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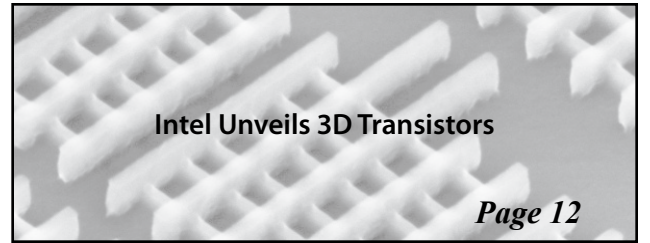
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## UW\_NRG Wins Mobile Microrobotics Challenge

**DUSHANTH SEEVARATNAM**  
2B NANOTECHNOLOGY

The University of Waterloo Nanorobotics Group (UW\_NRG) is a student run team that focuses on the fabrication of microscale robots. These micro-robots are then entered into the international competition known as the Mobile Microrobotics Challenge. This year UW\_NRG flew to Shanghai, China in order to compete in the competition as the only undergraduate and only Canadian team. The grueling competition consisted of two unique challenges. First the mobility challenge, which consisted of the robot performing a figure eight pattern on a 2mm by 3.5mm field. The second challenge, microassembly, required the participants to place microscale triangles in a narrow channel as tightly as possible.

The robot entered in this year's competition, rightfully named EMMA (Electro-Magnetic Microrobotic Actuation), is actually 500µm wide and 100µm tall. Just like the name implies, the robot is manipulated through the application of fundamental magnetic principles. By using a precise actuator and imaging system, the robot is controlled by the movement of external magnets. This allows very precise movements. The precision of these movements is what gave UW\_NRG the edge at the competition. "We

knew that focusing on the fundamentals was a key to success. We've proven that Waterloo undergraduates can play and win against top academics around the world," said Dusan Sarenac, Fabrication Lead for UW\_NRG.

With its impressive control scheme and precise movements EMMA dominated the microassembly challenge. The UW\_NRG robot was the only miniature robot that was capable of successfully manipulating the mi-

croscale triangles into a tightly packed formation. "Our refined controls system really gave us an edge - navigating video games with [the keyboard keys] WASD is one of my core skills in life," said Garry Ng, UW\_NRG Controls Lead.

With EMMA by their side, UW\_NRG captured the international microrobotics crown with a world championship victory. But what is most impressive about this group

is that they entered their first competition just over a year ago. This is a very recently established student team. Even though they were considered to be the new in the field then, the team still managed to pull off an impressive third-place finish. With the help of innovation and creativity the team managed to pull off a victory this week that other teams can only dream of. Furthermore, this victory also shows the importance of Canada, and our local research, in the microrobotics world.

Despite facing graduate students and professors from some of the leading international technology universities from around world, UW\_NRG showed the world what it takes to become crowned number one. However, every champion knows that the hardest thing about winning a competition is defending the title. But it appears that UW\_NRG already has made preparations to meet this challenge as hinted by Michael Leung, a Team EMMA member: "We're ecstatic with our performance this year - hopefully next year we see some lasers in the new design we have cooking."

Whether or not the next robot uses lasers or even flies, one thing is for sure. UW\_NRG has brought great pride to the University of Waterloo and even the nation of Canada. It will be amazing to see what this group does next!



The representatives of UW\_NRG in Shanghai, China

Edgar Cao

## Engineering Alumni Ideas Appear on Dragon's Den

**ANDREW MCMAHON**  
1B ENVIRONMENTAL

Jonathan Fishbein, a UW alumni, founded Ethical Ocean while finishing his master's degree at UW. Along with his friends and co-founders, Chad Hamre and Gavin Lengyel, Fishbein was able to successfully showcase his start-up on Dragon's Den.

Ethical Ocean is an online marketplace for organic, fair-trade and eco-friendly products. It allows people to access products from multiple vendors in one location. The products on their site range from eco-friendly fashion to solar powered, hands-free phones, a water-powered clock and fair-trade soccer balls. The site is designed to attract people who want to make a difference but don't know how, don't have the money or don't have the time.

Ethical Ocean made an appearance on the Canadian reality show Dragon's Den, a show where entrepreneurs present their products and ideas to a panel of successful business executives in order to receive investment finances. Ethical Ocean sparked a heated debate between the executives on

the validity of the market for ethical products. At one point, Kevin O'Leary called their site "a stain on the face of capitalism," but in the end, the presenters secured a deal with Arlene Dickinson for \$150,000 in exchange for 20% of their company.

Jonathan was a member of the first graduating class of software engineers in 2006. During his time at Waterloo, he was a member of Engineers Without Borders as well as *The Iron Warrior*. He is the chief technical officer at Ethical Ocean and is responsible for software development as well as coming up with other technical strategies. Another Waterloo graduate, Mike Spendlove, who graduated from systems design engineering in 2008, is also currently working for the company.

Ethical Ocean celebrated its first anniversary on Earth Day and continues to grow. In an interview with Jon, he said that this company hopes to not only be an ethical division of e-commerce, but a major player in the world of e-commerce as a whole.

If you haven't already, check out the website at [www.ethicalocean.com](http://www.ethicalocean.com).

## City of Waterloo Passes Rental Housing Bylaw

**CHRISTY ROUAULT**  
1B ENVIRONMENTAL

After much deliberation, the new Rental Housing By-law was passed by council last Monday, May 9<sup>th</sup>. The primary intentions were to create an balanced, safe, and clean environment. However, there have been many concerns about the impact that this bylaw might have on university students here in Waterloo. For most students, affordability is on top of the list. However, it seems as if the months of student protest have finally paid off. A few important changes that were incorporated into the by-law last Monday have changed this situation from what seemed like an absolute student rental nightmare to a what seems a reasonable compromise.

While students might notice a slight increase in rental costs as a result of the bylaws, they hold promise for cleanliness and safety to residents in Waterloo. Landlords will need to have a criminal record check in order to receive a license. Property standards such as parking, garbage and maintenance plans will also be neces-

sary. Houses will also need heating, ventilation and air conditioning inspections. Rental prices are expected to increase. However, the predicted range from the City of Waterloo is \$12-\$20 per renter monthly, which is arguably a small price to pay for assurance of safety standards.

As for the rumoured maximum three bedroom limit, which was the main concern for students in the area, it has been increased to four bedrooms for lodging houses. This final amendment has settled worries of major changes to the rental laws in Waterloo, gaining approval from the University of Waterloo's Federation of Students.

Major changes made to the bylaw since January include permanently recognizing existing licensed lodging houses and removal of dining room, living room and kitchen floor area requirements. The bylaw will not come into effect until April 1<sup>st</sup>, 2012.

For more information on the recently-passed Rental Housing By-Law you can check out the details at [www.city.waterloo.on.ca](http://www.city.waterloo.on.ca).

# Letter from the Editor

## Political Rant 101



**MIKAYLA  
MICOMONACO**  
EDITOR-IN-CHIEF

Welcome back to campus everyone! (Ok, I know I'm two and a half weeks late, but it's the thought that counts.) I hope you're all having a great term so far and haven't drowned in work yet.

Now that summer has arrived, I have actually had to come to terms with the fact that I am, indeed, the Editor-in-Chief of *The Iron Warrior*. Although I blame extreme sleep deprivation for actually agreeing to take this on, I really am excited for this coming term. It's been an eventful couple weeks, what with getting the paper up and running... and getting messages from UW Media Relations about concerns related to an article about a new satellite campus in North Korea (see *The Tin Soldier* from Winter 2011 for details).

When I originally thought about a topic for this editorial, I was planning to comment on the recent election results. I anticipated making it about the minority government, how the political situation had played out with the possible coalition government, and the possibility of the defeat of the government before anything even started. The election on May 2<sup>nd</sup> rather dramatically changed those plans. I sat at an election-results-watching party that evening and watched my hopes for the government – and my plans for this editorial – die a painful death.

Over the winter term, several countries in the Middle East rose up to protest for their rights to choose their own government (see the article on page 6 for an update on the situation in the Middle East). Given these events, I hope that all of you who had the right to vote in this election exercised this right. I definitely have firm political opinions, but no matter whom you voted for, as long as you voted, I

can't complain. Or at least I can't complain too much.

I have to say that I was very disappointed in the election results. After all the things that the Conservatives have done, the idea that Canadian voters would hand them a majority government really bothers me. Either the 39.62% percent of Canadians who voted for them were seriously misinformed, or they must have truly felt that issues such as cancelling the mandatory long form census, the mis-spending of G20 funding, not to mention contempt of parliament, were either insignificant or laudable.

Not to say that this election wasn't a historic event. It saw a dramatic defeat of both the Liberals and the Bloc Quebecois, and the first federal NDP Official Opposition in Canadian history.

To put the Bloc's defeat in perspective, they have lost official party status in the House of Commons. In the previous parliament, they held 47 seats. Now they have been reduced to four, while the minimum number of seats for official party status is twelve. They are now considered Independent MPs, which means that they will be not granted any opposition days or any seats on parliamentary committees. This has dropped the Bloc from a party with the power to decide votes in the House (by either supporting the Conservatives or Liberals + NDP), to a party which isn't even acknowledged as such. Although I do not support the separatist movement in any form, I am disappointed to see Gilles Duceppe's departure. He has always impressed me as a leader of a political party. I may not agree with his politics, but I wish some of the other leaders would be as classy as him. Even in his concession speech, he wouldn't let his supporters boo Jack Layton. This, to me, shows the type of attitude which is severely lacking in politics today.

The NDP were the beneficiaries of the Bloc's collapse, sending a variety of new MPs to Ottawa. This includes one MP for

a French speaking riding who doesn't actually speak French and had never visited the riding she will be representing at the time she was elected. There were also several university students elected, including one nineteen year old. While I'm glad to see more youth in politics, I'm worried that these new MPs aren't ready for the positions they signed up for. I wish the new MPs luck, but I do wish that the NDP had put some more thought into their choices when they nominated their candidates. I know that these candidates were never expected to win, but our electoral system makes voting for a candidate instead of a party a difficult choice, leading to voters electing less than ideal candidates. I hope that this situation causes parties to select even their unlikely candidates with care in the future.

The Liberals were another spectacular collapse. While they retain their official party status, they finished third for the first time in their entire party history. They have had their second party leader resign in three years. Ignatieff did impress me during the campaign, considering he was operating under the handicap of the smear campaign that the Conservatives have been running for the last couple years. However, it was evidentially not enough to gain the support of the Canadian people. Hopefully, with the Liberals out of the spotlight, as they are neither the Government or the Official Opposition, they'll be able to spend time to rebuild their party and pick a new leader who can connect with the Canadian people.

Now on to the Conservatives. I suppose that I should congratulate Steven Harper on attaining his long-sought majority. Instead, I am going to hide under a giant rock for the next four to five years, and try not to think about fighter jets, mega prisons, tough on crime bills, scrapped long gun registries, scrapped party subsidies ...

I'll go hide under my rock now. See you in five years.

**Issue #2 Deadline: Friday, May 27 at 12:00pm for publication on Wednesday, June 1, 2011**

Send your submissions to [iwarrior@engmail.uwaterloo.ca](mailto:iwarrior@engmail.uwaterloo.ca)

**Spring 2011 Publication Schedule:** June 1, June 22, July 6, July 20

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*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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## Ask the Dean

**ADEL SEDRA**  
DEAN OF ENGINEERING

**Questions:** How was the decision made to suspend the Formula Team in April? Why was the entire team suspended?

Let me assure you that this decision was not taken lightly. Waterloo Engineering places tremendous value on all of its student teams and the remarkable work they do. I also want to clarify that, although the word "suspend" has been used to describe the decision to withdraw the team's access to space, none of the team members have been penalized academically. Furthermore, co-op students and student projects received credit for their work during the term.

This decision resulted from use of the centre's space for a personal photo shoot which was not intended to promote the team, its vehicle or the student design centre. The photo shoot was brought to the Faculty's attention by students who saw the photos being taken and were uncomfortable. We subsequently learned that the photos were part of a student's application to appear in a calendar published by an external organization which donates 10 per cent of its profits to charity.

Use of the student design centre is a privilege enjoyed by less than five per cent of our 6,000+ undergraduate students. The space provided to teams is intended to be used to complement the learning experiences stu-

dents receive in class and on work terms. In return, the team is expected to use the space within specific guidelines and for student project-related purposes only.

Waterloo Engineering is committed to creating a learning environment that is comfortable for all its students. In this situation, university facilities and property were used to take photos which, when placed in the context of a university engineering student lab, make some members of our community uncomfortable. The Faculty did not make this decision as a means to limit or judge what our students wear on campus or in photos, or how they express themselves.

Waterloo's student teams are student-organized and self-governing, with responsibilities and accountabilities shared by all team members. Access to the student design centre is provided to the team, as a team. Therefore the decision was to withdraw the team's access to its space in the student design centre until June 1.

I want to again take this opportunity to commend the Formula SAE team members for demonstrating professionalism and maturity in this situation. They have accepted the withdrawal of access to their space in the student design centre and are now focusing their attention on moving forward.

If you have a question you'd like Dean Sedra to answer please submit your questions to Meg Bauman, SRO [mebauman@uwaterloo.ca](mailto:mebauman@uwaterloo.ca).

## Formula Team Statement

**FRANCIS LOH**  
2011 TEAM CAPTAIN

As many of you are quite aware, the Formula Motorsports team was suspended from the usage of facilities and had to cease operations for the remainder of the 2011 season until June 1<sup>st</sup> due to the events that transpired on the night of March 16<sup>th</sup>, 2011. With the sole purpose of carrying out a personal project for a charitable cause, two team members drove a personal car into the SDC (Student Design Center), with one of the team members modeling in a bathing suit in front of our 2010 competition car. As a result, the team's name is now synonymous with the words bikini, babe, and fast cars. However, this is not what the team is about.

First of all, let me tell you a bit about my role within the 2011 Formula Motorsports team. I was the Team Captain, responsible for every aspect of the team's operation to ensure that the University had a successful package to contend at international Formula SAE competitions.

My team consists of more than 50 students from all disci-

plines of studies, who are all very passionate and dedicated towards the team's vision: To create a world class competition car and win. Just like the other student teams in the SDC, if we're not attending classes or studying for exams, we're spending 10-20 hours a week - with some of us spending more than 40 hours a week--working on the car without much school recognition or credit.

The suspension brought feelings of utter shock and doom to the team members, which was to some extent mitigated by an overwhelming outpouring of support from students, alumni, and the industry. However, with the guidance of our faculty advisor, Professor Steve Lambert, the entire team was able to deal with the situation professionally and in unison. We have admitted to the mistake of misusing the facilities for the unauthorized photoshoot, though we feel that the reprimand was indeed harsh. I also believe

that if there was an initial discussion between the Dean's office and our team's faculty advisor, the decision would have been less jarring to the entire team and certain details would have been clearer to both sides.

As a consequence of our suspension, we are unable to compete in the 2011 Michigan Formula SAE competition. Also, the 2012 team will be set back behind its intended schedule.

### But we have moved on.

The SDC management has listened to our suggestions and have put forth a preliminary plan to create a process to deal with similar situations. Also, I was given limited privileges to use the SDC facilities to give the 2012 team a head start, because it is going to take quite some time to resume operations. Furthermore, we were allowed to attend the Formula SAE competition held at the Michigan International Speedway, but not compete.

We have definitely taken this crisis as an opportunity to develop our team to be stronger and better. The team will be closely integrating various students' fourth-year design projects for either R&D or current ve-

hicle build initiatives. A more defined team structure will be utilized to ensure efficient operations without redundancy and to develop leaders of tomorrow, but with enough flexibility for an innovative environment. Various engineering and business standards will be put into place so new joiners will not experience a steep learning curve.

We are extremely excited to begin unfolding the 2012 story. I envision it as a season where the team will once again renew its vision and passion for creating a world-class force to be reckoned with. So I encourage you to come by our team bay after June 1st to see what we're all about. After all, this is a work in progress and we welcome all the help we can have.

For more information, please visit our website <http://fsae.uwaterloo.ca/>

You may also contact us through [uwfsae@gmail.com](mailto:uwfsae@gmail.com)



Andre Lo

## Letter to the Editor

### FSAE and What Students are Saying

**CAILIN HILLIER**  
3T GEOLOGICAL

By now, I have a feeling that most students have heard some variation on the events that took place on campus at the end of last term regarding the Formula Motorsports Team. I encourage everyone to read the article from the FSAE team prior to reading the following opinion piece. This is my attempt to summarize the wide range personal opinions that I have heard regarding the suspension of the team due to an unauthorized photo shoot and where this leaves us now.

