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THE IRON WARRIOR

THE NEWSPAPER OF THE UNIVERSITY OF WATERLOO ENGINEERING SOCIETY

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Big Trouble for Low-Rise Housing in Waterloo

ADAM KLETT
3A MECHANICAL

Angelo Alaimo

Low-rise houses, like this one on Lester St., continue to be torn down and replaced by large lodging houses.

Do you rent a room in Waterloo? Do you care about how much you pay for rent? If so, this article directly applies to you.

The City of Waterloo has recently introduced a bill pertaining to how low-density housing is litigated. It applies to all rental properties not considered to be apartment buildings. This is the newest part of the City of Waterloo's "Node and Corridor" development plan which hopes to see most university students segregated into high-density housing around Northdale, which is the area between Lester and King, University and Columbia. The new by-law will be incredibly beneficial for high-rise landlords and developers by making it far more financially difficult to rent low-rise housing and simultaneously forcing more students to move to high-rises.

One major change is that low-rise housing in Waterloo would be limited to three bedrooms per unit. The city justifies this with some polls where they contacted families to see how many children they have and established that the average family has 3.0 people. Apparently this is a valid reason for a 3-bedroom per unit cap.

What it doesn't say is that students do not fit in their data. Their other justification is that it would protect the human rights of the occupants to see them living in better conditions. The reality is that it would make more students move to small, high-density housing units that are not affected by this possible law. The three-bedroom limit would be effective immediately for all houses sold after the law gets ratified which is set for July 1st, 2011.

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Meet Meg Bauman

Replacement Student Relations Officer

ERIN MATHESON
3A CHEMICAL

While all of us on B-Soc were out on co-op, a lot of changes took place back here on campus: a new batch of first years joined the ranks, our much beloved CPH foyer now looks like a taped-off crime scene on an episode of CSI, and a wave of caffeine-deprived rage has been sweeping across the faculty like wildfire. Along with these changes, a new face has appeared amongst the faculty's administration. Robin Jardin, the faculty's Student Relations Officer has left on maternity leave for the next year (She had a baby girl on January 1st, congratulations Robin!). During this time, her position is being filled by Meg Bauman, who is currently on a Leave of Absence from her previous position as a recruiter for Conrad Grebel. I had a chance to sit down with Meg to chat about how she's settling into her role, and her upcoming plans for the next year.

Iron Warrior: So what brought you to working in this position?

Meg Bauman: I have been working for the past three years in recruitment and marketing at Conrad Grebel, and I have a lot of contacts at campus, since our marketing does a lot of centralized work. So it was mentioned to me that this job was opening up for the coming year, and the big appeal to me was the 'student life' aspect of the job. As much as I enjoy working with 17 year olds and bringing them onto campus, I enjoy working with current students even more.

IW: What were some of your first impressions of Engineering?

MB: In recruitment, my best stories were always from engineering students, and I always hear from the engineering recruiter that engineers are full of life and very active. After meeting with Robin and seeing how active your student body is and what a great student community there is, I was really impressed!

IW: Do you have any plans for the upcoming year?

MB: Of course, I obviously want to be mindful of what Robin has done because she's done a great job in this position and I want to keep that up. That being said, every new person brings something new to the table. One of the big things I've been working on in the past week is a communications plan – I want to up the overall level of communication with the entire student body. Things like an active Facebook page, a centralized student life webpage with resources for students such as funding information, and more articles from the Dean in the Iron Warrior.

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Biomimicry

Inspiration from Nature

ALEX HOGEVEEN RUTTER
3B ELECTRICAL

As humans, and especially as engineers, we like to think we've accomplished unparalleled achievements. However, our accomplishments can be no match for millions of years of fine-tuning by evolution. Many of the most perplexing challenges in mechanics, electrochemistry and materials science have been solved in providing one creature or another with an evolutionary edge.

Probably the most obvious field from which to draw inspiration is aero- and hydro-dynamics. Despite their derivation in 1822 and subsequent utility, we still do not fully understand the Navier-Stokes equations. However, by examining the aerodynamic properties of the aptly named 'boxfish', the Mercedes-Benz bionic car achieved a 0.19 wind drag coefficient (still 3 times that of the 0.06 boxfish). Unlike many examples of aerodynamic biomimicry, this design maintains the traditional cube-like structure of automobiles to which we are accustomed, relying on additional contours, scalloped sides and pronounced wedge shape. Furthermore, the frame itself was based on the boxfish's skeleton made of hexagaonal bony plates. Using this principle, the automaker was able to achieve 40% greater rigidity using the same weight and type of materials.This style of thinking is actually very common, whether it be DARPA mimicking hummingbird flight for aerial micro-vehicles, adding a shark skin 'film' to cars to reduce aerodynamic drag, or using butterfly-like 'feet' to land at 90 degrees on a wall (youtube 'Stanford Perching Project').

A more recent field, photovoltaics has some lessons to learn from the Oriental hornet, an insect which astute researchers noted were most active during strong daylight.The increased activity was correlated to UVB radiation and eventually the researchers discovered the hornet's abdomen used the photo-biochemical pigment xanthopterin. That's right: an animal capable of converting sunlight to energy. To start with, the hornet's exoskeleton offers antireflective and light-trapping properties to increase the total amount of sunlight harvested. Next, the underlying and not fully-understood layer, consisting of chitin (a natural polymer) rods and protein matrix traps sunlight from escaping. Finally, the pigment arrangement is designed to increase effective surface area, further increasing solar energy absorption.

See NATURE on Page 4

Letter From the Editor

Goals as EIC, Experience with Exchange Process

CAILIN HILLIER
EDITOR-IN-CHIEF

Happy Winter 2011! Happy New Year! Everyone excited to be back? I really am. I just never feel at home when I am away from Waterloo anymore, so welcome back and I hope you all had a wonderful break. I would also like to say an extra special welcome to the first years, B-Soc is excited to meet you! And to the 4B students, I hope you have a terrific final term at UW, we will certainly miss you all after you graduate.

Before I go into my editorial topic for the issue, I just want to mention how excited I am to be the Editor-in-Chief of *The Iron Warrior* for the term. This team is fantastic! Thank you to everyone for helping with the first issue and bringing coffee. Erin, Angelo, and Jon - you are wonderful! What a fun production weekend! If you would like to be part of *The Iron Warrior* team, stop by the office: E2 - 2349A. Meetings are Mondays at 5pm, extremely casual, and laughs are guaranteed. Even if you only want to listen or offer suggestions, we would love to see you there! Seriously, I promise you will laugh – if not with us, at least at us.

So just to briefly introduce myself, I am a 3B student in Geological Engineering. I am actually the first editor from Geological Engineering in at least the past ten years. I have been involved on campus with *The Iron Warrior* and EngSoc since I was in 1B. As editor, I have several goals for the term. To continue from Angelo's term as editor in Spring 2010, I want to bring forward a variety of real news stories in order to captivate a wide audience. This ties in with my second goal: to see *The Iron Warrior* team involve more students. The students who are currently involved with the paper get a great deal out of working on it and sharing this opportunity with more students would be amazing. Let's see the IW draw a crowd! I would like to increase staff appreciation and put the spring back into the step of production weekends, when we put this thing together. After all, the more the merrier! This will also ensure that a collection of writers is available on staff to cover the stories that interest them, and subsequently you.

My final goal: I really want to make the most of the editorial space this term. Editorials are meant to involve a large viewership. Since they take up an entire page in each issue, I hope I can write something that large numbers of people will find interesting, informative, and perhaps even discussion provoking. If you have anything you want to say in an editorial form, I would love to read it and potentially publish it. Simply drop me a line at iwarrior@engmail.uwaterloo.ca.

For my first, hopefully interesting, editorial, I would like to discuss international exchange. I am going to roughly outline the exchange process and talk about my experience in hopes to motivate others into checking out this fantastic opportunity. After attending the two week long Joint Event on Education in the Czech Republic in August 2009, I had a fairly good idea about what an international experience might be like and that it was something I was interested in doing. Meeting new people, seeing new places and gaining a new perspective on things, what more could I want, but the process of applying on exchange initially appeared daunting. After wrestling with the idea of applying for some time, I finally decided to go for it and am I ever glad that I did.

Let's start at the beginning. The application process is very straight forward, starting with a trip to see Cindy Howe in the Engineering Undergraduate Office. The paper work was simple to complete and department approval was easy to obtain. Step one down. The only tricky part can be in deciding where in the world you want to go. For me, I just looked at the list of schools that Geological Engineering students had attended in the past and knew I wanted to be somewhere in Europe for traveling purposes. By process of elimination I eventually chose my destination. From there, I selected courses, figured out residence permits and the logistics of my exchange. This process took place over roughly four months, from submitting my application to having all of my plans in place.

> ***"I was lucky enough to study in Sweden at Lund University and gain that unique adventure I had been seeking."***

Finally the time came for my exchange. Last term, I was lucky enough to study in Sweden at Lund University and gain that unique adventure I had been seeking. Now, since I am enrolled in the International Studies in Engineering option, I opted to take a variety of courses that would fulfill both my engineering and international studies requirements. Most notably, I was able to study prehistory by taking Dawn of European Culture... in the place where all of this actually happened! I actually saw ancient sites that my textbook referred to and to museums with artifacts found in southern Sweden, right where I was living. This was a completely new experience, actually living the history that I was learning.

I also took a course in glaciation and got to climb glaciers in Finse, Norway! This had definitely been one of those bucket list items for me and I was thrilled to have the chance to see those earth processes in action after all of these years. One huge difference I really noticed in the academic sector in Sweden was the stress that was placed on presentations. Every class I took required a presentation of the information we learned. It was common to have to do presentations and answer perplexing questions on the spot in front of an audience. This is something I haven't experienced a great deal while studying in Canada, however the value of having to work on my public speaking abilities has continued to be very valuable since my return.

Now, I have really only heard good things about going on exchange from people. I mean, you come back and remember the awesome things that happened while you were away and tell those stories, but there are also challenges to the experience that are good to be made aware of before leaving home. I was not really prepared for the feeling of loneliness I encounter while in Sweden. I had a co-op placement in Labrador City that was rather isolating, however there was something different this time. It was the cultural adjustment. Being in Sweden was fantastic, but there are those subtle differences from Canada that served as a constant reminder of just how far I was from home. For example, in Sweden people can be somewhat cold in public settings, like you generally do not smile at strangers on the train or in passing around town. This was completely new to me and something I never really got used to. To all of my friends, I blame this for my being so affectionate now and I am sorry for bothering you all – I am just ridiculously happy to be back! Hugs!

This challenge was like a life experiment for me. I was able to see how I functioned on my own and learned what was important to me. I also had free time, which was a new concept for me that I think many of you can understand. I mean, when was the last time you had an empty to do list? So what exactly did I do with this newfound time? I traveled. A lot. Those mystically inexpensive flights throughout Europe do in fact exist. I feel bad about my carbon footprint, but I figure that I did need to take advantage being so close to all of those places I had always dreamed of visiting. I went to Amsterdam and saw the Van Gogh Museum, saw the Paris lights during Fashion Week, went to Harry Potter and the Deathly Hallows Part I on opening day in London, visited the Stockholm Christmas markets and so much more. Hostels and couch surfing FTW.

Going on exchange was amazing, challenging and ridiculously rewarding. I definitely have a new perspective on the world that has opened my mind to different lifestyles and ideas. I wholeheartedly recommend that you look into exchange if it even remotely interests you. The application paper work is well, well worth it. For more information, consult Professor Roe's article on page 3. Applications for exchanges for the Fall 2011 term are due by the end of January 2011. I would also be willing to tell you more about my experience or answer any questions about exchange that you might have. Find me in person or email me at cailin.hillier@gmail.com.

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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.

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Waterloo housing expected to undergo major change

HOUSING from Page 1

This will also deflate housing prices in Waterloo since many houses will become unprofitable as rental units which make up a large part of the housing market in the city. This deflation will be most notably beneficial for high-rise developers who will readily buy these houses, tear them down and convert them into apartments.

The second cost incurred by landlords is the necessity of having plans made up for floor plans, parking plans including location and dimensions of the spot and snow removal plans. I'm sure many of you have worked for consulting firms and know how much they bill out for, it's significant. The floor plans must indicate dimensions of the kitchen area, living room area, dining room, and bedroom areas. All of these areas will now have a mandated minimum square footage which will require renovation for many units. This seems beneficial but it's important to realize that any cost needed to make these renovations will likely be reflected in rental costs. If people want to rent a small place with no dining room for cheap, why should that be disallowed?

The license itself also has a yearly cost. The cost ranges for different types of units but it will be approximately $500 per year for most units. This will translate directly to $15 per month added cost per room for a 3 bedroom unit.

The total cost associated with this law will vary greatly from unit to unit but let's try to do some estimations. The total added rental costs to students will depend on economics as well as just the added cost to landlords. In an attempt to estimate what we will see at the end of the day lets say that the cost of renovations will vary from $0-$30,000 for a unit that needs to have walls added or moved etc. Having the floor plans, parking plan and maintenance plan professionally done with dimensions will probably take 10-15 man-hours at around $100 per hour. That will add a cost of $1000-1500 per unit. The license will cost approximately $500 per year. Spreading out the cost over ten years for a three bedroom unit the by-law will add a cost of approximately $20-$100 per month per rented bedroom. The economics will come into play as well. Many units will just not be financial feasible to renovate and thus there will be fewer rooms on the market driving up prices. Apartment landlords whose units are not covered under this law will also raise prices a similar amount to reflect this change in the market.

The fines and penalties associated with this by-law are also significant. The by-law outlines that inspections will be carried out to an unspecified degree by city staff to ensure units are in accordance with the law. Fines could run anywhere from $350-$50,000 for a first offense and over $100,000 for a second offence. This will deter the number of landlords wishing to circumvent the license.

This law is the newest attempt by the city to keep the economic benefit of having one third (~40,000) of its citizens as students without tarnishing the "wholesome character" of its neighbourhoods with a student presence. It will see all students paying anywhere from $20-$100+ more per month for any living accommodation (both apartment and low-rise) in the near future. It simultaneously forces most students to live in apartments which are not covered by this law and thus will have no positive benefit for student "human rights". The city's justifications for the law only include valid reasons for families and completely discount the needs of students which make up around a third of city residents and the majority of the rental population. It is very clear that while formulating the proposed bylaw the city tip-toed around the fact that they are utterly neglecting students, as their needs and values are not discussed in the report. If ratified, the changes will come into effect July 1st, 2011. If you wish to do something about the law contact ward councilors to vote against it and/or visit the open houses: January 20th and 20th at the Waterloo Memorial Rec. Complex (http://www.city.waterloo.on.ca/DesktopDefault.aspx?tabid=2227 or use "the google" for more info). If students take an active role and fight against this proposal they can make a difference.

