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THE IRON WARRIOR

THE NEWSPAPER OF THE UNIVERSITY OF WATERLOO ENGINEERING SOCIETY

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QNC Construction: An Inside Look

JACOB TERRY
1B NANOTECHNOLOGY
PHOTOS BY
ANGELO ALAIMO

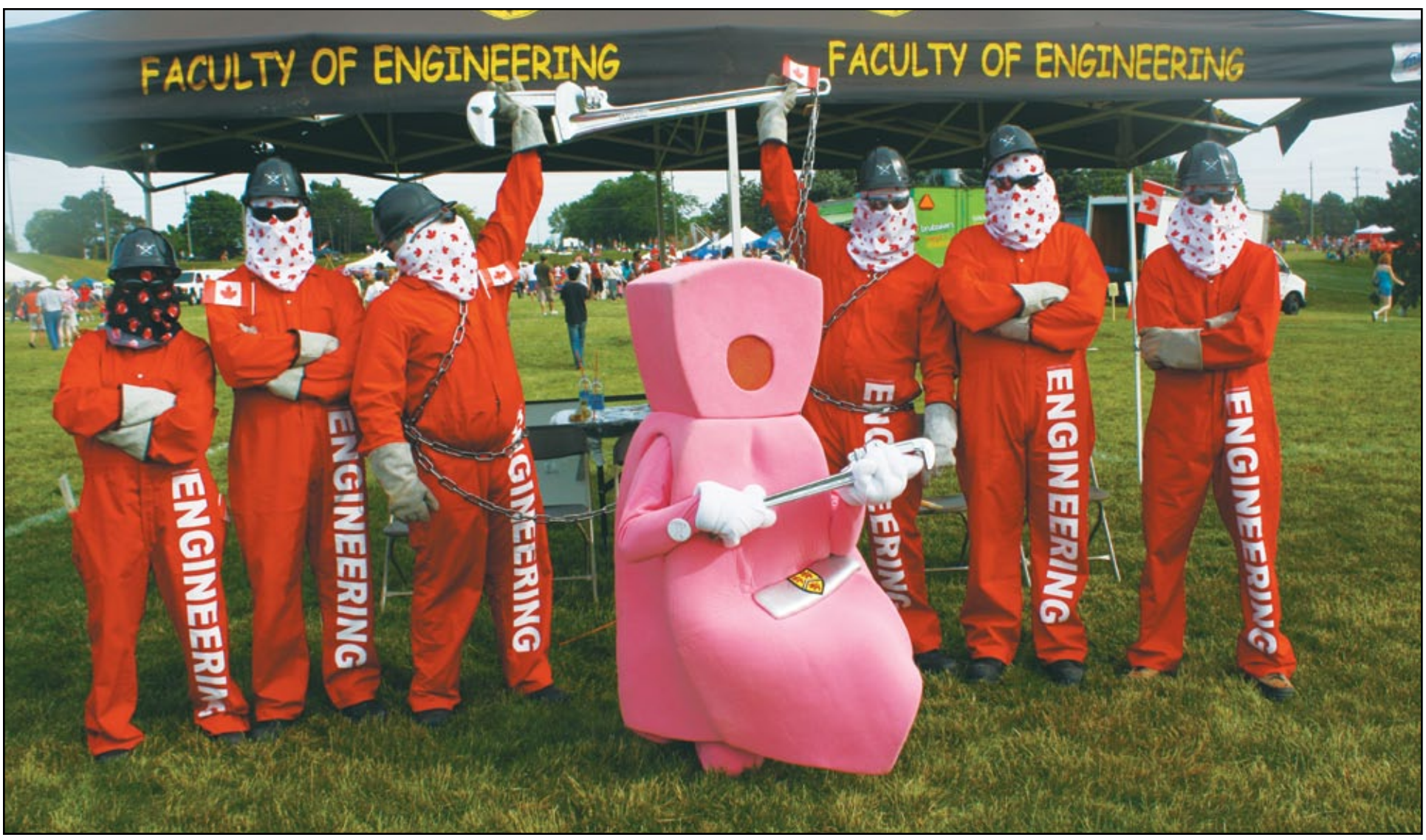
It seems, even though the Quantum Nano Centre (QNC) has been under construction for years, we never hear much about what is actually in it and what to expect when it will finally be complete. The tall, glass building replacing the Biology 2 Green looks impressive, but it's hard to see what kind of rooms and features are being finished on the inside. *The Iron Warrior* has been fortunate to get a tour recently to measure progress on its construction and to take a look at some of the features that made it past the planning stages.

It's clear, even from the entrance, that the two tenants of the QNC, the Institute of Quantum Computing (IQC) and the Waterloo Institute of Nanotechnology (WIN), are two separate parts of one whole. On one side, hereafter referred to as the quantum tower, you can see the more square-like features of the IQC offices, while on the other side, hereafter referred to as the nano tower, you can see the huge windows for the nano cleanrooms.

See QNC on Page 10

The main entrance foyer of QNC. Visitors will be able to see the cleanroom on their right hand side upon entering from Ring Road

Happy 144th Birthday Canada!

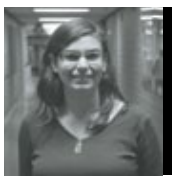


The Math Tie poses alongside Toolbearers while holding the mini-TOOL.
Check out page 11 for more on Waterloo's Canada Day celebrations at Columbia Lake.

Leah Allen

Letter from the Editor

An Outsider's Look into the Engineering Society



MIKAYLA MICOMONACO
EDITOR-IN-CHIEF

We've now been through two EngSoc elections this term. We had the posters, the forum, and the endless shouts for people to vote. Through all this, two questions kept coming up again and again. From the people already involved in EngSoc, we hear them asking candidates what they're going to do to make EngSoc more inclusive and encourage more people to participate. From those not involved, we hear them ask why they should care about EngSoc at all.

I'm in an interesting position in all of this as I sit at the "edge" of EngSoc. On one hand, I've been to a whole three meetings in the last four years, all of which occurred this term because, as the Editor-in-Chief, I'm supposed to either go to the meetings or send a delegate in my place. I've rarely gone to EngSoc events and can't really be bothered with most of the internal politics that go on within the society. I'm technically the EngSoc representative for my class, but only because I was signed up without being asked. On the other hand, most of my friends are heavily involved in EngSoc. I have a friend on the current Exec and many of my other friends currently hold directorships. I've also been involved with *The Iron Warrior* since 1A, and as the IW is an affiliate of the Engineering Society, I have had exposure to the Society through that.

All this means is that I usually feel like an outsider looking in when it comes to EngSoc, although I am much more informed than the average outsider. On one hand, I don't have much interest in the social aspects of EngSoc, but on the other, I understand that they represent engineering students to not only our own university, but other universities as well.

So why don't people get involved in EngSoc? I know why I never really did. It always seemed like a clique; I didn't want to just walk into a random meeting or event as I had no idea what to expect. Would it be weird to just randomly walk into an organization where everyone seems to know everyone? I've gotten to know a lot of the people involved in EngSoc over the years, but I was certainly intimidated by them in the beginning. Yes, I was shy, but I find that EngSoc doesn't do much to dispel the impression that you'd be intruding if you tried to join.

There are also the stereotypes that some people hold about EngSoc. Many people in my class seem to think that EngSoc is a social club which they associate with the –OTs and PubCrawls (yes, I know PubCrawls are actually organized by GradComm). In short, the louder EngSoc events tend to be the ones that promote the drinking and partying side of EngSoc (or its affiliates). Not that there is anything wrong with these events as a rule, but they tend to be how some people see EngSoc in its entirety.

EngSoc does have many events which don't have anything to do with drinking or partying. There are events like resume critiques or cooking workshops, as well as services like the scholarship and exam banks and the C&D. And yet, there are so many students who either don't know that these services exist or don't realize that they're associated with EngSoc.

The elections just highlighted to me how little some of my peers know about EngSoc. My classmates, who have now been around for four years, don't know anything about what the EngSoc Exec does. They don't know that EngSoc was involved in the push to get PDEng removed. They don't know that the VP-Education sits on a bunch of committees which help to determine the direction of our education. To be honest, I really didn't know these things either until Eric Cousineau became VP-Education and started taking notes for him when he missed class for these various committee meetings. Then, there is the role of the VP-External to represent engineering students to other universities. At all the many engineering conferences held each year, the VP-External is the face and voice of UW Engineering. Why doesn't EngSoc highlight these parts of their activities? Yes, they publish their Exec reports in *The Iron Warrior*, but apparently, even after years of editing them, I still don't know most of the things that the Execs do that directly impact me. Maybe if more people knew about this, those of us who aren't necessarily interested in watching people chugging beer at TalEng might find that there is more to EngSoc than meets the eye.

So what can EngSoc do to fix their image? What can they do to stop people from taking back their EngSoc fee because they don't see the point in what they're paying for? How can they get more of the student population involved? I don't know what the answers to these are, but I can say that after watching four elections in my time here, despite everyone talking about student involvement, nothing has really changed. There are still definite groups of EngSoc people and non-EngSoc people. Clearly, despite everyone's promises to make EngSoc more inclusive, whatever they're trying isn't working. I have to say, I can't really hold out much hope that the new Executive team will change things, despite promises made during the campaign. It isn't that I don't think they're competent; it's just that after four years of hearing the same promises, I don't really believe in them anymore.

Do you have any comments about this or any other article in the paper? Letters to the Editor can be sent to *iwarrior@engmail.uwaterloo.ca*.

Letter to the Editor

Regarding the Letter from the Editor in Issue 8

ALEXANDER HOGEVEEN RUTTER
4A ELECTRICAL

Dear Editor:

Your analysis on the importance of questioning "how" we are taught in last week's editorial is critical; I hope it has generated much discussion among students and faculty. There are a few points I'd like to add.

For example, in your discussion of course critiques, it is unfortunately all too easy for professors and chairs to dismiss the results based on a lack of responses. Greater accountability, such as demonstrated response to recurring problems, initiatives to hone skills and critical discussions with students can help our evaluation mechanisms go beyond the feedback form.

Your comment about students giving critical feedback to professors is important, but it is even more important for professors to self- and peer-evaluate. There are many studies and conferences on better teaching: Why do we not have more resources dedicated to bringing these resources to our professors? Why do we not have the chair or another designated individual directly responsible for improving teaching quality, and not just evaluating it?

While I agree emphasizing entrepreneurship does not serve a majority of the students, I think this is a false dichotomy. What more can professors be doing to include entrepreneurial and innovative thinking into the classroom?

Faculty: Are we saying things you disagree with? You expect us to constantly challenge ourselves and improve. What are you doing to improve the quality of undergraduate education? Let us know!

Issue #5 Deadline: Friday, July 15th at 12:00 pm for publication on Wednesday, July 20th, 2011
Send your submissions to iwarrior@engmail.uwaterloo.ca
Orientation Week Deadline: July 30th, 2011

THE IRON WARRIOR

The Newspaper of the University of Waterloo Engineering Society

The Iron Warrior is a forum for thought-provoking and informative articles published by the Engineering Society. Views expressed in *The Iron Warrior* are those of the authors and do not necessarily reflect the opinions of the Engineering Society.

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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Canada's Stance on Chrysotile Asbestos Trade

MICHAEL SMART
4C SYSTEMS

What do the countries Canada, Vietnam, Kazakhstan and Kyrgyzstan have in common? Answer: Two weeks ago, at a summit in Geneva, these four countries blocked the addition of chrysotile asbestos to the UN's Rotterdam Convention on hazardous substances. Even India, one of the largest importers of asbestos, revised its previous stance and supported its addition to the list.

Asbestos is a family of long, fibrous crystals that are renowned for their durability and near indestructibility. Starting in the 19th century, asbestos was used extensively as insulation and in a variety of other applications. Its use was continued until the late 1900s when it was irrefutably determined to be carcinogenic. Since then, it has only been used by developing countries.

There are six types of asbestos grouped into two classes, serpentine and amphibole. Chrysotile asbestos is the only member of the serpentine class, while the amphibole class contains five variants of asbestos. While all forms of asbestos are known carcinogens, the amphibole forms of asbestos are particularly deadly and have been banned in many countries. Chrysotile has not been banned outright in some countries, including the US and Canada, although its use here is strictly regulated to the point that it is rarely utilized. Chrysotile is the only form of asbestos not yet included in the UN's Rotterdam Convention.

The Rotterdam Convention is based on consensus; opposition from a single member nation is enough to block additions to the list. The proposed motion would have seen chrysotile added to Annex III of the convention. Substances on this list are not banned from export, but require exporters to fully warn recipients of any hazards. Recipient countries can then choose to block imports if they feel that they are not equipped to properly handle the substance. Recipients must then provide consent to the exporting nation in order for trade of the substance to proceed.

If you had to reread the previous paragraph, you are not alone. Even though the motion would have been blocked by the objections of the other three countries, Canadian delegates chose to publicly oppose a motion that would require exporters to fully inform recipients of the dangers of asbestos. Canada's actions at the summit raise a number of puzzling questions, with the most notable being, "Why?"

The Canadian government's stated position on this issue has often been vague. When asked prior to the summit how Canada would vote, Natural Resources Minister Joe Oliver stated, "I understand that there are some countries that are in fact opposed. So the question is moot." Since the Rotterdam Convention requires a consensus of all nations and that there were other nations that intended to block the motion, he was correct in saying that Canada's vote on this issue would not affect the result. In spite of its truth, his statement did not answer the question. The few questions that have actually received answers are usually accompanied with the longstanding statement, "we promote the safe and controlled use of chrysotile." As of now, the government has not yet clarified how supporting safe use and opposition to hazard warnings are connected ideas, nor have they answered follow-up questions on the matter.

While the government's stated position tells one story, its domestic actions tell another. In the last decade, Canada as a nation has spent tens of millions of dollars on asbestos removal across the country. Many of you may remember POETS and the C&D shutting down last year because of asbestos removal in the CPH Foyer. The government has also been active in asbestos removal; since the 90s, the government has spent millions of dollars on asbestos removal from many public buildings, including the Parliament buildings and 24 Sussex Drive.

Although you do not hear about it often, Canada's asbestos industry was once very large. The miracle mineral was viewed as an important part of our mineral wealth, and the town of Asbestos, Quebec was even named after it. The industry has since shrunk due to almost non-existent demand in developed nations. The industry now employs no more than 500 people. Despite this, Canada is the 5th largest producer of chrysotile in the world, maintained entirely through exports to developing countries.

While many will be quick to assail the Harper government for the recent vote, it is only fair to note that they did not create this policy. Maintaining either a pro-asbestos or a neutral stance abroad while removing the material from buildings here at home has been Canada's norm for decades. They are simply maintaining the course that was set and followed by previous governments, both Liberal and Conservative alike.

Defenders of the industry argue that chrysotile can be used safely with proper precautions. While this may be true, the regulations Canada has put in place to "safely use" chrysotile have all but eliminated its use in the country. Here, exposures higher than one fibre per 10 cubic centimetres of air require the use of a breathing apparatus. Critics argue that these safety recommendations are rarely followed in developing countries, if ever. In 2009, the CBC's Mellissa Fung filed a report from India showing several workers moving piles of asbestos with nothing but handkerchiefs tied across their faces. At those levels of exposure, those men will in all likelihood get asbestosis or cancer and eventually die from it. Unfortunately, Canada appears content to watch while many more follow.

I'm willing to admit that I first heard of this story from watching the Daily Show with Jon Stewart. One of his correspondents, Aasif Mandvi, did a report on the Canadian asbestos industry. Towards the end of the report, Mandvi interviewed the head of one of Canada's last remaining Asbestos mines, Bernard Coulombe. Towards the end of the interview, Mandvi revealed his true feelings on the topic by using several choice words to address the man exporting the toxic material to India, where the interviewer, himself, has family. I've been watching the show for years, even before Mandvi made his first appearance on the show. I've seen him interview racists, convicted criminals and people who believe that he should be deported because he is a Muslim. Not once before have I seen him lose his composure and directly attack someone during an interview. I can understand that he is angry. His people are dying from the material we are selling them. If our country's reputation is dying with them, shouldn't we also be angry?

Canada Announces New Plastic Banknotes

JACOB TERRY
1T NANOTECHNOLOGY

Every few years, the Bank of Canada announces new, more secure banknotes that are supposed to prevent counterfeiting. This year, they have decided to do something totally new and make them out of slick plastic. The new banknotes are intended to bring down the counterfeit rate, which currently sits at 35 bills per million. This rate seems low, but it is higher than in Australia where there are already polymer banknotes.

The new banknotes have a few security features intended to make them incredibly hard to copy. Inside the maple leaf, on the bill, are hidden numbers that only appear when looked at closely. In the clear window on one side of the bill, there is a metallic portrait and a metallic building that also have numbers inside them when rotated at certain angles. Numbers and transparent text also appear in the middle of the clear window when angled correctly. As a final measure, a maple leaf border is embedded around the window and the ink is raised.

The first banknote with the new plastic design will be the $100 bill, which will be released in November. The bill's theme is Canadian medicine, with imagery of insulin, the pacemaker, and the human genetic code. The $50 bill will be distributed in March, featuring imagery of the Canadian north. In late 2012, the new $20 bill will be released, which will display the Canadian National Vimy Memorial to represent our past conflicts. In 2013, the $10 and the $5 bills will be released. The $10 bill will feature a Canadian train to represent the Canadian National Railway, while the $5 will have Canadarm2 and Dextre to represent our robotics innovation and contribution to the International Space Station program. All bills will still have the same people as before but with updated portraits.

Most people will have first contact with the new bills in late 2012 since $20s are the most common denomination, representing more than half the banknotes in circulation. The Bank of Canada hopes to put more $50s into usage by encouraging national banks to stock bank machines with $20s and $50s. They hope that the new security features will give retailers more confidence in their legitimacy and that consumers will be more comfortable using them for transactions. Once each denomination's plastic version is released, the Bank of Canada hopes to have 70 to 80 percent of the older notes out of circulation within 18 months of release.

They look like they might be more durable than the ones that are in our wallets, so expect them to last a long time and stay together more easily than the papery ones we have now. The new features in our banknotes should give the Canadian dollar a claim to fame not just as the country with Monopoly money, but a country with unique, durable and secure currency. It speaks volumes when something as simple as the design of our bills can get this interesting.

The Importance of Intellectual Property Rights

KRISHNA IYER
2B NANOTECHNOLOGY

As a proud student innovator at the University of Waterloo, intellectual property is a subject that is dear to me. As you may already know, the University of Waterloo is a hub for entrepreneurship and cutting-edge research. Its reputation is as such because of its intellectual property principles. At the University of Waterloo, whatever you discover/invent is yours. This is evident from the Policy Manual of the University of Waterloo, which states, "It is University policy that ownership of rights in IP created in the course of teaching and research activities belong to the creator(s)." What does this mean? How is this important? This article aims to answer these questions.

Intellectual property (IP) means different things to different people. Most often, IP is the ownership of intangible items born from the efforts of a person or a group of people. These include patents, copyrights, trademarks and other similar items which have the potential to have commercial value. IP has been more important in the past three decades than ever before. Since the onset of integrated circuits and computers, many industries have been developed which rely on IPs as their primary income generator. This enables the onset of low-infrastructure industries such as software and biotechnology companies. Intellectual property protection enables these smaller companies to flourish and has induced economic growth like never before.

IP has recently developed to be a primary gauge in nascent company valuations. A prime example of IP allowing financial growth is the IT industry. Let's say that there is a hypothetical dude called Bob. Bob has a bright idea to make an app to do something that has never been done before. Bob proceeds to make this app and monetize it. Obviously, in order to do so, he files a patent and copyrights the logos (and other associated graphics). On the other hand, Steve is a freelance software developer who had the same idea two weeks later. Patents ensure that Bob has the upper hand due to his appropriately documented intellectual property. Additionally, copyrights ensure big companies like Nike™ are protected against competitors copying their products and marketing them (thus preventing piggy-backing on the already successful brands).

On the other hand, when do IPRs become completely ridiculous? There are several examples of people patenting ideas which are just remote concepts that may never materialize into a finished product. Eventually, when such inventions do occur, the actual inventors are possibly in a very bad position, especially in the field of biotechnology where this practice is widespread. For example, a pharmaceutical research firm filed a patent on a technique to extract an anti-fungal agent from the neem tree (*Azadirachta indica*), which grows throughout India even though Indian villagers have understood the tree's medicinal value since long before. The company involved in the neem case insisted that, since the medicinal properties of the neem tree had never been published in a scholarly article, it could not be considered "prior art" ("prior art" refers previously known information that prevents an idea from being patented).