Following the Dean's decision, an email was sent out to engineering students. The subsequent media explosion caused news to travel quickly about the suspension of the team. *The Record*, *Maclean's Magazine*, *Fox News*, various popular auto-related blogs and social media sites covered the story. *The Iron Warrior* email was flooded with letters from concerned alumni, parents of students, students themselves and faculty and staff members of the university. I have spoken with UW Engineering alumni who now refuse to donate to the university. They even feel uncomfortable wearing their engineering leather jackets that they have proudly worn for years. Based on all of these opinions, I have been able to draw several conclusions on how people feel about this issue.

Firstly, I would have to say that 90% of the people I have talked to about this feel that the Dean's decision to suspend the entire team over the course of their competition season was extremely harsh and unjustified. I definitely feel that the punishment was unnecessary and that the motive behind it was obscure and hypocritical. I met with someone in the Dean's office early on when I heard about this, purely as a concerned student. I knew I didn't have all of the facts as, at this time, no statements had yet been issued. As an entire team had suddenly been suspended, I wanted to make sure that the teams I was affiliated with were doing nothing that would be deemed inappropriate. I asked for the reason for the suspension. Why did this happen? I was met with a convoluted reply. Something regarding the misuse of the Engineering 5 Student Design Centre was the response. I asked if the team knew that what they were doing was incorrect in anyway. I was told that upon moving into the Design Centre, teams signed contracts explaining the rules. I still have yet to be able to locate such a contract or find anyone on any team who has personally signed one of these. I then asked very bluntly if this would have happened had a man been posing next to the car. I was told that the same punishment would have been handed down. Fine; I left the office.

Then, comments from the Dean's Office suddenly seemed abundant. Dean Sedra found the photos "denigrating to women." How did this have anything to do with the team's suspension? Why was the Dean commenting on this at all? This was not supposed to be the reason for the suspension. Then, safety within the Design Centre and upset sponsorships became the issue of the day. Leaf blowers and engine exhausts were dangerous. As one friend's blog pointed out, I truly hope that a student team space with countless cars and engines present would be equipped with proper ventilation systems. Safety here should not have been of concern. Also, I have not heard of one sponsor having complained about this issue. If anything, sponsors have been outraged as much as alumni and students about this. They have donated thousands of dollars to support a team to go to an international competition, which is now no longer going to happen. This my main concern for the team as I know how difficult it is to acquire funding for projects. The Waterloo Engineering Endowment Fund can

only give so much. It is sponsor support that makes all of this possible.

Not only do most agree that the decision was far too harsh, but this affects the entire team. This has negative impacts on over 50 people's learning experience. Students are still able to attend the competition, but not compete. This is an insult to the work they have done for this school. They will miss out on key networking opportunities at competition. The Dean has been quoted as saying that "this is the way life is" and to take this as a learning experience. This is not the way life is. Entire teams do not get suspended for the actions of a few that were done on the best of intentions. Students involved in this unauthorized photo shoot were caught on surveillance video that they knew was being taken. Clearly, they did not think what they were doing was wrong. They were attempting to help a friend. One small mistake on their part. Note I said small, insignificant, as in, this is not a big deal.

This entire situation has been taken out of context and blown way out of proportion.

Would a warning not have been sufficient? Are they really trying to make examples of this team, as if we were living under tyranny? Are we no longer encouraged to be risk-taking, creative and innovating?

And even if you do feel that these photos were inappropriate, should an entire team that has spent countless hours working on their car be punished for the actions of a few team members for the purpose of teaching them a lesson?

To me, after as much investigation as I could manage, this decision appears to have been made by one person, our Dean, who felt personally offended by a few photos and has used his opinion to make this ruling.

These are photos of a woman in front of a race car, a typical image within the motorsports culture. More importantly, they are photos of a team member who is an inspiration to girls who want to be feminine, smart, and confident. Isn't it just about the coolest thing in the world that this beautiful woman actually helped build the race car as a leader on this team?! I am so proud to know her; she is incredible and has conducted herself impeccably throughout this entire ordeal. The entire team has.

I can understand not wanting to personally pose in front of a car in a bikini. Not everyone is comfortable with their bodies or confident enough to do so, but if you are, why not? I can see how, from the surface, these images may be interpreted as unprofessional. This gets back to the point I made above of it not being a big deal. These photos were not going to be used in a negative light in any way whatsoever. I cannot say this more clearly than the following metaphor that has been used to explain the situation: a nuclear bomb has been used to kill a mosquito.

Ultimately, this leaves me asking more questions than finding answers. This entire situation makes me feel sick to my stomach. The Dean is supposed to be on our side. So many students work tirelessly to promote engineering and make UW such an amazing place. It is the people that make the place. Since when should the Dean be more concerned with making UW Engineering look perfect while hindering its students? Since when did Engineering 5 become more important than the people inside the building?

I am extremely disappointed in my university, a place I have been absolutely devoted to for almost four years. All I can do now is urge the Dean's Office to communicate with students. If you expect us to follow rules, please make them clear. If you are going to hand down extremely harsh punishments, please try to understand the situation before making the judgement. Talk to us. We are students, smart ones, with opinions. Listen to us. We deserve respect.

# New Formula Hybrid Student Team Starts up at UW



**ANGELO  
ALAIMO**  
4A ELECTRICAL

Before last week, I would have never imagined a formula SAE car as a plug-in hybrid. To my amazement, a group of University of Waterloo Engineering students want to build such a vehicle - and there just happens to be an international competition where the team can race against other universities from around the world.

The competition, simply named "The Formula Hybrid International Competition" is a fairly new competition which was founded in 2006 at Dartmouth College in the United States. Competing

schools are required to design, build, and race high performance, plug-in hybrid vehicles. The best analogy is to compare it to the Formula SAE program, but with the added challenge of trying to find the perfect balance between performance and fuel efficiency in a hybrid vehicle. Did we mention that it has to be sporty and fun to drive?

As the name of the competition suggests, the car's build isn't exactly the same as regular formula SAE vehicles. Apart from the normal gasoline four-stroke engine, the car requires a few extra components for it to be a plug-in hybrid racing vehicle. First, a 29 HP 3-phase AC induction motor is used for electric powered propulsion and regenerative braking. The motor outputs 70 ft-lbs of torque which, according to team's electri-

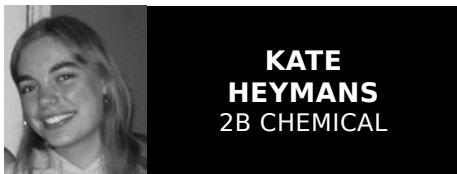
cal designer, Nevin McCallum, "can be used for intense acceleration and just-as-intense deceleration." Secondly, the vehicle must be able to store electrical energy converted from regenerative braking of the vehicle. The storage component must be able to store and discharge electrical energy very rapidly, and an accumulator comprised of many ultra-capacitors is utilized for this purpose. Tying both of these components to the gasoline engine is the Parallel Hybrid Drivetrain. This drivetrain allows the vehicle to be connected to both the electric motor and gasoline engine at the same time; this provides an electric boost from the AC motor in tandem with the gasoline engine's acceleration.

The engineering side of the team is comprised of students from mechanical,

electrical and mechatronics engineering disciplines. Such an interdisciplinary team is essential because, as McCallum says, "it provides [them] with a well-rounded base, allowing [them] to have a truly cross-disciplinary design team that tightly integrates all of the car's subsystems." In addition to the engineering students, the team also has members from Arts and Business who focus on sponsorship, community outreach, and race logistics.

Since the team is new, it needs members to help design, build and race the car. If you would like to join this student team, you may contact them at [uwaterloohybrid@gmail.com](mailto:uwaterloohybrid@gmail.com). To find out more information on the Formula Competition, check out the competition website at <http://www.formula-hybrid.org>.

# UW Team Wins Award for Capturing CO<sub>2</sub> with Seawater



**KATE  
HEYMANS**  
2B CHEMICAL

Waterloo students continued to promote our innovative image by winning the best overall design for innovation in sustainability at the WERC Competition at the New Mexico State University. Sasha Smith, Elise Bingeman, Jamy Kallikaden and Naomi Zimmerman attended the WERC competition, a consortium for environmental education and technology development under the faculty supervision of Dr. W. Anderson and Dr. D. Henneke. The team of 4B Chemical Engineering students were congratulated by the judge for producing a solid and marketable by-product as part of their design.

The team entered a design in the Carbon Sequestration category. Their design

was based on dissolving carbon dioxide in seawater using the concepts of Henry's Law. Depending on the pH of the water, carbon dioxide will dissolve into either carbonic acid, bicarbonate or carbonate ions. At the natural pH of seawater, 7.8 to 8.3, bicarbonate ions are dominant; however, if the pH is raised to 8.8-9.3 region, carbonate ions become the most common species. This allows carbon dioxide to be sequestered since the carbonate ions react almost instantaneously with calcium and magnesium ions present in the water to form solid precipitate. The precipitate can then be used for various applications including agricultural lime and reactant for flue gas desulphurisation. The team designed and optimized an electrochemical cell to ionize the water and produce predominantly OH<sup>-</sup> ions, raising the pH of the seawater.

The team really enjoyed participating in the competition thanks to their spon-

sors (BASF Canada, SSF, Chemical Engineering Department and the Dean's Office) and recommends the competition to

future Waterloo Students. More information about the competition can be found on [www.werc.net](http://www.werc.net).



From left to right: Naomi, Elise, Jamy and Sasha

# CRTC Outlines 2015 Internet Plan and More



**JACOB  
TERRY**  
1T NANOTECHNOLOGY

The Canadian Radio-television and Telecommunications Commission announced early this month that they have set minimum broadband targets for all Canadians to receive by 2015.

Their target goal is for all Canadians to have speeds of at least five megabits per second for downloads and one megabit per second for uploads. This would be the equivalent of downloading a 3.5 minute song in less than 12 seconds and having stable, high-definition Internet streaming.

The commission hopes to push the spread of high-speed Internet past urban centres and into rural areas which, in some cases, are still stuck with barely better than dial-up. The CRTC claims that over 80% of households have access to 5 Mbps download speeds already, and over 95% of households have access to 1.5 Mbps download speeds. They hope bring more access to the 20% of households still without 5 Mbps download Internet access.

In addition to their targets for broadband adoption, the CRTC also had comments on local phone service and competition. The previous basic service objective that the CRTC had required is now lifted in 80% of residential phone

markets. However, companies are required to keep their basic residential phone line services at a maximum of \$30 per month. This may make it more expensive for rural consumers, but will reduce the need for subsidies since many companies were offering their services cheaper in rural areas than it costs to implement them.

The CRTC's statement on competition included new measures to help smaller phone companies provide access to home phone service. Smaller phone companies receive subsidies until competitors can offer service to 75% of the market. They also can claim half the subsidy they would receive for subscribers that switch to a competitor during the first three years of competition and new entrants are required to pay start-up costs in markets where a smaller phone company has less than 3000 subscribers.

What does this mean for you? If you live out in the boonies and your Internet connection sucks, the CRTC is hoping to get you up to par with what most people get now within the next five years. This might be good for users in cities as well, since when rural Internet is improved, they may be able to speed up improvements on city networks as well. It's good to see that the commission is trying to help citizens get more reasonable Internet download and upload speeds, and has focused less on trying to cap our monthly usage.

# Staff Contributions Childhood Memories

University students are actually relatively old. If you think about it, we've all been alive for about a fifth of a century, and there's a lot of things to be nostalgic about. Back in the day, we used to have VHS tapes, Power Rangers, decent Disney movies and PLUTO (not Mickey's dog). Here are a few other things some of our staff (and Tim) remember.

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**KATE HEYMANS**  
2B CHEMICAL

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You know those old things that you had to rewind before you could listen to them? Those prehistoric-seeming artefacts that made scratchy sounds once they got too old? They used to be called "cassettes" back in the day. If you were lucky, it was a double-sided cassette which you didn't have to rewind. My favourite part was actually being able to make my own recordings. As a kid, listening to my own voice coming out of a plastic box was a source of endless wonder. It still seems kind of magical today.

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**TIM BANDURA**  
4A MECHANICAL

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I miss classic PC games that really took a bite out of your life. In today's market, you're lucky to even have a 10 hour cam-

paign and a decent story. Try sitting down for a day and finishing Neverwinter Nights or even Deus Ex. Performing runs of Halo 3 or Crisis in a day just does not give the same satisfaction of overcoming the mountain that Neverwinter Nights represents. Of course, the recent exception is Oblivion (to which I've sold over 150 hours of my soul to). If one can consider the year 2006 to be recent, that is. Hopefully, Skyrim can be the game that its predecessors defined as the new standard of time sinks.

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**HANS BERNARD TEE**  
2B NANOTECHNOLOGY

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When I was wee lad, I lived in the Philippines, and one thing that I always loved was playing with firecrackers around Christmas and New Year's. No, I don't mean lighting the nice, big ones that go up to the sky and explode in pretty colours; I mean those small, potentially dangerous sticks of gunpowders we called "watusis." We would rub one end against the rough concrete to light it and it would immediately start popping. As it reaches the last bit, it would start going off in random directions. They were probably very dangerous, as they did not really have any reliable safety mechanisms other than our own reflexes, but that's exactly what made them so much fun.

# A Look at the Life of Osama bin Laden



**SPENSER  
GOOD**  
1B MECHANICAL

The news of Osama bin Laden's death brought rejoicing to the West and mixed feelings to the Arab world. His death will be painted as a symbolic success in the war on terror for the West and the death of a martyr that must be avenged by al-Qaeda. Given the amount of media attention that has been directed towards the hunt for and murder of arguably the world's most reviled man, very little information has been collected of either bin Laden's personal history or background. Given his global infamy it is hard to understand why more research has not been done on the man largely responsible for the deaths of tens of thousands of people and for the spread of one of the world's most twisted and evil ideologies.

A little known fact amongst the gen-

eral population is that the bin Laden family owns one of the world's largest construction companies, the Saudi Binladin Group, which has offices around the world. Mohammed bin Awad bin Laden, the father of Osama, founded the Binladin group. The Binladin group took advantage of a close relationship with the royal family to obtain a promise that all future construction projects in the Kingdom be awarded to their company, including the multi-billion dollar refurbishment of Mecca. The company has since accumulated a net value of five billion dollars, making the bin Ladin family the richest non-royal family in all of Saudi Arabia.

Osama bin Laden was born into this wealthy family in 1957 in Riyadh, Saudi Arabia to the aforementioned Mohammed bin Awad bin Laden and the man's tenth wife, Hamida al-Attas. Soon after the birth of Osama, his father divorced al-Attas, who soon remarried an associate of Mohammed and had several other

children. Osama was raised in the household of his mother and stepfather as a devout Wahhabi Muslim. Wahhabism is recognized as an ultra conservative Muslim sect that is the dominant religion in Saudi Arabia. There is much debate as to what Osama bin Laden may have studied in his post secondary education, with some stating he got a degree in civil engineering while others state that he studied business.

It is known, however, that after Osama bin Laden left college he joined the US-backed Mujahideen fighting the Soviet Union in Afghanistan. After successfully fighting off the USSR, bin Laden was largely responsible for the collapse of the Afghanistan Republic and the installment of the ultra orthodox Taliban as leaders of the nation. After being expelled from Saudi Arabia for his criticism of the Kingdom's decision to allow US troops onto their soil during the Gulf War, bin Laden took refuge in Sudan where he began the global terrorist network we know

today as al-Qaeda. Soon after, however, he was expelled from Sudan and returned to Afghanistan where he began large scale planning of more terrorist attacks. After the 9/11 attacks and the subsequent American invasion of Afghanistan, bin Ladin took exile in Pakistan, where he was killed with much fanfare weeks ago.

The effects of his death remain to be seen. The "war on terror" remains hugely unpopular in Canada and amongst too many Americans, and the death of bin Laden is a much needed boost for the campaign for the Obama regime. However, the celebration will be short. As more soldiers die fighting an ambiguous enemy, the direction and goals of the mission will continue to be in question. However, the death of bin Laden is certainly a success in Afghanistan, and we can, if only for a moment, take some satisfaction that our world will no longer be influenced by the mass murderer that was Osama bin Laden.

# Congrats Prime Minister Harper, Now the Test Begins



**SPENSER  
GOOD**  
1B MECHANICAL

It has been a long wait for Stephen Harper and the Conservative Party of Canada. Harper has now not only survived three elections, an attempted coalition coup, and numerous scandals, but he has also come out as the leader of a strong majority that toppled the mighty Liberal Party. The Liberal defeat was monumental because, for the first time in history, the Liberals are not the Official Opposition or the ruling party. Harper has overcome his perceived lack of charisma with a steady hand and has led our country out of the recession with an economy that is one of the strongest in the industrialized world. Much of this can be credited to poor leadership of the Liberal party, but Canadians have decided that it is time that Stephen Harper be given a chance to lead this country unhindered by the constraints of a minority government. However, Harper needs to make some changes in order gain the hearts and minds of the Canadian people.