Angelo Alaimo

High density housing development on Lester St. Under construction

UNESCO Year of Chemistry

KEVIN LIANG
2A CHEMICAL

Chemistry is a ubiquitous discipline that models and defines all matter. It is the study of matter (as opposed to antimatter and dark matter) and the changes matter undergoes through inter- and intramolecular forces. This is why 2011 is marked the International Year of Chemistry (IYC2011). This initiative is from the minds of IUPAC, the International Union of Pure and Applied Chemistry, and UNESCO, the United Nations Educational, Scientific, and Cultural Organization.

Two thousand eleven also coincides with the 100th anniversary of the Noble Prize awarded to Madame Marie Curie for the discovery of polonium and radium, as well as her research in radioactivity. Unfortunately, the large exposure to ionizing radiation caused her to develop aplastic anemia which led to her death. This influenced one of the goals of IYC2011: to celebrate the role of women in chemistry and science. This year is also the 100th anniversary of the founding of the International Association of Chemical Societies, lighting the path for international collaboration.

The opening ceremonies, to be held in Paris, France, will signify the official beginning of the celebrations. The two-day event will be held January 27th to the 28th. Discussions of global trends and perspectives will be the focus of the event. However, there are already events planned before the official launch. From networking breakfasts to science exhibits, IYC2011 is a year to celebrate the achievements of chemistry and its influence on the quality of life on Earth. With the premise, "Chemistry – our life, our future," the goal is not to ride on past triumphs. The goals are to increase awareness of chemistry in meeting global demands, to spread interest in chemistry among young people, to amplify passion for the future of creative chemistry, and to celebrate the role of woman in the field of science and chemistry. All events held under IYC2011 will have these objectives in perspective.

IYC2011 is a global initiative with events held all across the world. Events will range in target demographics, from preschool children to university students, to the research community. Events will include trips to industrial sites, articles in newspapers and magazines and television programs promoting the contribution of chemistry to the global economic climate, hands-on workshops introducing participants to chemistry related careers, and public lectures relating to recent developments in chemical research. The success of IYC2011 relies on chemical societies and institutions across the globe, and individuals to organize local and regional events. A common theme among these events is to promote chemistry as a creative science that is crucial for sustainable life. Activities like lectures, hands-on experiments, and exhibits will emphasize how chemical research is essential in solving the world most pressing issues such as food, water, health, energy, and transportation. More information on local events, goals, and starting your own IYC2011 initiative can be found on www.chemistry2011.org.

Time to Apply for Exchange

PETER H. ROE
DIRECTOR OF INTERNATIONAL EXCHANGE PROGRAMS

Time is a quantity which we can never replenish. It provides markers for things we have done and must do. Time is what we need for all our activities, and we never have enough of it. One must use time wisely, whether for working, playing, or even studying.

If you are now in 1B or 2A, you might think that there is an almost endless expanse of time until graduation and the time you will have for embarking on a life-long career. But that time is finite, and some decisions need to be made very soon.

For instance, you know that Canada lives in a world of international trade and a world where people of various nationalities, religions and races are increasingly interdependent. Your ability to prosper in this new global environment, whether you specialize in nanotechnology, management, mechanical, or any other branch of engineering, depends on the way you take advantage of opportunities that are, by their very nature, time dependent. One such opportunity is given by the International Exchange program in the Faculty of Engineering. It may seem far away to third year, when you might be able to go on exchange, but the time when you must make up your mind to participate is fast approaching. Let it go by and you may never get another chance.

The deadline for application for exchange in the Fall 2011 and Winter 2012 terms is the end of January, this year. Our partner schools begin to make their choices for admission in February. There is competition to be a member of the group recommended to certain schools by the Faculty of Engineering and the University of Waterloo. For example, there may be as few as two places from across the university, one from Engineering, to study in some Australian universities.

If you are unwilling to learn a foreign language, or to brush up your skills in French, the choice is even more restricted. But, if you are attracted to the once-in-a-lifetime possibility of traveling to exotic lands, experiencing other cultural environments, learning how others study and acquire knowledge and expertise, all within the bounds, including time, of the Waterloo Engineering Degree, then take advantage of the time at your disposal, and decide now to go on exchange.

Exchange is a privilege that we offer to students who meet certain minimum criteria: complete 2B with an average of no less than 70% for the three terms prior to departure and satisfy language requirements when appropriate. There are more than 60 destinations in quality Engineering schools around the world. There is some financial help available in the form of bursaries, scholarships and travel grants. Yes, there are extra costs, mainly the need to buy an airline ticket to the partner school's country, and other expenses associated with extra travel and entertainment. But you can control those things; think of it as short-term expense for long-term recompense; the experience you will gain on exchange is unique and irreplaceable, any time any place.

About 100 students now in fourth year have gone on exchange – just ask them whether it's a good idea. They will be unanimous about the value of their experience. There is also a large number of foreign exchange students on campus, taking our courses and studying with us. Ask some of them what they think of exchange and why.

Now is the time for all good students to apply for exchange! Read about the details at www.eng.uwaterloo.ca/~exchange, download the application forms, sign up with Cindy Howe in the Engineering undergraduate office (CPH 1320) (cindy@uwaterloo.ca) to get individual advice, but above all: time is of the essence – act now!

Design from Nature

NATURE from Page 1

While direct applications have not yet been seriously considered, perhaps engineers have something to learn about maximizing solar radiation capture, absorption and conversion to energy.

Other insects have mastered an ability for hundreds of millions of years in a field only now on the frontiers of human technology. The sandcastle worm and caddisfly have developed the ability to produce underwater glue and silk, respectively. The caddisfish produces silk using similar structures as terrestrial silkworms, based on the protein fibroin. However, the caddisflies are able to phosphorylate the serine (an amino acid and component of fibroin), giving it a highly negative charge. These regions are arranged alternately with positively charged areas, creating chains of proteins with positive and negative lines in parallel. The hypothesis is that this ionization makes the silk water insoluble, providing the creatures an edge underwater. The researchers already have plans to synthesize the solutions, which would be incredibly valuable in creating underwater adhesives and medical "tape" for use in non-dry circumstances. This innovation would draw on a rich history of aquatic animals providing fodder for medical innovation, such as imprinting structures copied from shark skin to trap bacteria and prevent its growth on medical equipment.

Another seemingly intractable problem solved by nature already involves another common animal: the beaver. Restoration of natural waterways presents a challenge for engineers, often because the natural state was altered long before people fully grasped the importance of the environmental impacts of their actions. It is very easy for human engineers to see "restored" systems such as free-flowing waterways. However, it is now realized that beaver dams acting as longitudinal discontinuities, or interruptions to direct flow, actually helped foster greater biodiversity and niche ecosystems to an extent greater than previously thought. The complex distribution of biochemical regimes fostered through beaver dams is difficult for humans to model and replicate. The most effective means of re-creating such vibrant ecosystems has been in fact to introduce their original engineers, the beavers themselves. Encouraging natural forces to re-shape environmentally degraded areas, rather than human-designed mechanisms can both save restoration costs and leave richer and more complex ecosystems.

"Clearly the notion of learning from nature transcends engineering disciplines."

Clearly the notion of learning from nature transcends engineering disciplines. We all have a lot to learn from nature's solutions. While sometimes these solutions must be adapted for human use, the underlying principles and stimulation of genuinely innovative thinking are invaluable tools in our arsenal for progress.

Get in Touch with the Dean

INTERVIEW from Page 1

IW: Student-faculty relations has been a hot topic for the past few years with EngSoc, what's your take on our current relationship with the faculty?

MB: I think the student body is already on a good path. It's sometimes hard to see that without an outside perspective. Engineering students have a very strong connection to their faculty and administration – there are a lot of good foundations already in place. The students have a very active engineering society, you have a dean that was insightful enough to create a student relations position, items like this that aren't as common in other faculties. By doing things like getting in touch with social media, I hope to work to meet students where they're at which will help. There's definitely room to grow, but you guys are much better off than you may think.

Meg Bauman

IW: Anything coming up that you'd like to bring attention to?

MB: Absolutely! Firstly, the Vision 2015 forum is on February 2nd at 5pm in E5-3101 and I really encourage everyone to come out to that – this is where you get to help shape engineering for the next 5 years. I'm also really open to feedback and questions from students – I'd like to have a regular article from the Dean but it should be related to questions that students have. Most importantly, my door is always open and I'm available for students whether they need money, whether they have a really big question or they just need someone to talk to. That's what this position is about, it's about being here for the student body and helping students find their way.

While talking to Meg, one thing that became apparent very quickly was Meg's unmistakable sense of genuine enthusiasm. She has some great plans for the upcoming year, which are backed up, by solid action plans. Those of us who know Robin will definitely miss her, but her role has been left in very capable hands. Welcome to engineering Meg!

For feedback or questions for the Dean, email Meg at *mebauman@uwaterloo.ca*

Fire Investigated as Arson

ADRIANA CAMERON
3T MECHANICAL

On Friday January 7th, the Waterloo Regional Police announced that the fire which destroyed the Campus Court Plaza on University Avenue in April 2010 is now being treated as arson. This announcement was made after a report by the Ontario Fire Marshall was turned over to the Waterloo Regional Police. No further information about the findings of the Fire Marshall's investigation or possible suspects have been made public at this time. A criminal investigation by the Waterloo Regional Police is now underway.

"Rumors of arson, along with potential end motives circulated on social networking sites."

Rumors of arson, along with potential end motives circulated on social networking sites, such as Facebook almost immediately following the fire.

The plaza fire completely destroyed Sugar Mountain, University Vision Centre, Mr. Sushi, Tabu Night Club and the exceptionally popular Mel's Diner. The cost of the blaze is estimated to be $3 million, and has put almost 100 people out of work.

Following the fire, the Ontario Fire Marshall was called in to carry out a physical investigation. Samples from the scene were sent to the Centre for Forensic Sciences in Toronto for analysis, a lengthy process, to which the delay in the conclusion of arson can be attributed to.

Presently it is uncertain if the land will be used to rebuild the plaza, as the land owner has received several offers for high density residential developments. Following the fire, initial speculation suggested that reconstruction of the plaza would begin in December; however reconstruction has yet to commence, as the process of acquiring the required permits is still underway. Once plans are approved by the city, it is estimated that the reconstruction process will take at least three months.

For those who miss the greasy goodness of Mel's Diner, Jerry Smith, the owner of Mel's Diner has announced that he plans to open a second location of Mel's Diner in Kitchener at King St and Victoria St. Additionally, he also optimistically predicts that the Waterloo location could be up and running again in September.

Bring Back Pluto

JON MARTIN
3A CIVIL

Pluto, formerly the ninth planet in our solar system, and now dwarf planet "134340 Pluto" now, has seen some ups and downs throughout its known history. Now the little wannabe planet will be in the news again as it vies for a potential comeback.

The existence of a ninth planet was predicted since the 1800s, as its presence was required to explain discrepancies in the orbits of other planets. The actual planet itself was not discovered until 1930 by amateur astronomer Clyde Tombaugh. The name for Pluto was suggested by an 11 year old English girl named Venetia Burney. In 1978 it was discovered, by James Christy, an astronomer at the US Naval Observatory, that the little planet had its own moon, subsequently named Charon. While originally estimated to be the same size as our own planet, Pluto has been calculated to be only 1% the mass of Earth.

The discovery of other giant ice bodies in the vicinity of Pluto, now dubbed the Kuiper Belt, led to the discussion in 1999 of whether Pluto should be designated as a planet and as a minor planet. The idea was proposed by the International Astronomical Association's Minor Planet Center, but they soon abandoned the idea.

In 2005 the planetary body Eris was discovered by Michael E. Brown of the California Institute of Technology (it was originally named Xena by Brown). Eris was calculated to be larger than Pluto, which presented a problem. Astronomers would either have to add Eris as a tenth planet or drop Eris and Pluto from planetary status. In 2006 the term dwarf planet was created by the International Astronomical Union, meaning that it is large enough that its own gravity causes it to form into a round shape, but it is not the gravitationally dominant object in its orbit.

Fast forward to November 2010, when Eris passed in front of a distant star, allowing astronomers to achieve a more accurate measure of its size, and it turns out it is actually smaller than Pluto. So now the important questions are, should Pluto have been demoted, should there still be nine planets in our solar system, and how accurate are these measurements?

The last question is probably the most important as the precise diameters of Pluto and Eris have been under debate since their respective discoveries, so only time will tell.

Catholic School Board Bans Gay-Straight Alliance Clubs

JON MARTIN
3A CIVIL

The Catholic School Board in Halton region has made a controversial decision to ban the formation of gay-straight Alliance clubs within their schools, despite a provincial law encouraging schools to promote the clubs should a student request one.

Some critics have targeted gay-straight alliance clubs as a source of conflict because they can been seen as publicizing members' sexuality. Supporters of the group counter that the groups are meant to promote equality between all people and that members represent many facets of sexuality.

Another source of criticism for the school board has been the statements of Board Chair, Alice Anne LeMay. LeMay named multiple groups that are banned in catholic schools, similar to the Gay-Straight Alliance, the worst of which were Nazi groups. LeMay has since apologized, stating that she never meant to compare Gay-Straight Alliance groups with Nazi groups.

Catherine Fife, president of the Ontario Public School Boards Association, said Monday "religious rights should not trump human rights in our schools. Gay-straight alliances are one way to create a venue for understanding and conversation, which is the only way to end discrimination."

What's new at the Consumer Electronics Show

JACOB TERRY
1B NANOTECHNOLOGY

Not many events are more exciting for a gadget geek than the annual Consumer Electronics Show, where cutting-edge ideas and inventions for the next year are displayed for the first time. This is a look at some of the coolest.

Perhaps one of the coolest near-future gadgets was the Motorola Atrix, which is normally an Android phone. When it's plugged into a laptop case using the included dock it turns the case into a complete laptop running their Webtop operating system. The same happens if you plug the phone into a computer monitor. When the phone is plugged into a TV, it acts as a set-top box allowing for apps to run on the TV. This lets the phone act as a four-in-one for people who don't need to do much with their laptop or desktop computer. The included laptop case doesn't look too bad and the software looks very promising. If you want a powerful phone that also works as the other three devices then its worth a look.

