movie is about Barton getting trodden on and disillusioned. There is no catharsis.

The Iron Crossword

Welcome to Waterloo!

STUART LINLEY
4A NANOTECHNOLOGY



ACROSS

1 Hugo's last name
5 Goose exclamation
9 Stately abode
14 Site
15 Once follower
16 Abscond and wed
17 Tail
18 Western alliance
19 Of the nose
20 What to expect #1
23 In support of
24 Downhill item
25 Cali time
28 Upcoming Star Wars episode
30 March
36 Sadly
38 Frontal or ear go-with
41 Mt. _____, Yukon
42 What to expect #2
45 Ms. Lauder
46 Nutrient
47 German Mrs.
48 Poet productions
50 Whereabouts unknown
52 Exist
53 Rower
56 Sports org.
58 What to expect #3
67 He, Ne, Ar, etc.
68 Tread
69 U.S. State
70 Storage
71 Priest
72 Sign
73 Blunt
74 Ogled
75 Geek

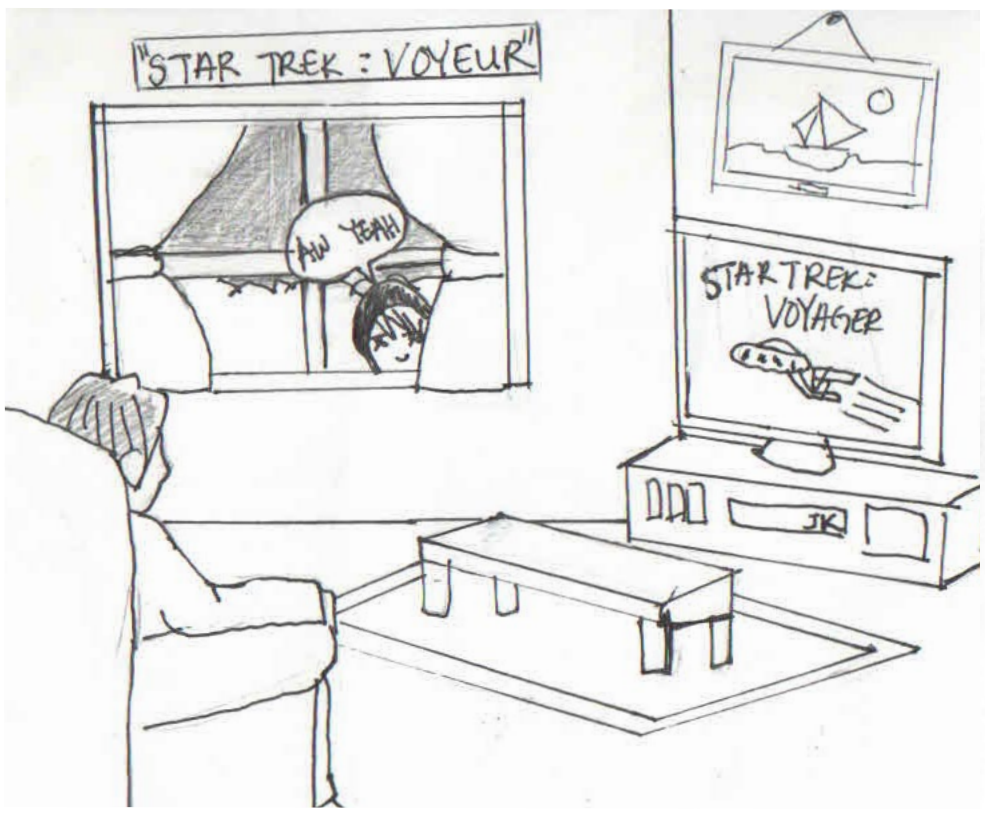
DOWN

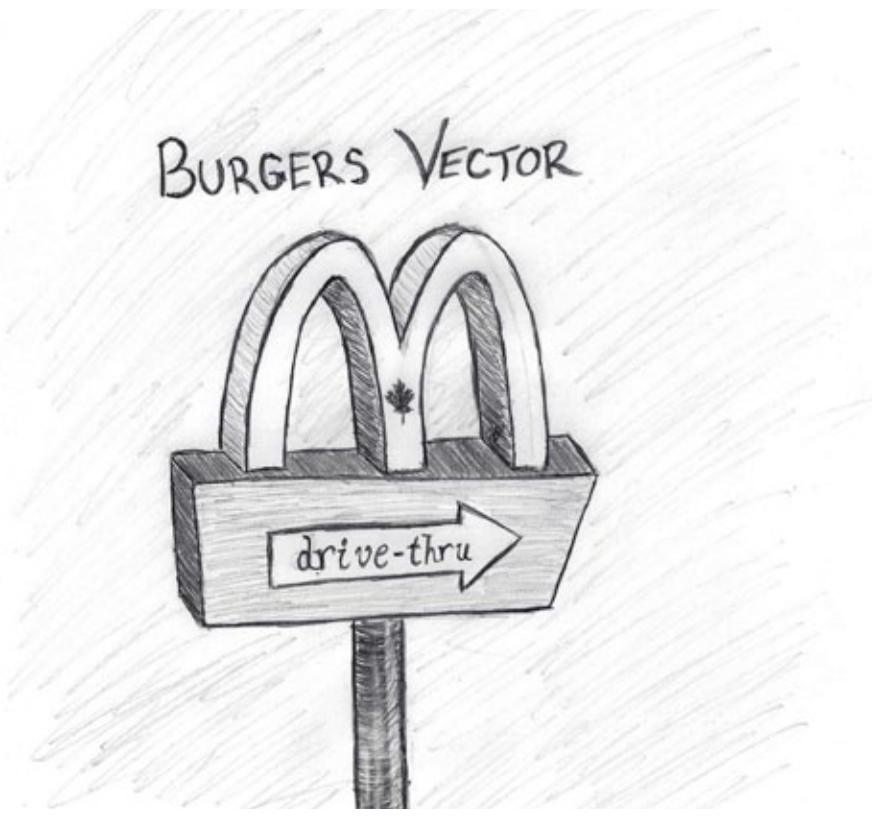
1 Hook end
2 Interracial cookie
3 Cook to blue-rare
4 Deus Ex company
5 With zeal
6 October birthstone
7 Class take-homes
8 Rap
9 Selection
10 Made up of wings
11 Probosicis
12 Duel
13 Unagi
21 Month XI
22 Hint
25 Frontrunner, sometimes
26 Wade
27 Dessert characteristic
29 Atom
31 Priest garment
32 Something to raise
33 Market
34 Senegal capital
35 Begin
37 Cell type
39 Plead
40 Final
43 Spike ___
44 Tobago go-with
49 Chicago team
51 Honest guy