Much has been said of Harper's au-

thocratic style of governing, particularly over his own party. Nobody likes back door politics, but much of his autocratic style can be attributed to the fact that he was pushed up against a wall by a pack of hungry wolves for six years. Facing intense scrutiny from the Bloc, the Liberals and the NDP, Harper had to be strict with his own party, for any infighting would have surely led to further political drama. Now that he has full control, and that the scrutiny of the rest of Parliament has a lesser political impact, Harper must open up dialogue within his own party. If he continues to rule with an iron fist, Canadians will remain wary of his leadership. A more open Harper would be a much more popular Prime Minister.

To build on this point, eliminating the voter subsidy would be a terrible mistake by Harper. Not only would it be viewed as dictatorial by much of the Canadian public, but it would also be a poor move politically. Sustaining separate national campaigns would become much more difficult for the NDP and the Liberals without the voter subsidy, and could force them to unite and become a much more threatening force to the Conservatives.

Harper also has to remember the real difference between this election and his

last two. Most of his seats were gained in Ontario and British Columbia, both former Liberal strongholds. The Conservatives must strive to be a party for all Canadians. Although this election showed a clear desire for more right-wing politics by many Canadians, Canada remains a fairly liberal place, and Harper must resist the temptation to lean too far right.

Harper must continue to encourage growth and investment in our economy through tax cuts and opening up our borders to foreign investment. Our country has the greatest wealth of natural resources in the world, and our economy will remain commodity-driven for years. It is Harper's job to make sure that the revenue generated through resource exploitation is spread throughout the country and not just in the area in which that commodity can be found. If he does this, his popularity in voting hotspots, namely Quebec and Ontario, will surge.

It will also be easy for Harper's government to ignore Quebec. The NDP's surge in the francophone province has led many to conclude that the sovereigntist movement is dead. However, this is could not be further from the truth. Much of the NDP's success in Quebec can be attributed to the perception that their party

will be sympathetic of Quebec's "special interests." It is not, as many would like to believe, a sign of federalist fervour in Quebec. A provincial election is highly likely to lead to a Parti Quebecois victory, which would once again open up heavy sovereigntist dialogue in La Belle Province. If Harper ignores Quebec, it will further encourage the sovereigntist movement and cripple the Prime Minister's popularity.

I am no partisan, but right now, I am happy with the job the Conservatives have done in governing this country. I believe that through a series of modest stimulus packages and responsible spending, our country has managed to avoid the debt crises that have enveloped much of Europe and the United States. I see no reason for change. I think that Stephen Harper deserves a majority, but Canadians will keep him on a short leash. Unlike the governments of Brian Mulroney, Jean Chretien and Pierre Trudeau, Stephen Harper will not be voted in again if he gives into corruption and personal politics. After asking for years for a majority, Canadians have given Harper a chance to drive with both hands on the wheel. Now, it's his turn to show that he deserves it.

# Student Teams Look to Recruit New Members at Open House



**ALEXANDER  
HOGEVEEN  
RUTTER**  
4A ELECTRICAL

The E5 Design Centre opened its doors last Tuesday, May 10<sup>th</sup>, for all students to learn about the variety of student teams UW Engineering has to offer. I'm always amazed at the level of expertise demonstrated by the various representatives, with each team looking to expand their size and almost every discipline being represented.

After speaking with many of the teams, it was clear the knowledge and skills learned from designing, building and competing were invaluable in their development as engineers, for both finding jobs and supplementing their academics. The teams I encountered on my visit included:

- Formula Hybrid Team
- Formula SAE Team
- International Genetically Modified Machines

- Midnight Sun Solar Car Race Team
- Space Engineering Team
- UW Underwater Technology Team
- UW Micro Aerial Vehicle Team
- UW Robotics Team
- UW Alternative Fuels Team
- UW Clean Snowmobile
- UW Baja Team
- Waterloo Satellite Team

The event was well-attended by many students and hopefully many were inspired to join one of our world-class teams. Team competitions are among the few opportunities for recognition and success outside the immediate UW environment. My only complaint is the hassle of finding a correct stairwell, but the elevators also work.

To be somewhat editorial, I would say that my biggest regret for my time here at UW has not been joining a student team: although I have certainly been involved on campus, student teams offer the unique opportunity to learn both engineering skills and transferable skills such as teamwork, effective communication and time



Angelo Alaimo

**Teams advertising their works at the Student Design Centre Open House**

management.

Partial lists of teams can be found here:  
<http://engsoc.uwaterloo.ca/links/student-groups-teams>

<http://www.eng.uwaterloo.ca/~ugoffice/html/teams.html>

If you can't find something you are in-

terested in, I would encourage you to keep looking, or find other students and faculty with similar interests to start your own. UW has a long history of student teams starting from little more than an interest and growing into a successful organization.

# Unrest in the Middle East: An Update on the Current Political Situation



**FARZI  
YUSUFALI**  
2B NANOTECHNOLOGY

Today, your current dose of news consists of the death of the world's most sought after bad guy, the recent nuptials of Canada's beloved Crown Prince and the sudden change in Bristol Palin's facial structure. Many Middle Eastern countries however are still waging wars against their own governments in an effort to achieve political and personal freedoms. For all those engineers who crave to be more meaningfully informed than using the 6 o'clock news, a comprehensive update of several Middle Eastern countries that have failed to make the final cuts of popular news programs follows below.

## Tunisia:

Tunisia, in the beginning of 2011, was identified as being the catalyst to the Middle East uprising by being the first to remove an authoritarian president from office using non-violent street protests. It is safe to say that this small country had introduced a form of democracy to the Arab world that inadvertently changed the history of this region in ways nobody could have predicted.

On January 14<sup>th</sup>, 2011, President Zine El Abidine Ben Ali was ousted from office, and a state of emergency was declared. A coalition government was created which included members of Ben Ali's party (the RCD) and other opposition figures. This was done in the hopes that formal elections could be organized within two months of the president's departure. However, protests continued as the protesters demanded that the RCD should have no part in the coalition and should be dismantled. Due to this unrest, the prime minister of Tunisia resigned from his post on February 27<sup>th</sup>. By March 9<sup>th</sup>, in accordance with protester demands, the RCD was officially disbanded. Despite the progress, the Tunisia has suffered major setbacks due to mass desertions of public officials and police officers from their posts.

With this unrest, the country is in fear of descending into anarchy since the transition to a multiparty democracy in Tunisia

has been met with many obstacles. New developments from Tunisia indicate that the election of a constitutional council needed for rewriting the constitution has been set for July 24<sup>th</sup>, 2011. The caretaker president of Tunisia, Mohammed Ghannouchi, has therefore refused to resign before the election is held and a date for the general elections is set.

## Egypt:

While the story of Egypt's uprising via non-violent protests thrust the Arab revolutions into attention, many news networks have failed to document the issues that Egyptians continue to face in the aftermath of ousting their authoritative leader from power on February 11<sup>th</sup>.

As you all know, the Armed Forces of Egypt took control as the interim governing power in the hopes of keeping the country under control over this tumultuous time period. One of the first demands that the interim power acted on was to hold a constitutional referendum on March 19<sup>th</sup>. Needless to say, the constitutional referendum was passed with

an overwhelming majority of 77.27%. However, political affairs quickly deteriorated in the beginning of April when the remaining Egyptian cabinet passed a law criminalizing protests and labour strikes. These became punishable by jail or the equivalent of a \$100,000USD fine.

Due to this sudden change, between the weeks of April 1<sup>st</sup> and April 8<sup>th</sup>, 2011, over a hundred thousand people set up protests in Tahrir Square condemning the rule of the Armed Forces as they had not fulfilled the people's demands. These included the immediate removal of the remaining figures from the Mubarak regime and the removal of the nation's public prosecutor. His removal was demanded due to the corruption among officials and the pace at which the investigations were being conducted at. In retaliation, Egyptian security forces enforced a fiercer crackdown than that imposed by Mubarak himself. During this time, more human rights violations were carried out by the army where even civilians caught criticizing the military regime were immediately detained without trial.

Presently, it has been reported that the coalition government has begun to carry out protestor demands, which include the disbandment of Mubarak's party and the promise to hold a general election in months to come.

## Yemen:

Like all the other Arab countries mentioned in this article, Yemen followed Tunisia's example in the form of non-violent street marches. This story has not been documented as well as other countries involved in this wave of revolts. The Yemenis began protesting in mid-January with demands that included the immediate resignation of President Ali Abdullah Saleh from office. In an effort to quell the demonstrations, Saleh responded with a promise to not run again.

However, this did not stop the demonstrations; thus, with the support of the tribal leaders and military commanders quickly waning, Saleh ordered security forces and government supporters to open fire on thousands of protesters on March

18<sup>th</sup>, 2011. While this effort killed at least 50 people, the demonstrators refused to move. After this attempt, Saleh lost much of his support and by

March 21<sup>st</sup>, many officials, including five army commanders, resigned. The Joint Meetings Party, which was the coalition party formed, proposed that Saleh leave by the end of 2011; however, the protesters outright rejected and demanded that the president resign immediately. During this time, the violence between the protesters and armed forces continued to the point that it almost plunged the country into a full-fledged civil war.

On April 23<sup>rd</sup>, Arab mediators proposed that Saleh would shift power to his deputy over the course of 30 days by signing an agreement in which the president would leave his position on the condition that he and his family would be granted immunity. This was rejected by the protesters but was accepted by the Joint Meetings Parties. However, the intended signing date of May 1<sup>st</sup> was postponed since continuing talks led to the suspicion that Saleh was "playing for time." This led to more pro-

tests by Yemeni youth groups, to which security forces responded by opening fire on the people on May 9<sup>th</sup>. Since then, the violence has continued as the protesters have refused to relinquish their position.

## Bahrain:

Bahrain, under the influence of the revolutionary political wave of the Middle East, began its own political revolution on February 14<sup>th</sup>, 2011 when street protesters camped out at the Pearl Roundabout in Manama. Unlike the other political situations mentioned, these protesters were composed of a secular religious group protesting discrimination and human rights violations. After a month of protests, the king of Bahrain, King Hamad, declared martial law and a three-month state of emergency in an effort to dispel the protesting crowds at Pearl Roundabout. The day after this declaration, the Bahraini police fired at the civilians, hundreds of which were killed. Another imposition on civilians was that the communications in the country were either shut down or heavily controlled by the government. After increasingly more violent crackdowns on demonstrators, the people began to retreat in April. However, the intensity of the crackdown did not cease as the hospitals in the area were soon guarded by the militia in an effort to refuse protesters treatment for injuries sustained.

The religious turbulence between two religious sects in Bahrain quickly resurfaced during the revolt. The largely secular protesters, making up 70% of the population, were viciously attacked by the Saudi-controlled army called in by the Bahraini government. With the political clashes quickly escalating, Western countries have condemned King Hamad's rule. However, the western hemisphere has thus far refused to intervene as a result of the relations that the protesters have with Iran. Hence, the western hemisphere has been reluctant to take definitive action against this blatant abuse of power that rivals Col. Gaddafi's regime in Libya.

Given the number of countries still engaged in political protest, not all countries could be covered in this article. Nevertheless, millions of civilians from almost twenty countries in the region have engaged their own revolts in the first five months of 2011. Syria, for example, is experiencing a civil uprising of secular groups similar to that of Bahrain and Yemen, while major demonstrations in Algeria, Iran, Iraq, Jordan, Morocco and Oman are currently underway. Smaller protests calling for government reform have also been reported in Middle Eastern countries like Kuwait, Lebanon and Saudi Arabia as well as Northern African countries like Djibouti, Mauritania and Sudan.

It is also important to note that only two countries out of this extensive list, being Tunisia and Egypt, have succeeded in ousting their respective dictators from office. However, the aftermath of these two revolutions clearly reveal that such drastic methods of reform do not come without loss. In any case, the non-violent and youth-organized protests have become a source of pride for the people of the Middle East since they have proven that such methods are still relevant when aiming for political reform. Each nation's revolution was a huge achievement in itself. The real test, however, will be the actions of these countries as these will dictate whether they successfully make the transition from volatile, government-less states to multiparty democratic nations.

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# While You Were Out: Winter Term on Campus



**ANISH  
BHUTANI**  
4A CHEMICAL

Hello, A-Soc. Welcome to another Spring Term here on the Waterloo Campus. It is great to see all of your pretty faces again. Speaking of pretty faces, you may have noticed that there are a number of pretty faces no longer with us. Last winter, the Engineering 2011 class got their Iron Rings, finished 4B and will be convocating in the next month.

Another exciting thing that happened was the B-Soc elections. Congratulations to the new President Alessia Danelon, VP-Education Owen Coutts, VP-Internal Andrew Fisher, VP-External Yasser Al-Khder and VP-Finance Alexandra Collins. A-Soc will be having their Executive elections this term as well, so look out for that. Plans to reorganize the executive structure to include commissioners (positions serving greater responsibility than directors, but less than executives) were devised for which the pilot will be implemented this fall. A-Soc will be able to learn from the pilot program after which the two societies can then decide together how to

move forward with reform.

During the month of March, EngSoc took part in the National Engineering Month celebrations where a number of events were held during Pi Week (Week of March 14<sup>th</sup>). EngSoc also collaborated with students from around Ontario to make a Rube Goldberg machine, which was set off at ten different universities across Ontario in order to light the CN Tower purple. To see the machine, go to <http://www.youtube.com/watch?v=uliUyGQ4tk>, and proceed 5:14 minutes into the video to see UW's contribution.

Waterloo teams placed in all the divisions we competed in at the Ontario Engineering

Competition. Our Junior Design Team even went on to win the Canadian Engineering Competition. Hopefully A-Soc will prove their mettle at the Waterloo Engineering Competition this summer.

Other notable things that happened in the previous term are: Charities Directors are now over halfway towards their goal (\$8,500) to build a school in Udaipur, India via Free The Children; Semiformal directors had a masquerade charity ball, in which the proceeds went to building the school in India; the Federation of Students had their annual elections where Matt Colphon was elected as the new Feds President.

# A History of the Jelly Bean and the Industry Today



**MICHAEL  
LAANVERE**  
1B MECHANICAL

Jelly Beans... Day after day, people take these little candies for granted, ignoring their rich history and importance in moulding today's society.

The concept for the soft-centred confections was based off of Turkish Delight, which originated in 15<sup>th</sup> century Turkey. Like jelly beans, Turkish Delight has a soft chewy centre and a firm outer shell. Through the 16<sup>th</sup>, 17<sup>th</sup> and 18<sup>th</sup> centuries, many other confections were developed that were similar to jelly beans, but it was not until the 1800's, during the American Civil War, that the jelly beans we know today were first produced.

It is widely accepted that the jelly bean first surfaced after William Schrafft urged the Unionists to send his jelly beans to their soldiers fighting in the Civil war in 1861. Since then, the jelly bean has been a staple for every candy shop and was the first candy to be priced by weight, which is why they are called the "first bulk candy."

The peak jelly bean season is Easter. This started in the 1930's when they became part of the festive tradition due to their egg-like shapes. Approximately 16 billion jelly beans are consumed at Easter in America. If all of these jelly beans were lined up, they would circle the world three times! Another interesting fact is that 70% of children prefer to eat their Easter jelly beans one at a time while 23% prefer to eat them by the handful. The other 7% are evidently undecided or just do not like jelly beans for some reason.

Jelly beans have impacted our society today in a great number of ways. Firstly, consider all the slang based on the words "jelly bean." In the 1920's, a stylishly dressed man was referred to as a jelly bean. Or how about when you see a pimp, obviously you immediately think of him as a jelly bean. Ronald Reagan also loved jelly beans and kept jars of them all over the White House, and he even sent a load up to space for the astronauts to snack on.

The jelly bean industry has undergone major developments since the American civil war. The creation of Jelly Belly in the 60's completely revolutionised the industry. Now, instead of just having the basic fruit flavours, there are countless flavours including a few interesting ones like: pickled pigs feet, baby wipes and vomit.

The jelly bean has a rich history and has made a large contribution to how our society works today. Yet today, the industry, which employs thousands, is struggling. The economic recession, combined with bureaucratic red tape, is causing a lot of small jelly bean businesses to go bankrupt. The red tape greatly increases the cost of production and

export; for example: the United States will not accept a package of jelly beans if the nutrition labelling has spaces between the numbers and units. For instance, "5 mg" is unacceptable, it must read "5mg" in order to be allowed there. This jacks up the production costs by jelly bean companies because they have to create completely different packages for jelly beans going to the US. There are other reasons that the industry is struggling. Consider the classic "guess how many jelly beans are in the jar" game. That game effectively keeps the jelly bean industry alive during the off season (not Easter). However, people are now trying to guess how many pennies, or Skittles, or M&M's are in a jar. It's just not the same!