On the tablet front, Microsoft, Google and RIM showed off their takes on the tablet market that for now is dominated by Apple's iPad. Microsoft attempted to take another stab at Windows touchscreen devices. To make this easier, the next version of Windows is supposed to run on ARM, which is a low-powered processor family which powers most, if not all, mobile devices from phones to tablets such as the iPad. The success of a "Windows 8" tablet most likely depends on if they make the operating system more touchscreen friendly like iOS and Android tablets are. The current Windows 7 tablets do not do as well because they attempt to make a keyboard-and-mouse operating system run on a touchscreen device, which is more complicated for most users. Something more in line with their phone operating system, Windows Phone 7, seems more appropriate for a tablet.

Android 3.0, or "Honeycomb", the next version of the popular mobile operating system from Google, was shown as the first version of Android to officially support tablets. This year's show has shown that Google is adopting a better approach to tablets by adopting a touch-based operating system, as demonstrated by their big Honeycomb tablet at the show, the Motorola Xoom. This new version of Android uses the extra space on the screen to spread things out a bit and, in my opinion, it uses the space extremely well.

RIM's first tablet attempt, the BlackBerry PlayBook, was announced late last year but was demonstrated at this year's CES. Previews claim that the tablet is more enjoyable to use than any BlackBerry Smartphone has been so far, and the software takes cues from HP's webOS card-based system. The PlayBook runs on BlackBerry's speedy QNX-based Tablet operating system. The major downside with the tablet is that it must be tethered to a BlackBerry phone to use Mail, Calendar and BBM, which users with other phones may see as an inconvenience; however, it has been mentioned native apps for Mail and Calendar are in the works as well.

One of the most talked about peripherals is the Microsoft Touch Mouse, which is similar in concept to Apple's Magic Mouse. There is a lump in the middle of the device to make it easier to rest your palm on the mouse, and it is designed to work with Windows 7. The gestures bring a feature like Mac OS X's Expose, organizing any open windows into a neat grid.

The BlackBerry PlayBook was on display at CES for conference attendees to play with

TV manufacturers are also trying to join the push towards device connectivity and stay relevant by adding computer-like features. Samsung's Smart TV is able to run it's own apps in its menu through Adobe's Air platform, including Blockbuster, Rovi and USA Today. It's also designed to work with it's own Smart Touch remote, which is similar in concept to Apple's Remote app for iOS devices.

Vizio's VIA Plus was another impressive TV at the show, running a modified version of Android, with OnLive gaming and Vizio On Demand movies. The Vizio Phone and Vizio Tablet, which also run Android, have infrared transmitters which let you use them as remotes for the VIA Plus. They are very well designed and powerful, and have one of the nicest Android interfaces on the market.

Typical gadgets were not the only focus at this year's show though. The Ford Focus Electric was the first car by a major vehicle manufacturer to be unveiled at CES. Impressing many with its speedy four-hour charging time estimate, the car can also range 161 km and offers a higher MPGe, the electric equivalent of miles per gallon, than the Chevrolet Volt and similar to the Nissan Leaf. It incorporates MyFord Touch, an 8-inch touchscreen, and is the first with MyFord Mobile, an app for iOS, BlackBerry and Android which lets users measure car settings and statuses from their phones. A rather unique feature is its method of critiquing your driving. When more butterflies appear in your screen, your driving is better.

There were lots of tablets and phones shown off this year and it looks like we'll have enough gadgets to hold us over to next year. There's bound to be more announced in the next few months in case you didn't see anything to add to your Christmas list.

Global Engineering

Sharing information for the benefit of everyone

UMAIR MUHAMMAD
EWB CORRESPONDENT

The idea of global engineering lies in the wider concept of global citizenship. To be a global citizen means to adopt an outlook that is not limited by national allegiances, a notion which then provides a basis to work for the betterment of the world as a whole. It has perhaps been most succinctly portrayed by the American revolutionary Thomas Paine in The Rights of Man: "My country is the world, and my religion is to do good."

Finding itself within such a framework, the idea of global engineering puts focus on the role of the engineering profession in actively contributing to the creation of a better world. The potential dividends of such a venture are vast. The tools and insights which are at the disposal of engineers allow us to shape the world, literally and otherwise, in profound ways.

In order to make noteworthy contributions, global engineers need to not only take into consideration that which goes on beyond our countries' borders, but also more readily adopt as our own types of work which are conventionally not considered to be within the boundaries of the engineering profession. Although popular perception may be different, engineers spend much of their time addressing non-technical challenges, which range from those that are interpersonal to the broadly political. The range and intensity of non-technical challenges is only augmented when a global engineering perspective is adopted. For example, measuring greenhouse gas emissions as part of an asset management scheme clearly involves more types of challenges than if the scheme was seen as simply a "local" project.

Additionally, along with taking into account the worldwide impacts of our work in the prevailing geopolitical setting, global engineers should explore ways in which our work can help to define new realities in international relations. New priorities need to be set in order to find resolute solutions to the longstanding problems of hunger, thirst, disease and housing; and novel problems like anthropogenic climate change and worldwide resource depletion. The ongoing debate over the process of economic globalization can serve as a conduit through which we transmit our views on what global relations structures should look like. Again, we will have to assert ourselves in places which are not seen as our traditional domains to contribute in a significant manner. Beginning with what would be considered our areas of expertise, such as addressing socio-technical challenges that have to do with international water bodies, we can expand into other areas which affect the work we do. We have to creatively employ our capacity for problem-solving in order to modify intermeshed social, economic, political, and earthen landscapes for the benefit of the global community.

Large scale adoption of the ideals of global engineering can only come through changes in the engineering mindset, starting at reforms in university education. Engineering students should be graduating with an understanding of civics, global governance, and issues like international aid and development. Increasing the employability of engineers in a globalized environment should not be the primary focus of the reforms, but rather, emphasis should be put on increasing the ability of engineers "to do good."

The University of Waterloo chapter of Engineers Without Borders has a team dedicated to working on advancing the idea of global engineering through education reform and public outreach. We seek to work with students and faculty to modify how and what aspiring engineers learn. If you think you may be interested in joining our global engineers team, or exploring other areas in which EWB works, visit our website (uwaterloo.ewb.ca) or come to our meetings, times posted on website.

While You Were Out

Recapping the Fall 2010 Term

ANISH BHUTANI
3T CHEMICAL

Hello B-SOC!!!

Welcome back to another term on campus. For those of you who were away for co-op, it might have seemed to you that the University was shut down for four months. I am here to tell you that is just not true. In fact, while B-SOC was away, A-SOC was on their school term, and here is a quick review of what happened in Fall 2010.

The term started off with Orientation Week, as all the eager new students arrived to campus with moms and dads, being greeted by hundreds of enthusiastic upper year leaders, and EDCOM, and strove through all the events.

Also in orientation week news, remember when the administration tried to shorten the orientation week to 2 days, and failed? Well, they still have that problem as orientation week does not leave enough study days needed to maintain accreditation. Their solution: have a "Student Transition Program", in which things like the ELPE are written before September, orientation week is until Wednesday with introduction classes on Thursday and Friday, and a post program, including a Reading week for the Fall term.

The Nanotechnology Program at Waterloo was officially accredited. The program starting in 2005 had its first graduation class in 2010. All other engineering programs were also accredited again, and will remain accredited for the next 3 years.

The Municipal Government had their elections in the Waterloo Region. Major results that affect us is Brenda Halloran was re-elected mayor and Jeff Henry became Ward 6 Councillor. The other big result was that the Waterloo residents voted for the region to stop spending money on fluoridating water.

WatPD continued to progress as PD-20 was being developed and the team to make PD-21 was being selected. For those who don't know, if you still have PDEng courses that you need to take, you have the option to switch over to the PD programme. Information can be found at www.engineering.uwaterloo.ca/watpd-engineering/.

Like every term, EngSoc organized events such as TalEng, Curling, and Genius Bowl. Semiformal was a joint event with AHS, themed Cirque du Soleil and had over 300 people show up between the faculties. And EngPlay had three shows, coming soon to the YouTube channel UWENGSOC, and was entitled "Murder in the Knife Room".

So now the question is, B-SOC, will you be having more fun this winter?

Happy New EngFOC 2011!

Excuse us, can we have your attention please?Do you know us yet? I didn't think so! Well we think an introduction is in order! We are your EngFOC for 2011:Andrew Fisher, Dave Holborn, James Servos, Michael Raymer, Stephanie Koltun, and Umesh Thillaivasan!

We would like to welcome Dave Holborn and Stephanie Koltun to the team. They are the EngFOC from Architecture!! Both of them will make fantastic additions to the team, and will bring lots of laughs and new ideas to the table.Enough with the howdy-doody's and hand-shaking...

LETS TALK ABOUT BEING AN ENGINEERING ORIENTATION 2011 LEADER! It is time to apply, B-Soc (and you people on A-Soc who have not already done so). Yes, that's right, applications are open. To apply, just head on over to the new and improved Engineering Orientation Leader Website at www.eng.uwaterloo.ca\~foc where you will find the link to apply through the fancy new Central Registration system. Here you can also peruse the pages to receive information updates and news about Orientation Week 2011. Bookmark it! It'll come in handy in the future!

To those of you who submitted an application prior to January 17th, you will need to complete the application process by clicking the link to Phase 2 (which can be found on the website as well. See we told you to bookmark it).

On to the Interviews!We are SUPER excited to be holding interviews on Jan 29th & 30th this term so if there is an aspiring Media Guru, Huge or even Edcom inside of you, we would love to see you there with your game face on and your biggest smile - all teeth must be visible. **Remember to submit your applications before they close January 28th!**

If you are still on the fence about applying , then listen up! Orientation week is much more fun as a leader than it is a first-year; just ask a returning leader! Being a leader means you will take an active role in ensuring every first-year coming into UW feels like they really belong; that they feel proud to be a UW Engineer, and feel safe to be who they are where they are. We're a community, so love thy neighbor (but appropriately). This alone is a profound reason why many students choose to be a leader year after year.

A WEEK IT IS!! It has been confirmed: Orientation Week 2011 will remain a full week! As such, we would like to say that we are all super stoked to begin this epic journey. We all have a very strong passion for the success of Orientation Week, and will make it our goal to ensure the week runs as smoothly and as super awesome as it can! Nothing like awesome tales of awesomeness, no?

If you want to learn a little more about Orientation Week 2011, check out the leader webpage at www.eng.uwaterloo.ca/~foc/. If you need to contact us at any time, feel free to email us at engfoc11@gmail.com.

Once again, we'd like to thank all of you for your very inspiring commitment and enthusiasm. We'll keep you updated and forever in the loop, and most importantly, we can't wait to meet each and every single one of you!

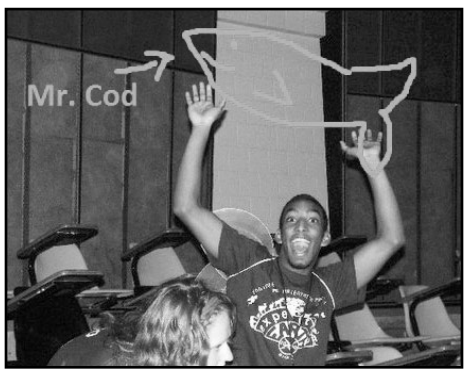
Would you like to play a game?! Below are the facetious biographies of your awesome new EngFOC. PLOT TWIST! You have to GUESS whose bio is whoms!

Names: Andrew Fisher, Dave Holborn, Stephanie Koltun, James Servos, Michael Raymer, Umesh Thillaivasan. Good Luck! You're going to need it!

ENGFOC #1

The story of _____ is a long and perilous one... kinda like his last name. But seriously we begin our tale in the cold dark of the Atlantic Ocean where a lonely Atlantic Cod was swimming. This particular Cod was special for he was much smarter than all his Cod friends. So one day he decided he wanted more in life then just swimming around eating tasty Cod food type things. So off he went on an adventure, seeking the grand University of Waterloo which all the fishes said must be wet with all that Water. So off went the Cod, finally reaching the Grand River and stopped to snack on a yummy worm when BAM! He got a hook to the face region! But the fisherman being the kind and caring man that he is did not eat Mr. Cod, no he took him home and made him his pet. Mr. Cod lived out the rest of his days content to be fed delicious fishy foods. He realized his captor was a very interesting man who was studying Mechanical Engineering and was actually a really awesome guy. His name... _____. (Did you really think _____ was a fish come on guys lets get super serial he's not THAT slimy)

But what he is, is one of your amazing FOC for 2011 so when you see him say hi and ask him about his Cod.



ENGFOC #2

I'm sure you're wondering, "Who is _____ "? She's average height, average weight, blonde-ish hair...nothing special unless you count the dazzling smile, sharp wit, soulful eyes, passion great enough to move mountains and an understanding of the human condition that could melt the iciest heart. She used to spend her summers training a circus of kangaroos. Or was it leading campers through a summer adventure? Now she spends her time teaching pigs to fly so one day she'll be able to win every absurd challenge. Flying pig bacon is also delicious. Rest assured, because _____ has the ability to communicate with dolphins, so in the case of oceanic-animal induced apocalypse, all is good. She lives with her mom and drives a minivan. Also, _____ invented the colours black and gold, so when you see her zipping around as ArchFOC '11, shout out a "Thank You" and you'll be sure to receive a "You're welcome!"

ENGFOC #3

So I've been hearing this question being whispered around POETS: "Who is _____?" I have to admit, I was quite surprised by this question. The answer, is right there on my Facebook page, but if anyone feels that they don't know me just yet, let me try and give you some answers.

I wanted to be a fire fighter as a youngen, but I always caused more fires than I could put out seeing as I'm so smoulderingly hot. Thank goodness I spent all my youth camping, as peeing on campfires sure came in handy those days. Unfortunately, I was never too good at erecting my tent, so every night when the wind began to blow, my tent would come crashing down on me. One evening, all that commotion attracted what I thought was a bear, more specifically a bear whom I taunted after snatching his salmon (or was it a Cod?). I was scared, but ballsy, so I ran out of my collapsed tent to find no bear, but instead a Big Yeti! You can't fight a yeti, trust me. I don't care who you think you are, or how many yeti dis-arming YouTube videos you've watched, you're not taking down that hefty beast. Blessed with good looks, I somehow wooed this magical beast and he showed me the ways of not only erecting a tent, but erecting other things too; making them structurally sound. Big Yeti sparked my passion for Civil Engineering! After learning all I could from my new found mentor, I ventured to the University of Waterloo to pursue Civil Engineering.

ENGFOC #4

_____ is a man of mystery. Where did he come from, what does he eat, why is he so gorgeous?!

To say it frankly, _____ is from the future. Born in the year 3031, he grew up with a loving family of robotic parents and a dog named Wilson. However, he stands by the fact that he is NOT a robot.