Another such occurrence is the patenting of DNA. One company in Brazil patented a sequence of nucleic acids for the conversion of sugars to ethanol. They used *E. coli* to obtain a yield of about 0.7% percent. At the same time, another company in India used *S. cerevisiae* and a slightly similar DNA sequence to obtain a yield of 18%. They were denied a process patent on the grounds that their DNA sequence was less than 10% different from the that of the Brazilian company. Hence, despite their revolutionary high yield, they weren't able to monetize it.

IP protection is thus a double-edged sword. While it facilitates fair business practices, it can also be unfair when improperly used. Thus, it is necessary to have a competent patenting authority.

Engineering Exchange Programs: FRANCE is Calling

PETER ROE
DIRECTOR OF ENGINEERING EXCHANGE PROGRAMS

In the last week of July, while you may be studying frantically for your finals, I shall be strolling down the Champs Elysees, wandering through the Place de la Concorde, seeing the glories of the world's works of art in the Louvre, sampling the night-life at Montmartre and cruising on the Seine, all in Paris, France.

I shall think of you. I shall be wondering why more engineering students are not clamouring for the opportunity to do an exchange term or two in France. France is a beautiful country with a well-developed high-quality engineering education system. We have many exchange partners there and there are lots of spaces not taken up.

Here are some examples:

• École Centrale Paris: This is one of the major engineering schools in a group called Paris-tech. You get to live in this glorious city.

• Institut National Polytechnique de Grenoble (INPG): Grenoble likes to be known as the Capital of the Alps. It is surrounded by mountains, great for skiing and snowboarding, but is also a centre for the chemical, electronics and nuclear industries. It's worth a term's study in this quality school.

• Université de Technologie de Compiègne (UTC): Compiègne is an ancient city just 60 km north of Paris. It is famous for being the place where Joan of Arc was captured in the 15th century, and for the location of the signing of the armistice at the end of the first world war. UTC is the first of the new universities in France; when it began, its authorities consulted with UW, and as a result it has a form of co-op, derived from ours.

• Institut National des Sciences Appliquées de Toulouse (INSA Toulouse): Toulouse is in the south of France. It is the centre of the French Aerospace industry, the HQ of Airbus and the location of the Toulouse Space Centre, the third largest in Europe. INSA Toulouse is part of a consortium of institutions of higher education which make up the third largest university in France, and one of the oldest in Europe. Toulouse is near both the Mediterranean Sea and the Pyrenees, some of the highest mountains in France.

• Institut National des Sciences Appliquées de Lyon (INSA Lyon): The INSAs form a special group of Engineering schools in France (there are several such groupings), and INSA Lyon is the largest. Lyon is the third largest city of France, with easy access to Paris, Geneva and Marseilles. The greater Lyon area is just a little smaller than the GTA in population. Lyon is a UNESCO world heritage site. It has (according to Wikipedia) developed a reputation as the capital of gastronomy in France. You can eat well there. It is also a major centre for the chemical, pharmaceutical, and biotech industries. The city contains a significant software industry with a particular focus on video games (Wikipedia). INSA Lyon is situated on the same campus as our other exchange partner in Lyon, which we mention next.

• École Supérieure de Chimie Physique Électronique de Lyon (CPE de Lyon): CPE de Lyon is smaller and more specialized than INSA Lyon, but its name, École Supérieure , tells you that it is highly regarded in the French Engineering education system. We have negotiated a special arrangement with CPE de Lyon that enables UW Engineers, who have done a two-term exchange there, to return after 4B and, in just one year, obtain the "Master" degree, which is the professional qualification for Engineers in Europe. It's worth looking into.

• École Nationale d'Ingénieurs de Metz (ENIM): Metz is about as far away from Toulouse as you can get in France. It is located in the north-east, near the Luxembourg border, and near the Rhine, the border between France and Germany. ENIM is one of a group of Engineering schools known as the ENI's. The town was much fought over in the Franco-Prussian war (1871), World War 1, and World War 2, and is located on the Moselle River. ENIM's campus is somewhat like UW's in that it is bounded by a ring, not a road as here, but a river. The campus is on an island which gives it a feeling of isolation, but is quite near the centre of the city. I hope these 'tastes of France' will whet your appetite for exchange. You too could enjoy the sights and sounds of Paris. You could study in France, become completely bilingual, broaden your knowledge of the world, and do all this without compromising your degree program at Waterloo. For details, get in touch with the Engineering Exchange Office. It's on the ground floor of CPH in the First Year Office, probably on your way to the Engineering C&D.

ICANN Approves Custom Domain Names

JACOB TERRY
1T NANOTECHNOLOGY

For years, people picking domain names have been limited to generic, top-level domains such as .com, .net, .org, or to their country's two-letter domain such as .ca, .uk or .fr. Following a decision by the Internet Corporation for Assigned Names and Numbers (ICANN), companies can now get top-level domains for their own brands.

For a company to get a name such as .google or .computers, the application fee costs $185,000 and the annual fee to keep the domain costs $25,000. They must also prove they are responsible enough to maintain an entire top-level domain and must actively use the domain or risk losing it to another bidder.

The applicants are able to make a domain out of almost any word they choose. They are also open to use other alphabets following a decision ICANN made in 2009 to approve domain names in non-Roman characters.

The process presents a difficulty in that it is tough to prevent domain squatters from registering tons of top-level domains just to claim ownership over them. This represents a shift in direction for ICANN, who historically has intentionally exercised little control over whether names under .com are truly commercial entities or names under .net have anything to do with network infrastructure. To help manage this new level of control, ICANN is hiring hundreds of consultants to evaluate claims that applicants are established public or private organizations.

The applications open January 12th, 2012 and close April 12th, 2012, with new domains appearing within a year. Whether people will actually use them as a primary website remains to be found out, but it's very likely that Canon would use canon.com instead of main.canon for their primary URL.

It's interesting to see how this hinders startups and newer companies from getting their domains. Suppose RIM gets .phone, but later loses popularity as other phone companies rise up to become more associated with phones than RIM. Should RIM still be able to keep .phone? Should RIM even get .phone? What about companies with generic names like .apple? This process should be carefully thought about before they start approving domains here and there.

Plagiarism at U of A

CHRISTY ROUAULT
1B ENVIRONMENTAL

After admissions of plagiarism, the University of Alberta Medical School Dean has announced his resignation. Dr. Phillip Baker was accused of copying, word for word, large portions of an already famous speech at a convocation banquet for the 2011 medicine graduates last month.

Plagiarism is not only an institutional crime but also a great academic embarrassment. The speech was written by world-renowned surgeon Dr. Atul Gawande, who performed it at a Stanford University graduation. It's difficult to imagine what the Dean was thinking. The decision involved in attempting such a disgraceful academic offence is hard to understand. A dean, a figure of such prominence, being found guilty of such an act is an embarrassment to himself, the students, and the institute. Dr. Baker apologized to students, writing, "I hope you accept my heartfelt apology and although you may not be proud of me as the Dean of your school, please know that I am very proud of all of you."

Dr. Baker has stepped down from his position as dean, effective immediately, with the Vice-Dean filling in for him until a replacement is found. Throughout his career, Dr. Baker has produced more than 200 scientific articles, 50 review articles and 14 books, but this slip up is one that will surely leave a scar on his career that will never fade.

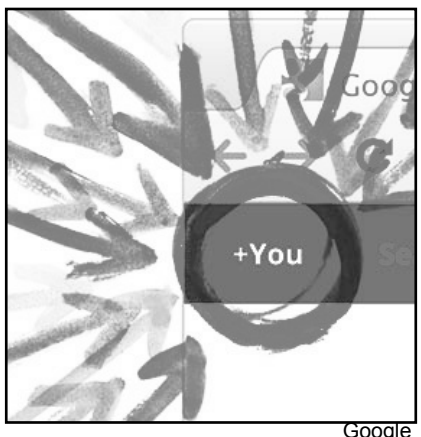
Previewing Google+

JACOB
TERRY
1T NANOTECHNOLOGY

As was expected by many for the last few months, Google finally announced its massive social networking project Google+ (pronounced "Google Plus") and opened it to a small group of people to test it. A couple of days after its release, the small group was given invites to send to whoever they liked, and while the invite period was closed a day after, a few writers on The Iron Warrior, including yours truly, were lucky enough to get a look at Google's new social offering.

From the main page (here called "Home"), it is painfully clear that Google's main target with Google+ is Facebook. Profile pages look very similar to how they are set up on Facebook, and the news feed (here called "Stream") is similar in function. Updates from connections go under the Stream, and from Home, you can chat, start a hangout and read Sparks, all of which will be discussed in detail.

The biggest, yet simplest, difference between Facebook and Google+ are its "Circles." Circles are a much easier system of managing friends than the lists from Facebook. In Circles, you can drag people into categories you invent yourself or predefined categories. Given the predefined categories, it's clear that there's a distinction between Facebook's "friends" and the "connections" you make on Google+. The categories start out as Friends, Family, Acquaintances and Following, putting a clear distinction between who you would like to share private details with, who you're related to, who you have met but don't know, and who you haven't met but find interesting.



Google

Google+ Unveiled

What these Circles let you do is publish content only to specific groups. When you choose to share content, Google+ asks you to specify which people can see your content. This is supposed to mirror real life, where you only tell specific people things you think they'll find interesting. You can also specify emails to be put in your Circles, so content can be pushed to them as well, even if they don't have a Google+ account.

On profiles, content is split between Posts, About, Photos, Videos, +1 and Buzz. Photos and Videos are fairly self explanatory. Posts are very similar to Facebook walls as well. The About page is like the Facebook info page, but there is more stuff you can specify and you can adjust all the security settings to different things individually. +1's function very similarly to Facebook's Likes and can be found on Google's search pages as well, except they put them all in one spot instead of mixing them into your posts. Finally, Buzz is the infamous Google product that accidentally started following and spouting more information than people had expected, and prompted Google to rethink its social strategy. It seems Buzz has now improved as it hasn't posted anything I haven't wanted it to yet. A photos tab is at the very top menu bar and it displays all your friends' photos similarly to a Google Images gallery, which is pretty cool.

The last two features worth mentioning are Sparks and Hangouts. Sparks are essentially bookmarked news searches. You type in a term, such as "Waterloo," and news that relates to cities named Waterloo and the university, (among other things containing the word "Waterloo") will be saved as a topic search. The only issue is that unless the word is unique or dominant, such as "Nintendo," the news don't really relate to what you're interested in. Hangouts is a much more interesting feature, allowing you to chat with, as far as I've seen, at least ten people simultaneously on video chat for free. While video chatting, callers can also text chat at the same time and watch YouTube videos together. While this sounds kind of simple and boring, it's actually quite entertaining, and I could see it being used as a way to communicate with people in the future.

The whole presentation of Google+ is extremely slick. As one reporter noted, it looks so good it doesn't even look like Google made it. It seems Google's presentational overhaul is carrying over to its other sites as well. Google+ notifications are automatically enabled across all Google sites, so when someone posts something, you get a little red notification in the corner. This, along with the +YourNameHere (in my case, +Jacob) in the top left corner of every Google page, keeps you more connected to Google+ than you'd imagine. I was skeptical of how well it might catch on at first, but it's more addictive than most people will expect and it's incredibly smooth. This might be one of the biggest rivals Facebook has had to deal with in a long time, and it's interesting to see if Google+ will pull many subscribers away from Facebook. Keep in mind, Google still has over a billion users of its services every day. That's a lot of users that could turn into Google+ users. I strongly recommend anyone with an invite check it out, as you might find it more interesting than it originally seems.

Another Constituent in the European Union

FARZI
YUSUFALI
2B NANOTECHNOLOGY

With the ongoing expansion of the European Union (EU), the economic and political union of European countries, Croatia will soon join the ranks of the other member nations to become the EU's 28th constituent.

After first entering negotiations in 2005, Croatia has finally overcome a six-year struggle with the European Commission to fulfill all benchmarks and criteria required to join the union. With the expected date of Croatia signing the accession treaty on July 1st, 2013, the commissioners will be monitoring the country's efforts in maintaining the reforms they have achieved thus far for the next two years before the official signing.

By joining the European Union, Croatia stands to become a member of a unique system of nation-independent institutions and intergovernmental policy-makers made up of the member states. These include the European Commission, the Council of the European Union, the Court of Justices of the European Union and, of course, the European Central Bank. Along with the individual parliaments for each nation, EU citizens are responsible for electing the members of the European Parliament every five years. The EU is especially unique in its united set of laws, policies and its own currency. Croatia, under EU law, would abolish passport laws in order to engage in the free movement of goods, capital and individuals that current members enjoy. Also, the EU-drawn legislation would hold Croatia to a set of universal policies regarding law, trade and national development. Most notably, Croatia would adopt the highly-valued EU currency, the "euro" as the country's only currency. Along with many more "perks" that come from joining this union, Croatia stands to gain monetary, political, and military support from all 27 member nations when required.

Before gaining such an affiliation, Croatia, like many other countries, had to meet a strict set of requirements formally called the Copenhagen Criteria (which were formally recognized in June of 1993). These criteria consist of a combination of political, economical and legislative rules that define whether the interested country is eligible to join the EU. The most important of these criteria states that each member of the EU must have a stable democratic government that abides the "rule of law" (the rule of law is the notion that no one individual is above the laws and consequences of the rules imposed by a governing body) and must respect the freedoms and institutions that are associated with said governing body. While most countries in Europe are able to prove the above fundamental law, the associated laws with the Copenhagen Criteria regarding human rights, market economy and judicial practices are what set the EU members and other countries in Europe apart. In the case of Croatia, the major setback this country faced in fulfilling these criteria was its sub-par judiciary system. Especially after the issues the EU faced after Bulgarian and Romanian accession to the union in 2007, this nation had difficulty in gaining EU membership due to its failure to fully cooperate with the prosecution of possible war criminals. Along with other reforms to the Croatian judicial system, Croatia finally managed to meet all of the union's 35 policy requirements.

Assuming that Croatia will be able to maintain its standing over the next two years, Croatia will sign the accession treaty with the EU in the fall and hold a national referendum on the impending membership within the month. Afterward, the signed treaty will have to be ratified by all 27 member countries (although this is just a formality). Only after two years of monitoring by the European Commission will Croatia join the EU. Now all we can do is watch to see if Croatia can keep up their hard work and, in time, join this exclusive club of nations.

e-Governance

KRISHNA
IYER
2B NANOTECHNOLOGY

With the advent of the information era, computers have infiltrated every section of society. In addition to the convenience of sitting on your seat while buying anything from anywhere, computers have enabled things that have never been done before. As always, governments are trying to jump on this bandwagon and appease their target audience.

It isn't just businesses that are using "Social Media" and "Web 2.0" to promote their messages. In all the latest elections, politicians are also using BBM and Facebook to get their word across. Governments are also becoming increasingly tech-savvy. "The utilization of the Internet and the world-wide-web for delivering government information and services to the citizens" is the United Nations' definition of e-Governance. E-Governance also includes a large amount of related items such as the use of cellular transmissions for disaster management and biometric profiling. These days, the use of electronic filing of forms has made so many of our lives easier. I can now file my taxes from anywhere, on my computer. Furthermore, maintenance of records is so much easier with the use of database management software. Many countries use e-voting machines to elect their ruling governments. This has saved many thousands of man-hours spent counting the ballots.

Furthermore, almost every card issued by the government (licenses, IDs, etc.) now contains magnetic strips with information about the holder. This has made it so much easier for the authorities to keep track of misdemeanours. Use of biometrics by immigration authorities ensures the integrity and internal security of countries. Many countries issue passports with Radio Frequency Identification (RFID) embedded chips, allowing contactless emigration formalities. Even in third-world countries like India, e-Governance is prevalent. The National Rural Employment Guarantee Scheme run by the Human Resources ministry uses biometric scanners attached to cellular telephones to automatically dispense money to daily wage workers for their effort, thus allowing proper accounting and preventing fraud. The Indian government has now undertaken a project to issue a Unique Identification Card (UID) to every single citizen of the country (yep, 1.24 billion people).

The downside to the introduction of e-Governance is the invasion of privacy. Have you ever waited in line at a club and had your ID scanned by the bouncers? One can only wonder what kind of information they have about you. This most definitely unnerves me to the extent that I'd much rather lead the life of a hermit. Identity theft is a direct consequence of the introduction of e-Governance. Imagine what would happen if the wrong people got a hold of your Social Insurance Number. With India trying to link all government-issued ID to the same card, there is great potential for damage. There have been numerous instances of e-voting machines being hacked and the number of votes manipulated. This leads to a lot of uncomfortable questions. As demonstrated by an outfit called "LULZ Security," even the most "secure" servers can be manipulated by the truly skilled. There is potential for ghost warfare when one body gains control over the others' IT infrastructure and wreaks havoc.

Thus, there is a necessity to be extremely wary while modernizing governing infrastructure. While the introduction of Information Technology enables more efficient governance, the cost to the citizen must be of prime importance.

From the Desk of the President: Yay! Futures!

TIM BANDURA
PRESIDENT

I hope you all had a fantastic holiday weekend! Whether you just stayed in and polished off some work, partook in Canada Day celebrations somewhere or took off for a cottage, I hope you had a great weekend. I stayed here and not only got a fair bit of work done, but also had a great time helping out with the Canada Day celebrations at Columbia Lake! If you are ever looking for some Canada Day plans for next year, try Columbia Lake (and volunteer to help out with the Engineering part of the festivities!).

Joint Council, despite being a bit long, saw a number of positive changes. We passed motions for the creation of a new capital improvements fund and a committee for policy manual and constitution review. A mandate was passed to have the new Society Executive draft mission and vision statements by next summer. For more details, read the minutes from Joint Council (which will be posted on the website soon).

Thanks to Amanda, Ben, Cam, and Derek (your POETS Managers) for putting on a great MOT. There were a number of great costumes for the theme of creatures of the night! I saw a racoon and a skunk and a dragon (oh my!), plus a number of people dressed as students! It was unreal. I can't wait for EOT!

Congratulations to our new Executives! And to Rebecca Cameron for running a superb election despite the different nature we operated under this time. I will properly write congratulatory remarks for Leah Allen, Angela Stewart, David Birnbaum, Mike Seliske, Lisa Belbeck, Derek Thompson, and Brock Kopp in my final executive report next issue. But I want to properly give a shout out to Sean Walsh, Eric Evenchick, Liz Celentano, John Catton, Harry Hall, Cameron Winterink, Mina Labib, and Gareth Price for running. It takes a lot to run, and I know you are all fantastic, amazing, and incredible people. I've worked with nearly all of you, so I can make that statement with definite certainty, and extrapolate for those I don't know. I hope you keep that drive going for whatever you put your minds to next!

I attended the Educations and Promotions (E&P) committee meeting last Monday and Tuesday. This meeting is a confidential meeting in which the committee reviews petitions from students for the previous term. I attend to represent the students' voice on the committee. Upcoming items for me include Council Meeting #5 on July 6th, competing in the Cardboard Boat Races for Enginuity on July 7th, and the Alumni Golf Tournament on July 10th. July is again a quiet month for meetings and presidential things. So, where's your boat?! Or your golf clubs (those you can rent if required), because there's room for a few more intrepid paddlers for cardboard boats or a few more golfers (little skill required).

Until next time!

WEEF Spring 2011 Funding Allocations

PRAVEEN ARICHANDRAN
WEEF DIRECTOR

This term, WEEF had a whopping $189 935.19 in requested funding with $60 000 to allocate. WEEF Funding Council, which is comprised of representatives from each class, met in the last week of June to listen to presentations and make the tough decisions on how to allocate the available funding. Thank you to all of the class representatives for your participation in this process. The right questions were asked and we were able to make allocations that maximized benefits to engineering undergrads.

The allocations that were decided on by Funding Council are available in the table below. These numbers will be finalized once they are approved by the WEEF Board of Directors at our July meeting. A big thank you goes out to all of the student groups and department members who submitted proposals for funding. You all have the best interests of UW Engineering in mind, and we thank you for this. We're sure that this term's allocations will have a substantial impact on students, and we encourage all groups who received funding to make your purchases promptly to ensure that WEEF's impact will be felt by students as soon as possible.

To see all of the detailed proposals from this term, please visit www.weef.uwaterloo.ca for the Spring 2011 proposal booklet. If you have any questions about the decisions or discussion which took place in Funding Council, please speak with your class WEEF representative or send me an email.

As always, questions, comments and feedback are welcome at *weef@engmail.uwaterloo.ca*.