The jelly bean industry is hurting. If some red tape is not slashed soon, jelly bean prices will skyrocket, which will lead to a drop in sales and potentially the end of an industry. Next time you want to play "Guess how many pickled eggs are in the jar," think about the poor families of those struggling confectioners and go to your local candy store, buy some jelly beans, put them in a jar, and guess how many there are.

# Canadian Undergraduate Technology Conference

**DUSHANTH SEEVARATNAM**  
2B NANOTECHNOLOGY

At the beginning of May, the University of Toronto hosted the twelfth annual Canadian Undergraduate Technology Conference (CUTC). CUTC is the largest and longest running student-organized technology conference. The goal of this conference is to bring together university students from across Canada who show passion toward innovation, entrepreneurship and technology in general, and give them some of the necessary experience required to be successful in their near future. By allowing students to interact with real-life company founders, CEOs and entrepreneurs, CUTC allows students to build knowledge and gain valuable answers that can help with future projects or ideas.

This year, CUTC was organized by multiple students from a variety of universities throughout Canada, a large number of which were from the University of Waterloo. One thing is for sure - they kept the strong reputation of CUTC intact. Bringing in close to 500 students, over half of which came from Waterloo, the group once again showed that CUTC is one of the biggest conferences held in Canada. The team also managed to bring in a variety of amazing and inspiring keynote speakers. Ranging from the co-founder of reddit.com and founder of Breadpig, Alexis Ohanian, to the president of Unreasonable Institute and CEO of SWAE Sports, Daniel Epstein, the very talented speakers offered great insight that one day could propel the success of the future set of entrepreneurs.

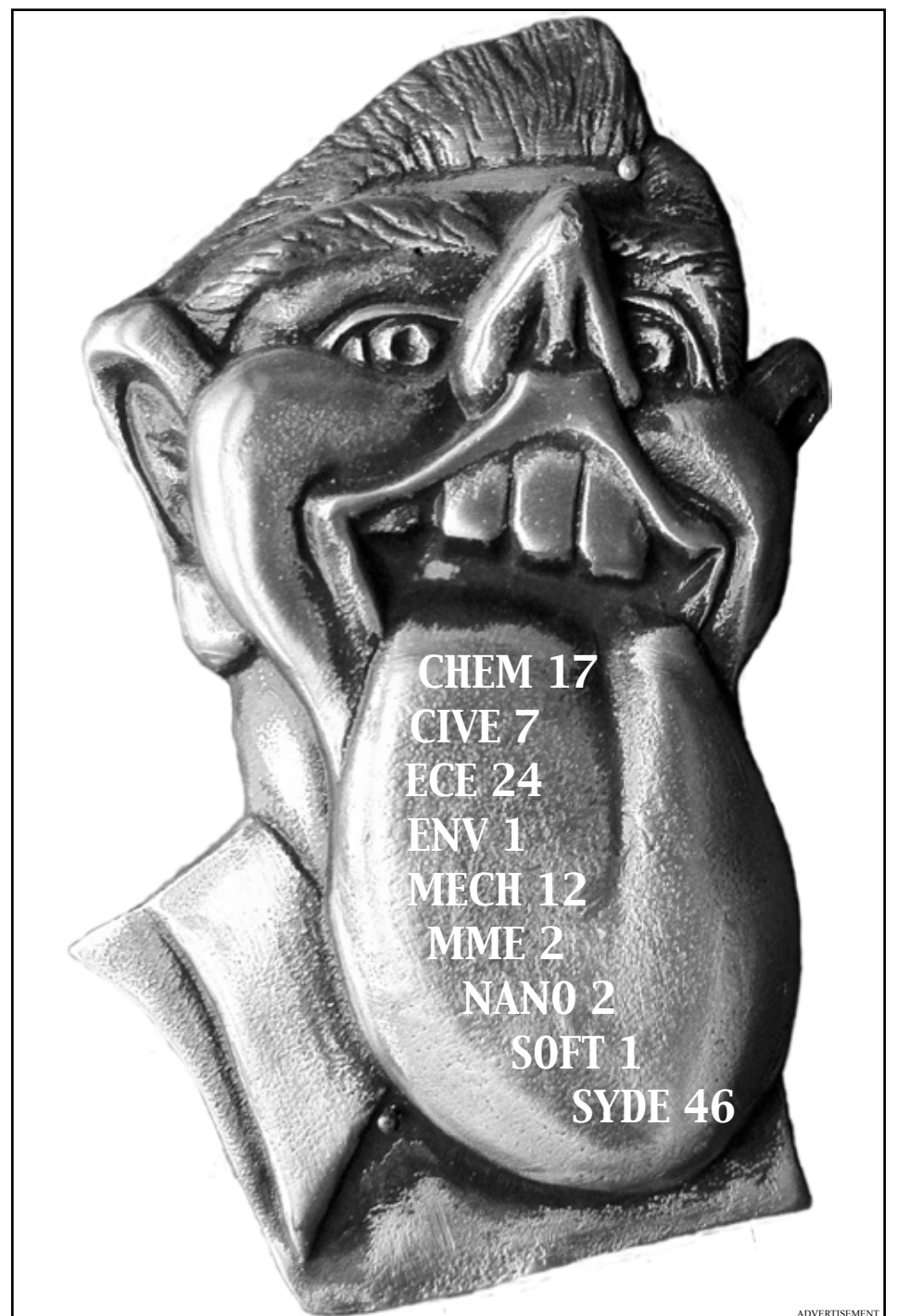
The conference was more than just sitting around and listening to people. CUTC encouraged students to think outside the box and perform challenges that today's top companies face. The challenges were organized into four groups: entrepreneurship, consulting, general technology and green technology. These

streams allowed students to brainstorm and develop solutions to unique challenges, giving students experience and confidence in their abilities. Furthermore, it allows students to try things that are new to them. Not everyone outside of CUTC has a chance to present themselves in front of a board of experienced and trained professionals where they can receive direct feedback. Furthermore, the competing students had additional motivation in the form of great prizes to be won. At the end of the conference, prizes like the iPad 2s, Nokia N8s and Xbox 360 Kinects were awarded to the students who had the best ideas and were most involved.

Though the conference has a huge emphasis on education, CUTC also strives to be fun. This was shown through their downtown Toronto scavenger hunt. Here, teams of four ran around downtown Toronto with a sheet of clues looking for codes that would allow them to win brand new Nokia N8s. On top of that, CUTC incorporated a small 'game' throughout the event. This was done by hosting LikeaLittle's first ever Flirt-a-thon event. Though the idea of virtual flirting may sound unsafe to some people, the premise was to help people meet others. The best flirts and pictures were awarded through iPads and cash prizes.

The conference also included a showcase of innovative student teams and the latest technology. This included the University of Waterloo's Micro Aerial Vehicles Team, Midnight Sun Solar Race Car and Nanorobotics group (UW\_NRG). Furthermore, the tech expo also exhibited displays from the Canadian Space Agency and a showcase of a hockey stick built with reinforced nanometal.

In the end, with the presence of people like Evan Reas, co-founder of LikeaLittle, major firms like Deloitte and Accenture, and the opportunity to build skills in consulting, technology, etc., CUTC was the place to be for any technology-loving student.



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# Super Awesome External Update



**LEAH ALLEN**  
VP EXTERNAL

Hey Y'all,

It is sooo nice to see your lovely faces again, especially when they're reading my article. HA. So I have a few updates for all you fine people and then I am going to go over my goals for the term.

First of all, not too much has been going on with the Canadian Federation of Engineering Students (CFES) and Engineering Student Societies Council of Ontario (ESSCO) front lately. ESSCO has been gearing up for their Annual General Meeting which will be at the end of May, and A-Soc has a great delegation! Expect a great external report to come out of the conference and it will be posted on the Engineering Society website.

Now for some charity stuff. First of all, the charity that we are continuing to support this year is Free the Children. We set our goal of raising \$8500 to build a school in India a few terms back and we are getting there!! The Charity Grillfest was a couple of weeks ago and, on top of feeding all of you with yummy food, we managed

to raise \$867.10 for Free the Children! Expect at least one more Charity Grillfest this term! Another event coming up this term will be the bi-weekly pancake breakfasts (on Tuesdays) from 8-10 am, with the next one on May 31<sup>st</sup>. On May 28<sup>th</sup> at 9:30am in Waterloo Park, EngSoc will be having a tree planting party. If you are interested, just show up the day of or email [belbeck.lisa@gmail.com](mailto:belbeck.lisa@gmail.com) for more details. Also, look forward to an inter-faculty blood drive and an empties bottle drive coming later in the term.

Now I have an outreach update for you! YAY. The Outreach Director has been working hard to get outreach volunteer t-shirts made to give out to any students that help out with outreach events. The shirts will help the Engineering Society become more visible in the community as we continue to give back term after term.

Now onto some goals:

I have outlined my goals for this term below and have elaborated on three of them. If you wish to discuss my other goals, please send me an email or stop me in the halls :).

**1. Focus on Outreach Side of Portfolio**

• During my last term on campus as the VP External, there were 4 conferences that I needed to attend. I found myself focusing

more on the conference part of the portfolio and lacking on the outreach side.

• I plan to approach this term with an equal balance between external organizations and outreach initiatives. This will occur through my support for the Charity Directors, the Outreach Director and the UAE Outreach Directors.

**2. Develop System to Keep Better Track of Conference Financials**

• I plan to work better with the B-Soc VP External to keep track of the conference budget, as well as come up with a new realistic budget for the upcoming year.

• I also plan to work closer with our business manager to ensure she knows where all the money is going.

**3. Develop Relationship with UAE EngSoc**

• This term, we have established the UAE Outreach Director position.

• I plan to help the directors and to give them the resources they need to establish communication with UAE and provide UAE with any information they would like.

**4. Continue to Develop External Reports**

**5. Further Develop Outreach Directorship**

**6. Further Develop Inter-Faculty Directorship**

**7. Further Develop Alumni Officer Directorship**

**8. Thorough VP External Transition**

That's all for now. There will be lots of more information coming in later articles, so be sure to check back. If you have any questions, please feel free to contact me at [asoc\\_vpext@uwaterloo.ca](mailto:asoc_vpext@uwaterloo.ca).

<3 Leah

## SUMMER IS HERE! BE HAPPY!



**SEAN WALSH**  
VP INTERNAL

And with summer comes a boat-load of amazing events, some of which are coming up sooner than you would expect! For example:

Exchange Potluck in POETS – Tomorrow, May 19<sup>th</sup>

Genius Bowl – May 24<sup>th</sup>

SCavenger hUNT – May 27<sup>th</sup>

and many more artistic and musical events as well!

Believe it or not some things have already happened! The first Engenuity event

was held in the CPH foyer and more are on their way; last Friday there was an open Mic in POETS and during the first week of classes Mothers Day cards were created. Thank you to all of the directors involved in making these events a success!

In other news, I am looking toward this spring term as an opportunity to achieve a list of goals including the continued support of my incredible directors, the planning and organizing of Joint Council, fast response to emails and reviewing the Policy Manual. Also, if you love golf you should be happy to hear there are plans in the works for another Spring Term Golf Tournament! BE EXCITED!

That is all for now! Enjoy the weather and enjoy your term.

## Telegraph from Marc Tan



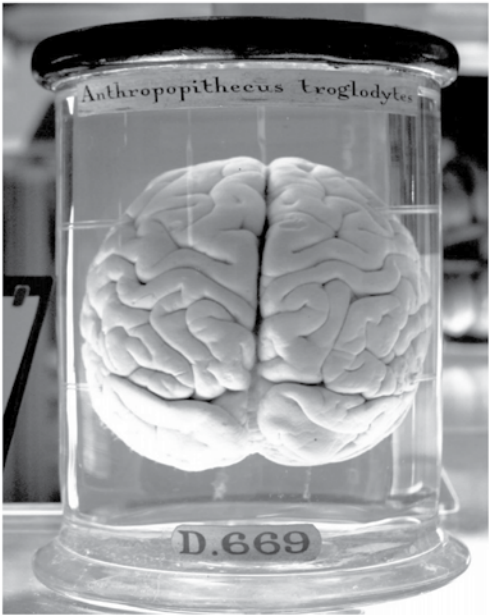
**MARC TAN**  
VP FINANCE

Welcome back, A-Soc students STOP I'm sure that everyone has been having a very productive and fun first few weeks back; the same can be said of your friendly neighbourhood VP-Finance STOP The beginning of this term has seen me complete a large number of the routine and administrative tasks that need to happen each term STOP Novelties are up and running; expect a sale sometime soon STOP I am also looking into doing a custom coverall

order later this term STOP Expect to see more shirts on sale in Novelties before the end term too STOP

My goals for this term, aside from my usual budget-related activities, include continuing to strengthen relations with engineering clubs and teams through continued donations and many super-awesome favours STOP If you were at the meeting, you would know that we are working on a capital purchase system STOP We were talking about forming a committee and I'll be sure to update you all on it later this term STOP If you haven't noticed, every sentence has ended with STOP If you don't know, it's like I'm telegraphing my executive report to you STOP

# CALLING ALL TRIVIA BUFFS!



**CASH PRIZES!** **CASH PRIZES!**

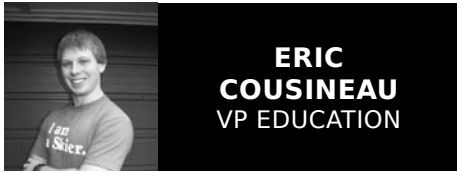
## GENIUS BOWL

**Tuesday May 24**  
**7:30pm MC 2065**

**SIGN UP ON THE ORIFICE DOOR!**

<b>POETS</b>		<b>MOVIE SCHEDULE</b>		
<b>SHOWINGS BEGIN AT NOON</b>				
Wednesday May 18	Thursday May 19	Friday May 20	Monday May 23	Tuesday May 24
Matrix Trilogy	Ghostbusters I Ghostbusters II Shawn of the Dead	Incredible Hulk Iron Man Spiderman	VICTORIA DAY	Goodfella The Departed The God Father
Wednesday May 25	Thursday May 26	Friday May 27	Monday May 30	Tuesday May 31
Underworld Trilogy	Young Frankenstein Blazing Saddles The Producers	Finding Nemo Shark Tales Little Mermaid	Breakfast Club Sixteen Candles Surprise Brat Pack Movie	The Good, The Bad, and The Ugly A Fistful of Dollars For a Few Dollars More

# Beta Testers, Jobmine Plus, and Lots More! Get to know what's happening with your Education!



**ERIC  
COUSINEAU**  
VP EDUCATION

Hey Everyone,

I hope you've had a great 2.5 weeks back. Things have been busy the for past 5 months on the VP-Education front. I'll do my best in this article to catch you up on the important issues. I wanted to mention 3 **main goals** of mine for this term (out of my total of 12 goals).

My first goal is to ensure that the faculty **Vision 2015** Plan serves the interest of undergraduate students by actively participating in the Undergraduate Planning Committee. My second goal is to investigate the issue of **differential course fees** for part-time engineering students taking courses in other faculties (i.e. paying ~\$1000 for CSEs taken in other faculties during work terms). My third goal is to work with CECS to make **short-term improvements to Jobmine** while creating a long term plan at the same time. The other EngSoc Executives and I published our goals for the term about a week and a half ago. You can find them all on our website ("Engineering Society A Goals S11.pdf" on [engsoc.uwaterloo.ca/society-documents](http://engsoc.uwaterloo.ca/society-documents)).

There has been a lot going on in terms of

**co-op** over the last few months. The **Waterloo Works** project was cancelled, Vision 2015 has been ramping up, and CECS has started to address concerns regarding **unpaid work terms**. After the cancellation of Waterloo Works, it became apparent that some resources would need to be devoted to addressing shortcomings in Jobmine. CECS is undertaking an investigation to determine which improvements are feasible to implement and to prioritize them. CECS is also looking to support student made add-ons for Jobmine, and they are doing this by piloting the initiative with one add-on this term (Jobmine Plus). This will enable CECS to better understand how to manage these add-ons in the future.

Furthermore, our engineering specific co-op department (CEPA) has been developing its plan for Vision 2015. Two things CEPA is looking to include is the possible introduction of an 8 month work term later in the degree. Department chairs have expressed interest in this and an investigation in feasibility will be done over the next while. Furthermore, CEPA is investigating returning to a norm that used to be present in the faculty in the early 90's (and before). Back then, it was the norm for first year students to return to their first employer for their second work term. This enabled employers to give younger students more technical jobs since employers could be sure it was worth their time to train them.