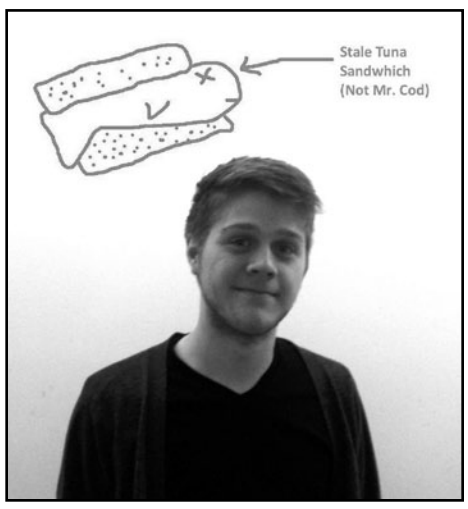
Growing up, he realized he needed to fulfill his need to experience a real Frosh Week. By the year 3031, all frosh weeks had been shortened to 3 hours so they were not much fun anymore. Deciding to take life into his own hands, he built a time machine to take him back in time to the year 1996. This was a rebellious year for _____; when he saw wet floor signs he walked faster. However, he got distracted by peaches; giant peaches in fact; and ended up living in one until the year 2010.

By this time, his rebellious side had vanished, and he felt he could make a difference by attending the University of Waterloo. Since he is NOT a robot, he decided to become the captain of the UW Robotics Team. At this point, he also developed a love for sailing.

However, this wasn't enough for _____, no way. He decided that he could do more by helping others fulfill their needs for a fantastic Frosh Week. This of course requires you to NOT be a robot, which _____ is NOT, so he now represents UW Engineering as one of your marvelous FOC for 2011!!!!

ENGFOC #5

Who is _____? Komodo-dragon-wrestling grand champion? Norse god? Leader of the free world? First self-aware humanoid robot? Final boss of the internet? In fact, he is all of these things, but most importantly, he is a Hierarch! You may ask him in various Scandinavian dialects, or binary-code, why he became an orientation leader? He would answer you himself if he was not knee deep in komodo dragons, furiously battling the global recession with only a stale tuna sandwich and a single glorious strand of hair plucked from Mr. T's frohawk in 1987. Rest assured, friends, I have every intention of answering your question. Quite simply: _____ cares. Not only is he the first self-aware humanoid robot, but he is also the first machine to shed a patriotic tear. His 8 trillion Quibit Cores were overwhelmed with pride and happiness when he was chosen to lead the University of Waterloo's heroic orientation week. You can all sleep soundly knowing that Architecture Orientation is in the komodo-dragon-strangling, mjolnir-weilding, declaration-of-universal-peace-signing, robotic hands of _____.

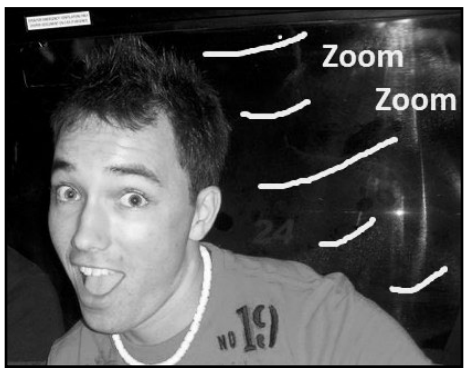


ENGFOC #6

I was born while driving fast.....like really, really fast. As I grew up I decided that I needed to travel the world looking for other fast things.

I transformed into a jet fighter and started my journey. I started at the Bonneville Salt Flats and realized that the coefficient of friction between salt and rubber is too large to really get going. I then traveled to France in the blink of an eye (told you I was fast) but found out that they still haven't made particles big enough for me to ride down the tube. I got tired and decided that I would go watch a Red Wings game and suspend my search for a bit, and that's where it hit me. I could go to the University of Waterloo and design roadways and pipes and other things that let things move fast.

So I started the arduous trip to Waterloo, for a speed demon like me the construction on Highway 8 is like spending an hour in the dentist chair. When I got here they taught me to slow down and enjoy the scenery but once a year I still get all rev'd up and zoom around. That is Orientation Week and it seems that everyone shares this time with me for getting super stoked and flying around like ducks on espresso. I look forward to zooming around with each and every one of you as one of EngFOC '11 and remember it could be a bird or a plane or it could just be me flying around!!!!!!!!! (could be but it's probably just a goose)



Looking at the Term's Goals

SCOTT RANKIN
PRESIDENT

The Engineering Society Exec have been working hard this past work term to develop attainable goals for this Winter 2011 term and we're excited to show the students what we are planning to do.

Below are the major goals I would like to accomplish while I am President:

- Better inform students of what exec are doing, so that we can become more transparent to the students.
- Create more presidential exposure to the student body, and let them know who I am
- Provide longer and more intensive transition for incoming executive.
- Keep A-Soc informed
- Increase executive availability
- Alleviate the problem of council becoming restless during meetings
- Raise awareness and alleviate issues faced in the Faculty of Engineering
- Establish a successful executive restructuring plan through the Executive Review Committee

See my blog at uwengsoc.wordpress.com. Feel free to give me any feedback at bsoc_prez@engmail.uwaterloo.ca.

Thanks,
Scott Rankin

CnD to Re-open Jan. 24

PETER KELLY
VP INTERNAL

Welcome back to another term and the first of 2011! I hope you all had great holidays and are well rested for the school term.

To start off, yes the CnD and POETS are closed for the time being (due to asbestos removal and other maintenance/improvements) but we are hoping to have them open ASAP (tentative dates CnD- Jan. 24, POETS - Feb. 28)

As always there will be a bunch of great events put on this term by amazing people, so I strongly recommend that you try something new (or old) this term! Approaching events can be seen in the calendar on page 9.

Finally, the EngSoc executive team have long been aware of the sheer volume of emails that come through the general mailing list. We are working with our advertising directors to assemble "digests" that will summarize all the information you would normally receive in separate emails, resulting in less emails filling your inbox.

As always, if you have any questions, please email me at bsoc.vpint@gmail.com

Peter Kelly

2013 CFES Congress to be Held at Waterloo

KEVIN LING
VP EXTERNAL

Welcome to the start of a new and promising term for student government! I had a pleasant start to the year in St John's Newfoundland where I attended the Canadian Federation of Engineering Student's (CFES) annual congress. This is a gathering of engineering student societies from all over Canada. The organization meets annually to exchange ideas on how to provide value to the students we serve and to decide what direction the organization should take for the next year. I would like to congratulate Melissa Deziel and Leah Allen for their winning bid to host CFES congress here at the University of Waterloo in winter 2013. This will give us a great chance to showcase our school and our engineering faculty as well as the opportunity for more of our students to participate in the event. More details on this conference and a few other conferences will be up in the coming weeks on the EngSoc exec blog.

The charities directors (Lisa Truchon, Lisa Van Waterschoot, Marissa Bale, and Angela Rossi) are continuing to work very hard this term to raise funds for Free the Children. Keep your ears open for the return of pancake breakfasts, amongst other things. As of the end of last term, with A-Soc we have raised a collective $3234 of the $8500 needed to build a school in an impoverished community in a developing country.

Other things to look forward to this term include several outreach events: Engineering Explorations, Shadow Day, and National Engineering Month.

Engineering Explorations will be a showcase of various aspects of UW engineering for middle school students. We will be in need of tour guides for the event.

For Shadow Day, high school students tag along with engineering students for half the day to see what big people school is like.

For National Engineering Month, we have a team working on a Rube Goldberg machine that will be connected to other machines across Ontario via the internet. I don't want to spoil any surprises, but word on the street is that the CN tower is involved. That's a pretty big deal.

There will be call outs later in the term for those interested in volunteering for these events, however if you want more information you can always just shoot me an email or swing by the EngSoc office and chat with me there. If you ever want to come talk to me in person to pick my mind or to get involved with some EngSoc activities, my office hours are Mondays from 1pm-2pm and Thursdays from noon-1pm.

One last thing, if you are interested in being a Women in Engineering representative for the term, come and talk to me for more information.

'Till then, take it easy.
Kev

Budgets, Beets, Battlestar Galactica

JON WARREN
VP FINANCE

Hey everybody, I hope you're enjoying being back in class! For many of us, including myself, the light at the end of the tunnel is getting steadily brighter: only three months left! The beginning of the term is always a hectic time, as we figure out what we were supposed to remember for school and where we're supposed to be. On top of that, the pesky old budget needs to be planned, which means directors need to get their budget proposals in to me!

Budget proposals have been steadily rolling in and things look to be in good shape. I don't really have much to report on that front at this point. Same old, same old. If you haven't submitted a budget proposal, I'm already hunting you down, so you'd better hurry up and submit it! The budget will be shown to council at Meeting #2 and will be voted on, so be sure to be there!

On a longer-term note, I'm working to get the financial information from previous terms put in an online database which any EngSoc member can access. It will be really useful for everyone who wants to see how our spending is broken down, and directors should find that it will be a huge asset in planning their budgets and spending. I will let you know how it goes throughout the term.

Finally, just as a reminder, Novelties is NOT closed! It's relocated to the back room of the Orifice while the construction in the CPH foyer continues. Feel free to come in and browse our wares any time between 11:30am and 1:30pm throughout the week.

That's all for now, thanks!

PD20 and Co-op Restrictions on Unpaid Work Terms

ALEX HOGEVEEN RUTTER
VP EDUCATION

Events

Jeff Henry, former VP External, IW EIC and Comp Eng Alum, now Waterloo City Councillor for our ward will be speaking on Tuesday January 25th at 6PM in RCH 302 to talk about the value of an engineering degree, even in non-engineering professions. I've heard him speak, and it should be a valuable talk.

The Vision 2015 Town Hall will be held Wednesday, February 2nd at 5:30 PM in E5-3101. If you have questions or concerns about engineering education at UW and are wondering if the faculty plans to address them, make sure you get your questions in. http://www.engineering.uwaterloo.ca/Vision2015/findoutmore.html

Professional Development

PD20, the nascent starting course for all engineers, was released this month. I have reviewed the content and can attest that it is fundamentally useful information for us to develop as potential engineers. I have met with the entire PD20 team and discussed the critical issues surrounding our education and needs. I have great confidence in their experience and abilities, but more importantly was impressed by the culture permeating Professional Development.

If there is a problem or concern with the content, the format, the instructions, etc. the team is incredibly committed to

a) give the student the benefit of the doubt
b) Correct the situation for future editions

Like any course in its infancy, there will be glitches and confusion and this team is incredibly dedicated to taking full responsibility for such problems and rectifying them as soon as possible. For example, there was a somewhat ambiguous question in one of the earlier units and greater clarification has already been added. Another example: In a previous PD offering, when it came to light that an instructor was marking one assignment particularly harshly, every assignment marked by that instructor was re-evaluated.

I hope all students taking PD find the course as valuable and clear as I do, but if not, know that the PD20 team is there to genuinely incorporate your feedback into the program, and give you the benefit of the doubt in the interim. It is incredibly important for students to identify and raise issues to myself or the PD20 team so they can be corrected, rather than complain anonymously.

Instructions for registering for PD electives rather than PDEng through Quests will be emailed to all students later in the term

Co-op

There will be new guidelines for unpaid off-campus work terms, effective W2011 interviews for S2011 jobs. Basically, jobs must be paid at or above the minimum wage (in North America) or the prevailing market norm internationally. There are a few exceptions, but under no circumstances can paid and unpaid students be working side-by-side.

Exceptions include certain humanitarian, NGO or charitable organizations, entrepreneurial ventures and pre-approved clinical, medical or research positions. Start-ups, new ventures or financially struggling employers may request one-time permission to substitute alternate remuneration equalling a minimum of $3000.

Similar on-campus regulations, effective S2011 for F2011 jobs provide exceptions for pre-defined special initiatives or programs including competitive teams such as Midnight Sun (max 1 such job), predefined alternative experience programs such as India Training Programs, research or admin positions for certain students with disabilities and during time-to-time special moratoriums driven by unusual circumstances such as economic strife.

Finally, I met with the coordinator for Waterloo Works, the replacement for Jobmine. They seem dedicated to enhancing the user experience and ensuring it meets student and employer needs: more info as it becomes available.

Miscellany

As part of Vision 2015, Eng Computing hosted a focus group to identify problems with the computers labs, Nexus and computer use in engineering in general. Let me know if there are further problems with Eng Computing you have encountered and keep an eye out for an opportunity to give feedback to your departments.

If you are interested in running for VP Education, talk to me about what the job entails

Next EngSoc Meeting

January 26, 5:30 P.M.
CPH 3607

WEEF has the Power

GRAHAM STONEBRIDGE
WEEF DIRECTOR

During the Fall 2010 term, the A-Society WEEF director Praveen Arichandran hosted a cross-campus endowment meeting where the leaders of each student endowment fund met and compared their organizations. What did we learn from this meeting? Student-run endowment funds have the power! In particular, WEEF has the power to:

- Decide which faculty initiatives are in the highest interest of the student body
- Influence the faculty and university to spend extra money on these initiatives
- Provide support for student teams that boost our school's reputation. Also, greatly increase the educational experience of students who choose to be involved
- Call-out (and make up for) departments that have may have neglected their undergraduate students' infrastructure needs
- Increase your department's infrastructure beyond being simply functional
- Fill the gap where outside funding sources have bailed

More generally WEEF gives undergraduate engineering students the power to take charge of their education. Do you think you're getting the short end of the stick when it comes to labs? Make your professors and lab technicians submit a WEEF proposal. Personally come to WEEF meetings and decide for yourself where funds are best allocated. You didn't come to Waterloo for a mediocre education, so let's make this place better by our own means.

This term WEEF has $60,000 to give out. We will meet three times during the term to decide where the funding goes (dates TBA) and on behalf of you and your classmates, we would really appreciate if you and your classmates would make sure someone from your class attends every meeting.

In other news, the WEEF return period is now open. If you would like to get a return for your $75 donation, follow the link at www.weef.uwaterloo.ca. The deadline for returns is January 24th at 11:59pm. If you are looking to seek funding this term, visit the WEEF website and look for proposal forms. The deadline for proposals is not yet set, but will likely be mid-February.

As a final note and as your WEEF Director, I highly encourage you to get involved with at least one engineering organization this term. Come to a WEEF meeting; go to a student team lunch; talk to your engineering society executives; really just do anything at all that will improve your education. At the end of the day, when you try to make your personal education here better, you improve everyone's education, which indirectly makes your educational experience better. Am I off-topic? Just remember that WEEF is one of your voices within the Faculty and we would really appreciate your opinions and perspectives this term.