Proposal	Requested	Allocated
Architecture		
School of Architecture Workshop Equipment	$10,635.00	$4,500.00
Chemical		
Fluidized Bed Heat Transfer Unit	$14,196.00	$4,000.00
Civil and Environmental		
Current Meter and Wading Rods	$3,311.00	$2,482.50
WTW Multi 3500i Water Quality Meter	$3,019.00	$0.00
Electrical and Computer		
Linux Server Upgrades	$750.00	$750.00
Laboratory Monitor Upgrade	$6,670.00	$580.00
Lab Computer CPU Upgrade	$2,700.00	$0.00
Lab Equipment For The Circuits And Devices Courses	$8,000.00	$2,000.00
Magnetic Sensors for Electro-magnetics Labs	$1,491.38	$596.55
Vector Network Analyzer	$17,500.00	$2,500.00
Data Acquisition Interface – Upgrade	$26,658.96	$4,443.16
FYDP Lab Equipment	$3,132.12	$3,132.12
Geological		
Thin Sections For The Earth 232 Laboratory Sessions	$4,000.00	$2,000.00
Mechanical and Mechatronics		
Optitrack Indoor Positioning System For ME597	$2,530.42	$2,530.42
Experiment to Determine Engine Efficiency and Output	$8,400.00	$2,400.00
Support Equipment for Design Projects in Mechatronics	$2,200.00	$1,100.00
Nanotechnology		
A Multi-Purpose General Use Sputter System	$11,590.00	$6,000.00
Systems Design		
SYDE E5 Teaching & Workshop Lab PC's	$3,900.00	$1,300.00
Departments Total	**$130,683.88**	**$40,314.75**
Engineering Student Groups		
Architecture Play	$1,349.00	$865.00
Clean Snowmobile	$3,375.00	$1,575.00
CSCE	$2,442.80	$0.00
Engineering Orientation	$3,010.03	$1,810.02
Formula Hybrid	$9,000.00	$4,000.00
FSAE	$2,252.48	$1,552.48
GNCTR A	$1,300.00	$700.00
Mars Rover	$3,750.00	$0.00
Midnight Sun	$1,000.00	$450.00
Robotics	$3,000.00	$2,393.00
Rocketry	$2,735.00	$1,200.00
SAE BAJA	$6,500.00	$1,500.00
STEP	$1,057.00	$1,057.00
TEDxUW	$3,000.00	$1,000.00
UWMAV	$4,100.00	$1,000.00
UWSTART	$1,080.00	$640.00
WARG	$7,375.00	$0.00
UWNRG	$2,925.00	$550.00
Student Groups Total	**$59,251.31**	**$20,292.50**
Grand Total	**$189,935.19**	**$60,607.25**

Work Term Improvements and Course Changes

ERIC COUSINEAU
VP-EDUCATION

Hey A-Soc, I hope your term is going well, and that you're in good shape after midterms! Things have been super busy in my world; funny how all your assignments seem to be due on the same day, eh? Things have been kind of quiet with all the on-campus committees, but I'll just report on what there is.

The Co-op Working Group (CWG) for the faculty met last Monday (June 27th) to further discuss various co-op initiatives to be included in the Cooperative Education and Professional Affairs (CEPA) Vision 2015 Plan. CEPA is the department responsible for Co-op and PD in the Faculty of Engineering. I received updates on various initiatives being explored, including **Job Development for Junior Chem Eng, Return to First Work Term Employer**, and **8-Month Work Terms**.

• **Job Development for Junior Chem Eng**: CECS has been investigating methods of better focusing on Junior Chem Eng Job Development. So far, some likely actions include, partnering with the Chem Eng Department, creating a database of Chem Eng employers, and focusing on specific sectors. Timeline for this project: Implementation before Winter 2012

• **Return to First Work Term Employer**: For the return to previous employer initiative, CECS is looking for more of a culture shift (as opposed to policy). It's unclear exactly where this will go from here, but my interpretation is that this initiative will take the form of more formal discussions during site visits meant to explore what opportunities exist for increased responsibility.

• **8-Month Work Terms**: Discussions are on-going with department chairs to determine what challenges face departments with the implementation of this. CECS expressed some concern about being able to develop true 8-month work terms. It is unclear at the present time exactly how this will proceed.

The **Faculty Undergraduate Studies Committee (FUGS)** met on Friday, June 24th to discuss curriculum changes to the academic calendar. Most changes can be considered housekeeping (fixing incorrect information from previous course changes), but more significant modifications were made to **GENE/ME 123** (1B Electrical Engineering). The two courses have been merged, the content has been revised to remove electric/magnetic waves, and the course now covers exclusively electric circuit theory. This was due to the course being too "packed" and some material was not being covered.

Course Critiques have been stuffed and sent to professors; thanks to my Course Critique Directors for helping with this. Your profs should be bringing them to class over the next few weeks. Please make sure your class takes these surveys seriously. They are the only way teaching quality is evaluated, and they have a significant effect on how much of a salary increase they get each year. **Debt Load surveys** are due back in the EngSoc Office today at 4:30 pm! These surveys serve to help the Dean's Office keep track of how much debt students have over time. The surveys are run each Winter and Spring term, and the results of this survey will be published in the next issue of *The Iron Warrior*.

I wanted to inform you that I have been s**elected to serve on the Co-op Review Committee** as a student representative. This role is outside of the VP-Education role, and I will serve in this role until April 2012. The role of this committee will be to review the goals of CECS and to review co-op as a whole at our school. I was chosen because I have past experience with the inner workings of CECS and have an engineering background.

Finally, some upcoming things to note are that there will be a **Cooperative Education Council (CEC)** meeting on July 7th, and the final **Academic Rep Meeting** of the term will be on July 13th. I have booked out POETS for the Academic Reps after our meeting, and I will use a portion of my discretionary fund to buy them some sort of food to reward them for serving their classes so well this term.

New VP-Externals! Engineering Competition and More!

LEAH ALLEN
VP-EXTERNAL

Hello Engineers!

First of all, let me congratulate **Lisa Belbeck and Mike Seliske on becoming your new VP-Externals**! Their term officially starts Sept. 1st and will last for 16 months!! I know they have great ideas for the position and are really excited about representing you to external organizations.

Waterloo Engineering Competition (WEC) is this coming weekend! Hopefully you have already signed up because registration is closed. If you did not get a chance to participate this term, you can always compete this Fall when B-Soc is on campus. Also, I would like to thank Angelo Alaimo for running WEC this term and running the first ever info session on "how to succeed in WEC" which had an amazing turnout!

Look out for an amazing **Woman in Engineering** event that will be happening on July 19th. The event will encompass lots of fun mini-events, a mingling BBQ , a forum and lots of great t-shirts and bandanas! More information about the event will come, but if you would like to volunteer to help out, please email me (email below).

The charity directors are continuing to bring you amazing charity events this term. A summary is below:

• EngSoc will be visiting a local seniors home to help out with their Christmas in July Event! This will be happening on **July 9th**, from **8:30 am to 3:00 pm**. This is a great event to get Waterloo Engineers out in the community, and we need VOLUNTEERS! The Seniors Home we're going to is a #12 Bus Ride away. More details will be given once you sign up on the Orifice (Engineering Society Office) door!

• Charity directors will be holding your third annual float day on **July 15th** at lunch! We will be giving out **ICE CREAM FLOATS** in the CPH Foyer! Donations are encouraged and will be going to Free the Children.

• The bottle drive will be happening on July 17th, starting at 1 pm. The Charities Directors will be travelling to YOU to pick up you empty bottles. The money from the returns will be going to Free the Children to build a school in India. There may be competitions for the best structure built out of the empties, but more information will come later.

• Another event that will be coming up will be Purpling for Alzheimer's, which will be happening later this term! You can donate money to charity and then get a body part purpled!!

If you have any questions about any of the above, please do not hesitate to contact me (*asoc_vpext@engmail.uwaterloo.ca*).

<3 Leah

Second to Last

SEAN WALSH
VP-INTERNAL

Wow, is it my second-last Exec report already? It's scary to think about it, but yes, this is, in fact, the last month of the term before exams kick in and we all become hermits. But don't be too disappointed. You will have your lovely new VP-Internal soon, Angela Stewart, who was recently elected to take the reins with the rest of the new Exec come fall. As such, a main goal of mine for the next month will be to make sure she is properly transitioned. It is going to be a grueling couple of weeks of essay writing, a marathon and other sketchy things I am not at liberty to discuss here... I've already said too much. I would also like to mention Elizabeth Celentano who ran a fantastic opposition for the position of VP-Internal; I am sure she will continue to make great contributions to the Society.

In other news, TalEng was a blast. Thank you Mike Soares and Benyamin Siddique for putting it all together. Joint Council was equally as awesome with a couple of committees formed and a handful of motions were passed! Watch for the minutes if you want to know more. Tomorrow (Thursday) is the Cardboard Boat Race; come watch the races at the PAC Pool. Semi-Formal is Friday, July 8th and the Golf Tournament is on Sunday, July 10th. Get your tickets for Beach Day as well, which is happening on the 16th!

Have a great time and I'll see you next time in my last report!

Financial Improvements

MARC TAN
VP-FINANCE

HELLLLOOOOOOO ENGSOC!!!!

I have lots of wonderful news for you this time! It's my second last report now; I can't believe I haven't been impeached or something yet.

Some updates from Joint Council: we passed three awesome motions that pertain to my position.

EngSoc Capital Improvements Fund

This is now a committee that decides where our capital funds go each term. Applications for ideas are now on the EngSoc website! Contact me if you want more info!

Fee Increase

Council passed an EngSoc fee increase from $14.25 to $14.72 to account for inflation. We have not raised our fee since Spring 2008, so we've definitely lost some buying power since then.

Perpetual Fee Increase

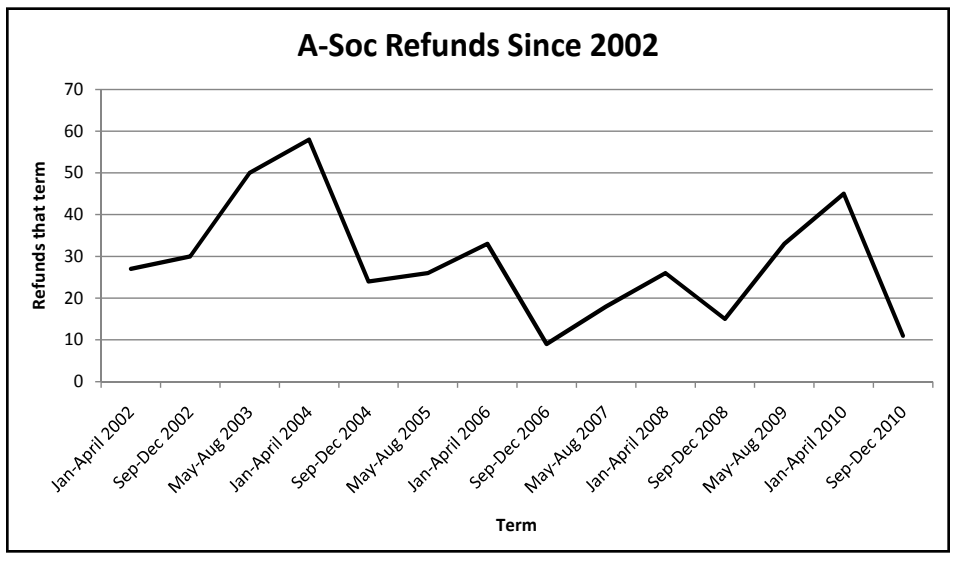
To make sure we don't forget to increase the fee to accommodate inflation, Council introduced a constitutional amendment so that they are now required to put forth such a motion at each Joint Council. Now we can have constant buying power every year!

Pre-meeting Refunds Update

I was mandated to look into refund data at our last meeting. In the spirit of this mandate, Mary and I looked into refund numbers, and here is some preliminary data. There is really no trend so far; I'll have more data for you at tonight's Council meeting!

Coverall day is coming soon! Keep a look out.

GOOOODBYYYYYEEE ENGSOC!!!!!



Final Election Results

REBECCA CAMERON
CHIEF-RETURNING-OFFICER

Hi there EngSoc! I hope your midterms went well and you are feeling relaxed after your long weekend. The elections finished last week and your new Exec are:

President – Leah Allen

VP-Education – Derek Thompson

VP-External – Lisa Belbeck and Michael Seliske

VP-Internal – Angela Stewart

VP-Finance – David Birnbaum

Also, Brock Kopp was elected WEEF Director. The turnout in the presidential election was 35% - the highest turnout for an EngSoc election ever! The turnout in the VP and WEEF Director election was 29%.

Thanks to all of the candidates who ran in both of the elections – you were very professional and it was a pleasure to work with you. Special thanks also goes out to Anish Bhutani for making the two election videos, to Angelo Alaimo for taking all of the professional candidate photos and putting together the IW election inserts, to Mikayla Micomonaco for publishing my articles and the election inserts in the IW, to my polling station volunteers, and to EngSoc Office staff for helping me advertise the elections.

At the EngSoc meeting today, I will be presenting a report about the elections which will talk about things that worked well and things that didn't. Official numbers from the election will be released as soon as possible.

Thanks to everyone who voted, and I wish the new Exec (and WEEF Director) the best of luck on their journey over the next 16 months!

FedS Councillor Report on Current Events

TREVOR JENKINS
FEDS SENATOR

Hi everyone,

There's a few new updates from the Federation to pass along.

BY-ELECTIONS!

The Federation's Spring By-elections have started. Nomination forms were due on July 4th, campaigning will run from July 12th to July 18th, and voting takes place from July 19th until July 21th. Engineering currently has three vacant seats available and we can hopefully see them all get filled up so that we can have full engineering representation on the FedS Student Council.

Fed Hall Update

On June 14th, the Federation received a 'Statement of Understanding' from the President of the university, Dr. Feridun Hamdullahpur, and the Associate Provost, Student Services, Bud Walker. In it, the university states it "is committed to a continued partnership on student space with the Federation of Students and...for further dialogue and negotiation on the plans" for Fed Hall. Where exactly this will take us has yet to be seen, however it's a good step forward to ensuring priority student access and event subsidization for student groups can continue. A scanned copy of the memo can be found at feds.ca under 'Fed Hall Update June 14th.' I'll keep you posted though.

Phillip Street Development

The Federation was approached by a private developer regarding a student housing complex that will be built along Phillip Street, asking what type of retail students want to see. Based on feedback received from students (some of the recommendations included restaurants, a coffee shop, student "gathering" space, and a hardware store) the overwhelmingly first choice was a full "urban-style" grocery store.

Details about the overall development are still preliminary but the current plan calls for five high-rise buildings ranging from 20 to 25 floors that will house approximately 2250 people. The site is the former Unit 36 townhouse complex just north of Campus Court plaza (where Mel's was). Beyond that, there isn't too much more information available, but as plans advance I'll try to pass on more information.

Bubble Tea Coming to the SLC

The current Curry-Up/Wasabi area of the SLC will be renovated starting in July to become a new Wasabi/Bubble Tea venture. This means that Curry-Up will close, due in part to the fact that Food Services has slowly been introducing new curry options across its outlets. The choice of Bubble Tea was based on strong support from the FedS Review Survey that sent to all students last winter. Be sure to check it out when it opens this September!

Health Plan and U-Pass Fees

Based on a review of the total claims rate, the current Health Plan fee will remain for the upcoming year without any changes to coverage. Yeah to no fee increases!

The same can't be said of the U-Pass fee which will increase to $60.64 per term starting in the fall. The increase is a result of the huge demand for bus service that GRT has seen from the program. They also need to slowly increase the fare recovery rate for students, which is about 1/3 lower than the standard adult rate on the system. Students will see the benefits of this increase starting as early as June 27th when the iXpress increase service substantially, including 10 minute headways from 7am to 6pm on weekdays. More service increases are promised for the fall.

If you have any questions or comments based on anything here, or anything relating to the Federation, please don't hesitate to contact me at *t.ek.jenkins@gmail.com*.

Point Vs. Counterpoint

Students should be permitted to accept unpaid Co-op positions.

POINT

KEVIN JOSEPH
2B NANOTECHNOLOGY

The University of Waterloo is renowned for many things, especially its stellar co-operative education program. It provides students with the opportunity to learn about different career paths, provides both technical and soft-skills that will help differentiate themselves from their peers, and, of course, a salary to help pay for their education. This last point is not one to be taken lightly, as it is certainly an attraction for students to come to Waterloo; after all, graduating with heavy debt is an extremely crippling burden. There are times, however, when jobs become available which provide all the benefits of co-op minus the financial compensation. Does this really invalidate the co-op experience? Surely undergraduates should consider prospects of education, skill-building and opening doors, even when an employer is unable to pay them. This is not to say employers should have free license to take advantage of skilled, hard-working individuals, but rather that when conditions necessitate volunteerism it should be permissible. What are these conditions? CECS clearly outlines under what circumstances a co-op term can be unpaid, criteria designed to ensure that students are not being cheated and paid opportunities are not being lost. Unpaid co-op jobs are permitted when the work is for humanitarian, NGO, or charitable organizations; when for clinical, medical and research settings where it is not the practice to pay students in co-op or intern positions; when the jobs are in international locations and not paying students is the prevailing norm; if the company is financially struggling or a new venture the student pay be reimbursed by other forms of equity; and if the student is undertaking an entrepreneurial venture.

It is fairly clear why doing charitable work should be allowed to go unpaid. CECS clearly states that if a co-op student is to receive a credit for unpaid work with a humanitarian effort it must be secular, have predefined arrangements with UW and no other student must be getting paid for doing the same work as the unpaid co-op student. If a student has a genuine interest in doing meaningful, relevant work for an organization such as Engineers Without Borders, it is the decision of the co-op student to do it. A non-student would never be chastised for donating their time to a worthy cause, why should an undergraduate? To call such a term exploitive or unfair would be pure cynicism.

In situations where unpaid co-ops are working in clinical, medical and research settings where paying students is not the norm, there are rules in place to make sure the student knows exactly what he or she is getting into. The organization must have a formal agreement or relationship with UW, the employer must inform the student exactly what the work hours and accountabilities are, and no paid and unpaid co-ops may work side-by-side. Similar rules are in place for international locations in which paying students is not the cultural norm. Here, CECS clarifies that multinational companies cannot pay students in some locations but not others, regardless of local practises. These might seem questionable, but the rules prevent potential paid positions from being lost, only unpaid opportunities given. Some examples of such co-ops are with prestigious American universities. To expect American universities to not pay their own undergraduate researchers but to pay students from another school – from another country, no less – is absurd. Forbidding jobs such as these would only limit students' options.

If an employer is a new venture, start-up, or financially struggling, traditional remuneration may be substituted if the company is in its first work term with UW and the alternative compensation is equity, substantive living and travel allowances (50% or more of student's transportation and accommodation expenses) or stipends that account for at least half of a minimum wage salary. This allowance is only approved once and provides employers a chance to see exactly what UW co-op has to offer. Furthermore, it helps students to work in an environment in which they would get a lot of invaluable experience. It does not allow for employers to systemically take advantage of students for labour and, as such, is not creating a path for employers to cheat students.

Finally, students who are entrepreneurs may pursue their own ventures under UW programs (for example VeloCity). For obvious reasons, they would not be receiving pay from any employer, but surely this exception is perfectly understandable, as UW should strive to foster such spirits. These students may hire other co-ops to work for them under the guidelines mentioned in the previous paragraph.

In situations in which students are being taken advantage of, where employers are simply looking for cheap labour, unpaid co-op is unacceptable. However, the UW has put in place a rigid set of rules to ensure that, when employers do not pay co-ops, the students are not being cheated and potential paying jobs are not being lost. Fears some people may have about unpaid co-op inciting other employers to not pay students are unfounded. The only employers that can offer unpaid positions are employers that would not be able to pay students. Employers also know that when they offer more money, they can attract more candidates to find the student best suited for their needs. When lack of pay is due to cultural norms, UW can apply pressure, but it is naive to expect international employers to easily go against their customs. This year, MIT is offering students $2000 compensation for their work, which shows that after international employers see exactly how valuable UW students are, they start to consider pay so that they can attract even brighter talents. Unpaid co-ops provide a stepping stone to a wider range of opportunities in the future. When employers see international experience, work with or as a start-up, or work with organizations such as EWB, they will surely be impressed and more attracted to these students. It is true that unpaid co-op is not a viable option for students for whom finances are more of an issue, but it would be ludicrous to simply take away chance in the name of fairness. It does not provide the less economically fortunate with more; it just takes away great opportunities from other UW students. Egalitarianism should be sought by helping to give more chances to those with less, not senselessly taking away chances. The fact is if a student believes that the long-term benefits of taking an unpaid co-op are sufficient for them, they should have the option to do that work.