CEPA believes that returning to this norm would help alleviate the problems younger students are having in getting jobs for their first work term. I am looking for input on this issue, and a forum post has been created where students can comment ([engsoc.uwaterloo.ca/coop-norm](http://engsoc.uwaterloo.ca/coop-norm)).

The last item on the go is seeking alternative remuneration for students working unpaid jobs. It is an accreditation requirement for CECS that their co-op students are paid. CECS will be speaking to employers to suggest alternative ways to remunerate students for their contributions.

There will be an **interview skills workshop** happening tomorrow (May 19<sup>th</sup>) from 5:30 – 7:30 pm. The room is expected to be CPH 3607 (to be confirmed). Come on out and learn some interview tips and tricks from upper year students!

**Vision 2015** is well into the planning stages and draft plans should start to come out soon. I was chosen as the A-Soc student member on the Undergraduate Planning Committee (UPC) for the faculty. This committee's role is to discuss and make recommendations on issues regarding undergraduate students. So far, we have focused on teaching issues and the student experience. If you are interested in these issues, please don't hesitate to speak with me.

The faculty is working with the **Alumni Network** to create a portal website where

they may mentor students. This is progressing along quickly, and the launch is planned for September. The website is at a stage now where it needs beta testers to ensure it will function efficiently and meet the needs of stakeholders. 500 P\*\*5 points will be awarded to beta testers, so email me to sign up!

Lastly, I wanted to mention a few small things: the first **Academic Rep Meeting** of the term is today, May 18<sup>th</sup>, from 5:30 – 7:00 pm, and the others are on June 1<sup>st</sup> and July 13<sup>th</sup>. **Resume Critiques** happened last week on Tuesday and Thursday; there was a great turnout with over 150 students showing up on Thursday. EngSoc has a new service called **Scholarship Bank** where you can find a list of external scholarships all in one place (Check it out: [engsoc.uwaterloo.ca/scholarships](http://engsoc.uwaterloo.ca/scholarships))! Thanks to my Scholarship Director Angela Stewart for her time and effort in setting this up! The May **Senate Undergraduate Council** meeting happened on May 10<sup>th</sup>. However, there was nothing of consequence to engineering students that was discussed. There hasn't been a **WatPD Engineering Curriculum Committee** meeting yet this term, but I should have more to tell you about this in the next issue.

As always if you have any questions, concerns or feedback, please feel free to fire me an email! [asoc\\_vp.edu@engmail.uwaterloo.ca](mailto:asoc_vp.edu@engmail.uwaterloo.ca)

## Hot off the presses!



**TIM  
BANDURA**  
PRESIDENT

Welcome back everyone! I hope you all had a great work term! For those of you who are enjoying your first summer term in school, I can confidently tell you that it is amazing. With sun, patios and sports, it's really fun.

It has been a busy two weeks back. I've attended a couple meetings already. I have met with Meg Baumann, the Student Relations Officer. I've also had a meeting with the Board of Directors for the Sandford Flemming Foundation. By the way, the Sandford Flemming Foundation (SFF) is pretty incredible. They provide a lot of sponsorship for the Waterloo Engineering Competition, and they also offer a number of fantastic awards! Please check them out. I also attended the Undergraduate Planning Committee for Eric on May 13<sup>th</sup>. At the meeting, Wayne Parker, the Associate Dean of Co-operative Education and Professional Affairs, gave a presentation on the plan to implement new rubrics for all departments and co-op education. There is also a plan to collect data from the rubrics

for a better understanding of how students are performing as they advance through Engineering. A common rubric between each department will help to compare the performance of each department on an even level for the Canadian Engineering Accreditation Board.

Speaking of meetings, our first Council meeting was on May 11<sup>th</sup>. Though a bit long, everything else went smoothly thanks to Mike Seliske, our new Speaker! Congratulations to Rebecca Cameron, who will help to run our general elections this term as our Chief Returning Officer. At Council meeting #2, which is on May 25<sup>th</sup> at 5:30 PM in CPH 3607, Dean Sedra will come to give a short presentation and answer any questions you may have.

Thanks to our wonderful POETS Managers for an amazing BOT!! Please let us know if you have any feedback. We're looking at improving the patio experience for the next OT. Got ideas for POETS in general? Don't forget to share them with your managers!

For this term, I have a few goals I'd like to achieve. I want to improve my visibility and communication with you. Drop-in class visits, bi-weekly digests on the mailing list and more comprehensive articles are all part of my plan. If you want

me to visit your class to discuss anything EngSoc-related, just send me an email at [asoc\\_prez@engmail.uwaterloo.ca](mailto:asoc_prez@engmail.uwaterloo.ca), and we'll work out a time. I want to start the process of creating mission and vision statements for our Society. We don't have any statements that serve as a guide for future executives and council to choose our path. I will need all the help I can get to gather feedback on what you think our Society should be.

This is our final term as your executives. We'll be holding elections throughout the term to find the next generation of student leaders. There will be a different elections style this term. President elections will be run first, followed by the remaining positions (VP-Internal, VP-Finance, VP-Education, VP-External, WEEF). Using this style, we can hopefully generate more interest in the other positions and give more time to transition the President (always needed). President nominations open on May 19<sup>th</sup> and run until May 26<sup>th</sup>, while the remaining positions open on June 10<sup>th</sup> and run until June 17<sup>th</sup>. Nomination forms will be available in the EngSoc Office (CPH 1327) closer to the nomination period. Want to know more about the positions? Talk to one of the current executives!!!

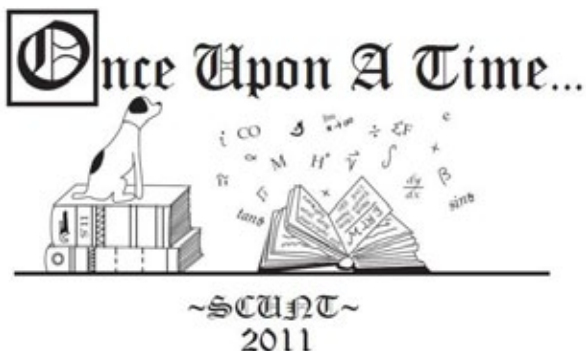
Hope to see you around!

## UAE Outreach

**KYLE POHL AND NATASHA  
MUKRAM PEER**  
UAE OUTREACH DIRECTORS

Wait, stop, look here! Any idea that Waterloo has a satellite campus in Dubai? And if so, have you heard of the 2 + 2 program? Well, for those who don't, Waterloo established a campus in the UAE in 2009 which currently teaches the first two years of Chemical and Civil Engineering. The courses are not only the same, but are taught by some of the same professors! Now you know where some of those elusive profs have been slipping off to! After 2B, the students cross the pond and finish off their degree here, with everyone else. If you're in 2B Chem or Civil right now, be ready for a bit of a surprise next term, you're going to gain a few new classmates! Along with having the same classes, the students there are forming their own EngSoc, are adopting our traditions and even have their own tool! Over the term, we as directors plan on doing everything in our power to get our lovely comrades-in-academics everything they need to truly feel "Waterloo."

Come join us on for the revival of **Scavenger Hunt: Wishbone Classics!**



**Opening Ceremonies** at 4:45 PM on the POETS patio Friday, May 27<sup>th</sup>

Minimum of 5 people per team (but feel free to sign up as a free agent!)

**\$30** (Majority Engineering Students) or **\$40** (Majority not Engineering Students) **per team**

**IF YOU WANT TO REGISTER:** Sign up on the registration form sent out through EngSoc A Mailing List **OR** Show up in the CPH Foyer on May 27<sup>th</sup> between noon and 4:30 PM

**Questions?** Ask your EngSoc Class Reps **OR** Scavenger Hunt Directors for **MORE INFO!**

# Point Vs. Counterpoint

## Should the Canadian electoral system change to proportional representation?

POINT

COUNTERPOINT

**ANJALI GOPAL &  
AMMAR MASUD**  
2B NANOTECHNOLOGY

The recent federal election has swept in a new reign of totalitarian rule in Canada. Despite a voter turnout of only 61.4%, Stephen Harper's Conservative majority now has unlimited authority to pull any kind of trick he wants (including using Canadians' hard-earned money to decorate the parliament lobby with self-portraits). But we digress: the point of this article is not to bash Harper. The point is to determine why Harper got into power with a majority, when only **24.3% of eligible Canadian voters** (or 39.6% of people who actually voted) cast the Tory ballot.

Before we start pointing fingers at the people who did not vote, let's turn our attention to Canada's pseudo-dictatorial election system. The current method of voting is called "First-Past-the-Post" (FPTP), wherein each citizen gets one, and only one, vote to elect a party of choice. FPTP is inherently flawed for multiple reasons, but it is especially bad in Canada because of the "riding system." In Canada, each province is cordoned off into multiple electoral districts in which voters elect one member of parliament from the region. At its best, the riding system may provide voters a chance to elect an MP who "knows the region," but at its worst, it silences the majority of votes and leaves the system vulnerable to gerrymandering, or direct manipulation of the ridings to favour a certain party.

For instance, consider a scenario where there are two electoral districts, each with strong candidates for the Conservatives, Liberals and NDP. Out of a possible 100 votes, Riding One goes for 45% Conservative, 35% Liberal, and 20% NDP, whereas Riding 2 goes for 50% NDP, 45% Liberal, and 5% Conservative. Even though the total number of votes for Liberals is greater when summing both ridings, the Liberals do not get any seats in this situation.

Directly related to this statistical fact is major flaw number two: FPTP inevitably leads to a two-party system. Remember the 2008 election, when a large majority of people thought that the Green Party had the right idea but nobody wanted to vote for them because the chances they would actually acquire a seat was ridiculously low? Such "strategic voting" is the best way to stunt any form of political courage or innovation. Now, instead of voting for the party of preference, individuals are forced to vote for the party that is most likely to win, or worse--vote against a party in fear that the party would get a seat. With strategic voting (a direct consequence of FPTP), any form of multi-party system would essentially be disintegrated into a two-party "lesser-of-the-two-evils" contest. Is it any wonder, then, that in this election, 40% of Canadian voters felt so much apathy and contempt for the political system that they chose not to vote at all?

Fortunately, there are alternatives to the riding system. After all, at the end of the day, these voting problems are mere statistical absurdities that statisticians have long since figured out how to solve. The most feasible of these solutions is proportional representation (PR). Proportional representation challenges the riding system by stating that the number of seats in parliament is directly dependent on the total share of the votes received. The fun-

damental flaw in the riding system is that the number of seats does not represent the number of votes (e.g. even if one MP only got elected by 45% of the riding, the MP still represents 100% of the votes in that riding). By contrast, proportional voting's solution is much cleaner and simpler: if one party wins 10% of the population's votes, the party would receive 10% of the seats in parliament.

PR is not a new idea. It has a proven track record in many developed countries including Germany, Australia, and Japan. Furthermore, these countries have also been found to have a higher voter turnout, a fairer representation of ethnic minorities and decreased election costs for parties and their supporters. In Canada's case, PR would eliminate the situation of the Tories getting 55% of the seats in parliament when 60% of people voted against them.

Granted, PR has had its fair share of criticism. A popular criticism for PR is that it takes "too long" get things done. Of course, one could extend that argument and say that democracy also takes "too long" to get things done--so why not cut our losses short and switch to a dictatorship instead? PR has also been branded as "too complicated." Frankly, the insinua-

**ANISH BHUTANI**  
4A CHEMICAL

Living in a country that gives all its citizens of age the right to vote is a privilege that, as can be seen in our current events, is a gift for all Canadians. The system we have is based on dividing Canada into a few hundred regions and having each region choose who they want to represent them in the House of Commons. This has been the case since Confederation, when 180 ridings and three parties (Liberals, Liberal-Conservatives, and Anti-confederates) chose to give the Liberal-Conservatives a majority government.

Like any high school or university election, the requirement to win a seat in the House of Commons in a given riding is to have the most votes out of all the other candidates. The representative who has more votes than any of the other contenders wins a seat, regardless of actual number of votes. Unlike government decision-making where a majority (>50%) must be obtained, an MP must simply surpass other contenders in the number of votes to get elected.

One benefit of this method is that it al-

One argument against the "First past the Post" type of election is that some political parties tend to get a higher proportion of seats than the popular vote. For example, in the most recent 2011 election, the Conservatives got a majority government with under 40% of the popular vote. However, this isn't necessarily a bad thing. With the current system, it is easier to form a majority government. In fact, out of 41 elections since confederation, 26 have resulted in majority governments. Furthermore, it is typically found that the leader of the opposition also receives more seats than the popular vote; this means that in the event of a minority government, each party will both have to gain the trust of all opposing parties including smaller parties like the NDP and Bloc Quebecois.

There always tends to be a debate as to whether a majority government is a positive or a negative form of government. While majority governments have been found to not always represent the opinion of everyone, since they have enough seats to take full control of the House of Commons, majority governments tend to be more stable. Issues and resolutions can be moved through the House of Commons much faster and with more efficiency whereas a minority government has to have parties come together in agreement before decisions are made. In an ideal world, this would be better for making decisions that represent all of Canada. In practice, however, it can be seen that minority governments slow down the process of getting bills passed through the House of Commons thus resulting in a less productive government.

One proposed change for a new system has been to make the House of Commons proportional to the popular vote. For example, in the last election, because the Conservatives got 40% of the popular vote, they should only receive 40% of the seats in the House of Commons. A few problems with this proposition are as follows:

Firstly, the decision as to which of the seats in the House of Commons would go to which representatives. As mentioned before, in each riding, people are voting for who they want to represent them in the parliament. This is beneficial when the riding's candidate is someone who focuses on representing their riding as opposed to following their party leader. By having PR, there will be no representation of certain less populated regions; this can cause problems when deciding funding or regulations which vary from province to province and city to city.

Secondly, this proposal makes it harder to form a majority government. This means that parliament will continually be in a minority government and therefore inefficient, unless parties create coalitions, which, in any case, would still have the same problems as a majority government.

Overall, our current election system is more efficient. It is important to keep the system that results in regional representation and is more likely to have a majority government. Changing our electoral system to a new system based on popular vote would lead to issues based on representation and lead to inefficient governance. In other words, "First Past the Post" makes for a better national host.



Angelo Alaimo

The center block of Canadian Parliament in Ottawa

tion that the PR system is too complicated for a generation of innovators who have conquered small pox, traveled to the moon and developed nuclear war missiles--well, it's just a little bit insulting.

We have heard people explicitly berate us for our choice of vote ("Okay, who messed up and [did not vote strategically against said party in this riding]?"). We have had friends and families tell us that their vote is "useless" or that "all political parties are corrupt anyway." The fact is, running a democracy where people don't feel they have a voice is no better than a dictatorship. If governments want to increase voter turnout and stimulate the amount of input citizens have in the economy, governments need to ensure that the voices of their citizens are actually heard. Perhaps then, the 60.4% percent of people who voted against the Tories won't have to spend the next four years under the Tory majority.

lows anyone who has an interest in representing their riding, whether as part of a political party or as an independent, to have the chance of winning a seat in the House of Commons. While not everyone's views in a riding is necessarily represented, the majority of opinions in that riding (whether it be liberal, conservative, communist, etc) will still be heard in the House of Commons.

Another benefit of the current voting system is that it makes it easier for voters to know who is in their riding. They are given a list of candidates, each with their own platform representing their views. Candidates in political parties also, in addition to their own riding platform, promote the party platform featuring the overall goals for Canada. Therefore, voters can vote for who they believe best represents their own views for their riding and all of Canada at the same time.

### 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.

# Cricket for Dummies

## An introduction into the world of cricket



**KRISHNA  
IYER**  
2B NANOTECHNOLOGY

Despite being Indian, I have never had a passion for the game of gentlemen known as cricket. Recently, I decided to re-connect with my “heritage” after the Indian cricket team was crowned the world champions at the 2011 Cricket World Cup. After a few really intense lectures and a couple of Bollywood movies, I think I finally get the dynamics of this sport which can range anywhere between 75 minutes and 4 hours in length.

There are three major game formats of cricket which share the same fundamental rules (but very different strategies). The first type of cricket is known as “Test Cricket.” This is the longest format of the sport and one game can consist of five days of play. Test cricket is normally played in a friendly game format between two teams of differing countries. The next type of cricket is called a “One Day International.” This format is relatively shorter where a typical game involves about ten hours of play. The international world cup in cricket is of this form due to its fair balance between skill and strategy. The newest and most popular form of cricket is T20 in which a complete game lasts 4 hours. This fast paced, action packed form of the sport is in its infancy given its inception in 2007. With the T20 Indian Premier League (IPL) being set up, the scenario of world cricket has changed. The IPL consists of players from all over the world in teams representing different parts of India fighting for the bragging rights of being best team in the league.