Thanks for reading,
Graham Stonebridge
weef@engmail.uwaterloo.ca

Progress on CPH foyer Renovations

ADRIANA CAMERON
3T MECHANICAL

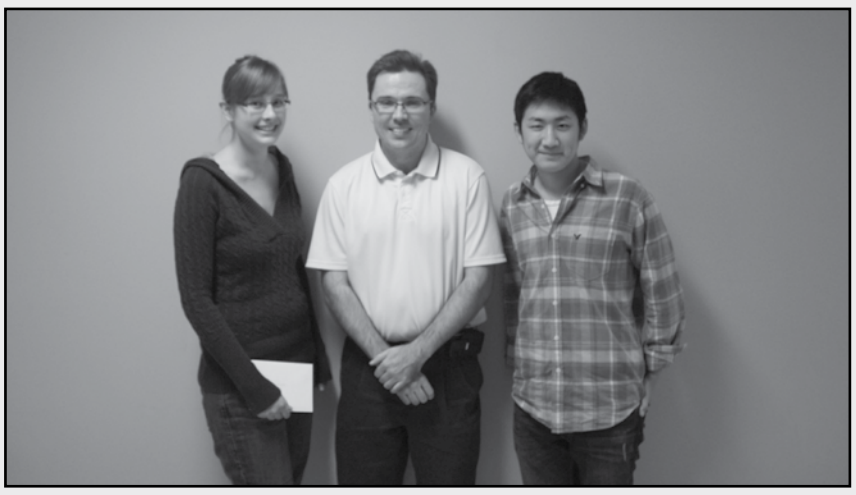
For those of you who miss getting your cheap caffeine rush every morning, there is good news! The EngSoc Coffee and Donut shop, better known as the C & D, is set to be back in business on Monday, January 24th after being closed for asbestos removal since November. There were no visible renovations made to the C & D, however, when it reopens it will be asbestos free.

Once the scaffolds and tarps are removed from the CPH entrance, the most visible change you will notice is the foyer itself. A decorative wall is being constructed in order to separate an updated seating area from the walkway, making the foyer more visually appealing, and a more enticing place to spend time. The seating area will include new furniture. It is not yet known when the foyer renovations will be completed.

Likewise, it is also not known when P.O.E.T.S. will reopen. The reopening of P.O.E.T.S. is dependent on the completion of the CPH Foyer renovations. When P.O.E.T.S. reopens it will be asbestos free. In addition, you will notice a shiny new sink, which will allow mixed drinks to be served in P.O.E.T.S. Further renovations to P.O.E.T.S. are planned for the future. These future renovations may include a new floor and updated lighting.

As for events that usually take place in P.O.E.T.S., such as Of-Term parties (OTs), these events will continue to take place at alternative venues until the renovations are complete.

PEO Scholarship Awarded



Roy Lee

At the last Engineering Society meeting of last term on Dec 1, 2010, first year students Melissa Houghton (left) and Lucas Lim (right) were awarded scholarships from the Grand River Chapter of Professional Engineers Ontario. The chair of the Grand River Chapter, Chris Maltby (centre), made an appearance at the meeting to present the awards. The scholarships were awarded for winning an essay competition on engineering as a profession. Congratulations to Melissa and Lucas!

Get Informed about Upcoming FEDS Elections

TREVOR JENKINS
3A MANAGEMENT

By the time you read this article, nominations for FedS elections will have been closed for almost a week. Until then, we won't know how many spots there will be elections for, but hopefully it will be a good old competitive time. The Iron Warrior will be having extensive coverage in the February 2nd issue so you can make an informed decision before voting. Here's a quick list of the important dates to know:

- Start of Campaigns: January 24th
- End of Campaigns: February 7th
- Polling: February 8th to 10

As a side note, any current councillors or executive who are running for re-election will be temporarily stepping down from their positions during the campaign period to keep it a fair race.

Moving on to current business, there are a few key items to be aware of:

The Employment Standard's Act of Ontario contains the rights of employees and requirements that apply to employers in most Ontario workplaces. For some unknown reasons, students who perform work under a program approved by a university of college (eg. co-op at waterloo), are not actually covered by the act. This means that most co-ops have no workplace rights, meaning that if an employer suddenly stops paying you, you wouldn't have any legal recourse to get those funds. This is obviously a huge problem for students.

Nick Soave, the Vice-President Education of Feds, has been talking to our local MPP to figure out why this exception is in the act and have it resolved. This glaring omission can get fixed faster if we can present situations where students have been negatively impacted by this. If you've experienced a situation where either an employer has used this against you, or CECS has intervened and downplayed the issue, get in contact with Nick at vped@feds.uwaterloo.ca with any details you may have. Hopefully this can be resolved so students will never have to face this type of situation.

Winter term also means that the Health & Dental Plan and GRT Bus Plans are both up for renewal. If you have any feedback on dental or health services that you would like to see added or removed from the plan, or any specific bus routes or bus trips that are constantly over-crowded, late, or never show up, drop me a line at t.ek.jenkins@gmail.com with specifics and I'll pass it on with specifics. One fun fact I learned about the health plan is that it includes travel insurance for up to 150 days which means you can use it as insurance while you're on co-op out of province or country.

If you have any problems, questions, or concerns, feel free to talk to any of the current councillors.

Cheers!
t.ek.jenkins@gmail.com

Upcoming Events Calendar

Wednesday January 19 Academic Rep Meeting 4:30PM RCH 306 EngPlay Auditions 5:30PM RCH 302	Thursday January 20 Resume Critiques 4:30PM RCH 207 Running Club 5:00 PM POETS Patio	Friday January 21	Saturday January 22	Sunday January 23	Monday January 24 Iron Warrior Meeting 5:00PM E2 2349 Learn to Skate Workshop 6:00PM E2 Foyer	Tuesday January 25 Running Club 5:00PM POETS Patio Guest Speaker 6:00PM RCH 302	**Check out up-to-the-day event postings on the EngSoc website at engsoc.uwaterloo.ca**
Wednesday January 26 EngSoc Meeting #2 5:30PM CPH 3607	Thursday January 27 Running Club 5:00PM POETS Patio	Friday January 28 EngSoc Exec Nominations Close 4:30PM CPH 1327 IW Submission Deadline 6:00PM	Saturday January 29 Orientation Week Leader Interviews	Sunday January 30 Orientation Week Leader Interviews	Monday January 31 Iron Warrior Meeting 5:00PM E2 2349	Tuesday February 1 Running Club 5:00PM POETS Patio	

Waterloo Baja SAE wants YOU!

WATERLOO BAJA
SAE TEAM

Maybe you've seen our posters around campus. Maybe you came to our recruitment meeting last week. Maybe you ask yourself "why should I care?" Excellent question. Allow me to tell you.

First: hands-on, real life experience is much more important than grades in employers' eyes, and Baja is a great way to build up your resume. Second: you will appreciate your time at Waterloo more if you get involved with student teams, plus you'll make friends across years and disciplines. Third: we all have to do fourth-year design projects eventually, and Baja gives you ready-made projects once you get to 4A. Finally: driving! All team members get to drive the cars, and when you get home covered in mud from head to toe, you know it's been a good day. If you agree with one or more of these reasons, Baja is for you!

The Waterloo Baja SAE team is a group of Waterloo Engineering students who design and build an off-road vehicle. We construct a new car every year, and compete against over one hundred teams from schools across North America in an annual SAE off-road Baja event. The Baja SAE (Society of Automotive Engineers) competition involves three days of testing, presentations, and race events that put our vehicle to the ultimate test. Events include speed and acceleration tests, hill climbs, mud bogs, rock crawls, and maneuverability challenges. The final event (and highlight of the competition) is a four-hour endurance race, with all the teams going head-to-head against each other. This year's competition is June 8-11 in Peoria, Illinois.

The competition events are grueling and destructive. For us to do well, we need a car that is strong, lightweight, and cost efficient. That's where YOU come in. Every year, we start with a 10-horsepower engine, and build a car around it. We construct every part of the vehicle; frame, drive train, suspension, steering, and body panels. The team goal is to have a fully completed and operational vehicle by February 28. There is a LOT of work to do between now and then. Many hours of machining, lathing, cutting, drilling, bolting, fastening, and assembling need to be done to meet this deadline, and we need many hands to help. No prior experience is necessary; we'll train you on any equipment or tools you're unfamiliar with, and by the end you'll know your way around the Baja car blindfolded.

Baja vehicle soars through the air Waterloo Baja SAE Team

Still not convinced? Come by our Baja garage in the E5 Student Design Centre to see all the awesome stuff we're up to! Someone is always there, and you can see the progress we're making on the car. We'll be more than happy to get you involved; just come talk to us! You can also check out www.eng.uwaterloo.ca/~baja for tons of photos from past events. And if you have a specific question, you can contact us at baja@engmail.uwaterloo.ca.

You might think five years is a long time, but it will go by much faster than you think. Get involved with Baja, and you will have more than horrible exam marks and all-nighter assignments to remember your time at Waterloo. Remember: nothing stops Baja. What's stopping you?

BIG THINGS with Will Zochodne

Qingdao Haiwan Bridge (or how to one up the world)

WILL ZOCHODNE
3B MECHANICAL

Length: 42.2 km
Amount of Steel: 450,000 tons
Amount of Concrete: 2.3 million cubic meters
Cost: $8.6 billion CAD

The Qingdao Haiwan Bridge is BIG. This bridge is big enough that you could make 62 Eiffel towers with the same amount of steel. Alternatively, you could make one Eiffel tower 66,000 ft high. Either way, France loses.

The amount of concrete used for the bridge is staggering, 12.1 BILLION pounds to be exact. If you can bench 500 like me, it would take another 26 million of your juiced bros to get the structure off the ground.

A construction project of this magnitude required 20,000 workers over a 5 year period. This corresponds to approximately 450 million kilojoules of man energy, or enough energy to power a Ferrari 430 travelling at 315 km/h for 15 days.

Not only is the Qingdao Haiwan Bridge big, it is also strong. Engineers claim that the bridge can withstand the impact of a 300,000 ton vessel. That would be the same as being hit by 7 Titanics AT THE SAME TIME. Talk about taking a pounding…

The bridge was designed for a capacity of 30,000 vehicles per day. If Ontario were to build this bridge and use it for extra lanes above the 401, the average commuter could get from Mississauga to Oshawa 7% faster. Would such an engineering masterpiece be worth spending 1,095,081,016 billion Zimbabwe dollars on in Canada? Absolutely.

My fellow students, do not despair when you get your calculus midterm back. Remember that you are being trained for a world that can line up billions of pounds of steel and concrete over a 40 kilometer stretch with perfect precision. Let the engineering of the world inspire you with any unit conversions you choose.

Send suggestions for the next issue to *w.zochodne@gmail.com*

VROOM VROOM BIATCHES!

Qingdao Haiwan Bridge, which took four years to build and opening in 2011.

No technoviking, even you cannot destroy the mighty Qingdao Haiwan Bridge…

Rube Goldberg Machine, TED talk style

CAILIN HILLIER
3B GEOLOGICAL

One of my favourite aspects of the engineering profession is that it can be used to create. Whether the creation is practical like a highly efficient piece of software, or prominent like a large bridge on a city skyline, creativity was involved nonetheless. When engineering combines with art, it can be sensational.

Adam Sadowsky is an engineer who prides himself on his ability to merge art and technology for the purpose of constructing interactive projects of all size. Sadowsky's company, Syyn Labs, is responsible for many remarkable gadgets and moving art, but it is most notably credited for the creation of the Rube Goldberg machine music video for the song "This Too Shall Pass," from the band OK Go.

In case you are not already familiar with the awesomeness that is a Rube Goldberg machine, they are machines that have been deliberately over-engineered to complete a simple task. Started by Rube Goldberg, an inventor and cartoonist, the first Rube Goldberg machine was imagined as a self-operating napkin.

In his TED Talk, "Adam Sadowsky engineers a viral music video," we get a firsthand account of the effort and engineering that went into creating a truly amazing Rube Goldberg specimen. OK Go had ten requirements for their machine. These ten commandments included: no "magic" (it must make sense to the naked eye), integrate the band, the actions of the machine must follow song feelings, must make use of space (they had an entire warehouse!), be messy, have the machine start the music, be synched to the rhythm of the song and hit specific beats, end right on time, make the machine play part of the song, and, get this, do it all in one shot.

Now, if you have ever seen an OK Go music video, you know they are legendary for doing amazing videos in one take. However, I think this one takes the cake for intricacy. This machine included 89 individual interactions and took several months to construct. On filming day, the machine had to be reset to the start 85 times before achieving their final shot. Two pianos and ten televisions were totalled in the process... but it was completely worth it.

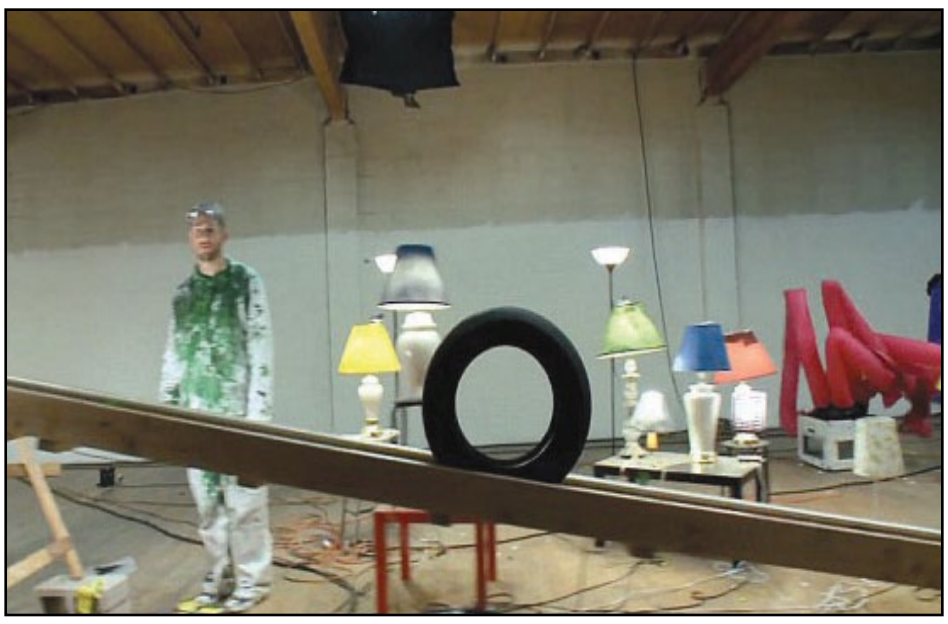
If you would like to help construct Waterloo's Rube Goldberg machine, stay tuned!