COUNTERPOINT

ANJALI GOPAL
2B NANOTECHNOLOGY

A few years ago, some employers found a way to take advantage of unsuspecting co-op students: refrain from posting job offers in the first or second rounds, and wait for the jobless students to start combing through the continuous rounds. Once in the continuous, these employers would post their "volunteer jobs" (because they were too poor to afford "real" co-op students). Fortunately, co-op has done a lot to get rid of these volunteer jobs, and this blatant mistreatment of co-op students. Nevertheless, a new trend is now emerging: highly sought after volunteer jobs that are being posted in the first round. At first glance, volunteer jobs may not seem like such a bad idea. In the best-case scenario, students get boat-loads of experience, with the chance to gain hands-on skills at prestigious organizations, working with professors who are involved in cutting-edge research. Surely, working for less (or nothing at all) can justify this amazing opportunity. Don't be fooled by this gift-wrapping of what is really a black hole. Despite the sheer volume of skills a volunteer job may promise, in the end, a volunteer job is an excuse for free labour that favours financially secure students, does not provide as enriching a co-op experience, and propagates more volunteer job positions.

First and foremost, volunteer positions favour students who have greater financial freedom. For instance, Harvard University and Massachusetts Institute of Technology (MIT) "hire" up to eight engineering students per co-op term to work in their various labs for volunteer positions. The cost of living at Harvard and MIT, including rent, is estimated to be $2,000 per month. With no financial remuneration except for their Visa, students are expected to pay this money out of pocket. As a result, these jobs are only available to students who have strong financial support. Although there are a small number of grants available to students in volunteer positions, these grants barely cover living expenses. For instance, NSERC pays only $6,000 per fiscal period. For students who have eight month co-ops (and Harvard/MIT mostly hire 8-month co-ops), $6,000 is barely enough to cover three months of living, let alone the next five.

Second, volunteer positions do not provide the full co-op experience. Pay is worth far more than a nice bank balance. A paid co-op is fundamentally worth a lot more to the company than a volunteer. Since companies are investing both time and money to train paid co-ops, companies are more invested in the student's success. Employers are also more willing to exploit their "free" co-ops. Many of my classmates shared stories about how they were expected to work a minimum of twelve hours a day at some of these volunteer positions. With no real measure of how your work is valued, many students are unsure how to reject these unreasonable hours. A salary provides more leverage—students can request overtime pay, or some other form of compensation, for extra work. At the end of the day, a salary tells you that what you do is valuable to the company. With a volunteer co-op position, this is switched: students are being told that they should be grateful for the "rewarding work experience" they receive, and that they are indebted to the company.

Third, students believe that their investment in such volunteer positions will be repaid in terms of the experience they receive. A golden resume can propel them into a successful grad school program, or a career in research. The fact is that the idea that these volunteer co-op jobs at prestigious universities are giving students a "leg up" is inherently flawed as it forces more students to take up volunteer positions just to remain competitive. Moreover, there is no guarantee that taking a volunteer co-op once means that the employer will rehire you for a paid co-op later. If the trend in research is to hire unpaid interns, then this trend is not going to go away by having more students compete for more of these jobs.

Advocates of volunteer unpaid internships might argue that richer students having more opportunities than poorer students is a fault of capitalism, and therefore not a fault of the unpaid internship itself. After all, getting into university is a big financial barrier which not all students can overcome, and nobody is limiting rich students from going to university—so why limit them from getting the better internships? However, just because the current system is, well, current does not mean that it is fair. Although financial limitation is a big part of getting into university, it is not the only factor. Students have many opportunities to receive financial aid to support their education. On the other hand, when two students are competing for the same volunteer co-op job position, no matter how much higher the merit of one student may be, the student with the higher financial status would be the only one capable of taking the job. Thus, volunteer co-op positions are essentially creating a class of researchers who are both richer and more skilled than their poorer counterparts.

Another popular line of argument is that no one is forcing a student to take an unpaid co-op position. However, considering that there aren't enough jobs to go around already, and the fact that some of these volunteer jobs are at prestigious universities, it puts students with financial hardships at a disadvantage. Others might argue that banning unpaid co-ops is not a good idea because it prevents both classes of students from getting a good co-op job: the poorer students obviously won't get the job, but now the rich students won't either. The same analogy could be extended to the volunteer co-op jobs in industry: desperate, jobless students who accept these industrial volunteer jobs may gain valuable experience from companies who cannot afford to (or choose not to) pay their students. However, these jobs have since been banned, because it is evident that this is just a way for employers to take advantage of co-op students. Banning these jobs might put some students at a disadvantage, but it is clear that it does make it fairer for the remaining student body.

The entire purpose of a co-op education is to give undergraduates valuable workplace training. Even if banning is not necessarily the way to go, students and CECS staff should work together to pressure these employers so that students receive some form of financial compensation. Hard-working, dedicated undergraduates should not be forced to grapple for experience that they cannot afford. Expanding opportunities for students, both in their education and their careers, is a vital component of a co-op education. We must ensure that these opportunities are expanded upon in a fair way that is accessible to all students.

Editor's Note:
Point Vs. Counterpoint is a feature meant to stimulate discussion on thought-provoking topics. The views and opinions expressed here do not necessarily reflect those of the authors, *The Iron Warrior*, or the Engineering Society.

What We Can Learn from UnCollege

ALEXANDER HOGEVEEN RUTTER
4A ELECTRICAL

UnCollege, a movement started this January by self-proclaimed "Chief Educational Deviant" Dale Stephens, is making waves in the American educational establishment which will hopefully reverberate here in Canada. The movement is centred on the idea that introspection, passionate action and self-motivation are more important than formal education in crafting educated, competent individuals.

While the movement is largely targeted at the educational bubble in the United States – rising tuition costs combined with falling returns from education – there are lessons to be had for established educational institutions. It is a signal that students will not continue to accept a fancy piece of paper in exchange for their hard-earned money and work. One lesson I've learned is that every investment should be compared to the "do-nothing" option and UnCollege is establishing the "do-nothing" option as a credible alternative. UnCollege is challenging established institutions to prove that they offer value above and beyond self-education.

There are two caveats here: The UnCollege movement does specifically state that those pursuing a licensed profession, such as engineering, should continue their studies. Furthermore, with initiatives such as co-op and VeloCity, the University of Waterloo already accomplishes many of the objectives espoused by UnCollege.

However, this is no reason to be complacent! With more schools offering co-op programs, the University of Waterloo must now guarantee that it is integrating classroom content with co-op education and promoting application coupled with deeper theoretical understanding. Each course coordinator should ask him or herself: Is there anything my design course teaches that couldn't be learned from a book like *Thinkertoys*? Do I teach math better than Wolfram MathWorld? Am I just reading the textbook definition of a transistor, or am I adding insight from my own research or industry experience? Am I teaching in such a way that there is value for my students to come to class, rather than just find an equivalent MIT Open Courseware?

Similar questions exist for students. With 70% of American high-school graduates entering post-secondary education, attending university is no longer a differentiator in today's economy. The UnCollege emphasis on introspection, experience and application are very important for all students to remember. While this author is not advocating you drop out of university, I challenge you to consider why you are here. If you are getting a degree for something to do or to please your parents, perhaps there are better uses for your time. Ideally, you are constantly challenging yourself to learn, grow and generally make yourself useful to society.

According to UnCollege, the three stated purposes of a post-secondary education are to prove competency, to signal to society that you are ready for the workforce and to show that you can work with people. Are you fulfilling these three purposes?

There are also some minor points to keep in mind, such as attending conferences, finding a mentor, reading major philosophies and learning another language. While the University can help support us in pursuing these goals, we are largely accountable for such pursuits ourselves.

The movement was bolstered through a $100,000 grant from the Thiel Foundation, the goal of which is to promote young innovators and technical entrepreneurs in devising creative solutions to today's challenges. Its founder, Peter Thiel (founder of PayPal) supports the notion of self-directed education which is especially telling as he is such a credible technological entrepreneur.

UnCollege is challenging universities and students to prove their worth. Will we rise to the challenge?

The Impact of Unions: How They Help Us

TREVOR JENKINS
3N MANAGEMENT

Most of the modern employment standards we take for granted today can be traced back to one group: unions. It was the struggle of working unionized individuals that led to the introduction of workplace legislation like the Employment Standards Act, safety standards, and even the 8-hour work day. In fact, Labour Day is a direct result of the demands of the labour movements of the 1880s to only require 58 hours over a 7-day week.

While unions have ultimately shaped modern working standards that ALL workers across the country now benefit from, a common question that needs to be asked is: are unions still relevant? Put simply, yes.

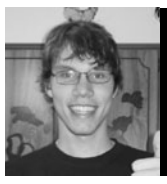
The fundamental value of organized labour is "A Fair Day's Wages for a Fair Day's Work." In Ontario, 13.1% of the total population, or nearly 1.7 million people, live in poverty, even though the majority of the work-able individuals are employed full-time. One has to wonder how one can work 40 hours per week yet still be living in poverty. Businesses will find a way to keep costs as low as possible, and that means minimum wage jobs. At $10.25/hr, it would be a challenge to support yourself, but imagine trying to support a family on that. While many will say unionized workers make a bloated amount compared to their minimum wage counterparts, it's important to ask which groups society and employers are helping to stay out of poverty and helping to live a "fair" lifestyle. It's not like they're living in castles in the sky and jetting off to Europe every summer – they're living a humble middle-class lifestyle that any Canadian would be happy with. The other option would be to abolish unions and have all these fair-paid jobs turn back into minimum wage, dead-end careers, which can only lead to a continued rise in poverty. Would we be any better off that way?

Society has long generalized union workers as being "lazy" when, really, this is not the case. From my experience working in a unionized environment, the work ethic of unionized individuals is no different than anyone else, including Engineering Students at UW. I'll admit that I've met "bad apples" who try to beat the system and do a sub-par job from what is expected, but it's no different than what I've seen in a non-unionized government job, in the non-unionized private sector, and in group work in classes here at UW. I've always had my mail delivered, my garbage picked up, and teachers teaching me new concepts in public school, so can I really say that just because all these individuals are unionized, they're somehow lazy at their jobs?

The notion that unions somehow impede corporate growth is perverse. The only thing impeding growth is a corporation's inability to respond to the needs of a market. For decades, management and unions in the automotive industry were able to find a common ground and generally avoid strikes. It was only when foreign automotive companies expanded into the North American market, which the big three automakers had been dominating for decades, did labour unrest explode due to the need for cutbacks in an attempt to stay competitive. Was it ultimately the fault of the unionized workers who did their jobs on a daily basis, or was it management who floundered when the foreign threat arrived and have been trying to play "catch-up" to these competitors ever since?

It was because of organized labour that all employees, regardless of affiliation, have benefited from modern workplace legislation that ensures they're treated equitability and in a safe manner. Unions have more than proven their relevance historically and, based on the changing knowledge-based economy we'll all be a part of, will help to ensure that these standards and laws evolve with the times.

Relevance of Unions in Today's Society



MICHAEL LAANVERE
1B MECHANICAL

The strikes over the last month at Canada Post and Air Canada have brought up the queries regarding the purpose of unions. Unions were originally created before labour laws existed to ensure that workers were paid fairly and worked in a safe environment. Now, there are laws to ensure that people are safe at work as well as legislation to ensure everyone makes enough money to live adequately. Why, then, do we still have unions? The answer to that is mostly greed. People just never seem to receive enough raises, have enough vacation days or receive enough benefits. These unionized-workers should be happy that they have a steady income which is most likely higher than minimum wage. Also, what about pension benefits? Get yourself an RRSP! If your corporation has a pension plan, then that's great. If not, deal with it like most people do every day.

Unions hamper the economy and stall the creation of new jobs. Companies cannot employ more people if they spend so much of their money on wages and pensions. This starts to create an economy with fewer jobs that pay significantly higher wages instead of more jobs that pay enough for people to live on. Think about the boost to our economy if there were no unions at all; it would increase the amount of jobs, reduce the cost of goods, and stop industries' revenue losses associated with strikes.

Unskilled worker unions are nonsensical. Unions with skilled workers are rational and logical. The skilled workers realize that if they strike, they cannot be easily replaced; hence, the corporation has to bargain and deal with the union to reach a compromise suitable for both parties. This makes sense because a skilled union worker has something to offer to a company unlike unskilled workers (like post office workers and Air Canada customer service agents who have no special skills or training). Therefore, they can easily be replaced by the thousands of people still desperately looking for well-paid jobs. It is easy to say that there are many people who would gladly take the job of said union worker and get paid substantially less.

Unions also cause normal, hard-working citizens to lose their jobs to union workers. Corporations, especially the government, are forced to give jobs to union members which cause their unrepresented counterpart to get laid off or not have their contracts not renewed. A hard-working employee can get replaced by a union member who gets paid more and, sometimes, works much less because they feel their job is secure no matter what they do. Think about all the taxpayer money that can be saved if government offices hired only non-union employees.

Overall, unions are definitely obsolete in today's society due to labour laws and, although skilled unions are preferable to unskilled unions, they are still illogical. Just look at the teachers' union! This group prevents standardized testing and allows teachers to do anything short of sexual harassment without any fear of dismissal. If the teachers didn't have a union, they would still be paid well and treated well, however, they would also be held accountable for their actions like all adults should be. Basically, Ronald Reagan knew what he was doing when he fired all the air traffic controllers when they went on strike. I hope the Conservative government learns a thing or two from Reagan when dealing with Canada Post and Air Canada.

Thumbs up
Thumbs down

Midterms are done 

 Finals getting closer

Team Fortress 2 becoming free 

 Sunburns

Canada Day Fireworks 

A Closer Look at the Quantum Nano Centre

From QNC on Page 1

The cleanrooms may not be as viewable from the outside after construction as they were during the tour.

The central atrium goes up to the top public floors and will most likely have glass where there aren't stairs in the same vein as Engineering 5. The stairs are interesting because they go half a level down, turn right or left, and then continue to the level below, giving them an appearance as if they're suspended. On the sides of some of the floors, there are open spaces or "mind spaces" where people can lounge or have meetings. One floor has a library or reading room (depending on what the final plan is) which would be helpful since most technical texts are located in the Davis Centre. Both sides of the building have green spaces which could be used for outdoor seating or as a garden, similar to what you would find in Engineering 5. To get into the building, there are entrances at the bottom from Ring Road to the centre of campus, as well as overpasses to MC and Biology 2.

The nano tower has more of the interesting features, so most of this sneak peek is a little scarce on details about the quantum tower. For the most part, the quantum tower has offices lining the exterior, with meeting rooms near the atrium. The nano tower also has offices along the perimeter and research labs in the middle rooms for the third, fourth and fifth floors. The offices are, at the moment, designed to have top-to-bottom whiteboards on the walls, but this could possibly change by the time the building is complete. Contrary to what you'd expect from looking at the building from the outside, there aren't nearly as many windows as there is glass on the building. The office windows are rather normal sized and, in a few offices, they approach the size of those found in the Dana Porter Library. Most rooms have good-sized windows though, and the mind spaces have huge windows to let in as much natural light as possible. The tops of the office walls are glass so that when you stand in the hallway, you see more than just the plain wall the whole way down. The research labs and offices will most likely be for graduate students and professors.

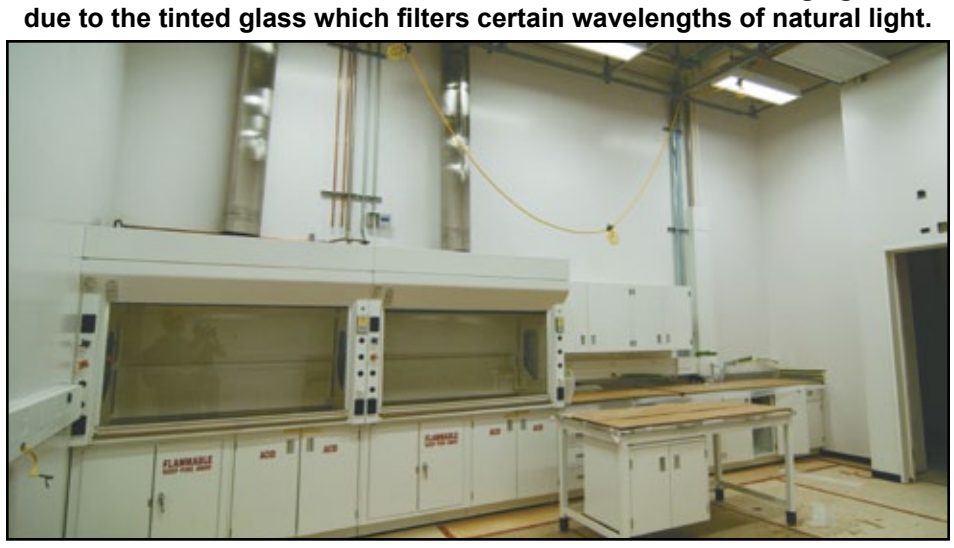
At the top of the quantum tower and the top two floors of the nano tower, there are service levels and the roof which has those distinctive white exhausts that you can see on the top of the building. This can let out air from the rest of the building to manage the temperature. The top floor of the quantum tower houses a large diesel generator that is used to make sure there is never a power failure as even a second or two of power loss during an experiment could throw off results. Visible in the service levels are diagonal beams which are placed that way due to how the building was constructed. The building is constructed uniquely in the sense that it's built from the top down instead of from the bottom up, so each floor hangs securely from the one above it.

Of particular interest to undergraduate nano students is the second floor, which, in the nano tower, houses most of the classrooms and labs that undergrad nanos might use. One of the lecture halls is placed on this floor, directly on top of an identical one on the first floor. There isn't any seating in them at this point, but it looks like they could seat around 150 people. There is also a cafeteria of sorts in the works, but it wasn't clear where that would be at the time of the tour.

Poking out the side of the building on the second floor is an undergraduate sitting area with hexagonal designs on the windows. You can see this room from the outside if you walk around the garden near the construction zone boundary and look up near the MC overpass. From this room and others, you can see the outer walls of the centre and the distinctive hexagonal steel beams that are on the outside.

The view from the top floor staircase looking towards the east side of campus.

The cleanroom within QNC still under construction. The orange glow is due to the tinted glass which filters certain wavelengths of natural light.



A laboratory within QNC. This particular room is the mockup for the other labs which will eventually be fitted out with similar equipment.

The expansive multipurpose room which can hold large seminars or events. The upper balcony can separated to hold smaller events if needed.

The hexagons play a role in the design of not only the sitting area windows and exterior, but also the nano tower interior, with at least one of the bathrooms having hexagonal bathroom tiles. It's likely that when other areas are more complete, the hexagonal design will find its way into other parts of the building as well.

The quantum tower theme seems to be a bamboo-like vinyl, which, so far, has been shown in bathrooms and railings. If you look from the north side towards the QNC, you can see the windows sort of alternate between flat and angled. This feature is visible on the inside from the quantum tower which, in my opinion, looks really cool.

One of the more impressive features of the QNC is a multipurpose room on the mezzanine and ground floor levels which has a large, two-storey presentation area and two other rooms on the second storey that connect to the large room without walls. The room can go from one huge seminar room to three smaller rooms with the added ability for the projectors to go from projecting to each room separately to having all of them projecting to the large seminar room screen. The seats pull out of the wall to increase seating or to get more space. It's very possible that this is where WIN will host their seminar series once the building is complete.

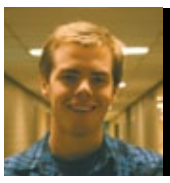
The mezzanine is mostly in the quantum tower, sitting underneath the ground floor as a sort of half-floor. It appears to be primarily used for observation decks. In most of the quantum labs in the underground concourse, there are observation decks overlooking them from the mezzanine in case someone wants to observe the experiment from above.

When leaving the mezzanine to go to the concourse, the ceiling gets higher where there are labs everywhere. There are more sensitive labs here with precise equipment that requires the stability gained from being closer to the ground. The metrology lab is located in the concourse as well, with extremely sensitive equipment that is partially the cause for the lengthy building time for the QNC. The metrology lab is physically separated from the rest of the building to prevent any extra vibrations, so some really sensitive experiments could be conducted here if needed.

There's clearly much space here for researchers, including graduate students and professors. While it seems concerning that such a central building appears so focused on graduate and faculty space, there does seem to be a lot of room for undergraduates as well. As you may have noticed in the descriptions, the building incorporates some of the same concepts as Engineering 5; notably, the way space is allocated in the building and the choice of putting a huge, multi-level atrium in the entrance to give people a feeling of open space as they walk in. It's hard to tell at this point in construction, but, based on the progress so far, it looks like there are some fairly impressive features in this building, which will look even more impressive once more of the cosmetic designs are complete on the interior. It's hard to tell when it will be ready to open, but Winter or Spring 2012 seems to be the very earliest at this point.