Additionally, a T20 World Cup was also initiated by the International Cricketing Council (ICC) which has its main office in Dubai.

The rules to the sport are intricate and very specific; however, understanding the basic premise of the sport would provide extensive insight to the inner workings of the game. The setup of cricket consists of a ground which is about 300 meters in diameter. At the center of the pitch is a 22 yard long pitch which is devoid of

the opposing team is called the bowling team. It consists of a bowler who throws the ball towards one of the batsman. When a batsman is facing a bowler, it is necessary for him to protect the stumps because if the ball hits the stumps, the batsman is declared out (and replaced by the next player on the batting team’s roster). Additionally, if the batsman hits the ball, he can choose to pick up runs (which are the scoring mechanism in cricket) by switching positions with the other batsman to

batsman reaches them himself when attempting to acquire runs for his team. Also, when a batsman hits the ball and the ball is caught before it hits the ground, he is also dismissed out. Each bowler on the bowling team (opposing the batting team) throws a set of 6 balls down the pitch which is known an “over.” There are different types of bowling such as fast bowling (which can reach 160 kmph), spin bowling, swing bowling etc. in the attempt to get the batsmen out.



<http://www.flickr.com/photos/mrbenn>

**A ball being pitched to the batter showing a typical stance**

grass. On either end of the pitch are three “stumps” which are wooden cylinders that are about 1.5 inches in diameter and 28 inches long. The circumference of the ground is marked by a white line called “the boundary.”

Each team consists of eleven players. At any given time, there must be at least thirteen players on the field from both teams. Two of the players on the field that play on the cricket pitch are the batsmen. They stand in front of the stumps with a bat and are required to face the bowler. These batsmen are from the batting team while

reach the other set of stumps. Each time they switch, the team accumulates one run. Additionally, if the batsman hits the ball hard enough for the ball to reach beyond the boundary without bouncing, the team accumulates six runs and four runs if it bounces before reaching the boundary.

On the bowling side, other than the bowler, there are other players known as fielders that are responsible for guarding the field, preventing runs and potentially getting batsmen out. A run is prevented (wherein the batsman is deemed out) when the ball hits the stumps before the

Test cricket, ODI and T20 follow all of the above rules. However, in each type of game, the order of batting and length change. In Test cricket, the batting side and bowling side switch after all the batsmen have been dismissed out (with no limits on overs thrown in a game). This happens four times (i.e. every team bats twice); however, this is a long game format of which the pace of the game is slow in comparison to the other styles played. ODIs, on the other hand, are more exciting with each side batting only once where a limit of each side’s play is 50 overs bowled (i.e. 300 balls). T20 is an extremely fast paced version of the game just lasting 20 overs per side.

It has all the excitement and nail biting that Test cricket lacks; big hits, exciting dismissals, crazy fans and pretty cheerleaders.

As my quest to understand cricket further continues, I hope to understand all the intricacies of play, the more complex rules and the strategies employed by each team when in play. But for now, I know that IPL is going to keep me excited (and obliviously distracted) this term. Make sure to check it out on <http://www.youtube.com/user/indiatimes>.

# Reflections of a Former Engineering Society Executive



**ALEXANDER  
HOGEVEEN  
RUTTER**  
4A ELECTRICAL

**There are lots of Faculty who genuinely wish to help**

One of my biggest surprises as VP-Education has been the number of faculty I’ve encountered who do recognize our problems and are genuinely working to address them. Sometimes, it is just not clear how to go about solving a given problem without introducing new ones. Sometimes faculty with an outwardly gruff exterior can actually be very understanding if you explain your situation clearly and honestly (they’ve seen enough students to know a lie when they see one). Similarly, certain professors have been in academia so long they can forget what it is like to be a student, and since they are usually pretty smart, most of them have a lot of trouble relating to struggling students. This doesn’t mean you should give up-it just means you should do everything you can to be clear, try and get them to see your side, and make it easy for them to help you (tell you exactly what you need).

**Undergraduates will never be the top priority**

Universities do research. Colleges are

designed solely to help their students find jobs. Universities, on the other hand, have a great variety of different objectives and not all of them involve us. The performance part of a faculty pay is 40% research, 40% teaching and 20% service (like committees and such). My understanding is that this is actually not bad relative to other universities. However, in terms of promotions and other accolades, there is often a bias toward profs who have strong research backgrounds. This is true of almost all North American Universities-remember that universities are designed to advance the scientific understanding of society as a whole and undergraduate teaching will remain only as a part of that.

**The process is slow, but it does work**

When a new policy is proposed, there are a number of committees and boards it must go through before something comes into force. However, this can occasionally work to our advantage. While students are always a small minority, the administration- and especially the senate- is disinclined to push something if there is fierce student opposition. A particularly memorable example is the attempt to shorten frosh week. A less well-known example is when Engineering pushed to have a default late penalty (when unspecified by the professor) of a 0%. Though I con-

vinced my fellow students to vote against it, our six votes weren’t sufficient to defeat it. However, I was able to communicate this to then-senator Jay Shah, and even though Senate could have pushed it through without student support, the motion was defeated due largely to student opposition. Students often forget that we are welcome to introduce policies at various levels in the process. While the process is designed for changes to come from faculty/administration, this does not mean it is impossible for students. A good example is a policy supporting midterm relief for students which I just managed to have approved at the Undergraduate Operations Committee and hope to present at Senate Undergraduate Council next month.

**Tuition fees will continue to rise, barring major governmental policy changes**

Faculty and staff receive both a cost-of-living and a performance component of their annual raises. This usually works out to be greater than inflation. Especially in services like Co-op, where salaries are such a huge component of their costs, this means costs will rise at a pace greater than inflation. Therefore, UW, like most, if not all, universities in Ontario (and North America), is going to raise their fees basically by however much the gov-

ernment will allow them (the government does mandate caps). Barring a lowering or freeze of their cap (which would likely only come with a major shift in government spending) and barring sustained salary freezes and/or reductions (a sort of freeze actually did occur due to the recession, but this is somewhat rare), real tuition fees will continue to rise.

**Ultimately, we must be accountable for our own education**

Two of the biggest components of my portfolio were Professional Development and Co-op. One of the major motivations originally for PD was employer demand: the feeling that Waterloo students are gifted academically but do not have the professional skills expected of them. This is partly because no matter how gifted a person is academically; they can still be a jerk. The new PD courses are a huge improvement by teaching interesting and valuable stuff, but ultimately being professional is up to us. Similarly, it is easy to complain that Co-op is not finding enough jobs, but if you have little to no volunteer/work experience, poor marks and have chosen a program without a lot of employment, there is only so much Co-op can do for you. While we are paying UW to help facilitate learning and expose us to ideas and skills, the most important lessons will be driven from within.

## Intel Unveils 3D Transistors Used In All New Intel CPUs



**JACOB  
TERRY**  
1T NANOTECHNOLOGY

Intel announced a breakthrough technology in transistors this month, which will help the company continue making smaller, more powerful chips.

Intel's new "Tri-Gate" transistors are three-dimensional instead of your standard two-dimensional transistors that can be found in computer chips today. Intel has therefore decided to bump up the number of switches, or gates, from one to three, allowing for more processing power in the same space.

Not only has Intel announced the new transistor, but they are also planning on releasing the technology as soon as possible. All future central processing units (CPUs), starting with the 22 nm Ivy Bridge Core processors, will be made with Tri-Gate transistors. Intel's Atom series of processors are also expected to make use of the technology, driving their use in a wide range of applications. These processors end up in phones, vehicles, and even household appliances.

The Tri-Gate transistors help Intel maintain Moore's Law, which says that the number of transistors that can be placed on an integrated circuit doubles every two years. Where there would have been a flat 2D gate before, there is now a thin 3D silicon fin which rises vertically from the surface. These fins can be placed closer to-

gether than the old gates, allowing for more transistors per square unit and helping Intel reach their research targets.

The 3D transistors are designed to maximize performance and energy savings by pushing as much current as possible through when the transistor is on and as little as possible when the transistor is off. Intel's also working on improving the switching speed of the transistors, which would greatly boost performance. Tests show that the 22 nm 3D transistors provide up to 37 percent more performance at lower voltage when compared to Intel's 32 nm 2D transistors. In terms of power, the 3D transistors use under half the power of the 2D transistors.

Intel is hoping this helps provide more metaphorical ammunition against competitors such as AMD or ARM; the latter of which in particular now powers most of the smartphones and tablets sold around the world. This is all good news for consumers, as it encourages more competition and will result in speedier computers, phones, tablets and other devices that may make their way into our hands over the next few decades. It should be interesting to see if Intel makes more inroads into mobile devices with their new chip or if it fails to defend them from ARM's attempts to get laptops and desktops shipping with ARM chips. Look out for these new 3D transistor CPUs at the end of this year or next year.

For a visual, detailed description of how the 3D transistors work in comparison with the 2D transistors, visit Intel's video at <http://youtu.be/YIkMaQJSyP8>

## Talk TED Talks Yo dawg I herd u like legs



**BRENT  
MCCLEAVE**  
1T NANOTECHNOLOGY

Quick: who can lift a car over his head, or leap tall buildings in a single bound? If you said Superman, you're wrong (and you're a nerd). A "normal person" is the correct answer--or, at least, it will be, if Eythor Bender has his way. Bender and his team at Berkley Bionics have spent the last few years designing mechanized exoskeletons to fit over our own limbs, in order to improve the strength, speed, and stability of the human body (because robot limbs are so overpowered).

Bender presented his team's work at a TED conference this March, by first explaining the benefits of "wearable robots" to those in combat. The average American soldier can carry approximately 100 pounds of equipment. This has been shown to cause many significant health problems, such as chronic back pain, in the later stages of life. To combat this, Bender and his team at Berkley Bionics developed the exoskeleton, the "Human Universal Load Carrier," commonly abbreviated as HULC. A soldier donning the HULC explained that while wearing it, he could carry over 200 pounds of equipment for an extended period of time. In addition, the exoskeleton detects the slightest movements of specific muscles, which gives the exoskeleton an apparent ability

to predict the wearer's movement, making actions like walking, climbing and running significantly easier (no more -2 to Speed on difficult terrain).

However, despite all super-human abilities considered, Bender's exoskeleton gives people the opportunity to have something far more important: regular human abilities. Paralyzing injuries are devastating, taking away a person's livelihood in a instant without any warning. Until now, those with paralyzed legs were confined to wheelchairs for mobility, which are horrendously inconvenient to say the least. Using his HULC exoskeleton, Bender designed a second - designated "eLEGS" - to assist the movement of once-paralyzed individuals. The eLEGS system was showcased by Amanda Boxtel, who became paralyzed from the waist down after a skiing accident. Despite not having walked for nearly two decades, Boxtel was able to walk across the conference stage with the help of the battery-powered limbs.

Even more shocking than these two extraordinary feats is the fact that they have been accomplished by machines in a relatively new field. As research into exoskeletons continues, the technology will become more and more advanced, making useable powered exoskeletons as seen in the *Halo* and *Fallout* series a realistic possibility. With this technology available, human speed and strength could be pushed to extraordinary limits. Just imagine all of the jars you could open!

## How File Sharing Changed the World of Music



**JASON  
KIM**  
4A ELECTRICAL

To hell with legal formalities. Illegal file sharing is rampant, and everyone is doing it. Have you noticed that people stopped buying CDs and that no one watches MTV or MuchMusic anymore? When was the last time you actually liked what you were hearing on radio? The traditional business model of the music industry is undergoing an inevitable decline as more and more people are figuring out how to download music from the internet. Let us examine how file sharing has transformed everything about music.

Traditionally, people acquired music by paying for it. As much as this might boggle the mind of some people now, this was one of few ways people could listen to musicians they liked. In the past, reproduction of pre-existing music was rather

cumbersome. You were able to make mixtapes by recording from radio, but selections were limited and recording quality was poor. If radio or TV didn't play artists you like, you were out of luck. You simply had to buy their CDs. Taking advantage of this inability of people to acquire music in any other means, record companies were able to make huge profits consistently for decades.

The introduction of file sharing threatens this business model to its core. Reproduction of music can be done at almost no cost by anyone by simply ripping a CD and copying the file multiple times. The music can then be distributed to a limitless number of people by a single file sharer through protocols such as peer-to-peer or BitTorrent. The copied mp3 files can be further digitally duplicated multiple times without diminishing the audio quality. A single individual is now able to do the job of major corporate labels composed of thousands of employees.

File sharing transformed what people

get to hear as well. Traditional dissemination of music was almost exclusively performed by a few major record labels, large retailers, television and radio. Therefore, people's taste in music was largely acquired by listening to music provided by these large corporations. TV and radio, with limited airtime, tried to cater to the largest demographic possible. Thus, they were likely to have the blandest selection of music. With the rise of file sharing, consumers are no longer restricted to the selection of music provided by mainstream media. If we ignore marginal costs associated with bandwidth usage, consumers now can freely explore new music from different eras and cultures at no cost whatsoever. Some music blogs also have risen to prominence through offering a rare selection of music created by independent artists.

File sharing also has changed the way we listen to music. With vinyl records, CDs, and cassette tapes, people tend to listen to the album from start to finish simply be-

cause it's cumbersome to switch albums in the middle. With mp3 files downloaded from internet, shuffling through different albums is incredibly easy. This inherent ability of mp3 players to jump from one song to another easily has trained people to venture through unknown songs from a playlist they have downloaded from music blogs. If someone doesn't like what they are hearing, they can just jump to the next track.

Although it is clear that file sharing has liberated many music listeners from the limitations imposed by the music industry, it is not entirely clear what the future will bring for file sharing. The activity of file sharing has been regarded as illegal. The major record labels represented by CRIA and RIAA are also constantly lobbying the government to deter file sharing with more severe punishment. At the same time, it seems unlikely that any severe punishment will stop file sharing, and so it is likely that the face of the music industry will not change for the time being.



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# The Sony Playstation Network Data Breach



**CHRIS LETNICK**  
3A COMPUTER

For decades, the concept of breaking into a computer network and stealing information has been a reality. However, most data breaches are limited to a small network belonging to a small company with little or no security department. Data breaches of tens of millions of people's identities or financial information has been left to Hollywood movies such as *Live Free or Die Hard*. Sony, however came to a shocking awakening when, during an internal audit, they found that tens of millions of people's identity information had been stolen from their network.

At the end of April 2011, Sony announced that they had a major data breach involving the identity information of tens of millions of individuals. This number has since been clarified by Sony to around 77 million. That is twice as many people as the Canadian population! Some of these stolen records only include identity

information, while others contain financial information. Not only is this one of the largest recent data breaches, it took Sony six days to admit to the data breach having occurred. This would have, of course, given the person or group responsible for the theft enough time to utilize some of the stolen information. To make things worse for Sony, this breach happened on their PlayStation Network, the network used for the social and the online multi-playing features of the PlayStation 3 gaming console. This is the market in which Sony has been trying to gain and keep a market share from the increasing competition of the Microsoft Xbox 360 gaming console.

Sony is now in rough shape. They are facing a large amount of criticism and increasing threats of legal action. The criticism is well-warranted due to the long delay in providing information to the public about the breach, and reports of inadequate data protection. Many countries, including Canada, have laws in place outlining the level of precaution that should be taking to secure identity data of customers. Some analysts believe Sony has breached these

laws. Fortunately, Sony appears to be making some smart decisions after the incident. The first of these decisions is keeping the PlayStation Network offline until they are sure that they have increased their security to a point of high confidence. The next important step they have taken is providing a complementary identity theft insurance policy of up to one million dollars to all their users.

There have been some claims of financial fraud among those who have been part of the breach. However, it will be difficult to determine if these claims are legitimate, and even more difficult to prove that Sony is the culprit of the incident. Within 77 million people, it will not be uncommon for regular occurrences of financial fraud from other sources. Sony has gone out and made a claim of their own by blaming a group of hackers known as Anonymous for the breach. This group is known for their high profile work supporting Wikileaks and attacks on the church of Scientology. The group claims that they are not responsible.

So, what is there to learn from what is

currently happening with Sony? The answer to this question is that the Internet is not always secure. There are always going to be data breaches. And as long as stealing this information is profitable, large, organized crime will devote enough resource to breaking in. But don't panic! Most companies put clauses in their usage agreements holding themselves accountable for breaches to your information. It is in their best interest to ensure breaches don't happen, and to comfort users if breaches do happen. For example, The Royal Bank of Canada has a clause voiding the user of any responsibility if their computer and subsequently their online banking password becomes compromised. So, not only are they taking responsibility for breaches of their network, but they are also, within reason, taking responsibility for the security of a user's computer.