An incredible amount of planning went into this machine. An engineering lesson Sadowsky and his team learned: no matter how much you plan, you have to be flexible too. Many components that were intended to be in the project were scrapped at the last minute. Also, the small parts of the machine proved to be the most difficult. Lego and marbles are not as predictable as bowling balls and cars.

Ultimately, this project was a huge success, classified as a YouTube sensation. As of January 14th, there were over 23 million views! Although you do not need an affinity for sledge hammers to enjoy this video, it doesn't hurt. I counted six, how many did you see?

When I was in grade 11, I was lucky enough to have the chance to build a Rube Goldberg machine for a physics project. Our machine had to show three different energy transfers and last more than thirty seconds – a seriously challenging and amazing task for a bunch of students still completely scared of physics.

ESSCO, Engineering Student Societies' Council of Ontario, is holding a Rube Goldberg machine event for National Engineering Month, March of 2011. It is an initiative to boost engineering spirit and act as an outreach project. The machine will be constructed by universities and high schools around the province and will be used to make one large video, with machines in each location setting off the next machine in the series. If you would like to help construct Waterloo's Rube Goldberg machine, stay tuned! A call for volunteers will take place sometime in February. Until then, think complicatedly simple thoughts!



Clip from the OK Go video for "This Too Shall Pass."

The four band members of OK Go, covered in paint.

Are Asian Mothers Better?

HOBYUNG LEE
3A MANAGEMENT

Amy Chua comes from a background that by academic standards, would most probably make you go limp: her dad is currently an electrical engineering and computer sciences prof at Berkeley, is called the "father of non linear circuit theory and cellular neural networks," and is also the inventor of the Chua's circuit. He was also the first person to theorize and postulate the existence of the solid state memristor.

Amy, to play catch up, is currently a professor of law at Yale Law, taught at Duke Law, was a law associate at Cleary Gottlieb Steen & Hamilton (which has accomplished numerously important law stuff), graduated magna cum laude with an A.B. in Economics from Harvard, and obtained her J.D. cum laude from Harvard Law. Oh and she was an executive editor of the Harvard Law Review. And her husband is a bestselling law professor at Yale as well, with a resume to match that of his wife's. And one of her sisters is a professor at Stanford. And her other sister is a two-time international Special Olympics gold medal winner.

I have not a slightest of clues as to what any of that means actually means but it sounds impressive. But grade A mother? Not according to many.

Amy Chua recently released a memoir entitled "Battle Hymn of the Tiger Mother". The buzz it has generated has mostly stemmed from her views on parenting and, according to her, the style of the typical Chinese parent (she uses the term 'Chinese mother' very loosely and uses it to refer to moms of all backgrounds that place an anvil sized emphasis on education and violin awesomeness and 'western mother' as someone not like that).

To give you a taste of how she raised her two (extremely accomplished) daughters, they could never have a sleep over, watch TV or play games, were not allowed to choose their own extracurricular activities, get a grade less than an A, not be the number 1 student in every subject (except for gym and drama), and could only play either the violin or piano. Oh, and they were never allowed to complain either.

The daughters were expected to come home every night and devote every waking hour to either books or their instruments, they were expected to never fail, and it was normal to hear such comments as "you're getting fat, lose some weight" and Chua has called her daughter garbage... at a dinner party... in front of other guests.

Now, to the best of my knowledge, I am not a mother. I never have been a mother and the most parenting experience I've ever had involves a puppy that my sister raised. And I don't plan on having any lil' Hobs and Hobbettes for the next foreseeable future, but my goodness, I think if I were to raise a child, this way wouldn't be it.

But before any comments and criticisms are made towards any parenting style, I think it is very important to remember that there is no one, correct, universal way of being a parent. A parenting style is just that, a style. It will differ based on each mom and dad, and even more so between parents of different cultural backgrounds. Chua's way is not the correct way. Nor is my mother's, or your mother's. And that's simply because there is no such thing as a correct way.

But is her style the style I would use?

Oh good gracious me no.

Throughout Chua's essay, the main, underlying point used throughout is the western mom's emphasis on effort and the Chinese moms' desire to have the best results. Through nonstop, repetitive (rote) learning, the Chinese mother's kids must be the best, because anything less than would be absolutely catastrophic. They must achieve absolute perfection absolutely every time without absolutely corrupting their learning with nonsensical garbage. Like gym. Or hanging out with friends. They must keep their pedals to the academic metal from the moment they can crawl.

And this bothers me to no end.

To enforce my (nonexistent) parenting skills on the world, I think what Chua fails to recognize is that one's worth and success should not and cannot be determined by the letters on their report cards. As much as some of us might like to believe, life is not governed by the academic transcript or the name of the school on the diploma. It certainly is important and will help open many doors, but open doors will exist whether you're an engineer or engineering technician.

But more importantly, Chua fails to realize that maybe her kids want to be just kids. You're only a kid once. Only within this small window of life called childhood are you allowed to not have any responsibilities, maybe except learning to color within the lines. The burdens of being a grown up with responsibilities and the pressure to do well academically will come inevitably, there is no stopping it. But to place tear-inducing pressures on a child to get straight A's is something that a child can do without. And the lack of straight A's won't turn your child into lifelong slackers (which according to Chua is probably anything less than being a doctor).

And of course, Chua never touches on the darker side of all this constant pressure to be nothing but the best. The emotional and psychological toll that comes along with the never ending pursuit of perfection cannot be anything other than painstakingly burdensome. I'm no Freud, but you cannot tell me that there is no correlation between teen suicide rates and this parenting style.

Your best effort might make you the best in class at solving a triple integral, or it might not. But there is more to life than just grades. And a C grade, or even an F grade or two, isn't the end of the world.

It could be my cultural upbringing, but life is short. And because the many stages of our lives are even that much shorter, the constant urge to go balls to the wall might make one forget to stop and actually bounce that ball around. It's fun.

And that's the biggest difference between Chua and myself: life should be fun.

CFES and Relentless Engineering Stereotypes

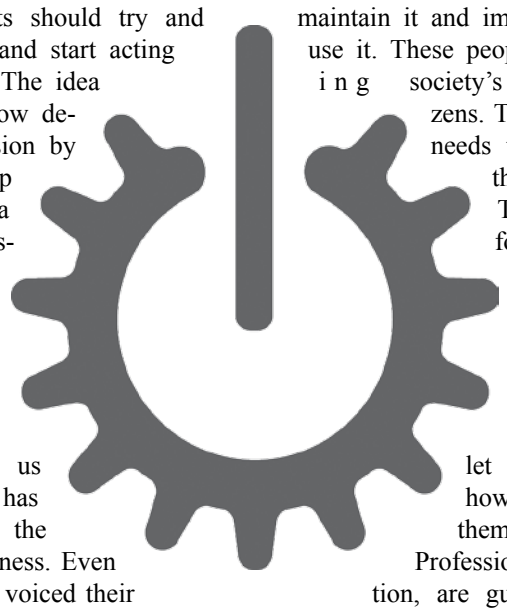
ZAC TROLLEY
GUEST WRITER,
LAKEHEAD UNIVERSITY

The common engineering stereotype is that of a solitary person; one who isn't all that good in social situations and feels more comfortable working with numbers than people. I find this at odds with the other common stereotype of engineering students as beer drinking party-goers. How is it that engineers can carry the stigma of excessive drinking and socializing while at the same time being socially awkward?

I spent my first week of January, as I have every year of my undergraduate degree, at the Canadian Federation of Engineering Students annual Congress. This event attracts around 200 of the country's finest engineering students from coast to coast. The first thing you will notice at these events is that we don't look like engineers: we look like every other student you know. Our jokes however do contain more triple integrals than the arts students'. This past year's congress was held on the east coast, in St. John's, NL. If you are free next year and want to meet some of the most amazing people you will ever meet, come by Whitehorse in 2012.

I have been very lucky to be a part of the CFES as it's rare to be in a place with inspiring people who have so much talent. When you put so many intelligent people in close proximity to each other you truly understand what it means to be a free thinker. You have to open your mind when chances are that those person around you do in fact know more than you do. At these engineering meetings, everyone is there to learn, everyone is on the same playing field, everyone wants to be there, and everyone contributes in some form.

It has been suggested in the past that engineering students should try and clean up their act and start acting more professional. The idea that we are somehow degrading the profession by hosting over-the-top social events is a constant hum whispered to us from faculty members. The idea that being human and being allowed to find our own way somehow makes us less of an engineer has made its way into the academic consciousness. Even some students have voiced their opinion that engineering students and student groups should focus on only what's presented in the course outline. This is absolutely absurd. The environment that CFES and groups like it provide to its members is incredibly valuable. An environment where ideas are free and you can learn from your peers and spread your wings. Groups like this provide a feeling of belonging, fellowship and the reassurance that you are not alone. With the world fast becoming totally dependent on technology, students in engineering, science and technology are becoming the gatekeepers of civilization. The luxuries we enjoy are impossible without technology and those who understand it, maintain it and imagine new ways to use it. These people are fast becoming society's most valuable citizens. The modern engineer needs to have a voice in the public discourse. The issues at the forefront of political debate are entangled in years of scientific research and require technical expertise to solve. If we never let our engineers live, how can we expect them to lead?



Professionals, by definition, are guardians of a body of knowledge. Professionals hold higher knowledge, and we look to them for advice, for they know more than the unprofessional about their area of professional interest. Priests were the first professionals, made so by their vows and sacred knowledge. As engineers, we are tasked with maintaining our civilization, as priests are tasked with maintaining the soul. It takes people with specialized knowledge to do the things we do. We are tasked with doing what the previous generation thought impossible. We are charged with the safety of society, because we are the ones who understand the dangers. We need to be able to talk honestly about issues and problems. We need to expose our students to environments where they won't be punished for trying new things. We need to foster creativity. When you are creative in academia you get a failing grade so student groups have taken the task unto themselves.

Next time you see a group of engineers with beers in hand or scheming some elaborate prank, please reserve your judgment. These activities are run so we can blow off some steam. We need to make mistakes; we need to learn firsthand. We need to do things our way and learn our own methods. We need ways to foster our imaginations. The world can't afford mistakes at this stage in the game and we understand this. As the youth inheriting new ecological, financial, energy and humanitarian emergencies daily, we must understand better than previous generations. We understand that we can no longer sit in front of a computer and ignore the world. We need to go out and experience the world and that's exactly what we are doing.

prof *Quotes*

Send in your prof*Quotes* to:
iwarrior@engmail.uwaterloo.ca

"As a supplier, you better make sure your chip works. Or, if it breaks, that they can't find out it was your chip." -Rennie, ECE 437

"Diamonds are actually not forever. They are only metastable" - Clemmer, ME 531 - Composites

"Coding in MATLAB is easy. It is like writing a letter to a friend." - Michailovich, ECE 417

"I don't really know that much about twitter, but I guess I should since I'm writing the course on social media." - Carr, MSCI 442

"Tonight is a Friday night, it is a great opportunity to solve homework problems. I envy you. I have a prior engagement tonight so I cannot work on problems myself" - Sedra, ECE 332

Point Vs. Counterpoint

Should you purchase an Engineering Leather Jacket?

POINT

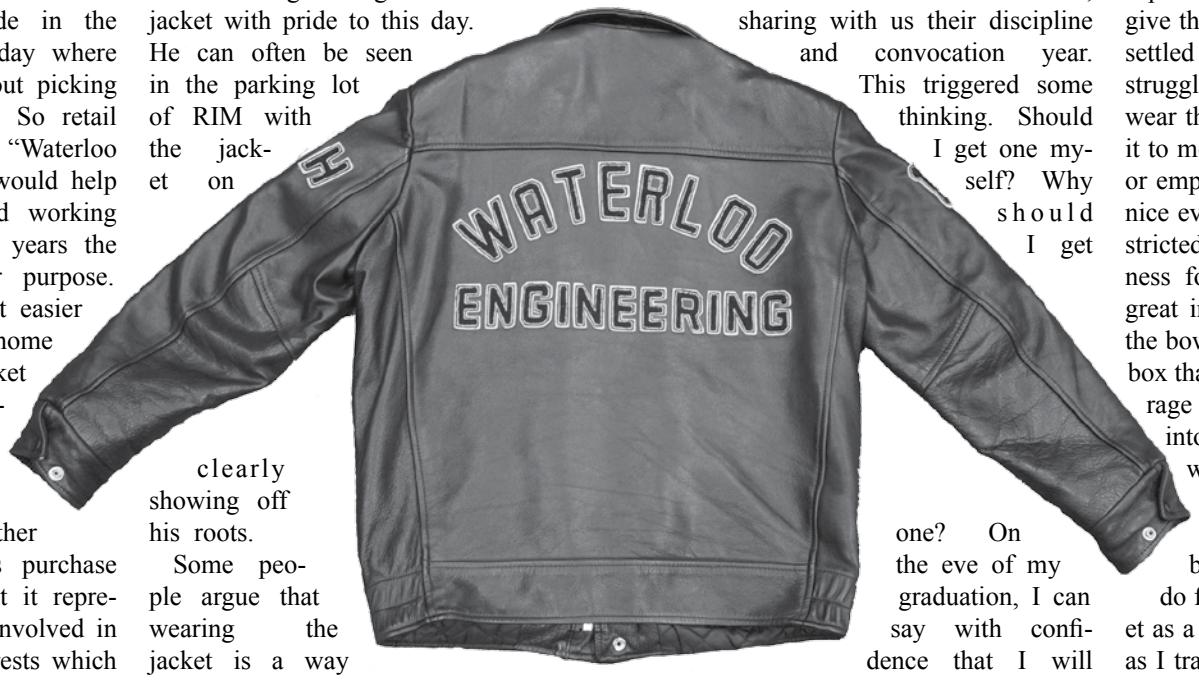
MIKE SELISKE
2T COMPUTER

The Waterloo Engineering leather jacket has been around since the early 60's, during the prime of Waterloo Engineering's development stages. The new school needed to establish an image and traditions which would carry through to future generations of engineering graduates. Waterloo retail services claims that the leather jacket came to be a solution to identifying engineering students while hitchhiking home from school. When Waterloo was in it's early stages, public transit was non-existent and the primary means of getting home from school was hitchhiking. The attitude in the early 60's was similar to today where people were apprehensive about picking up strangers hitching a ride. So retail services thought that printing "Waterloo Engineering" on their backs would help identify the students as hard working professionals. After all these years the jacket still serves a similar purpose. Although no longer making it easier for students to hitch a ride home from class, the leather jacket still serves as a way to identify you as a Waterloo Engineering Student or Grad.