For more pictures, check out the article online at:
http://iwarrior.uwaterloo.ca/?p=9925

An Attempt to Define the Canadian Identity



SPENSER GOOD
1B MECHANICAL

Defining the "Canadian Identity" is difficult. It is easy for one to think that our country lacks a uniting backbone like most other nations in the world do. Beyond clichéd physical symbols like the beaver, the maple leaf or even hockey, it is difficult to visualize a common trait that unites all Canadians. Being such a diverse place of so many different cultures, religions and opinions, it is hard to group the Canadian nationality under any sort of conceptual or philosophical umbrella. Unlike in the United States where freedom and liberty stand strong as the core beliefs of the nation, or in Britain where tradition and history take precedence, it would be easy to say that Canada's diversity is its flaw, and that we, as a people, have no identity. It is important, however, for us to remember that we should be proud of where we come from and what we represent, especially with the passing of our nation's birth over the long weekend. Before we can make the leap of defining our identity, we must first look around the globe and make the determination that, whether you hold a Canadian passport or just reside here, the values that our country upholds make the "Great White North" a haven of peace, tolerance and real prosperity.

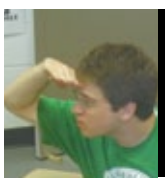
We need only look at our neighbours to the south to realize the inherent advantages of being Canadian. The culture in the United States has led to an economic downturn that will make the global citizen question whether being American is really the golden ticket to the birth lottery. It is the often the overlooked patience and humbleness of the average Canadian that has allowed us to escape the endless spiral of debt that has enveloped our Southern neighbours. It would be overreaching to say that greed is not a part of our nation; it definitely has its place, but it is clear that we have a better understanding of how to live within our means than our American neighbours. I may be generalizing, but in this case, the generalization is supported by fact. We may be capitalists, but we know our bounds. As Canadians, that is part of our identity and is something to be proud of.

There is an endless list of autocracies and dictatorships in this world that place no value on human rights, tolerance or multiculturalism. There are nations where homosexuality is still a crime, where a woman cannot walk down the street without covering her face, where freedom of religion is non-existent, where censorship is rife, and where human rights are little-understood or little-respected. We should be proud that not only do we promote these values at home, but we also fight for them on the world stage. The war in Afghanistan and the campaign in Libya may be controversial, but regardless of where opinions may lie regarding these topics, we can still be proud of our history of promoting tolerance and freedom through peacekeeping around the world and our successes in both world wars. Our identity may seem difficult to define, but we can be sure that we are not defined by hatred or intolerance, and that we can even take the step in saying that as Canadians, we are largely defined by our opposition to the archaic and discriminatory values that is the basis of so many regimes throughout the world.

Even Europe, which has been long considered its own haven of peace and openness, no longer looks as desirable as it once was. Fascism is once again rearing its ugly head in places like Switzerland, Belgium and even France. Islamophobia, anti-Semitism and anti-immigration are becoming seriously debated topics in much of Europe's politics. Europe's definition as a safe haven for all of those who love freedom may be questioned soon enough. Beyond this, debt is also spiralling in Europe, largely because of irresponsible social spending and poor governance. Not only is the future of America unsure, but so too are the coming days of our allies across the pond. We are truly lucky that fascism will always remain close to extinct in Canada, and that our largely responsible government has managed to keep our own deficit from spiralling out of control.

It may be difficult to see the point of this article. The reader may ask, sure Canada may not be experiencing ballooning debt or a rise in fascism, and our society may promote diversity and freedom, but how does that define us as a people? It doesn't. A general definition for the Canadian identity may not exist. But we know who we aren't. And we can take a moment and be thankful for that.

Canada Day Celebrations at the University of Waterloo



TIM BANDURA
4A MECHANICAL

O Canada!

If you were anywhere near Columbia Lake at 10 pm on July 1st, you would have been able to enjoy the Canada Day fireworks lighting up the sky in celebration of Canada's 144th birthday. As always, UW students had prepared day-long celebrations to share with the local community.

Volunteers arrived at the Icefields early on July 1st to set up all of the activities. A long line of inflatables popped up along the rugby field, while Engineering and Math students set up their stations on the two practice fields. On the main soccer pitch, vendors brought in stalls to sell food, crafts and other products. Several booths from various groups also went up, including Waste Management, the Kitchener Rangers, Scouts Canada, EWB and UWSP.

Without a doubt, Engineering had one of the best showings of the day. Our mini-Olympics setup was a huge hit with the children who attend the event. They had the option of competing in an obstacle course, running in a three-legged race, hopping in a potato sack race, standing firm in a tug-of-war, or testing their knowledge in a quiz on Canadian trivia. Do you know where they race hollowed-out pumpkins as boats or which city is known for its albino squirrels? With the warm weather, trying out the waterslides was incredibly popular for kids of all ages (including those from 19-23), and many of the volunteers bravely sat over the dunk tank for the amusement of all.

Angelo Alaimo

An Engineering Society volunteer begins to fall into the dunk tank at the University's Canada Day celebrations at Columbia Lake.

Midway through the day, The TOOL made an appearance, showing support for the festivities. The TOOL Bearers showed their own form of patriotic spirit, coming dressed in brilliant red coveralls and maple leaf-emblazoned face masks. Everyone was encouraged to grab a photo opportunity with The TOOL. They could even try on coveralls and pose with The Mini-TOOL for photos.

As the sun finally made its way over the horizon, crowds began to swarm towards the north of campus. Getting a seat on the field was a challenge, but definitely worth it. Displays of colour exploded across the sky. The view was wonderful, especially given the completely clear skies.

The day was incredible, and it couldn't have been a success without the Canada Day directors Eric Evenchick, Kristine Campbell and Adriana Cameron, and the amazing team of volunteers who put tons of energy into the day. Despite a few sunburns and a long day of work, I definitely think you should consider helping out with next year's celebrations if you're in Waterloo.

High Time to End the War on Drugs

JASON KIM
4A ELECTRICAL

One of the most catastrophic public policy failures of our time is the War on Drugs campaign. People still use drugs after 40 years of anti-drug campaigns which were started by President Richard Nixon in 1971. The campaign evolved into a global effort over time and unfortunately, Canada is deeply entangled in the mess as well.

To evaluate the scale of the War on Drug's failure, it is important to consider the campaign's disastrous consequences to society. Many innocent people, who have done no harm to others, have been incarcerated just because they decided to smoke a plant that is categorised as illegal. An overwhelming majority of drug users do not pose any threat to anyone, so it makes no sense to put them in jail.

Also consider the enormous waste of law enforcement efforts that are spent on prohibiting drugs. If drug usage and trafficking was not a legal matter, law enforcement agencies would be able to allocate more time and effort to actually catching violent criminals instead of cracking down on college frat parties. Court systems too will be able to operate more efficiently as most of the non-violent cases involving drugs will be thrown out, and the courts can deal strictly with real criminals.

The prohibition of drugs has fostered an ideal habitat for rampant gang activities. The UN estimated in 2005 that USD 321.6 billion was being generated through illegal drug trade. The illicit drug market is so large that Joaquin Guzman Loera, a notorious Mexican drug lord, was named 60th of the 68 most powerful people in the world in 2010. His status does not seem to diminish even after the bloody crackdown by the Mexican government against drug cartels in recent years. A senior US Drug Enforcement Administration official recently assessed Loera to be the most powerful drug lord ever.

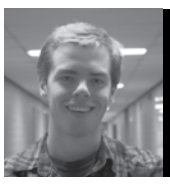
A large number of people have noticed the correlation between the prohibition and the abundance of gang activity. Gang activities are rampant precisely because of the global prohibition against drugs. Gangs are able to reap a huge profit from selling drugs because the demand for the drugs far outweighs the supply. The artificial scarcity of drugs is created by the prohibition. If drugs become legalized, the price of the drugs will plummet as the supply can be taken over by legitimate institutions and operating costs would be greatly reduced. The profit margins gangs currently enjoy will disappear and gang activities will inevitably diminish with legalization.

The only reason why drugs are kept illegal seems to be the public consensus that they should be kept illegal. The public needs to understand that individuals have right to do what they want with their body as long as the activity does not harm others. It's about time the government abandoned its arrogant paternalism and let people make decisions about their lives on their own.

Legalizing drugs will solve some of the big problems society faces such as high incarceration rates, a bloated legal system and global gang activities. It will also introduce a series of new problems such as drug addiction and possibly increased expenditure on health care, similar to how cigarettes and alcohol contribute to this. It should be noted that legalization of drugs is not an open endorsement for use of drugs. There are many vices in life, but people permit them because we reject a totalitarian society and live a free society.

Political Figures and Sex Scandals

A Case Study on the Perverts that Run Our World



SPENSER GOOD
1B MECHANICAL

You would like to think that the former Governor of the largest of the fifty American states is a man of careful thought, with great self-control and an ability to foresee the consequences of his actions. After all, the decisions that he makes in any given day not affect his own credibility, but also the well-being of upwards of thirty million people. The fundamentals of self control for a grown, married man, one would think, is being able to keep your genitalia in your own underwear. And for Heaven's sake, if you can't manage that, at least put a condom on. Apparently Governor Arnold Schwarzenneger is incapable of both.

The revelations of Arny's extra marital affair with the family maid, and the love child produced from it, became public about a month ago in a story from the Los Angeles Times. The response from most was "What was he thinking?" Not only did he fail to practise safe sex in an extra-marital affair with a maid while on the quest to become governor of California, he also cheated on Maria Schriver – a member of the Kennedy family, one of the most powerful political families in the USA. Talk about pissing off the wrong crowd. The answer, of course, is that Arnold was not thinking at all. His selfish acts were void of any trace of morality, responsibility or common sense. The saddest aspect of the whole debacle is that his actions are not isolated. It turns out that the men in charge of nations or states of millions of people often have no more ethics then a mob boss or wife-beating hick.

We need look no further then New York Congressman Anthony Weiner. His recent near-nudie pics found on the internet stink of trashy Hollywood celebs, along the lines of Kim Kardashian or Paris Hilton. It is pathetic that a man of such influence has lowered himself to the antics of the very people our society so often frowns upon. The laughs and jibes surrounding the irony of his last name in newspaper headlines throughout the world ("Weiner Forced to Pull Out" is my personal favourite) are entertaining. They are a well-deserved punishment for a man who apparently can't keep his Weiner where it belongs. Anthony Weiner has indeed pulled out, resigning as of a couple of weeks ago from his political duties.

Regrettably, America is not the only country suffering from this endemic. We need only look across the pond to Italy to see what is perhaps the most interesting case of a pervert in politics. Where do I begin with Silvio Berlusconi, Prime Minister of a nation of over 60 million people? Not only has he managed to engage in multiple high-profile scandals, including being caught hosting a party with 20 half-naked escorts and paying for sex with an underage girl, he has managed to do it while retaining relative popularity amongst the Italian population. This may be a reflection of different societal values, but Berlusconi is yet another blatant case of a man of power engaging in affairs more commonly associated with a mobster. If you disagree, I quote Berlusconi, "I have no dream…but I do like pilu [a dialect term for a bit of tail]." Nuff' said.

The list is endless. Other prominent cases include John F. Kennedy's alleged extramarital involvement with Marilyn Monroe, Republican Larry Craig's infamous airport incident, New York Governor Eliot Spitzer's prostitution scandal, Bill Clinton and Monica Lewinsky and John Edwards. This hardly rounds out the list. There are no real conclusions to draw from the foolishness of so many who once yielded so much power. They, like all of us, are human and prone to mistakes. As much as we love the one-liners and the punchlines, it is a sad and unique reflection of our society that the people in charge are so often not in charge of even their own pants' zippers.

CSEs: Creating Global Engineers

LUKE MCLEOD
1B ENVIRONMENTAL

Many students study engineering to impact our world, whether it's through designing the new iPad, slowing global warming or building the next Hoover Dam. Regardless of the problem to solve, an engineer's insight needs to go beyond the technical scope.

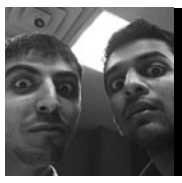
Waterloo Engineering has always been considered one of the best schools for these programs, excelling in academics, innovation and entrepreneurship. However, with pre-enrolment now a week past, I am finding it difficult to follow my passion for social issues and international development with the limited options for electives. Waterloo makes it very clear that an engineer must graduate a well-rounded student that has an understanding of the economic and human aspects of society. I have always wanted to take an international development, social work or conflict studies course; however, the demanding schedule of an engineering student doesn't have room for a "non-prescheduled" elective. Albeit if you are taking engineering, you certainly didn't choose the program for the electives; however, I find it discouraging that even with the university pushing for well-rounded engineers, an introductory International Studies course is not offered at a time that would not conflict with my schedule. Even worse are the many courses requiring prerequisites, essentially pigeonholing a 1B student like me to a generic Philosophy course.

It's my understanding that the idea behind pre-enrolment is for the University to get approximations on how many students want to take a specific course. However, this past week's pre-enrolment lacked one basic necessity: my new term's schedule. I understand the complexities of scheduling, especially with tens of thousands of students roaming the Waterloo campus, but wouldn't it be beneficial to have a "first draft" of my new term schedule to see if it's even possible to take certain courses? I am positive the University has a good indication of how many students will be on term in Winter 2012, and considering 2A engineering programs have a maximum of one elective per program, it's definitely in the realm of possibilities to show us a timetable that will be very similar to the final result. Not only is this pre-enrolment week a disappointment to me for choosing a course I'd rather not take, it is also a waste of the university's resources. With the limited course options and a poor pre-enrolment process, customizing my degree and getting the most out of my time here at Waterloo to grow personally and academically is becoming more difficult than I had hoped. It seems that, given all of Waterloo's creativity and ingenuity, becoming an engineer focussed on our global society is harder than a new student may think.

Engineers Without Borders has an idea about a global engineer that can propose solutions that are adaptable, humanity focused and socially conscious. This idea of a socially- and economically-focused engineer involves thought beyond the technical aspects of a project, broadening our area of our responsibility and helping our world regardless of the type of engineering you're enrolled in. A portion of EWB's work involves helping to change and shape the curriculum at UW, pushing towards an engineering program that graduates individuals who are able to create a better world, whether it's a recyclable iPad, clean water in rural Africa, or the new electric car. We need to show Waterloo that it needs to change the way it thinks of CSE courses. This will allow students to follow their passions, whatever they happen to be, without having to miss a calculus lecture to do so!

Remember, the students are the backbone of Waterloo Engineering, and our voices are always the loudest.

TechnoSpeak: Which Mobile OS is for You?



AMMAR MASUD
KRISHNA IYER
2B NANOTECHNOLOGY

The world of mobile computing is growing exponentially and the easiest way to narrow down the options is to decide on your preferred operating system first. This is no easy task and it does not help that the market is still young, with rapid change occurring from year to year in what each platform has to offer. Here's our quick overview of some of the more popular mobile OSs.

Symbian:

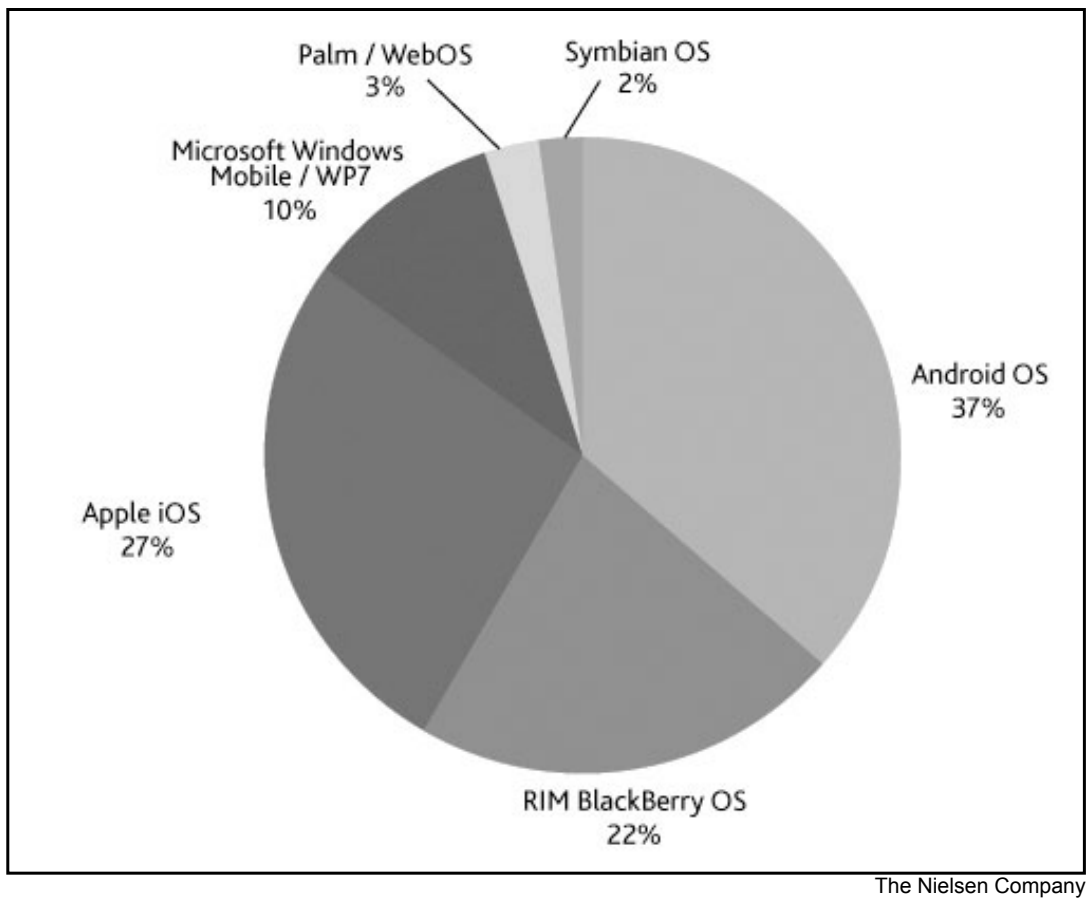
Symbian is historically the oldest and most reliable mobile operating system. It is a result of combined efforts between NTT-DocCoMo, Sony Ericsson, Nokia and Symbian Ltd (an independent organization in charge of developing the OS). This operating system proliferated into one of the most widely used, cross platform operating systems. The s60 version of this OS was incorporated in various phones manufactured by Sony Ericsson, Nokia, NTT DoCoMo and Samsung. In 2008, Nokia bought Symbian Ltd and continued to develop the Symbian OS s60 to be adapted to a touch screen interface for the Nokia 5800 (and its following generations). One of the major drawbacks of the Symbian OS s60 was the lack of support for multitouch interfacing. This pushed Nokia to develop Symbian^3 for phones starting with the Nokia N8. However, around this time, more and more phone developers were beginning to use other cross platform OSs. Additionally, Nokia lost their stronghold for smartphones in many markets including North America. This led Nokia to ditch all efforts in the development of Symbian (and make it open source) and jumped onto the more popular Windows Phone 7, thus angering a huge and loyal customer base.

MeeGo:

MeeGo was announced at Mobile World Congress in February 2010 by Intel and Nokia in a joint press conference. The project aimed to merge the efforts of Intel's Moblin and Nokia's Maemo mobile operating systems into one. This was because Windows 7 did not provide complete support for the Intel Atom processor. MeeGo is widely used in many different applications including netbooks, in-car entertainment systems, handsets, tablet PCs, etc. Due to it being a Linux-based OS, it natively has support for a large number of applications (although not as much as iOS or Android). Due to it being a free and open source, it is envisioned to be included in a wide variety of devices where other OSs prove to be ineffective. Additionally, due to it being tailor-made for Intel Atom, it provides the possibility for cheap hardware-based high end solutions.

Blackberry OS:

RIM isn't currently in its prime but BBOS isn't exactly dead just yet, as the OS accounts for 14% of the international smartphone market. The lack of success in the American market is what is placing RIM in a tight position, but with OS7 running on their new line of devices coming out at the end of this summer, things are subject to change soon. BBOS is efficient and is considered by far to be the most secure platform on the list; hence, its widespread usage by governments. OS7 was originally OS6.1 but RIM considered the changes to be large enough to add 0.9 more. The major upgrade between OS6 and OS7 is what RIM has trademarked as "Liquid graphics" which is, essentially, pumping out 60 fps with the most responsive iteration of their OS yet. Furthermore, the browser in OS7 is said to be 40% faster than what is currently available with OS6. The main drawback is the suspected possibility of being stuck with the OS7 once their new QNX-based phones come out next year. Recent rumours about the QNX phones have noted the possibility of running on the same processor as the OS7 phones which would make it likely to be able to upgrade later on.