So, yes, breaches happen, and it will happen again. But like driving, using the Internet will always be an acceptable risk. Make sure to wear your antivirus seat-belt snugly over your shoulder.

## TechnoSpeak: Display Technologies

**AMMAR MASUD & KRISHNA IYER**  
2B NANOTECHNOLOGY

As I sit here in front of my laptop, I am amazed by this piece of technology that reveals what is interpreted as my actions on this keyboard and mouse. I am talking about the display. Have you ever wondered how these things that are less than a centimetre thick work? We are here to discuss the basics of these marvelous inventions. Before we get our hands dirty, it is necessary to understand the properties of a display. In a display, a pixel is the smallest unit which can be modified. Pixel density is the number of pixels in a given surface area. Refresh rate is defined as the number of times the output from the pixel can be changed.

### CRT (Cathode Ray Tube)

This is the oldest type of display. It consists of a vacuum tube with an electron gun at the end of the tube. The gun bombards the screen with electrons which causes the phosphor dyes on the screen to be illuminated. This requires its traditionally large size. However, due to the absence of a backlight and bleeding lights, the contrast ratio (the ratio in between the luminosity of the brightest white and the darkest black) is enormous. Still popular among some graphics professionals, this technology is being quickly phased out due to its bulky size and relatively low pixel density.

### DLP Projection

Digital Light Processing projectors are a marvel of modern technology, courtesy of

Texas Instruments and their signature DLP chip. Their chip consists of millions of little micro-mirrors. These micro-mirrors serve as the individual pixel and control the intensity of reflected light. This technology is highly preferred due to its high refresh rate (as compared to LCD projection).

### LCD

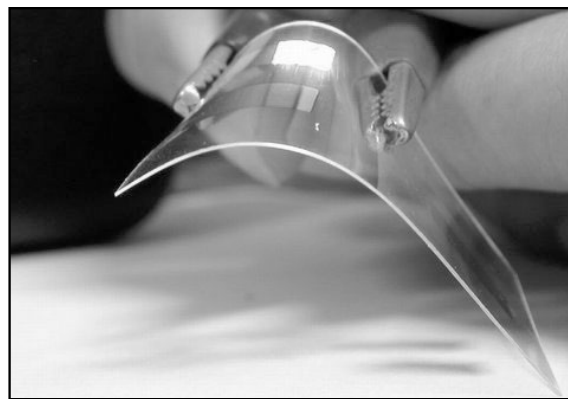
Liquid Crystal Displays (LCD) use a very simple mechanism. They consist of a backlight with two perpendicular polarizers in front.

These polarizers cut out the light coming from the backlight. Between the two polarizers lie liquid crystals which rotate the polarization of the light coming from one of the polarizers. Depending on the electric field, the intensity of transmitted light in each pixel can be modified. The problem with this technology is that no polarizer is perfect and there is light bleed, leading to a lowered contrast ratio (as the blacks are partially illuminated and therefore not truly black).

### LED LCD (also referred to as LED)

Essentially a regular LCD except backlit by light emitting diodes rather than a fluorescent lamp. That's it... Seriously! We decided to add this to the list due to confusion

to the point where people (they were actually in engineering before you start pointing fingers) have attempted to argue with us that current LED displays sold have nothing to do with LCDs. Calling them LED was for sales purposes and would have



A flexible organic LED in action

been like calling previous LCDs fluorescent lamps. The main advantages of LED backlit LCDs over other LCDs is a reduction in their thickness, decrease of power consumption, and, best of all, an increase in contrast ratio.

### OLED

The future that may already be in your pocket—organic light emitting diodes (OLED) are already showing up on portable devices thanks to battery life savings due to no backlight. OLEDs contain an organic compound layer that produces light (colours vary depending on the organic compound) when an electrical current is run through it. OLEDs are thinner, lighter, more flexible, consume less power and boast a much a higher contrast ratio compared to that of LED LCDs. There are two reasons why their use isn't more widespread: 1) Cost; though, like many technologies when they are first introduced, the

cost of OLEDs are slowly declining, and 2) Low availability of supplies.

### E-INK

E-ink displays are one of the latest developments to be deployed on an end-user product as a viable display technology. E-ink uses millions of charged nanospheres with one side coloured black and the other side white. The black side is attracted to negative charges while the white side is attracted to the opposing positive charges. This is used in many low-power purposes such as the Sony Reader, Amazon Kindle and the Motorola F3. The advantages of this display is the low power requirement and no backlight is needed. However, the reason for it not being widely used in other applications is ghosting due to its low refresh rate.

### MIRASOL

Imagine a display that looks as crisp as paper, does not have a backlight and delivers a low-power and coloured alternative to LCD screens and e-ink displays for electronic book interfaces. Mirasol is a trademarked technology from the electronics giant Qualcomm. It uses Micro Electro Mechanical Systems (MEMS) to produce interference fringe-based colours. Each pixel consists of a Fabry-Perot interference etalon which reflects a certain wavelength of light depending on the thickness of the etalon. This thickness is modified by the application of an electric field in each pixel. This provides a vibrant display without the need for power consumption (except for when the displayed features are to be changed).

## Toronto High School Student Makes Groundbreaking Cystic Fibrosis Discovery



**FARZI YUSUFALI**  
2B NANOTECHNOLOGY

A 16-year old currently attending high school in the Greater Toronto Area was awarded first place in the 2011 Sanofi-Aventis BioTalent Challenge on May 10th for his groundbreaking scientific discovery in the treatment of cystic fibrosis. Marshall Zhang, a 11<sup>th</sup> grade student attending high school in Richmond Hill was awarded this

honour after finding a new combination of drugs used for the treatment of cystic fibrosis, a potentially fatal genetic disorder.

Zhang, under the supervision of Dr. Christine Bear at the Hospital of Sick Children Research Institute, used the Canadian SCINET supercomputing network at said mentor's lab to investigate the behaviour of two promising drugs as it interacted on the flawed protein responsible for cystic fibrosis. Using computer simulations, Zhang analyzed the action of each drug individually on the target protein. He found that each drug worked completely independent

of each other to produce different effects on the same protein. This result indicated that both drugs could be used simultaneously and optimally to achieve the best results when treating this genetic condition. After this realization, Zhang tested his idea of using both drugs at the same time on living cells and found that the two drugs used worked much better simultaneously than they did individually to provide corrective therapy on the target protein. While continued work may find that these drugs are too toxic to be used in humans, this discovery is important to future research endeavors

for the treatment of cystic fibrosis.

The contest, which became Zhang's medium for this discovery, allows students in high school or in the early years of university to conduct their own research under the supervision of mentors that are accomplished in their own right. This contest attracts over 3,000 participants of which millions of dollars in grants are awarded to these young researchers. The winners and runners-up of this challenge usually proceed to compete in the International BioGENEius Challenge held in Washington DC every year.

# The Fashion Files

## Laws of Fashion



**AMANDA  
LEDUC**  
4A MANAGEMENT

We are a population governed by laws, some more important than others. There are math laws, science laws, traffic laws, the bro code, laws of attraction and so many more which we must obey every day since failing to do so results in swift and harsh penalties.

One set of laws frequently forgotten by engineers (and mathies) in particular are the Laws of Fashion! Yes, there are such laws, and yes, there are penalties for breaking them. Penalties include loss of career opportunities, loss of friendship and loss of invitations to social events. There are also side effects to breaking the laws of fashion including having young children point and laugh, having old ladies stare sternly and having your best friend get dizzy and vomit at the sight of your law breaking outfit.

While some of you may claim ignorance to the Laws of Fashion, this article aims to educate and motivate you to raise

your own personal standards of fashion. Improving your fashion will have positive effects on humankind in general, but just in case that isn't enough motivation, I've added my own incentive...

From the very moment you read this issue, I will be watching you. I will see every time you break a Law of Fashion, and I will document it. I will also see outstanding displays of fashion and will take note of those also. Every two weeks in this very newspaper, I will publish the best and worst I have seen, so dress to impress! You have been warned, adhere to the following simple Laws of Fashion:

### No White After Labour Day

This is without a doubt one of the most important, frequently misunderstood and unobserved Laws of Fashion so I will attempt to clarify. I frequently get the question, "Isn't it always after labour day?" and the answer is no! The Tuesday following Labour Day until the Sunday during May Long weekend are dates during which white must not be worn. White items that must not be worn include pants, skirts, dresses, shoes (except athletic), purses, hats and jewellery. For practical purposes, it is acceptable to wear some

white items including shirts, athletic/running shoes and socks.

### No White Socks with Dark Pants

When walking around with your pants covering the tops of your shoes, nobody can see the broken Law of Fashion hiding around your ankles; it's your dirty little secret. Then you sit down and those bright white socks cause visual trauma to anybody to see them shine against the black shoes and dress pants you've worn to your co-op interview. White socks should be avoided when wearing any dark pant including medium to dark wash jeans. Considering the undergraduate population wears jeans or khakis to class nearly every day and on weekends, the majority of your sock drawer should be composed of navy, black and brown socks. Try to reserve white socks for where they belong, either with light wash jeans, white pants (which you should own by the way) or in your gym bag.

### Wear White during the Summer!

So I've told you when not to wear white, but that just makes white more special for the 4 months it is socially acceptable to wear! During the summer months, particularly this summer, go all out and

wear entire white outfits. We all have white t-shirts and knits, but those aren't special summer white pieces. Try adding a white item you wouldn't typically wear to your wardrobe this summer. For most people, that means a pant, capri, short, skirt or even a white sundress. You'll be amazed at how versatile white items can be in your summer wardrobe and how quickly they turn your existing clothes into airy looking summer apparel. If you aren't ready to commit to new clothing and want to economize, try adding white accessories. White sunglasses are always fun as is a white watch or belt. For the ladies in particular, white accessories including necklaces, earring, bracelets and hair pieces can be a great low cost way of making your wardrobe more summery; try H&M for some economical and awesome looking finds!

Hint: To add an extra bit of luxury to your white outfit, try adding gold to the mix with your white accessories; you'll be amazed at the designer look you can pull off for a fraction of the price!

Stay Classy,  
Amanda

Chief-Fashion-Officer (CFO)

# Future of Gaming

## Innovation, Contentment, and The Living Dead



**JON  
MARTIN**  
OBI JON1138

Wow, back for another term. Welcome back to everyone who has been away on Co-op and good luck on your next academic term. I am currently on my fourth Co-op term, this time out in Calgary, Alberta. Unfortunately, I don't have a gaming system with me besides my DSi, so don't expect any game reviews.

Onto some news, and there is definitely a lot of it. Let's start with Nintendo, which I have basically been insulting for the last year for their lack of innovation and general stagnation. Nintendo has basically been coasting on the immense success from their Wii console, ignoring the competition who have been struggling in their wake. Of course, over the last year, sales have drastically declined on the Wii; maybe they have just sold one to every possible consumer in their market or they have finally hit a wall when it comes to graphics. For the second generation in a row, Nintendo has been stuck as the technological underdog of the big three companies. The Gamecube could never compete with the Playstation 2 or the Xbox and so it fizzled into this generation. Now the Wii is at the same point – although it does have superior capabilities than the Gamecube, it is still the underdog compared to the PS3 and the Xbox 360. Well, Nintendo is going to change that.

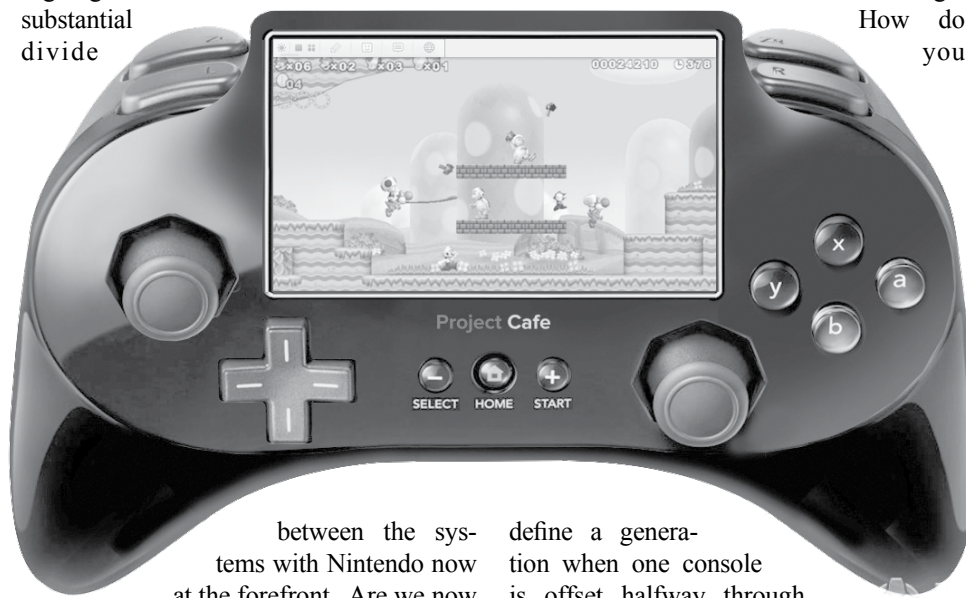
Nintendo has officially announced that they are, in fact, working on a new console, currently code named 'Project Café' (let's hope they come up with a better name, but then this is the company that gave us the Wii), which will get its official debut at E3 this July. The new system is rumoured to have significantly higher specs than either the PS3 or the Xbox 360, as well as a new controller scheme. Each controller has standard gamepad controls, as well as a built-in screen, which could be used to mirror the main screen image, allow for play without a TV, or be used for in-game info – like health bar and ammo. It will be interesting to see how the prices of these new controllers compare with traditional con-

trollers, as well as the battery requirements.

This brings about a very interesting situation between the big three console giants. While Microsoft jumped the gun this generation by releasing the Xbox 360 a year ahead of its competitors, everything has kind of leveled off now. The PS3 is technologically superior to the 360, I don't think anyone will deny that. The differing programming systems make the two difficult to compare, but in most aspects, they are relatively evenly matched. Now Nintendo is going to be releasing a new console around two or three years before the other two as both Microsoft and Sony have said that they will not have new consoles until around 2014 (of course, they could be developing them now, as some rumours suggest). This is going to introduce a substantial divide

logically inferior system – only even more inferior because of the increased gap in technology. Nintendo can enjoy a few years of superiority but will then have to suffer years of mockery at its 'ancient' technology. I can't help but think that it is a bad idea for Nintendo to fracture the gaming generations like this. In the past, there were long periods in which a new console seemed to come out every year or multiple systems per year, but that was in an age when there were five or six competitors for home consoles and generations were based on evolving technology. Then, things shifted once the competitors were reduced to just the big three. Since then, generations have been pretty much standard; Gamecube, PS2, Xbox followed by the Wii, PS3, and Xbox 360. Now

this could all change.  
How do you



between the systems with Nintendo now at the forefront. Are we now going to see a shift of 'hardcore' graphics-intensive games being developed for the new Nintendo console with dumbed down versions for the other two, or will Nintendo still be plagued with the 'casual' gaming label they have had for many years? I really don't know.

This will also lead to a unique situation a few years from now when Microsoft and Sony finally do release their new consoles. Both systems will be about two or three years more advanced than the Nintendo console (exact times depend on when 'Café' is launched and when the hardware for the next-gen systems is finalized). So once again, Nintendo will be left with a techno-

define a generation when one console is offset halfway through the lifespan of another? I don't know how this is going to turn out, but it is definitely going to be interesting.

On to Sony, poor, poor Sony. The Playstation Network has now been down for a few weeks since a massive breach left Playstation users' information in the hands of hackers. Responsibility for the attack has not been claimed publically, and the group known as Anonymous has said that the attack is against their guiding principles. Interestingly though, Anonymous has admitted that the attack could have been from a disenchanting member of their ranks, but the attack was not sanctioned by the group. The attack seems to have started as an exploit of

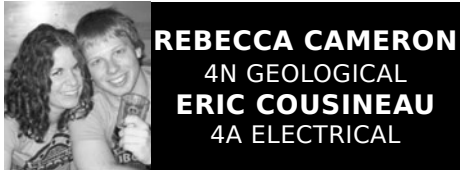
the root code hack I have mentioned before. Users were able to sign onto the Playstation Network while making their system appear to be a development kit (the unlocked systems that developers use to design and test their games). This exploit allowed these users to set up fake credit cards and add real money to their accounts to buy things off of the Playstation store.