Queens University has some great tradition in their leather jacket and 95% of students purchase one. They are proud of what it represents and many students get involved in order to collect badges and crests which they sew onto their jackets as a sign of what they have accomplished in their university careers. Waterloo does not have the tradition that Queens has, but the purpose of the jacket is the same. Members of the faculty of engineering at the University of Waterloo work extremely hard in order to get their degree and they should be proud of the work they put in.

Everyone gets their leather jacket for a different reason but the common theme that brings everyone together is that they are an easily recognized symbol, that you are in fact a plummer . There are plenty of stories where people have been identified in various locales because of their jacket.

One story has someone yelling across the street in Ottawa, asking if the jacket wearer knew Marc Tan (the jacket model on all of the posters and A-soc VP-Finance), or an off hand comment by an older gentleman walking down the street "I have one of those", as well as sparking conversations in airports around the world. Putting out a call for stories on Facebook yielded a lot of stories in a very short time and so one would have to wonder how many stories, business deals or friendships have been created because of the recognizable Waterloo Engineering Jacket. RIM co-CEO Mike Lazaridis got his start at Waterloo Engineering and wears his jacket with pride to this day. He can often be seen in the parking lot of RIM with the jacket on clearly showing off his roots.



Some people argue that wearing the jacket is a way of showing off, but is there a difference between sewing a Canadian flag on your backpack when traveling to show off that you are from Canada? This is not necessarily an act of showing off but one of pride for your school. For some, the jacket does not fit into their fashion sense and for some they are not proud of their program, but for the members of the Waterloo Engineering community that are proud of where they come from, the leather jacket is a solid symbol which effectively identifies them as a proud member of the Waterloo Engineering community and it does a pretty good job of keeping them warm in the fridgid Canadian winters.

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.

COUNTERPOINT

BOBBY LEUNG
4B MECHANICAL

"The finest clothing made is a person's skin, but, of course, society demands more than this." – Mark Twain

These five years have taught me a lot, maybe even too much. However, if there is one lesson that I will take away from my five years at the University of Waterloo, it is to holistically assess the value of my choices. This lesson is applicable to the decision of purchasing an engineering leather jacket. Although not a ubiquitous presence, I have noticed them since 1A. Fellow students sport the school crest on the slick black leather, sharing with us their discipline and convocation year. This triggered some thinking. Should I get one myself? Why should I get one? On the eve of my graduation, I can say with confidence that I will not.

According to Retail Services, the leather jackets start at $450.00. One can have patches of the school crest, degree, and convocation year stitched on the sleeves, and either patches of "University of Waterloo" or "Waterloo Engineering" on the back. Additional customizations start at $5.00, and include additional letters, crests, and lengthening of sleeves. My immediate reaction to the jacket is that it costs a lot. For many of us, this equates to a month of rent, several weeks of groceries, and multiple articles of clothing. Strictly speaking, in terms of necessities, the shelter, sustenance, and the added warmth and comfort are significantly more valuable to me than the benefits of the jacket. From that perspective, the jacket has extremely poor value. We do not need it based on the steep price tag.

The jacket's high cost is only one of my hesitations. If I had to invest a major slice of my budget pie on one item of clothing, I expect to have a grand selection of style, fit, and colour to satisfy my aesthetic concerns. I want a trendier and more modern look so I can wear it at school and as a professional. That is, our expensive jacket should have both short- and long-term value. This is clearly not the case; its value is strictly short-term. It is appropriate to bring the jacket along to engineering conventions to network with other students from other schools. Wearing it at school is certainly a great decision. It is iconic at PubCrawls and OT's. One may even wear it to work during co-op terms. All these events, however, are restricted to our tenure at the university. The tacky patches represent a time of formative years, not of a professional. The outdated design may give the wrong impression that I probably settled for a cheaper style. Moreover, I struggle to think of occasions where I will wear the jacket as an adult. I cannot wear it to meet with business clients, superiors, or employees. I cannot wear it to spend a nice evening with my family. I will be restricted from wearing it whenever a business formal dress code is required. My great investment will eventually settle in the bowels of my closet. I may find it in a box that I open when I move or have a garage sale. I may dust it off and lift it up into the sunlight, which will reveal a worn, stretched, and ragged memory of youth. It may trigger memories of my time as an undergrad at UW, but that may be the only thing it will do for me. I may wear the leather jacket as a student, but with each passing day, as I transition to being a professional, the jacket will become less valuable.

Those in favour of buying a leather jacket may use my very approach of assessing value to argue that it must be purchased because it has such enormous sentimental value. We are intelligent, wilful, and strong students who succeed despite our challenging program. We should be prideful as engineering students at the University of Waterloo. Even Retail Services tells us to "wear it with pride!" I have no questions about our school spirit. However, must the leather jacket be present for us to be prideful? Must it be our main badge of honour? We show our pride through our minds, our hearts, and our experiences. We deliver outstanding results in the workplace and overcome monumental problems. We need no jacket for this. Mark Twain once so aptly said, "The finest clothing made is a person's skin, but, of course, society demands more than this." We do not need "Waterloo Engineering" hanging from our backs to prove that we are Warriors of Engineering. Let our intelligence and skill do that.

Stories from Alumni

Life 101: "Real World Survival Tips" from a Recent Grad

AMANDA HOFF
2009 MECHANICAL

So you're excited... you've worked hard for 4... 5... 6 long years and the time has finally come. Time to get that shiny little ring. Time to get your piece of paper and those "BASc" initials after your name. Time to attend your last class, write your last exam... it's a whirlwind of excitement and soon it will be over.

At some point along the line it hits you: the moment of panic. "What now???" The "real world" is out there waiting for you. With the "real world" comes the Great Job Search. Oh, and once you get that job you're expected to stick around for more than 4 months. All those friends you've made over the past 5 years? Yeah, they're all going their own separate ways. Oh, and that lovely OSAP you've come to know and love? Not only are they not going to give you money any more, but they actually want you to start paying it back! Even if you're desperate to leave university behind you and move on with your life, this is still a scary time and anyone who tells you they're not a little bit intimidated by it is either a liar, has not yet reached their 4B term, or hasn't yet realized what's happening to them.

If something I've said so far sounds familiar, please continue reading and I will try to provide you with a cheat sheet to help you pass "Life 101"s first exam. I can't promise you any magical outcome - I can't find you a job, pay off your OSAP for you, or make distances between you and your friends disappear. I can, however, offer some tips and tricks that I've picked up from my own experiences thus far in the "real world".

If, on the other hand, you think I just sound like a paranoid weirdo and none of this seems relevant to you, I suggest setting this issue aside and waiting a few months... the article will still be here when you're ready for it, and I can assure you it will be just as relevant.

1) Don't Panic. If I were to sum up this article in two words, I would write the words "Don't Panic" in "large, friendly letters" across the page. Just remember that many of us have already been there, and we turned out just fine. We still know how to party. We still have friends. We are still learning about ourselves and learning about life and having fun. Just breathe.

"DON'T PANIC."

2) If you've already found a job, congratulations! You are one step ahead of the rest of us. If not, don't worry! You've still got time, and there is plenty you can do in the meantime to help prepare yourself for the "real world". Talk to recent grads that you know. Talk to past co-op employers. Attend job fairs and information sessions, and find out what's out there! And if you've got a few months to spend before you find work, don't forget to take some time to relax and enjoy your time off - you deserve it!

3) ...which brings me to my next point: balance. The "real world" is all about balance. As a co-op student, this seems to come fairly naturally: 4 months of hard partying/studying is balanced out by the next 4 months of working and making a bit of cash. In the "real world" you are responsible for your own balance. Spend money, and enjoy spending money, but remember to keep it within your means. Don't be afraid to take a few months off if you can - remember that once you are working you WILL start to make money back. You've got the rest of your life to pay off your debt as long as you keep it reasonable. Want to travel but don't have a lot of money to spend? Try a backpacking trip. Or, better yet, go on a "working vacation" where you can pay your bills as you travel.* Once you're working, work hard while you're there but don't let yourself get so lost in your work that you forget to have fun. You may have been able to keep that up throughout your co-op terms, but after 4 months of that you will find yourself moving quickly towards burnout...

4) Maintain a strong social network. Don't let yourself be isolated. In school, you are always surrounded by peers, some of whom are your close friends, and some of whom you may not get along so well with. Either way, social contact is pretty close to mandatory in a university environment. In the "real world" it is up to you to forge and foster social connections. "Get a life!" Take up a new hobby. Join a rec sports league in your neighborhood. Join a volunteer organization and meet new people. The possibilities are endless, but it's up to you to find one and go for it... it may just help to keep you sane!

5) Don't stop learning. No, I'm not telling you that you have to go to grad school, or take another degree in something. And no, you don't need to ever pick up a textbook again (except maybe as reference material on the job somewhere). Remember that once you are out of school, you can learn what you WANT, not what your professors and textbooks tell you that you have to learn. So try to learn a new skill. Start a "bucket list" and work your way through it one item/month. Read the news. Take a cooking class or learn a new language. Subscribe to a magazine. Whatever you choose, I strongly suggest finding something that you are passionate about learning and pursue it. Not only will this keep your mind sharp, but you may also find that once again learning becomes fun. Plus, the longer you go without pushing your brain, the harder it will be to pick things up in the workplace when you need to!

*Many countries offer reciprocal "working travel visas", where young Canadians (or citizens of other participating countries) can spend several months up to a year traveling another country with a work visa that allows you to pick up short-term jobs to help you pay the bills. Many will also help you to find temporary work during your travels.

Future of Gaming: End of the Year & New Beginnings

JON MARTIN
OBI JON1138

Hello again, and welcome to another term. As this is a new term I will add my usual disclaimer to the first article.

As an Xbox 360 owner and the sibling of a Wii owner, any perceived bias towards or against specific consoles is due to my lack of disposable income. If I could I would also buy a PS3, but as a student, that is not possible. Please forgive any disproportionate coverage; I do my best to cover issues that affect all consoles, not individual games, without focusing on or neglecting individual systems, don't sue me or complain.

So, on to some news. CES, the Consumer Electronics Show, has now finished up for another year, taking with it many announcements from some of the largest tech companies about new computers/ laptops, gaming accessories, and the buzz item this year, tablets. As for gaming there hasn't been a very large showing, with Microsoft only announcing some new features for the Kinect, Sony missing a great opportunity, and Nintendo only showing off previously announced tech.

Sony has yet to announce the rumoured Playstation Phone, even though it has been leaked by tons of sites – releasing tech specs, numerous photos, and more recently a complete disassembly. CES would have been a great opportunity for Sony to announce the new system, as well as clear up rumours about its gaming capabilities, but they didn't. Whether the system currently being analyzed by media outlets and taken apart by hackers is the legitimate Playstation phone is still up for debate. Sony should have taken the opportunity to set the media straight and clear up these rumours, all during a time when all eyes are on them. Even if the tech is not ready for mass production yet, or the release date is far away – the rumours and leaks that are coming out now can only detract from their eventual press release. When you want your new technology to break into this market you need to get people excited for the release, not have them turn away because they already read about it on a website months ago – especially if what they read was wrong, or you have made changes since then.

In development at the same time as the Playstation Phone is the long awaited and much rumoured Playstation Portable 2 (PSP2). While neither system has been confirmed there is some light at the end of the tunnel for the PSP2 at least. Sony has confirmed a business meeting that will be held on January 27, with limited press attendance. It is rumoured that this will be the point where the PSP2 becomes a reality – we will have to wait and see.

Also on the Sony front, the PS3 has been hacked again, despite the firmware upgrades to prevent it. Instead of the standard firmware upgrades Sony is following a different plan this time, filing a temporary restraining order against the hackers, specifically George "Geohot" Hotz. Sony claims that Hotz is circumventing the Sony Playstation 3 Technology Protection Measures (TMP) and distributing the method for monetary gain, breaching the MDCA, Digital Millenium Copyright Act. Hotz plans to contest the restraining order, saying that his lawyers have told him there is no basis for the lawsuit. Of course the Playstation 3 will still be hacked, just by someone else, which should be easier as the group that is being sued has released all of the tools they created in the process of hacking the PS3 to the public.

Nintendo's main focus recently seems to be on the Nintendo 3DS, the new addition to the company's portable gaming empire, leaving the Nintendo Wii in the dust. The Nintendo 3DS, which will sport 3D graphics without requiring special glasses, is still relatively shrouded in mystery. Questions include specs, as well as the one everyone is wondering about – price. UK retailers like The Hut, Best Buy, Woolworths, and WHSmith have all posted pre-order sales for the 3DS, citing a March 18 release date. The postings list the device for £249 ($388US), available in blue, black, and red. Based on past pricing, the system should retail here for approximately $250 US – if their price is accurate. Of course there are other predictions, stating a March 25th release at £200-230. Whatever it ends up being, the final price and release date should be announced at the European 3DS event in Amsterdam near the end of January.

Microsoft was able to bask in the glory of the huge success of the Kinect camera, while announcing a few interesting new features and games along the way. The first numbers are in for the sales of the Kinect during 2010, and they are amazing. One industry analyst predicted that Microsoft might be able to sell 4 million units by the end of 2010, while Microsoft predicted sales of 5 million, and they were both wrong. Since its launch on November 4 to the end of 2010 (only 2 months) the Kinect has sold 8 million units, 1 million of which were sold in the first 10 days.

While some people have complained about the quality of the Kinect games – I will point out that launch games are often inferior because they are developed on unfinalized tech, from the ground up with absolutely nothing for designers and programmers to base them on, how would you like to reinvent the wheel? – I am optimistic about the potential of future games. The first group to tap into this amazing potential has been the hacker community who have released open source Linux based drivers allowing the Kinect to be plugged into a computer by standard USB and use its tracking software. Mods already created include dynamic recognition of obstacles for both a model car and model helicopter, both allowing the machines to 'see' the world in 3D and detect obstacles in their way. An interface program has been created to allow MMORPGs to be controlled through hand motions, specifically shown with World of Warcraft. One university is developing a sign language interpreter, while others are developing programs for new computer interfaces when viewing and editing photos (like Minority Report) and when using Google Chrome.