The Nielsen Company

QNX:

Anyone who has had their with the Blackberry Playbook knows is it a very powerful device. With specifications similar to other tablets on market, what truly gives the Playbook its multi-tasking capability is the QNX OS, recently acquired by RIM. QNX is used everywhere, from military air-crafts to breweries, which is why the American military is leaning towards their soldiers using Blackberry Playbooks. RIM is planning to bring the QNX platform to their smartphones as well, with the first expected to appear late next year. The OS is going to be different than what is currently available on the Playbook, as it will contain elements from both the BBOS and the Playbook Tablet OS. RIM needs to get it right this time around, as it may be their last hope to stay relevant in today's fast-paced mobile market.

iOS:

Most have played around with iOS devices at one point or another, as this Apple mobile operating system is used on their iTouch, iPad and iPhone devices. Apple does not license out their software, meaning that you can only get it if you buy their hardware as well. iOS has revolutionized the mobile market forcing many of its competitors to step up their game in order to remain relevant in today's marketplace. iOS has its ease of use and rapidly expanding app store to thank for its popularity, but will it be capable of maintaining its market share with any competitors considering it to be their main rival? iOS 5 has already been released for developers as beta software and will be in the hands of most consumers in a couple of months at the latest. Apple is playing it safe with iOS 5 by adopting features from both Andriod and BBOS that have worked well for them. This includes a slide down notifications center and iMessage (Apple's direct response to the popular Blackberry messenger). This in conjunction with the release of the new iPhone expected this September which should ensure Apple's continued growth, at least for now.

Windows Phone 7:

Windows Phone 7 is the latest avatar of one of the oldest smartphone OS in existence. Microsoft got into the smartphone race in 2000 with Pocket PC 2000 (based on Windows CE 3.0). The Pocket PC also included rudimentary versions of their classic MS Office suite. Since then, Microsoft had been developing mobile operating systems aimed at the (then niche) smartphone market. Most of the old touchscreen phones (like O2 and iPaq phones) used Windows Mobile based operating systems due to the ability to perform tasks such as editing documents, etc. Until very recently, they held a majority stake in the smartphone OS market. The last Windows mobile operating system was version 6 which was released in early 2007. Since then, Microsoft had been focusing on the development of the revolutionary new OS, Windows Phone 7 (WP7). WP7 was unveiled in late 2010 as the successor to the classic mobile phone series. WP7 is radically different from any of the older Windows Mobile platforms. It is aimed at users using their fingers (and not a stylus) to interface with the device. WP7 received mostly positive reviews due to its bold new design. In February 2011, Microsoft CEO Steve Ballmer announced a strategic partnership with smartphone giant Nokia to deploy WP7 on all future Nokia devices (consequently resulting in the fall of Symbian).

Android:

Work on the Android OS first started in 2003 by Android Inc. to build "...smarter mobile devices that are more aware of its owner's location and preferences." It was founded by software bigwigs in Silicon Valley and operated for several years in a highly secretive manner. In 2005, Google acquired Android Inc. making it a completely owned subsidary of Google. At Google, development of the mobile operating system accelerated. The Linux kernel was chosen for its flexibility as a starting point. In late 2008, the first phone incorporating the Android OS was launched. Critics raved about the operating system and it was eventually deployed on several following devices manufactured by HTC, Samsung, LG, Motorola and several other companies. Due to the widespread use of the Android OS by several different manufacturers, it became a highly lucrative platform for the development and distribution of applications. The spawn of thousand of applications to do even the most mundane task led to the phrase "There is an app for that." Android presently holds the market share for the most used operating system on smartphones today.

Mystery Meat from the Sewers

ALISON
LEE
2B NANOTECHNOLOGY

In the face of a world food crisis, meat is one of the most resource-intensive foods we consume. Some of us eat less meat, some eat no meat and some just eat a lot of meat anyway. However, a couple of scientists in Japan think that we can enjoy meat guilt-free by skipping the food chain and making meat straight from human feces. They have managed to create a high-protein meat substitute product that apparently resembles real meat in appearance, taste, and texture. Yum?

The origins of this strange idea actually have nothing to do with an anticipated meat shortage. The city of Tokyo had an overwhelming volume of sewage to deal with, so scientists were consulted to find a practical use for all of the surplus sewer mud. They found that it contains a very high amount of protein because human feces is rich with microorganisms. So what would be the best way to put this mud to use? Maybe scientist Mitsuyuki Ikeda was hungry when he asked this question because he embarked on a research mission to extract the protein from the mud and use it to synthesize an edible meat imitation.

The end product is a "poopy patty" that is safe to eat because all bacteria are killed in the manufacturing process. Apparently, it also tastes somewhat like beef or chicken. Soy protein is added to improve flavour and dye is added to make the product look more appetizing. Although there is certainly a psychological barrier when you know where the sewer steaks came from, when you think about it, most processed foods are unappetizing if you know what's in them. Just think about how they make chicken nuggets, street meat, or processed cheese. Also, imagine what your microwave dinner, margarine, or fruit-flavoured beverage would look like without the artificial colouring. From this perspective, the poopy patty doesn't seem that bad; at 63% protein, 25% carbohydrates, 3% fat, and 9% minerals, it sure beats the nutritional profile of other processed foods.

Keeping in mind the circle of life, it follows that waste matter decomposes and travels back up the food chain, possibly being incorporated into some animal's muscle and then eaten by humans. Most peoples' reactions were of disgust at Ikeda's synthetic meat, but he hopes that with some good marketing and lower research costs, this meat alternative will become a viable product. This is an idea that takes the 3R's to the next level, but how far is too far? We'll let the people of Japan decide this one. Personally, I'll just have a salad.

Human Engineering

ROY LEE
2B NANOTECHNOLOGY

Human engineering is the analysis of human behaviour and the effects of human-to-machine interactions and human-to-system interfaces on the efficiency and effectiveness of the processes being examined. The human factor is the way individuals think; it is what we humans consider to be a natural and logical way of sorting and communicating information.

As the world begins to rely more on automation, the interface between a system and the user that operates it is becoming more important. In some cases, it is even desirable to eliminate the user altogether to prevent errors. Criteria for minimizing the problems include making the interfaces user-friendly and ensuring an effective exchange of information between the system and the user. Ensuring people receive adequate training in the operation of the system is another facet that can be utilized, as well as any cultural expectations or fatigue that could affect the user's performance. These ideas, and many others, play into the concept of human engineering.

A prime example of poor interface design is Windows Vista. Sure, it has all the features that the old Windows XP or Windows 7 have, but its accessibility is subpar. We can also consider large-scale automation systems like the control processes that operate a nuclear plant or the emergency shutdown protocols for an oil rig. These need to be easy to use. If the operator makes a mistake because the controls are too complex, it can lead to major consequences. Based on these examples, we can see a correlation between safety and controls systems. New hazard and risk assessments are beginning to integrate these factors into the standard checklist for potential scenarios. The goal of human engineering is to catch the gaps between humans and machines before there is an incident or failure.

The other major component of human engineering focuses on the persons: their personality, training and awareness. A scenario in which human factors play a role in affecting an outcome is the interactions between airplane pilots. Off the bat, one would assume that having a more experienced pilot fly the plane would be the safer approach. However, based on people's general respect for seniority, it is actually safer if the less experienced pilot takes the controls. The experienced pilot is more likely to correct the errors of the novice pilot, whereas it is highly unlikely that the junior pilot would correct his senior. This is just an example of how team management has a large effect on a project or goal. Imagine this in an industrial setting, where the organizational structure and team planning can be organized tier-by-tier and step-by-step by the company's human engineer. This would lead to an overall optimization of the workforce and improve the company's productivity.

Who knows? Maybe the next engineering program that the University of Waterloo comes out with will be Human Engineering.

Telemedicine

KRISHNA IYER
2B NANOTECHNOLOGY

Canada is a massive country with a sparsely distributed population and an increasing shortage of medical professionals. There is thus an increasing demand for in absentia health care. Observation and examination of a patient is of prime importance in medicine. Until very recently, it was next to impossible for a doctor to gauge the health of a patient in absentia. In the early medieval times, consultation via post was prevalent. Often, doctors would prescribe medication via post, too, and this was considered a highly lucrative technique.

In the past, African villages signalled the outbreak of serious diseases by using smoke signals, warning potential visitors of the threat of getting sick. Another example of long distance healthcare can be seen in 1900s Australia. Citizens who lived on remote areas of the country would use two-way radios powered by dynamos to consult with the Royal Flying Doctor Service of Australia. One of the pioneers of remote medicine is Dr. John R. Brinkley. Dr. Brinkley was a highly controversial figure who hosted a call-in radio show in the early 1900s. Patients used to call and report their symptoms, after which he would diagnose their medical condition. Due to his incompetence, he was implicated in numerous court proceedings. However, Dr. Brinkley's short-lived success spawned a variety of both television and radio shows following the same concept.

Recently, telemedicine is being slowly incorporated into the various fields of medicine. In 1975, the GR Medical College in India used a telecardiology system that allowed them to transmit ECGs from an ambulance or a patient's home to the doctors in an ICU ward in a hospital, allowing for an earlier diagnosis. The wireless transmission was done using frequency modulation, which eliminated noise. Furthermore, technologies have been developed to use the satellite INSAT to transmit data from areas of limited mobile coverage. Telepsychiatry is another example of telemedicine. It utilizes video conferencing to provide psychiatric counselling to patients in remote areas. Teleradiology is the usage of communication protocols to transmit radiological images such as X-rays from one medical professional to another expert in the field. Additionally, with the use of computer-based diagnostic methods such as Computer Assisted Tomography (CAT) and sonography, it has become extremely easy to communicate data pertinent to a patient's condition to specialist doctors almost anywhere.

With increasing mobile phone coverage, it has now become possible to wirelessly transmit medical data. Such practices are common in parts of Africa and India. My sister, in fact, volunteered to treat patients in tribal villages in the middle of the jungles of India. She was often required to consult other experts for advice. This was enabled by the use of a handheld ECG machine, a smartphone and 3G data transfer. This has enabled people who embrace a more reclusive, less urban lifestyle to get the same state of the art treatment as people living in metropolitan cities.

The Plant: Chicago's Innovative Vertical Farm

ALISON LEE
2B NANOTECHNOLOGY

With local food becoming more and more popular, developer John Edel of Chicago thinks that vertical farming is the way of the future. Cities consume huge volumes of food but have very little land to grow it on. Thus, most food has to be imported from farms that are located anywhere from just outside of town to all the way around the world. In order to make food production more centralized in dense urban centres, there have been a number of pilot projects that stack layers of soil and plants (or even small animals) like floors of a building to optimize yield with a small land footprint.

John Edel's $4 million building in Chicago's meatpacking district, aptly named "The Plant," is an example of the vertical farm concept that has really taken off the ground. An impressive feat of integrative design, the four stories of The Plant combine the processes of fish farming and green agriculture in a system that reduces and reuses as many resources as possible. The hydroponic beds of lettuce and other greens are connected to the fish tanks to take advantage of natural processes such as the nitrogen cycle. Waste water produced by the tilapia fish is rich in nitrogen, which fertilizes the plants. The extensive plant root system then cleans the water so that it can be sent back to the fish tanks. In total, this system circulates about 9000 gallons of water and serves 1400 tilapia tanks and 3000 square feet of hydroponic plant beds.

Future plans for The Plant include an organic digester to convert extra plant and fish waste into more fertilizer and biogas. This will also help power the building's heating and cooling as part of a design project collaboration with students from the Illinois Institute of Technology. Their ultimate goal is net-zero energy. The actual building is a retrofitted factory warehouse that has been upgraded with sustainable, high-performance materials. They decided to use aquaponic farming rather than soil-based agriculture because of the ease of recycling water directly to and from the fish tanks. Also, soil-borne disease and the need to wash produce before the market are eliminated. Although they have not yet achieved net-zero energy, the overall resource and transportation demands of The Plant are considerably less than traditional farming methods used to make food that are imported into cities.

The Plant hopes to open shop in the fall to, hopefully, serve local markets and restaurants. It will also have a small space for a demonstration kitchen, a commercial kitchen, and office space for food-based start-ups. If this proves to be successful, then we may see more vertical farms shooting up in major cities. Even if it doesn't, innovative sustainable design concepts are the kind of projects that get people thinking about how our food and energy systems are connected rather than just driving over to the grocery store and checking out. Now if only Waterloo engineers would invent a vertical cow-sugar plantation-ice cream store building before the summer ends…

Another Step for Humanity… Toward Invisibility Cloaks

DUSHANTH SEEVARATNAM
2B NANOTECHNOLOGY

There are many technologies expected to help advance society as a whole; one of these is metamaterials. These materials often contain properties that cannot be found in nature. Such properties tend to arise from the material's unique structure that create effective macroscopic behaviour. An example of this is using nanofeatures on a metamaterial to cause light to bend in such a way that it appears as if the object weren't there. In fact, different types of metamaterials, including electromagnetic, acoustic and seismic, have been created and are the focus of many research groups. By using these properties, metamaterials have promising applications in devices. Some examples include remote aerospace applications, sensor detection and more.

Though all these devices appear revolutionary, one problem with metamaterials is that it is very difficult to produce these materials on the bulk scale. These materials require features on the nanoscale which require time consuming methods such as electron beam lithography. These methods also tend to be fairly expensive meaning that if metamaterials were to be manufactured on a larger scale, it would require a great deal of time and money not ideal for standard bulk production processes.

However, a research group at the University of Illinois in Urbana-Champaign has developed a new printing method to produce metamaterials. This printing method is for one of the most interesting type of metamaterials, capable of bending near-infrared light in the 'wrong' direction. Such materials with a 'negative' index of refraction will be able to produce invisibility cloaks and sophisticated waveguides for telecommunications. The difference between this method and the standard production method is that the printing technique promises to create the materials on the bulk scale.

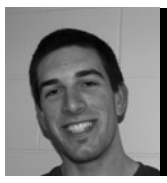
This stamp-based printing starts with the moulding of a hard plastic stamp covered with an elevated fishnet pattern. Using an evaporation chamber, the stamp is coated with a sacrificial layer, followed by alternating layers of materials that contribute to the metamaterial composition. These materials are often made from silver and magnesium fluoride. This layering system creates a mesh on the stamp which is then transferred onto a sheet of glass or flexible plastic by removing the sacrificial layer. Once this is performed, the metamaterial is ready.

Currently, the University of Illinois lab has been able to produce materials that are a few inches wide, but if more stamps are used this length can increase dramatically to possibly a few feet wide. Furthermore, another interesting aspect of this method is that the stamped materials appeared to show better optical properties than metamaterials created through the more expensive and lengthy methods. The only downfall to this new method is the amount of care that is required to produce the mould. However, once the mould is made, it can produce many stamps that are reusable.

This powerful printing technique has already brought a great deal of attention from experts around the world. It appears to have solved the greatest metamaterial problem: scalability. And now with that issue solved, the only thing we can hope for is the creation of a full-body invisibility cloak for us to enjoy.

Sports Riots Across the World

Violence and Disorder Surrounding Games and Tournaments



ANDREW MCMAHON
1B ENVIRONMENTAL

Everyone has seen the images on the news: cars lit on fire, smashed store windows, all out brawls, and clashes with authorities. These are the images of a riot in progress and the chaos that comes along with it.

Last week, one such riot took place in Argentina at the Copa America Stadium after a soccer match. The team who plays out of Argentina's largest stadium is the Club Atletico River Plate. After a loss on June 28th which saw the team relegated to the second division for the first time in its 110 year history, the team's fans lost it. In their outrage, fans threw bleachers at police and destroyed concession stands, causing serious damage to the stadium and injuring more than 30 people. Video footage also shows the furious followers of the club wreaking further havoc once outside the stadium.

Another riot related to sports occurred just a few weeks ago right here in Canada. It was Wednesday, June 15th when the Vancouver Canucks lost to the Boston Bruins at home in the seventh game of the Stanley cup finals. At least 140 people were reported injured during the incident, one critically; at least four people were stabbed; and nine police officers were injured. A total of 101 arrests were made that night and 16 following the event. The number of arrests could and probably should have been a lot higher seeing as an estimated 100,000 people were crammed into the two-block fan zone set up by city organizers for fans to watch the game on big screens. Some of the events that ensued included burning of police cars, tipping of porta-potties, fist fights, and burning of Bruins and Canucks memorabilia. An estimated five million dollars in damages were caused that night.

These two recent events were acts of rebellion after a loss, but riots also occur after a victory in some cases like the Montreal riot in 1993 after the team won the Stanley Cup. Victory riots make even less sense than a riot after a loss because the fans have no reason to be angry and lash out, yet they still cause trouble. Psychologists and sports fan behaviour experts have a variety of theories; one of which is that people in a large crowd lose their sense of individual accountability. When we lose our sense of accountability we do things we would not normally do. It is hard to point out who throws the first punch or throws the first bottle in a huge crowd of people. Fans often feel like they can do anything they want. This lack of accountability outweighs the influence of alcohol which is often blamed for events like riots.

So it seems that sporting riots are inevitable. As long as there is a large crowd of angry or celebrating fans, the risk is high. It is a relief that sports fans are generally unorganized and primitive in their tactics, in contrast to rioters who study the tactics of police in order to evade their efforts to control the mob. Manuals for successful rioting are available on the internet, which suggest things like getting the press involved so that there is more attention drawn to their act of rebellion and so the additional coverage will discourage police brutality.

A sports riot has the ability to make a heartbreaking loss worse as well as put a blemish on a hard fought victory.

Officer stands ready at the Vancouver riots Mark Donovan

Cycle Times: The Path to the Walter Bean Trail

CHRIS LETNICK
3A COMPUTER

Midterm season is over, and there is now time to relax. For some, this means watching TV, reading the latest comics, cleaning the layer of clothes from the bedroom floor, or taking a very long nap. Once relaxing is complete, getting outside may becomes the next priority. If a bike is available, it can greatly increase the locations one can enjoy outdoors. The best place to get out to on a bike is the Walter Bean Trail. This is the longest, most enjoyable trail in the region. It is also a bit of a hidden gem due to its distance from the university. This article will attempt to guide a cyclist to their next adventure.

The Walter Bean Trail is located alongside the Grand River to the northeast of Kitchener-Waterloo. The entire trail is very scenic, with most of it having a view of the river. There are many parks and treed areas that the trail passes through. Many of these areas provide a nice, quiet place to stop and have a snack or just enjoy the scenery. The Walter Bean Trail is still under construction in some areas, so some lengths have to be made on roads. It takes about fifteen to twenty minutes to reach the trail from campus, so it is suggested to plan at least a two-hour time slot. To go the full length of the trail takes three to four hours. Most of the trail is gravel and dirt, so a thin-tire street bike will not be suitable for these conditions.

There are several reasons to go out on this adventure. Whether it is to get away, go out with friends, or have a cycling date, there are several important things to keep in mind. The first is remote areas. The trail is often far away from bus routes, so an adventurer should be prepared for standard bike repairs. The second is low stamina. This is a long journey; it is recommended to bring food, water, and lots of energy. The third is sun and wind burns. Wind burns are a result of a sunburn accelerated by the wind. The wind removes the thin protective layer of lipids from the skin's surface, thereby accelerating sunburn damage. Windburns will primarily affect the front of hands while biking. To protect against this, use extra sunscreen or gloves.

The most direct way to the trail from campus is to head east on Columbia Street. Follow Columbia as it turns into Lexington Road and continue on until Lexington ends. Lexington ends at a lighted three-way intersection onto University Avenue. Cross this intersection and follow the path on the far side of the road and head right along University. This path will move away from University and terminate at Woodwich Street. Head straight down Woodwich until a four-way stop. Turn left onto Kiwanis Park Drive at the four-way stop and keep going until it stops. Enter Kiwanis Park and head down the trail straight ahead. Turn right at the trail's first four-way intersection. Once past the baseball diamond, take another right. There should be another intersection shortly after; go right and enter the trail. The trail now continues through the park for a while.

There are several confusing lengths of the trail ahead. However, describing them in detail will reduce the adventure and be boring for most readers. There are several resources to help guide a rider onwards. The first is a sequence of signs along the trail. There are signs located at most intersections. However, these are not always clear and present. The next is Google Maps. It is possible to follow the trail from Kiwanis Park on Google Maps. The Region of Waterloo Transit and Cycle map provides a less detailed, but more portable overview of the trail. These resources will help guide you through the few obstacles until you reach the end of the trail. At that point, it is a good idea to eat a snack and enjoy the thought of making it all the way back!