Sony subsequently shut down the network and announced a week later that the credit card information of users may have been compromised. Since then, the network has still not been restored, retailers have started offering huge trade-ins on PS3s and still nothing has changed. Support has been mixed within the Playstation community, with many people taking out their anger against Sony, even preparing class action lawsuits. Others have recognized the fact that this really isn't Sony's fault; well maybe their security could have been better, but all systems can be hacked eventually. Ultimately, the blame for this fiasco, and users being without the Playstation Network for so long, lies firmly with whoever actually hacked the system. You wouldn't blame a bank if someone broke in and stole money from the vault; obviously, the bank didn't want it to happen. Of course, people would be angry if their credit card information had been stolen in that same robbery. But still, this isn't entirely Sony's fault and they are trying to fix things and help protect users' identities.

So far, I haven't really talked about Microsoft, which is mostly because they haven't really done much. Besides offering discounts on several Xbox Live products – mostly to take advantage of the Sony Playstation Network situation – Microsoft seems to be holding onto whatever news they have until E3. These announcements will undoubtedly contain some new big budget Kinect games – including a new Star Wars game. Developers have now gained access to new development software for the Kinect allowing for more accurate tracking and a significant reduction in lag. Don't expect an announcement of a new Xbox – that is still probably some time away.

So that's it for this article. Keep on the lookout for news, keep checking the Playstation Network, and of course ... Keep on Gaming.

## Beer Buzz: Black and Tan



**REBECCA CAMERON**  
4N GEOLOGICAL  
**ERIC COUSINEAU**  
4A ELECTRICAL

Hi there beer lovers! Now that Neil and Dan have graduated we have taken on the beer column and we can't wait to call our beer drinking "research." Before we get to the beer we want to introduce ourselves.

**Rebecca:** Hi, my name is Rebecca Cameron and I'm in 4N Geological Engineering. I work a lot in the EngSoc Office and the CnD, and if I'm not there I'm probably in POETS (sipping on a delicious POETS Warrior Lager if it's Thursday or Friday). I love stouts (O'hara's, Guinness, Cobblestone, and St. Ambrose Oatmeal Stout) and dunkels (Erdinger Dunkel and Weinstephen Dunkel are awesome).

**Eric:** Hi everyone, I'm Eric Cousineau and I'm in 4A Electrical Engineering. I'm A-Soc VP-Education, and I spend a lot of time in meetings and in the EngSoc Office. I really like ales (Dead Elephant, Corne du Diable, and most other REAL IPAs – not Keith's) and anything Trappist style.

Our favourite breweries (right now) are Flying Monkeys and Dieu du Ciel. As a couple we have tried hundreds of different beers together and we have almost 60 unique beer glasses sitting on our shelves waiting to be filled with hoppy goodness!

Our beer column will be looking into how to taste beer, pour beer, find good beer, different beer styles, and the history of beer. We hope that we can convince people to be more adventurous in their beer drinking decisions. There's some amazing imports and microbrewed beer available, so don't let the Beer Store's Top Ten make your beer choice for you!

For this first article, we've decided to share the wonder of Black and Tan, a blended beer drink. It is made from a blend of a pale ale (such as Harp or Bass Pale Ale) with a dark beer such as a stout or porter

have the pale ale on the bottom half of the glass with the dark beer on the top half of the glass. There will be a very distinct line separating the two beers – this spot is the best tasting bit of the whole drink. It's easy

ness slowly over an upside-down tablespoon placed over the glass. Avoid splashing and mixing the layers as this will decrease the quality of your drink. See our video of us pouring a Black and Tan at <http://youtu.be/boQJCEDgWb8> (you can also check it out on ercousin's channel). This drink takes a bit of practice to pour, but trust us, it is worth it! If you are out on the town and would like to order a Black and Tan, your best bet for a well-made drink is at an Irish pub, particularly at Molly Bloom's here in town. If you ask for one and get a blank stare cancel your order and get something else. It is a fun sport to watch a bartender sweat as he attempts to pour one of these.

The aroma of a freshly poured Black and Tan is of dark coffee and roasted malt like that of a standard Guinness pint. When most of the Guinness is consumed (carefully without mixing the drink), the clean barley aroma of the Harp Lager begins to dominate. At first sip, the taste is similar to the aroma, but with some cocoa and bitterness. As the beer is consumed the Harp and Guinness flavours begin to mix and a delicious balance is reached. After the Guinness is gone you are left with the crisp, light, malty taste of Harp.

As with any drink there are a ton of variations that can be made on the basic recipe. One of our favourite variations of a Black and Tan is a Black and Velvet. This recipe substitutes the pale ale with cider (usually Strongbow Cider). Another variation is the Black and Trash, which uses American Budweiser Lager...however, we don't suggest this drink.

Overall this drink (and some of its variants) is a refreshing change of pace from the standard English Ales at Irish Pubs, and makes for a fun conversation item in a bar. Learning to pour this drink is more than an art, but is quite fun. We highly recommend you give this drink a shot, and get out of your comfort zone to explore the wonderful world of beer. As we always say, Fear No Beer!



**A Black and Tan**

Eric Cousineau

(generally Guinness Draught is used). This style of beer originated in Britain pubs and was first described in the Oxford English Dictionary in 1889. Many breweries are offering pre-mixed Black and Tan, however these really don't capture anything remotely like the taste of a freshly poured Black and Tan. When poured correctly the drink will

to tell a good beer bartender with this drink as amateur bartenders (or those who are rushing) tend to blend the two beers while pouring which will result in no distinct line between the two beers.

To pour a Black and Tan fill a shaker pint glass or a English tulip pint glass halfway with the ale (the picture and video of the black and tan we poured uses the shaker pint glass and Harp). Pour the ale so it has a lot of head (at least two inches). This will make it much easier to create a distinct line between the two beers. Then pour the Guin-

## Book Review *A Game of Thrones*

**CAITLYN CARTWRIGHT  
& JORDAN HART-BISHOP**  
2B CIVIL

The series, *A Song of Ice and Fire*, has recently seen a renewal in popularity due to its adaptation into a HBO series. *A Game of Thrones*, the first novel in the series, takes place in a vast world reminiscent of medieval society. The book tells the tale of a kingdom several years after a bloody civil war that saw a mad tyrant dead. The novel tells the tale of the House Stark, Warden of the North, of the Seven Kingdoms and that of Danaerys Stormborn the exiled and hunted princess of the Kingdoms. Magic also exists in this world, however unlike other fantasy novels most references indicate it has been long lost to the world, with most characters considering it no more than myth.

The book opens with a savage killing involving some of the lost magic and mystery of the world. This is one of the book's many instances of foreshadowing, and many of these obvious scenes are not resolved in *A Game of Thrones*. The foreshadowing could be improved as seemingly critical events are ignored shortly after. I am currently reading the third book and can say that reading the whole series is a must for resolving any except the simplest mysteries presented in *A Game of Thrones*.

Martin uses the technique of telling his story by having several main characters as his narrators, and each chapter gives their experience of events. We found that this was excellent at some points but often there was a break in the flow of the novel to revisit a character whose plot is not critical to the novel at the time.

The other plot device that Martin relies heavily on is dramatic irony. He can barely go more than a chapter without presenting information to the reader that is unknown to the other characters. While interesting at first, it becomes tiresome due to the frequency; significantly reducing the level of drama and making it more of an annoyance. Some readers may enjoy the suspense of speculating how other characters will react to new developments when they learn of them.

In terms of a comparison to other fantasy series there is nothing that comes to mind. J.R.R. Tolkien and Robert Jordan both produced worlds on the same scale as Martin has, but that is where the similarities end. There is a brutality in Martin's work that is rarely seen in other novels, fantasy or otherwise. There are many depictions of violence which can be occasionally difficult to stomach depending on your tolerance, as those who've seen the HBO series can attest.

One of the best points in the novel is the realism of the characters as there are no clear "good" characters in this novel, every character has a dark secret or commits acts that can be viewed as evil. While making the characters less likable, it does avoid the good vs. evil cliché that exists in many other series. This is a major feat and redeems some of the excessive foreshadowing and dramatic irony.

We commend this book for its originality, and complicated character development and interactions. However, running at a hefty 694 pages and with three more books currently in-store and three more planned for in the series, this is a major reading commitment.

## Hello Wonderful Readers



**BROCKGRAEME  
SCOTTKOPP**  
1A JOURNALISM

Hello wonderful readers. This is my first article for *The Iron Warrior*, and I am very excited for what will surely be an exciting relationship between you, the reader, and myself, the writer, entrepreneur and marine spelaeologist. I have a variety of interests, ranging from fly fishing to bear chasing and all things in between. For the foreseeable future, I will be making it my goal to keep my ear on the pulse of the student body and discuss in a detailed, unbiased manner issues close to the hearts of the students of this fine University (see what I did there? hearts...pulse...pretty crafty I think).

Now some of you may be wondering how someone as busy as I, what, with all the speleology I get up to, still have time to do all of this? Well, the answer is simple... But enough about me; I want to hear about you, so feel free to use the next 30-58 seconds to tell me a little bit about yourself. I'll stop typing, so go right ahead.

Well that was very interesting; it seems as though we have a lot in common, you and I. How exciting, but I digress.

As a respectable young student, I am faced with the occasional opportunity where breaking the law is just convenient. Now I'm not talking about stealing or assault, but a little jaywalking and speeding never hurt anyone. Yet the police are al-

ways sitting just around the corner, waiting for us to slip up (whether it's a \$300 ticket for watering a lawn or \$65 for being overly hydrated in public). But if you're like me and read [insert popular tabloid here], you'll have heard about the blatant abuse of the justice system by the very people we worship: celebrities.

These are people so rich that when they drink too much, they can't figure out whether or not they own the house they are standing in front of. When someone attempts to reason with them, they start punching everything in sight: cars, mailboxes, not even the grass is safe. A man's chattel is one thing, but another living person is just unacceptable. Once the grass was laying still, he began yelling and shaking his wife in rage. This is hardly the behavior that I want my children (scary thought, I know) to be modeling as they grow up. As an Oscar winner and the greatest actor of all time, this is hardly appropriate.

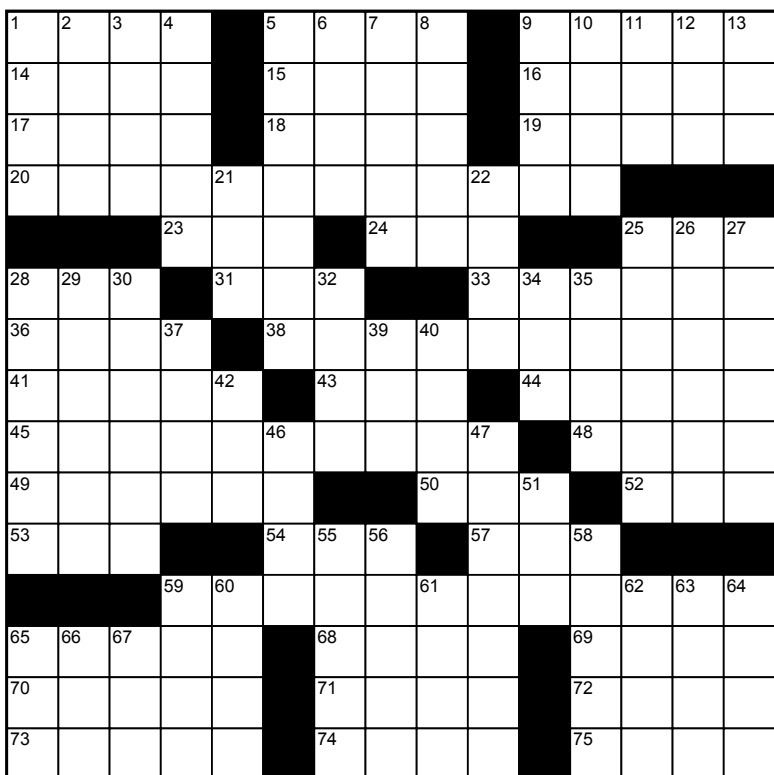
"But don't worry, the judicial system will correct his ways," you might think to yourself. WELL AGAIN YOU HAVE BEEN STYMIED. Not a single charge was laid, and the case was dropped. Not even a fine for public uber-hydration. All because he won a shiny statue and is capable of making millions with his many differing facial expressions.

Now you may not agree with what I've said, but I don't care. I still invite you to let me know so that I can mock you in my next column/tweet. You can email me any time at [brockgraeme@gmail.com](mailto:brockgraeme@gmail.com), or follow me on twitter at <http://tinyurl.com/I-Digress>.



# Framed!

**STUART LINLEY**  
2B NANOTECHNOLOGY



## What Flooded DWE

**MICHAEL NEW**  
4A CIVIL



### Down

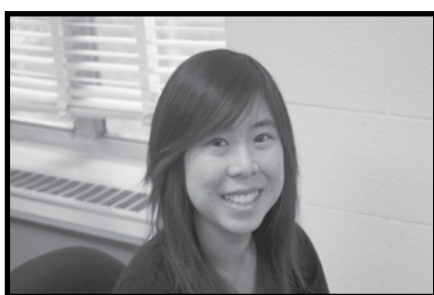
- 1. Peon
- 2. Czech river
- 3. Igneous rock precursor
- 4. 24th Greek letter
- 5. Steep object?
- 6. Fashion magazine
- 7. Deem appropriate for ones dignity
- 8. Act subdivision
- 9. Tepid
- 10. Sheltered
- 11. Fib
- 12. \_\_\_ Moines, Iowa
- 13. Lone
- 21. A Gershwin
- 22. Borrowed money
- 25. Bluetec gas
- 26. Glue brand
- 27. Blinker
- 28. Fish out of water
- 29. Decorates
- 30. Place
- 32. Chief: Prefix
- 34. Consumed
- 35. Rug
- 37. Prefix with gate
- 39. Enzyme suffix
- 40. American special naval force (Abbr.)
- 42. Sugar suffix
- 46. Country with a missile crisis
- 47. Intensify
- 51. 70's rock "Orchestra" (Abbr.)
- 55. Bath salt
- 56. Roman horse goddess
- 58. Homer epic
- 59. Sense
- 60. Recuperate
- 61. Make changes to
- 62. Forearm bone
- 63. Track event
- 64. Facilitate
- 65. Query
- 66. Tonic go with
- 67. Hwy.

### Across

- 1. By oneself
- 5. Roosevelt and Nugent
- 9. A tough one to find
- 14. Dutch cheese
- 15. Basic util.
- 16. Strange
- 17. Parisian dream
- 18. "I cannot tell \_\_\_"
- 19. Actress Witherspoon
- 20. An easily breakable garden ornament?
- 23. Be, in the second person
- 24. Fresh, as a coat of paint
- 25. Cee follower
- 28. Bad
- 31. Roadside assistance, in America
- 33. With no effort
- 36. Object of devotion
- 38. Like a series of similar identity thefts?
- 41. Logy or path prefix
- 43. HTML styler
- 44. Picture frame?
- 45. Prank planned by a brotherhood?
- 48. Spice Girl Halliwell
- 49. Instead (of)
- 50. French key
- 52. Acid
- 53. Chinese chairman Mao \_\_\_-Tung
- 54. Bonnet insect
- 57. Old Testament prophet
- 59. Specific amount of a chilled coffee?
- 65. Say O.K. to
- 68. Pop
- 69. Small intestine ends
- 70. Locales
- 71. "Don't worry, I'm \_\_\_"
- 72. Saturated hydrocarbons
- 73. Assumed knighting position
- 74. Check or stale go with
- 75. A night out, perhaps



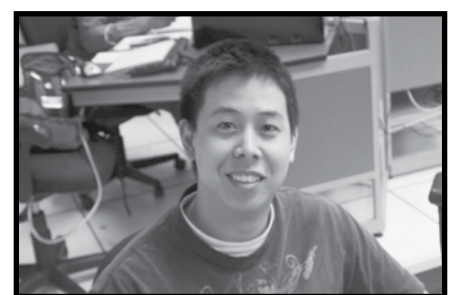
## "What are your plans for the summer?"



*"Party up with some friends"*  
Jennele Wang, 1B Mechatronics



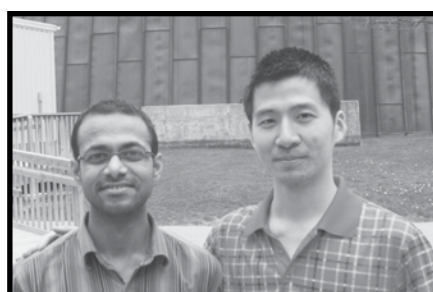
*"Research and going to work for Just Energy in Mississauga."*  
Omar Qadri, 2011 Electrical



*"Fishing baby!!!"*  
Ken Nguyen, 4A Mechanical



*"Go to Niagara Falls"*  
Sahithi Vanamala, 1B Mechatronics



*"Going out to a beach"*  
Chen Yi Liu & Abhishek Kumar,  
Systems Design Masters



*"Road trip to California"*  
Kamran Habib, 1B Mechanical