54 Common fruit
55 Type of race
57 "-" atom
58 Cheat
59 Toward
60 Cheese that tastes betta
61 Guitarist Clapton
62 Write with acid
63 7 hills city
64 Beckoning call
65 Jug
66 Silicates60 Jedi master
61 Leave out
62 Tiny bit
63 Liquid dish
64 Let off

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

Humour for Geeks

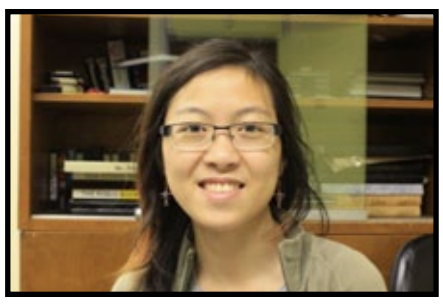
By Jessica Keung (2A Civil) and Kyla Rodgers (2A Civil)



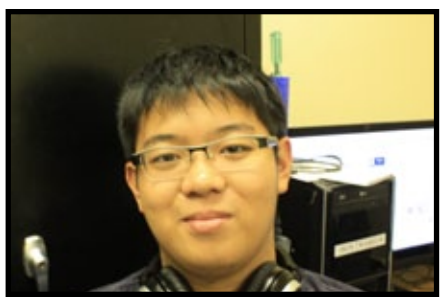


THE IRON INQUISITION
Alex Lee, 2A Nanotechnology

"You are the first human on Mars, what is the first thing you say?"



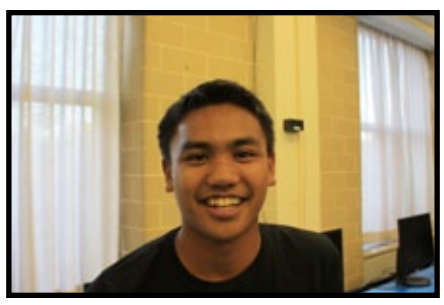
"I'd like to sacrifice a goat, but I can't afford it, so I just show instead."
Nancy "Ace" Hui, 3B Civil



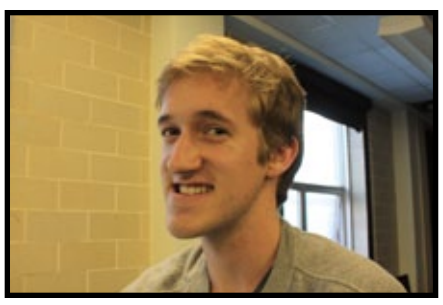
"I like to find people who already did the interview and ask them what they were asked."
Brian Chan, 2A Nanotechnology

"Try to forget about all the reasons I'm not qualified for this position."
Kyle Sutton, 3B Civil

"I sacrifice several goats, because I can afford it. It's been Pretty Effective so far."
Kal Sobel, 4A Mechatronics



"Two Jaeger Bombs, take off my pants and yell 'Hire me!'"
Kim Cruz, 3B Civil



"Nothing. I don't get interviews :("
Robert Culbert, 3B Civil