Walter Bean Trail Chris Letnick

Bon Iver

Album Review

DODGE YU
1B ENVIRONMENT

Who's Bon Iver? Many might ask this same question that I asked myself when I first saw the great reviews they were getting. Could they be as good as the indie bands of last year? Bands like Mumford & Sons, Florence + the Machines, Iron & Wine and many more opened up the market to what the folk-indie genre had to offer. They achieved success both commercially and critically. Will Bon Iver do the same? What makes them so praise-worthy? With these questions in mind, I did a bit of research and went out and bought their latest album to see what they're offering.

Bon Iver is the self-titled sophomore album by the band. Upon listening to it, I could immediately tell the difference between them and a lot of other indie and mainstream acts: their music is very ambient-oriented. Although they are a band, they can totally pass off as being a one-man project. There are rarely loud parts in any of the songs, and many of their songs have a soft, calm vibe to them. The instrumentation is a unique characteristic of their music. They incorporate many different kinds of instruments, many of which are very uncommon for the genre; for example, banjo, brass, saxophone, strings and even synthesizers are found within these songs. These instruments were then arranged to create the specific atmosphere of sounds that they wanted. Also incorporated with these unusual instruments in each song are the genres that the instruments originated from. This exploration of different genres can be heard in many of the songs on the album.

The first song, Perth, exemplifies this style of theirs. With a very soft, melodic beginning, the song serves as an instrumental intro by setting up the overall atmosphere and mood for the entire album. It prominently features instruments such as snare drums, piccolo, cymbals, and trumpets. Beth/Rest features a style similar to jazz with a combination of electric guitar, keyboard, saxophone and other string instruments. The vocals of the song are slightly distorted to give an electronic feel to the song.

After listening to this relatively short album, I've realized that Bon Iver is doing something different; they did not conform to the mould of mainstream rock. In fact, they don't even follow the vague framework of today's indie rock genre. What makes them a good band is that they have a different sound compared to other indie rock groups; they can compose songs with a musical atmosphere alone and can be successful without the use of vocal talent. If you want to listen to something different, something you've probably never heard before, give them your world and they will, relatively, rock yours.

Engineering the CSI

Fingerprint Extraction Using Amino Acids

ANJALI GOPAL
2B NANOTECHNOLOGY

Remember those old CSI re-runs where every piece of hair was a clue to the killer's identity, and fingerprints were the ultimate weapon for condemning a murderer? Remember what came next? I.e., all the pissed off detectives and real crime scene investigators who started ranting about how no murder investigation could ever catch a criminal as well as the TV could, and how all these prime-time dramas were convoluting the public's knowledge of crime scene investigations to the point that criminal court cases were being affected? To an extent, this is still true—no crime scene is ever going to that exact piece of salivary evidence or DNA or footprint that you're looking for. However, recently, scientists have found a way to enhance the collection of fingerprints (and it's not by increasing image resolution).

The traditional methods of discovering fingerprints from old evidence are fuming and dusting. With fuming, fingerprints are recovered from old pieces of material, and they are placed in a jar of iodine crystals or cyanoacrylate. The fingerprint is then left to 'develop' over the course of a few hours. With dusting, fingerprints are lightly dusted with special powder, and then recovered with clear tape. Neither of these methods is effective at extracting dry and weak fingerprints.

A revolutionary method has been developed by Dr. Xanthe Splinter and her team at the University of Sydney in Australia. The team uses a combination of nanoparticle binding on the amino acids present in fingerprint traces to isolate the print.

Amino acids are the individual constituents of proteins. Since protein is produced by virtually every cell of the body, and fingerprints are left behind due to sweat, amino acids are always left behind on fingerprints. The concept of using amino acids had been developed since the 1950s, but limitations due to the sensitivity of amino acids on non-porous surfaces have restricted the large-scale implementation of this method.

Dr. Splinter has found a way to link amino acid-binding antibodies to gold nanoparticles, by working with a proof-of-concept immunologic reagent. These nanoparticles, which are now effectively 'stuck' onto the fingerprint, provide sharper detail when retrieving these prints.

"We've been able to successfully target amino acids on non-porous surfaces for the first time, with promising results in enhancing aged and degraded fingermarks that typically give poor results with traditional powdering," said Splinter.

Splinter is now at work to complete the ultimate fingerprint-retrieval dream, which is to isolate prints from human skin. Due to the highly porous nature of the skin, isolating fingerprints has been extremely difficult to do. Completing this challenge would be the "holy grail" for fingerprint analysis.

It is always difficult to pinpoint every single piece of evidence needed to solve a case. Nevertheless, the new method brings potential to revisit unsolved evidence and old cases to see if any new evidence can be recovered. Spliner and her team hope to work with the Australian Federal Police to dramatically change the face of law enforcement. But Splinter's work provides inspiration that you too, as an engineer, can live that long-buried dream of being a CSI—or helping them, anyway.

The Curse of Reddit

If you go there once, you're probably addicted

REBECCA CAMERON
4N GEOLOGICAL

Hi everyone. My name is Rebecca Cameron, and I have a problem. Admitting it is a problem is the first step to recovery so here goes: I am addicted to an internet site and spend hours on it per day. It has taken over my life, driving away friends and family, and if I don't fix this I will be Forever Alone. My friend, Derpina, told me I needed to reach out for help; she said, "Rebecca, Y U NO get help for your addiction? It's like you have become a Zombie Fortress… It's really NSFL." So now, I will open my heart to complete strangers. Don't judge me; it's what the internet told me to do.

Firstly, let me tell you about my addiction. I discovered reddit.com when I was young and innocent, without a care in the world. One of my friends told me I should check it out, and when I did, I was pretty entertained. Reddit is a site on which users post content of their choice – be it pictures, interesting articles, or debate about all sorts of topics. Users can vote posts up or down depending on whether or not they like them, and the posts with the most upvotes get to be on the front page of the site. Users can comment on the links, forming an online community. Users can also browse subreddits – sections of links divided by topic (such as gaming, funny, politics, and thousands more). Users can also gain karma points from commenting on posts – if a user posts good/witty/funny comments, other users can reward them with karma points. Someone with a lot of karma points has a good reputation, whereas those with low karma are either new to the site, don't spend their lives worrying about points that don't do anything, or are trolls. A troll is someone who comments with the intent of disrupting normal, on-topic discussions. One of the things I always remind myself is that Reddit is just like the comedy show "Whose Line Is It Anyway?" where everything's made up and the points don't matter.

Reddit was started in 2005 by Steve Huffman and Alexis Ohanian, both 22-year-old graduates of the University of Virginia. Reddit has experienced amazing growth in the last few years: Four years ago, it experienced 40 million pageviews in a month. In May, Reddit received 1.228 billion pageviews. Reddit has its own jokes and an odd sense of humour (I put five of those jokes in the first paragraph of this article), but that's not the reason why it fascinates me so much. Many times, there are beautiful art, amazing facts, and fascinating stories populating the front pages. A huge amount of the content on Reddit deals with programming, computers, science fiction, and video games – making it a great place for someone nerdy like me. Also, news reaches Reddit very quickly and lets you see into what regular people have to say. Reddit has a lot of users who have done extraordinary things that will answer questions users ask – these topics are called AMA's or Ask Me Anything.

However awesome Reddit is, I am wasting my life on this site, and I need to take control. Things have to change. Starting right now, I will not go onto www.reddit.com anymore – and you had better not either, unless you want to waste all your free time…

Who am I kidding? I checked the site at least 5 times while writing this article. Redditors unite!

Fashion Files: Staying Cool and Glamourous

AMANDA LEDUC
4A MANAGEMENT

It's so warm out and staying cool is at the forefront of everyone's mind. However, staying cool while, at the same time, looking glamorous should be our focus; but most of us just think about staying cool. Here are a few easy tips to both stay cool and look glamorous.

Fabric – Linen

My mother would shoot me for talking so fondly of linen due to its high maintenance, but linen is an amazing summer fabric. The same outfit (say a blazer) looks infinitely more summery when made out of linen versus one made out of cotton/polyester. I personally love my white linen dress. Nothing screams summer like a Marilyn Monroe cut white linen dress. Cam Winterink can usually be seen wearing a linen blazer and is an excellent example of how men can dress fashionably in the summer while staying cool.

The only downside to linen is the maintenance required. For starters, it's dry-clean-only. I tend to avoid dry-clean-only fabrics because there are typically washer-friendly alternatives, but in the case of linen in the summer, there is simply no substitute. The other issue is how wrinkly linen looks after wearing it for only a few hours. My mother always says, "After wearing linen for a couple hours, it looks like you slept in it" and I must admit she's right. If you know you're going to be doing a lot of sitting and standing, it might be best to hold off on the linen for a day when you anticipate limited movement.

Dresses – Maxi Dress

The maxi dress from the 70's is back again for summer 2011. The maxi dress does the impossible by simultaneously maximizing comfort and femininity. Its long flowing shape is great for keeping cool in the summer while not having to worry about coordinating tops and bottoms. The best part is that the maxi dress flatters nearly every body type! Whether tall or short, the maxi dress looks great and makes you feel like a super model as the dress blows in the breeze keeping you cool.

The secret to finding the right maxi dress is in the right cut and the right pattern. Cuts range from strapless, to halter, to spaghetti straps, to poufy sleeves, and so on. The key is to pick a cut in which you feel comfortable and that flatters your body type. Unfortunately, there is no rule on how to pick the right cut for your body; fortunately, this means you get to go shopping and try them all on!

If you are taller and/or thinner, you can get away with crazy big patterns and bright bold colours. If you are shorter and/or curvier, try to stick to small patterns or vertical patterns since they will give the illusion of more height and a thinner figure, but feel free to go after the bold and bright colours of the season.

Pants – Flares

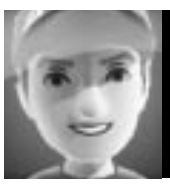
Along the 70's theme of the maxi dress, bell-bottoms are back (finally!). Say goodbye to those skinny jeans that you have been wedging yourself into for the past five years and hello to the less tight and more flattering bell-bottom. The bell-bottom is an amazing pant for every body type. The wide flare at the bottom balances out the curvy hip/thigh/bum area with which we ladies are gifted as opposed to the skinny pant which accentuates how large our derrières are relative to the rest of us.

I must admit, I was never a huge fan of the skinny pant for that reason; it was designed to be unflattering to everybody bigger than a fashion model, which, realistically, most of us are (and that's awesome). Always remember, love your body, and hate unflattering clothes, not the other way around!

Stay Classy,
Amanda
CFO (Chief Fashion Officer)

Cool and glamorous dresses http://girldir.com

Future of Gaming : Video Game Violence – Fight Back!



JON MARTIN
OBI JON1138

Gaming seems to constantly be in the news these days, sometimes for good things, but most often it is cast in a negative light. Today, on the way to work, 7 of the 10 news stories in my gaming news feed were about violence, which included both personal accounts and government attempts at intervention. So that is my topic for this article – violence in video games, both good and bad.

One of the biggest things in the news recently has been California's continued attempts to ban the sale of violent video games to minors. This decision was recently voted down by the US Supreme Court because of the vague description of a violent video game. One US politician has said that, as it stands, the law would be unconstitutional since it denies a person's right to make their own purchasing decisions. In order for the law to be passed, a more stringent definition of a violent video game would be required that recognizes two distinct groups within the "violent" group. The first type is roughly described as a game that includes a violent environment or behaviour. This would include blood and gore and could generally be applied to most sci-fi and fantasy style games normally mislabelled "violent" by the media. The second group is described as games that allow players to participate in a real-world type action in such a way that they are able to train and practice violent actions. I think this would likely cover games like Call of Duty, as they place you in a war-like situation and a large part of the game is multiplayer, a big component of which is comparing and improving your stats. I'm not really sure whether I support this bill or the distinction it makes, because everything still comes down to interpretation. For example, where would Gears of War fall in this split? It involves very violent behaviour and has much of the same war-focused gameplay as COD, but does the fact that the enemies are aliens make a difference? Is this now an unrealistic, non-real-world-kind of game, making it fall under the first category?

One of the most aggravating things that I find with the "violent video games battle" is the difference in the treatment of video games versus movies. There are lots of movies that are just as violent as or even more violent than a lot of video games, but they are handled in very different ways. Movie ratings designate a required age to view a movie, and theatres are expected to enforce that distinction. Of course, people can still sneak in or can be accompanied by an adult who can vouch for their capacity to see the movie. Once we get into the retail sales of the same movies, there really isn't as much control, with most of the violent movies releasing unrated, extended cuts that include even more graphic material. Also, in the stores, these ratings never seem to be enforced when a minor tries to buy a violent movie.

Hey, doesn't that kind of sound like video games? The ESRB rating system categorizes games based on age ranges, which are meant to be enforced. Of course, there is no gaming equivalent of the movie theatre where the ratings are "stringently" enforced. Instead, the game goes directly to retail sale, and it is here where the ratings are meant to be enforced. Again, just as in the case of the movie theatre, a parent can buy a game for their child and bypass the rating system, and of course, there are some stores that really don't care about the ratings and sell the game anyway. So why is there this disconnect between the two mediums? Why are we continually hearing about new legislation to control video games, but not movies? Why is a simple rating system considered to be all the security required for movies and TV shows, but it somehow isn't enough for video games?

I think one of the biggest problems with the way politicians are approaching video game violence is that they are not familiar with it and make absolutely no effort to actually understand it. This is very different from TV and movies, where you would be very hard-pressed to find someone who has never watched TV or ever seen a movie. Movies and TV have been around for a long time and are so widespread that everyone pretty much has a basic understanding upon which to base their decisions. Games are different, and I think this is due to their relatively young age when compared to movies. Many politicians grew up before video games were widespread and would certainly not play a "kid's toy" today, so they have absolutely no experience to draw from. Some idiot like Jack Thompson comes up to them and says "Video games are evil," and then they hear about someone who went on a shooting rampage and a video game happened to be found in his apartment. So naturally, they make the connection and the war to destroy video games is born.

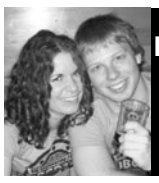
What politicians need to do is actually look at the types of games that are out there on the market, recognize that there are multiple target audiences and address the problem in a more realistic way. Banning violent mature video games, like Australia does, might prevent children from playing these games (although in the age of piracy, they will easily get these games anyway), but the real issue is stopping adults from playing the games. Adults who meet the age and maturity levels required and have every right to play the game is where any law that tries to put a blanket ban on violent video games is either going to fail for being unconstitutional or is going to anger a whole lot of legitimate customers.

On a related note, I thought I would mention some interesting "science" that has been used in the Supreme Court case. Don't quote me on the details; I was working out at the gym so I couldn't take notes. A recent study found that children aged four to five who played violent video games after 9 pm were more likely to be unable to sleep or to have nightmares than children who didn't. Just think about that for a minute. Four to five year olds? They let four to five year olds play violent video games? After 9 pm? When I was that age, I had to be in bed long before 9 pm. Hell, at that age, E.T. freaked me out and would have given me nightmares. This has got to be the worst "scientific" study I have ever heard of. I don't think anyone on the planet would disagree with preventing the sale of violent video games to four-year-olds. Where they are going to get the money to buy them is another issue entirely.

Ultimately, I think everything comes back to the parents, who have the ultimate responsibility in raising their children to be productive members of society, regardless of whether they are gamers or not. Parents routinely buy games that are way too mature for their children, but the kids want them or they will complain. Parents are expected to make sure that their kids are watching appropriate TV shows and movies, yet the government seems to think they are too stupid to monitor their kids' video game usage. Parents need to take responsibility when raising their children. Video games aren't like PONG anymore; they aren't all appropriate for all consumers, so do the homework and make educated decisions.

So, to end this article, I'm going to remind everyone that the industry we love is always under attack, and that we need to tackle the root cause of this attack – knowledge and experience. Don't let clueless politicians make decisions that affect our right to Keep on Gaming.

Beer Buzz: Beer Styles and Mill Street Barley Wine



REBECCA CAMERON
4N GEOLOGICAL
ERIC COUSINEAU
4A ELECTRICAL

Hello readers! We hope you had a great long weekend with some quality patio/deck drinking. We have some awesome news for you all – Eric got a job in Burnaby, BC and we will be driving there at the end of August and then back to Waterloo in December. What does this mean for you? Well, it means that, for the first time ever, the beer columnists will be doing a beer tour across Canada – and writing about it in the fall and winter. Our first beer tour will be about summer beers, and our second beer tour will be about winter brews. No need to fear though, Rebecca will still be in Waterloo during the term so you can ask her any questions you have about beer (or you can email Eric)! Also, during Eric's absence, our column will still be going strong – we will use Skype to ensure our beer tastings go the same as they do now! Anyways, on to the beer! Today's article is going to be about beer styles and we are going to review Mill Street's Barley Wine.

Beers fall into two very broad categories (most of the time): beers that are produced by top-fermenting yeasts (called ales) and those that are made with bottom-fermenting yeasts (called lagers). Ales were the first beer style because brewers did not understand how yeast worked in beer at the time. Ales were unstable; therefore, beer could not be brewed in warm weather and brewers would store their beer reserves in the coldest places they could find. Brewers found that their beer was more stable because the yeast had sunk to the bottom when using cold caves for beer storage. The reason behind this was that the yeasts worked slower in cold temperatures thereby producing a beer that was cleaner, rounder and less fruity than ales; the brewers soon called this type of beer a lager. Fermentation for a lager took one to three months (which is much longer than ales).

Ales include everything with ale in the name (pale ale, amber ale, etc.), porters, stouts, Belgian specialty beers, barley wines, wheat beers and many German specialty beers. They generally have a more robust taste, are more complex and are best consumed cool (10° C or a bit warmer) rather than cold.

Lagers include pilsners, bocks and dopplebocks, Maerzens/Oktoberfests, Dortmunders and a few other styles found mostly in Germany. They are best consumed at a cooler temperature than ales, although anything served at less than 3.5° C will cause the beer to lose most of its flavour. Lagers tend to taste smooth, clean and malty.

Hybrid beers are those that don't fit perfectly into the ale or lager category. There are relatively few examples of them. The difference is in the unique technique used to brew them (for example, higher temperatures than normal). Hybrids are typically dry like lagers but retain malty flavours. Two common examples of hybrid beers are California Common (also called steam beer) and Kolsch.

whatidrinkathome.blogspot.com
A bottle of barley wine

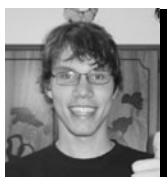
Now let's explore one very specific type of beer – barley wine! Barley wine is a strong ale which originated in England. A barley wine usually has an alcohol strength of 8 to 12% by volume and is called a barley wine because it can be as strong as wine; but since it is made from grain rather than fruit, it is a beer. Barley wines range in colour from amber to deep reddish-browns where all are rich and full-flavoured in taste. Barley wines can be aged to increase their smoothness – they contain lots of alcohol, malt flavour, hops aroma and bitterness for which time is needed for these elements to blend into the full, mellow, complex drink that this style is made to be.

We are going to review Mill Street's 2009 Barley Wine today. It comes in a 500-millilitre ceramic bottle (see photo), and has an alcohol strength of 11% by volume. It is best served in a trappist glass at room temperature (since serving it at this temperature will open up the complex taste of the barley wine). For our review, we drank two of these – one we aged for over a year, and the other we did not age at all. Currently, we are also aging a bottle of Mill Street's 2010 Barley Wine for a six month period. We found that the Mill Street Barley Wines generally taste somewhat similar from year to year so that you will be in for a treat not matter what year you pick!

Mill Street's 2009 Barley Wine is a cloudy, orange-coloured ale with a creamy head. Its main aroma is very alcoholic and smells of malty caramel, oranges, and hops. The initial sip is much like the aroma. Floral hops and caramel mix well, but also with a distinct fruity taste. Finally there's a nice dry finish with a bit of an alcoholic burn at the very end. Its taste and smell are very complex and unique – Eric and I both preferred the one which had not been aged. We found out, after we had drunk both bottles, that the beer is already aged for many months before it goes on sale; perhaps our bottle was aged for too long a time period or at the wrong temperature. Regardless, both bottles we had were excellent and we can't wait to open our 2010 Mill Street Barley Wine. We strongly recommend that you give Mill Street's Barley Wine a try; although it is fairly expensive, it is well worth it for those who crave something different!

Thanks for reading, and remember: FEAR NO BEER!

The Ins and Outs of Urinal Etiquette



MICHAEL LAANVERE
1B MECHANICAL

The ultimate rule of urinal etiquette is to not pee next to someone. As long as you follow that general rule you should be fine, but if you want to learn more here is a brief look into the unwritten code of the boy's washroom.

Selection of the proper urinal is the foundation of all urinal etiquette. When selecting a urinal, there are a few things to keep in mind: the distance from others, whether it is on the end or in the middle, and how badly you have to go. Essentially, you want to be as far away as possible from others, you want to choose end urinals over middle ones, and how badly you have to go can allow desperate measures to be taken.

When you enter a situation in which there are only empty urinals between people, it is key to perfect the art of delaying tactics. Fix your hair, tie your shoes, check your teeth, basically just look busy until a viable urinal becomes free.

If you have to go really badly and you can't wait long enough for the delaying tactics you can use the stall, but you have to make it seem like that was your destination all along, and you should go sitting down to create the facade that you are just "dropping the kids off at the pool." Now if all the stalls are occupied and the only urinal vacancies are between people, DO NOT PROCEED. If you must go so badly that you don't have time to engage in delaying tactics, DO NOT PROCEED. The only time it is acceptable to take such a spot is if you are at a sports venue, where it is every man for himself, or if your kidneys are about to burst. The latter is still frowned upon; you are probably better just going to the women's room and using a stall there.

Now we must be prepared for when we encounter situations in which others are unaware of proper urinal etiquette. If you are doing your business at a urinal and someone else proceeds to use the one adjacent, you are in an awkward situation. If you have gone too far to interrupt the flow, simply try to angle yourself away from the intruding party. If you feel like you can cut and run do so! Calmly wash your hands and leave the room. If you enter the room and you see two men standing side by side when they should not be, just back down. Turn around and search for another washroom, and try to forget what you just saw. {Note: We at IW discourage homophobia but agree the strange compulsion to leave the room is strong.}

Now that you have had a quick rundown on proper urinal etiquette, first things first: practice! You have to be good at quickly analyzing urinal situations to not appear to be staring. Also, brush up on your stalling methods. A few important tips to note are: little/no talking, even if you know the person; never look at anyone else-your eyes should be focused on the task at hand or the ceiling tiles; and please wash your hands! Remember the golden rule: never pee next to anyone, and you should be fine. Happy tinkles!

The Ins and Outs of Female Bathroom Etiquette

REBECCA CAMERON
4N GEOLOGICAL

I'm sure, if you are male, you have always been slightly curious about why girls go to the bathroom in groups and why it takes us so long to "powder our noses." Well, that is all due to the complicated rules of the bathroom which most females follow. This article will go through some of the rules that must be followed once a woman has entered the washroom.

1. The Entry. When you enter, be sure to make a good amount of noise to forewarn those already inside. Whistle, hum – do whatever it takes to make warning noises.

2. If you see someone you know, greet them and make small talk. If you see anyone you don't know just smile politely and walk by.

3. Choosing a Seat. Look at the stalls to see if there is anyone inside them. If not, pick one which allows a buffer stall between it and the adjacent stalls. This will allow privacy for anyone who comes in. If there are other people in the stalls, try to pick a stall which has the one stall buffer zone around it. If you cannot pick one which satisfies this, then it's time to bite the bullet and take one next to someone else.

4. The Approach. If others are in the stalls, take time to sit down and hope that they finish before you begin "The Act."

5. The Act. This is the most difficult step. In this step, you need to remember the most important bathroom rule – try to keep Your Act as quiet as possible. If people hear it they will know that you that you have bodily functions and that simply is not ladylike! If possible, wait to begin your Act until all others have exited the bathroom. If that's not possible, perform it quickly during times when a toilet is running, the sink is running, or the hand dryer is on. If none of these options work, then it's time for you to very noisily grab toilet paper to drown out your horrifically disgusting and inhuman noises.

6. The Ending. Once you are finished The Act, flush the toilet and observe the seat. Did you spill? If you did, clean it up; leaving a toilet seat dirty is gross and no one wants to sit on that! Leave your stall, wash and dry your hands and then leave the washroom as fast as possible – you do not want someone coming into your stall knowing that anything that's happened to it previously is your fault!

7. Be Considerate. If someone else is in The Act, be sure to make lots of noise so that they won't think you are listening.

8. It's Dangerous to Go Alone. When possible, go to the bathroom with a close friend. There, you can talk to each other during that time so that the going-ons won't be nearly as awkward. However, if it is a particularly gruesome Act, it is not cool to bring them with you into the bathroom.

So there you have it, a list of the basic female bathroom rules. Oh, to the males out there: now you know exactly why it takes us ladies so long in said domain; we are just trying to adhere to social protocol as well as concealing our humanity when in there.

Horoscopes

SYBILL TRELAWNEY
1B DIVINATION

Aries: A shower of unexpected events will come your way. Bring an umbrella.

Taurus: Face your fears—it will provide an escape from your crippling boredom and make your life so much more interesting.

Gemini: As the sign of the twins (or the two-faced), you will meet your Doppelganger this month. For maximum success, try dressing, talking, and walking like everybody else.

Cancer: Discard your invisibility cloak and step out into the limelight. Even if you fail miserably, at least people will know who you are.

Leo: Your self-centered attitude is pissing people off. It is recommended that you switch to a pushover personality for the next few weeks.

Virgo: Change your Facebook Profile Picture to something more flattering. A lot of people will be creeping you this month.

Libra: Your eternal optimism will take a three-sixty after tonight. Never fear! Now you can join the rest of us.

Scorpio: A pet scorpion will increase the amount of harmony and cleanliness in your home, and restore balance to your life.

Sagittarius: Your in-laws will surprise you with a surprise visit. (If you don't currently have any in-laws, you will get some soon.)

Capricorn: You will meet someone special at Cardboard Boat Racing. Look for someone who is dripping wet.

Aquarius: You need for freedom and creativity will cause you to cheat on a great many people and things. The sooner you warn your partners and professors, the sooner they will forgive you.

Pisces: Someone is thinking of you right now. For greatest happiness, you should think of this person too.

TOPZ (with a Z)

Making a Good Impression on the First Date

WADE WILSON &
EDWARD BLAKE
2B HANDSOMENESS ENGINEERING

So you've finally grown the courage to ask out that guy or girl you've been eyeing and totally not Facebook-stalking. After gentle prodding (i.e. begging and crying – just a little; got to play it cool after all), they said yes (why wouldn't they?!). Unfortunately, you've spent so much time mastering the exciting world of engineering that your moves are lacking a little freshness. Well, rest assured, after learning these moves they'll be calling you the Fresh Prince of Bel-Air in no time. So, Mr. or Ms. Sexypants, follow along with our guide of top first-date tips.

Show up in a sweet ride: Your ride sets the bar for the rest of the evening, so make it a good one! For those of you satisfied with being a B+, we recommend a limo or car service to keep you a notch above the cab-faring proles. But, for those of you who are truly ambitious, go big: we're talking about a rickshaw! You can make it cheap by hiring a desperate frosh and convincing them it counts for a co-op credit!

Dress to impress: Anyone who's heard an earful from CECS knows that dressing well makes or breaks a first impression. Some people suggest wearing a collared shirt and blazer but we know that you want to make the best possible impression. To this we say, what's better than a three-piece Armani suit? Answer: two three-piece Armani suits, one over the other! Yes, your six-piece (more like sex-piece, am I right?!) suit will be sure to bedazzle when you mention, "Boy, oh boy, it sure is hot in here!" and remove one suit only to reveal another. For you ladies out there, this works just as well with layers of Prada and Chanel dresses. (Trainer tip: this move is super-effective if you pimp their ride at some point in the evening.)

Look important: An easy way to seem like a powerful and in-demand young person is to get your friends to call you at points throughout the evening so you can pull out your smartphone and say, "My ex again?? I told her a thousand times that I'm not interested in getting back together!" For the next call, try out, "I'm sorry Adel but those pictures you took on my mansion's property were an unauthorized photo-shoot! Rules are rules!" Also be sure to use this gem, "Again Prime Minister Stephen Harper? Can't you figure anything out yourself?!" (Note: this last line works better when a competent Prime Minister is in office.)

Play hard-to-get: At our core, we, as humans, are still animals and, as animals, we love the thrill of the hunt. So, guys and gals, be sure to suppress your eager beaverness and feign disinterest. Pretend to forget your date's name! When they're talking, interrupt them and fall asleep during a story (we're sure your professors have trained you well in this craft).

Laugh at their jokes: At our core, we humans are cripplingly insecure. So, to make your date think that you're great, laugh at all of his or her jokes even when they aren't funny! Here are some jokes we have heard on dates that would be good practice for you to fake laugh at: "What do you call a bear with no teeth? A gummy bear!" "What was Beethoven's favourite fruit? BANANANAAAAAA!", "I'll just have a salad, please." and "...and that's when the doctor told me the cancer was terminal."

Be yourself: At the end of the day, you want to give a fair impression of who you are to this person and hopefully make a genuine connection. This is the foundation for long, happy and healthy relationships. If you manage to impress a date with a cheap trick or gimmick, they aren't falling for the real you; the question you ask yourself is, "Is this person really someone in whom I'd be interested?" The person deserving of your affection is the person who appreciates you for you.

Study hard, Mr. or Ms. Engineer, and we guarantee* that you'll snag a second date with the object of your admiration – that is, if they can unfall head-over-heels long enough to pick up that phone! By the way, Katy Perry's cat is named Kitty Purry. Seriously. Isn't that adorably awesome?!

*Not an actual guarantee. The success or failure of your romantic endeavours are in no way insured by *The Iron Warrior*.

The World of Candy

HANS BERNARD TEE &
KATE HEYMANS
2B NANOTECHNOLOGY &
2B CHEMICAL

Candy, it's everywhere in our lives. It's an integral part of celebrating some of our favourite holidays, including Christmas, Easter and especially Hallowe'en. It's also very portable and can easily satisfy a sweet tooth on-the-go, not to mention that it's much, much cheaper than buying a slice of cake, which is important for poor students like us. All the different varieties can't possibly be summarised in one article, but here's a short list of our favourites for your reading (or eating) pleasure.

Marshmallows – These big sugary puffs are a wonderful treat. Leave them in your mouth to just melt away or stuff your face with them until you can no longer speak. I prefer them slightly golden and stuck between chocolate and graham crackers. Somehow a campfire isn't quite as wonderful without sticky s'mores to make your night.

Mini eggs – These pastel-coloured candy-covered chocolate eggs used to be sold only around the Easter season, but now, they're being produced all year round. They're like big M&M's, except their milk chocolate fillings are much creamier in texture and their candy shells are thicker. The creamy milk chocolate provides great contrast in texture against the crunchy hard candy that coats it when bitten.

Rockets – Rockets come in stacks of small disks of about 1cm in diameter. Apparently, each color corresponds to a different flavour, but I never notice since I usually just eat them by the stack and chew on them. Chewing on them gives a wonderful texture, reminiscent of sugary chalk. As much as that does not sound appetizing, it's amazing, and I suggest you try it if you haven't yet. Fun fact: Rockets are called "Smarties" in the US.

Sour Candy – Ah, sour candies. There is a great variety of sour candies, but all of them have one goal in common: to contrast a strong, tart taste to a gentler, sweet one. It's like torturing your taste buds initially before soothing them with the sweetness of the candy. Unlike most candies, which give our palates instant gratification, sour candies test your tolerance for sourness before making them happy. The best part is giving them to unsuspecting individuals and watching their facial expressions go awry.

Gummies – Soft and chewy are what define gummies. They come in a multitude of fun and weird shapes, including bears, worms, frogs and even airplanes. Most are flavoured with the typical fruit juice flavours, but there are also some weirder ones, such as banana flavoured (which constantly reminded me of my grade 12 ester lab as I munched through them). It's also fun playing with them by pretending to be Godzilla and eating them part-by-part.

Did I make you hungry yet? Or at least trigger a craving for sweets? Yes, as with all things, candies should be consumed in moderation, but come on, admit it, nobody can be happy eating healthy all day. Striking a balance between your healthy foods and your treats is comparable to the challenge we face every day between being stellar-grade students and absolute party animals. Don't overdo it, but make sure you have some fun when you do.

An Expedition in Etiquette

BROCKGRAEME SCOTTKOPP
1A JOURNALISM

Well, well, well, it's that time again, my friends. It is now, as of Friday, July 1st, the month of July. And you know what that means. It is officially watermelon-consuming season. Because that's a thing now.

While watermelons may be both delicious and refreshing, this is not something to be taken lightly. When eating watermelon, you must be sure to enjoy it safely and responsibly.

Given that watermelon is the fruit most suited for sharing (whereas pears are the fruit most suited to be eaten in solitary), it is essential that the well-being of those you are sharing the watermelon with be taken into account, whether it be on a hot date, a family picnic or a cult meeting.

First of all, it is very important not to feed anyone else watermelon. It is not sexy.

Another tip is to ensure that the watermelon is sliced well. This means straight, vertical cuts of appropriate thickness. The ideal thickness of a slice of watermelon is 1.75 inches, which optimizes handling and eatability.

Finally, the matter of what to do with the seeds should be considered. It is imperative that you do not swallow the seeds. Because, if you swallow a watermelon seed, a watermelon will grow in your belly, and this can be quite an uncomfortable experience.

But I digress.

I am frequently complimented on the state of the inside of my mouth. People say, "Brockgraeme, I can't help but notice that your breath smells immaculate." And what these people say is true. People are always right.

Now you might be asking, "How do I keep my mouth so tasty clean?" Well, there's no simple answer to that question... except for this one.

Good oral hygiene.

Now the first step to keeping that mouth of yours clean and succulent is to make sure you go to the dentist regularly. I recommend doing this at least once a month.

Now, as important as the dentist may be in keeping those pearly whites shining bright, there are still lots of times when the dentist can't go to work inside your mouth and you just might need to get some work done yourself.

This is where toothpaste comes into play. Between 2 and 27 times a day, you need to cover a brush with toothpaste and go to town on your cuspids. Brush each tooth in a circular motion for about 21.33426 seconds, or until it feels sparkly fresh. Once this is completed, rinse your mouth with pure deionized water for 30.28 seconds. Also, brushing your teeth feels so good.

Once this is complete, your mouth will be tastier than a mint from the bowl on the counter in the Orifice.

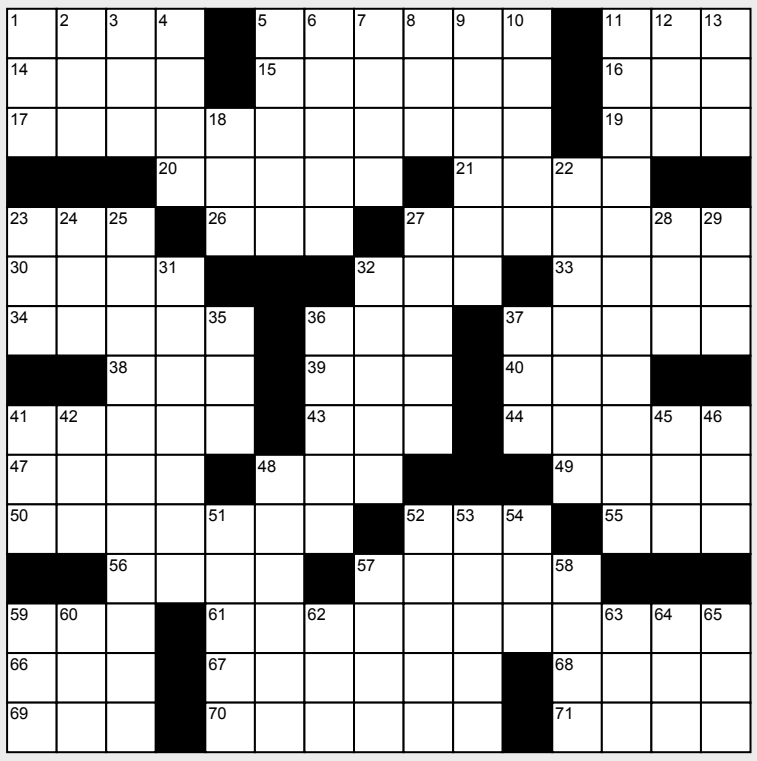
If you aren't able to get a hold of toothpaste or a brushing implement, fear not! There is a simple solution. I call it "Brockgraeme's Miracle Mouthwash Solution." Simply take some good ol' fashioned mouthwash (flavour and brand is irrelevant) and mix it with 1 part tequila or gin for every 6 parts mouthwash. This will make your breath fresh and loosen you up.

Doing these things can save you hours of embarrassment with regards to your breath and dental appearance. It is always a good idea to keep your breath fresh, and your teeth shining bright, because at the end of the day, you never know what could happen.

Sincerely, Brockgraeme Scottkopp

Go Betweens

STUART LINLEY
2B NANOTECHNOLOGY



ACROSS

1 Some shirts
5 "Hot __"
11 Officer
14 Brainstorm
15 Bran go with
16 Hydrocarbon suffix 1
17 A painter from central Africa?
19 Promote (Abbr.)
20 That's _ ____ (Hilarious)
21 Pointy math (Abbr.)
23 Music or sculpture
26 ___ Arbor
27 Get it done
30 College sports abbreviation
32 Sn
33 Mode from "The Incredibles"
34 Jive
36 Flower or river go with
37 Gospel
38 Obtain
39 See 45-Across
40 Opinion from a sheep
41 Giraffe features
43 Greek vowel
44 He "shrugged"
47 With 39-Across, food brand
48 "Whatever"
49 Slippery, as a certain fish
50 Harmed
52 Ruckus
55 Embarassed
56 Rebellious one
57 Fragrance
59 Pond fish
61 Furtado listeners with a craving for fruit?
66 Chapel words
67 Greek markets
68 Discuss
69 Early Nintendo
70 "Hirst"s or "Koons"s
71 Author Blyton

DOWN

1 Twitch
2 Tokyo's previous name
3 even, poetically
4 An epic, like "Star Wars"
5 Via transport?
6 Moses' brother
7 Baseball glove
8 "__ _ walk through the valley..."
9 Eavesdrop
10 Preneur go-with
11 One trading in shipping crates?
12 Less than two
13 Type of rally
18 Mouths, anatomically
22 Repeat, as Euler's method
23 Fish/chips linker
24 TV cable type
25 Ballroom dance percentages?
27 Face of a 45 with more airtime
28 "In the nature of" suffix
29 Little bit
31 Overhead slide material?
32 Shark feature
35 UFO pilots
36 Run, as dyes
37 First of 26, backwards
41 Snake sound
42 Large on-campus gym
45 Ginger ___
46 Early Pink Floyd member Barret
48 _____ a Trois
51 Defender of Grayskull
52 Rife with laughter
53 carry out, biblically
54 Dutch grandma
57 Taj Mahal site
58 Come __ __, bro!
59 Clan relative
60 Grecian Urn poem
62 Present
63 Geological time
64 French king
65 AIDS, for example

Easy

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

Medium

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

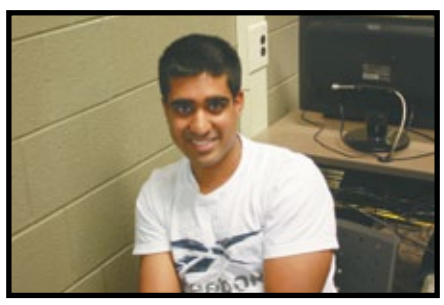
Hard

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

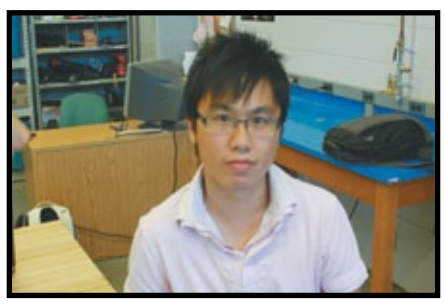
THE IRON INQUISITION
Roy Lee, 2B Nanotechnology

"What was the last song you had stuck in your head?"

"Tighten Up - Black Keys"
Atif Nazir, 3A Geological



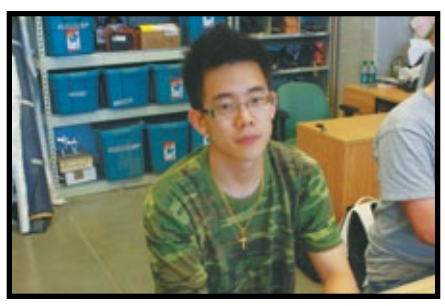
"In the End - Linkin Park"
Chris Sanichar, 2B Electrical



"Opening for Super Smash Brothers"
Dominic Ma, 4A Mechanical

"Chain of Prospit"
Jon Grieman, 3A Computer

"Banelings, HuskyStarcraft and KurtHugoSchneider"
Nelson Yu and Maple Leung
4A Mechanical



"I Don't Want to Miss a Thing, Yuna Ito"
Kevin Huang, 4A Mechanical