One interesting new game, by Microsoft itself is based on the 1 vs. 100 game that was tested during 2009 and eventually dropped in 2010, the new game will be coming out in the spring: Full House Poker. FHP is exactly what it sounds like, a Texas Hold'em Style poker tournament, either against other people or computer characters. During scheduled games players would compete against real world players; win and you move up a table, lose and you move down, win the final table and you are tournament champion. The game will use your 360 avatar, so feel free to wear that jedi costume if you want. For an added challenge there will be several professional poker players at the tables, beat them for bragging rights and rewards.

So that is it for this issue, a lot to recap since the fall term. Keep an eye on the tech coming out, and the changes to the industry, I definitely will be. Until the next issue, Keep on Gaming.

Don't Let Winter Stand in Your Way

KIRSTEN HOEDLMOSER
4B CHEMICAL

The New Year can come with big changes – some of them we initiate ourselves, and some we can't control. For many people in co-op at UW, January means you're starting a school term or starting a work term. It might mean that you've got a pile of resolutions to start on, ranging everywhere from cutting back on the 5 cups of coffee you drink a day to making healthy lifestyle changes to improving your marks. Maybe January just means you get a break from the insanity of the holiday season.

No matter what January throws your way, exercise can be a great way to push through the stress you encounter and help meet goals you've set for yourself. It's a fantastic way to clear your mind, sort out things that are stressing you out, and is an important part of a balanced lifestyle.

The gyms are typically packed this time of year, which can be discouraging. Just because its cold out doesn't mean you should limit your workouts and exercises to the indoors, though. There are plenty of options around the UW campus that might interest you.

For example, there's a skating rink at the Uptown Waterloo square that's free for public use. The iXpress will get you there from campus in 10 minutes. McPhail's Cycle and Skate can rent skates for you to use at the rink.

There are cross country ski trails in Bechtel Park, the Laurel Creek Conservation Area Trail, and the Laurel Trail. The trail fees at the Conservation Area are $5, and equipment rentals are available for $13. Rentals are available on weekends, and are also available on weekdays if you call ahead.

The Grand Valley Trails Association (http://www.gvta.on.ca/index.php) leads hikes on local trails throughout the region. You have to become a member to become a part of GVTA, but the fee is only $30 for the season.

Finally: winter running. Waterloo keeps its sidewalks and roads relatively well-ploughed and salted during the winter, which means that most local runners don't need to worry too much about slips and falls. The trails enjoyed in the summer are either ploughed or hard packed, meaning they can be enjoyed year-round if you're not a fan of the roads.

If you're new to winter running, or to running in general, here are a few tips to get started:

- Wear proper footwear. There are plenty of running stores in the region, including the Running Room in Uptown Waterloo and Runners Choice closer to Laurier. As many shoe manufacturers are coming out with updated shoe models at this time of year, you can generally find a good pair of shoes for a great price.
- Dress in layers. A good rule of thumb is to dress like its 10°C warmer than it actually is outside. Athletic tech gear tends to be expensive, but there's no rule that says you need to dress in lycra from head-to-toe to go out running. Track pants and a sweater are perfectly fine! If it's windy try pulling on a pair of tights or long johns under your pants and wear a windbreaker over your sweater. As for hats and mitts, cheap cotton ones from Canadian Tire work just fine. If you're near an MEC, you can usually find well-priced gear there as well.
- Sunscreen is just as important in winter as it is in the summer. Be sure to put sunscreen on your face to avoid getting a burn.
- If you're worried about breathing troubles in the cold air, wrap a scarf over your mouth and nose. Breathing in warmer air will help keep your chest from feeling tight.
- If you're running at night, bring a buddy! At the very least, make sure someone knows your route and when to expect you to return.

If you're brand-new to running, try a walk-run program to ease you into things. Walk for 5 minutes to warm up, then ease into a run for 3 minutes. After 3 minutes, take a 1-2 minute walk break. Then start the 3 minute run cycle again. Taking walk breaks will help your muscles get used to running without pushing them too far at first.

If you'd like to run with a group, EngSoc has a running group that meets on Tuesdays and Thursdays at 5:00 pm on the POETS patio. 4 pace groups are available: walk/run, beginner, intermediate, and advanced. All skill levels are more than welcome!

Whether you try skating, skiing, snowshoeing, boarding, running, or any other outdoor pastime this winter, all are great choices and are sure to help you escape from the stress of school and work this winter. Grab a friend and give them a try – hopefully you'll find something you can enjoy and stick with!

They're an Engineer Too!

Girl Talk

ERIN MATHESON
3A CHEMICAL

I, like any other music nut, get super excited when I get my hands on a new album from one of my favourite artists and simply cannot wait to listen to it. My most recent obsession is mashup artist Girl Talk's latest release, All Day, the fifth album released under the Illegal Art record label. Girl Talk, consisting of single member Gregg Micheal Gillis is known for its mashup and digital sample style of music and out of control concerts. Each album is meant to be listened to as one continuous track, and for around an hour or so samples of both mainstream hits and age-old classics are seamlessly weaved together with an infectious beat that will have you up on your feet dancing in a matter of seconds. It's a brilliant style that appeals to pretty much anyone, irrespective of their music preferences. The most astounding little factoid about this club sensation – Gillis is an engineer.

Gillis started making music while attending highschool in Pittsburgh, and finally started the 'Girl Talk' project while studying biomedical engineering at Case Western Reserve University in Cleveland, Ohio. What started as remixing around a dozen unauthorized samples of various songs gradually developed into the album-lengths of music he currently produces. The New York Times described his type of music as 'a lawsuit waiting to happen', but Gillis brilliantly argues that those claims are mainly a result of mainstream media "wanting to create controversy where it doesn't really exist". He mainly cites fair use policies as the legal backbone of his music. While his music's popularity ran rampant on the underground music scene, he also focused on tissue engineering both during his degree and later in industry, because everybody needs a hobby. He continued to embody the 'work hard, play hard' manifesto to its fullest until 2007, when he finally left his job as an engineer to focus on music full-time.

Although he may not have been generating tissues in a lab, Gillis's music is the product of a thought process that could only belong to an engineer. The way he seamlessly blends so many different sounds together to create something that is so uniquely his own is pure innovation. And not only engineers have noticed; his 2008 album Feed the Animals was number 4 in Time magazine's top 10 albums of 2008, and was number 24 on Rolling Stone's top 50 albums of 2008. Add to this countless sold-out tours and thousands of album downloads. Has the success gotten the better of Gillis? I wouldn't say so – in true engineering fashion, his albums are only available by download, and they're completely free of charge. No torrents or DC++ necessary.

His latest album, All Day, has a much different feel from some of his previous work. The first half of the album has a slightly more 'grunge' feel and isn't quite as upbeat and dance-like as say, Feed the Animals. It's still really enjoyable, but it definitely came as a bit of a shock the first time I listened to it. This was all part of the plan however, since the second half of the album picks up the pace and has a phenomenal, care-free dance hall feel to it that you simply can't not dance. Seriously, I dare you to try. Overall, I deem this another successful release by Girl Talk, and I'm already trying to work out plans to see his upcoming show in Montreal in March – the only Canadian stop on his upcoming tour.

Check out All Day and other albums by Girl Talk at illegal-art.net or on myspace, and just remember – he's an engineer too!

Thumbs Up/Thumbs Down


To the Internet.


For Bell telling you your phone lines aren't connected.


For WatPD.


For being informed about all of the elections going on!


For requiring indoor shoes at the gym.


For Rogers' bandwidth cap.


The CnD is reopening!


For having an awesome BOT party at Chainsaw.


For POETS being closed until March-ish.


To having dry skin in the winter.


To it looking like the tundra outside.


To expensive flights in order to get anywhere in Canada.


Barbara Streisand.

The Brew Man Group - Homebrew

DAN ARMSTRONG
4B MECHANICAL
NEIL PARTRIDGE
4B CHEMICAL

This is quite literally the beginning of the end, dear readers; it's the first issue of the Brew Man Group's final term at Waterloo (...we hope). With few chances left to prove our superiority in the world of beer, we decided it was time to show that not only do we research and taste beers like f**kin' champs, we make it too. Yes, the Brew Man Group does, in fact, brew. In this issue we'll be discussing the various categories of homebrewing, our own procedures, the lessons learned, and then we shall critique our own brews.

This last part might be somewhat painful, like telling your own son he's an ugly, unloved, catastrophic failure of a human being that would have better served the world as nothing more than a stain on his father's underwear. Yes, we have made beer that bad. But not for a while. Read on to see how you might avoid such a creation.

Ilya Panchenko

The Brew Man Group in their natural habitat

Dan: The degree to which one takes homebrewing into their own hand can be compared to making pancakes. First there are brewing kits from companies like Cooper's and Brew Canada. This is basically like a box of 'just add water' pancake mix. All the thought and most of the work has been done for you. Not too hard, but it's somewhat disheartening to think that even if you do this perfectly, the best you're going to get is a Rickard's Red clone. Next there's 'extract' brewing, which is like buying a box of dry pancake ingredients from the store, but you still need to handle milk, eggs, and oil. The quality of beer you can brew is stepped up significantly and you're free to make adjustments depending on your tastes. Lastly, there's 'all-grain' brewing, which is like making your own pancake batter from scratch... except you need to ground the wheat into flour first.

Our first attempt at brewing took place in the fall of 2008 and used a Brew Canada red ale kit. With only minor accidents along the way (one boil-over and a few spills), we expected to produce a beer that was at least drinkable. Instead, we got vinegar. This flavour comes from acetic acid, a by-product of fermentation when airborne yeasts or bacteria infect the beer. Disillusioned, we gave up on brewing for over a year, opting instead to drink fancy beers and write about them publicly like the pompous D-bags we are.

Neil: Oi! Oi! My job here is to make you all aware of the brewing process and equipment as concisely as possible. Let's start with the process itself, which most people are unaware of despite the "brewery tour" offered by Brick. We all know you just went for the beer-fest!

The first step is to purchase, measure, and grind malted grain to release the starch granules. The residual husks and innards are then stewed in hot water (a process called mashing) between 63-70C to convert the starches to fermentable sugars. For those saavy in biochemistry, these are the saccharification enzymes alpha and beta amylase at work. From there, we transfer to a kettle and boil the now sweet solution (called wort) for at least an hour, which serves to both drop-out insoluble enzymes and proteins, and sterilize the solution. Additionally, we add hops during this time for bitterness, taste and preservation.

After cooling down the wort to about 20C, a healthy temperature for yeast, we transfer to a fermentation vessel (plastic or glass) and pitch the aforementioned yeast. Long story short, the yeast go to work converting the sugars to alcohol and carbon dioxide, and in two weeks you'll have a drinkable, albeit flat beer. To carbonate, you bottle with a little extra table sugar and leave it to age for another (very painful) two weeks. Usually, the final result is delicious if Dan isn't the brewer.

On a side note, I decided to construct an "all-grain" setup, which involves significant capital and space to store the equipment. If you're on a budget, you can also make an all-grain setup using very simple and cheap components. For time's sake I cannot divulge further, but check out homebrewtalk.com or email me if you're interested. Alternatively, extract or kits are a good way to get started and try brewing out. Without further adieu, let's tear apart our own brews.

Dan: Belgian IPA - For those unaware of the style, a Belgian IPA is a relatively recent development, combining the spicy and fruity character of Belgian yeast with hopping typical of American IPAs. Ours sits at about 8.5% ABV and uses both European and American hops. An aggressive pour reveals an alluring golden orange body with a dense white head. Aroma of lemon citrus, peppery spice, and light tropical fruit (...no braggin', but this is exactly what we aimed for.) The taste begins with citrus and floral hops with some sweet fruit, though this leads into a brief medicinal flavour. While the mouthfeel is a bit thin, the aftertaste has a nice combination of spice and bitterness. Despite its flaws, this is quite a tasty beer. **[3.5/5]**

Neil: Saison – The French/Belgian Saison are complex ales that can be legitimately spiced without compromising the style. Our (ambitious) home-brewed version was chosen to incorporate ginger, cardamom and black pepper with a fruity Belgian yeast (an odd combination, we know). The result after aging a significant time was a clear, warm-auburn beauty of an ale (at least in appearance). The nose strongly reflects ginger and cardamom, which subsequently follows through in the flavour. Sadly though, we suspect that a little acetic bacteria got a hold of this beer, but it's disputable as the typical signs of infection are not showing. Nonetheless, it's still drinkable, especially during parties and when it doesn't matter too much (Warning: Get drunk with us, and you WILL drink our aceti-saison!). **[2.5/5]**

Dan: Belgian Quad - Quad(rupel)s are rich, malty beers inspired by the strongest dark brews from Trappist monasteries in Belgium. Ours, finishing off at 9% ABV, pours a surprisingly clear, ruby-tinged dark brown with a light frothy head. The nose is a complex mix of raisins, caramel, and fruity wine. That might be because we had to use wine yeast to get our alcohol levels up... It's immediately evident after the first sip that the beer is far too sweet (not enough sugars were converted to alcohol), but the intense caramel sweetness combined with cherry and touch of wine flavour make for a unique and drinkable ale.**[3/5]**

Neil: Stout - Glorious days were upon us when we caught the first sip of our imperial stout. A viscous jet-black liquid with a tan brown head is evident on the first pour. The aroma and taste is reminiscent of milk chocolate, espresso and a slight showing of cherry, with a full-bodied mouthfeel. Over time, this brew continued to carbonate slowly, resulting in a slight stinging sensation, but this was easily solved by popping the bottle and quickly resealing. Actually this brew won a gold medal in stout and porter, and a silver in best of show for a home brewing competition. So at least you know we're not spitting out BS (Neil gives himself a pat on the back, and none for Dan!) So, get out there and homebrew! There's a good chance it will turn out better than most in the Beer Store!**[4/5]**

Props to hops // Dan and Neil

Put Your _____ Where Your _____ Is

CHAD SEXINGTON
4.5X MANGINEERING

Welcome Back Sexy Readers! Hope you had excellent holidays and co-op terms, and that many sexy parties were had by all.

It's time for another great term here in the halls of UW, mind you the halls are mostly under construction these days. Yes, things sure are different since I was a youngling in 1A, but thats so far away now that I can hardly remember it from all the way over here in 4B. Which brings me to another point, I need a successor! Like Dangerman before me, and Lowrider before him, and countless others before them, my time here has drawn to a close and the satire page will soon sit satire-less. So put on your writing underpants and take up your keyboards! It's always fun to write for the IW. What was I saying before that? Right, my things are different rant. So much has changed here since I was a frosh, but not once has anyone consulted me on what I might like the university money to be spent on. Nobody bothered to take even one of my great ideas and turn it into a reality. So in the style of old peoples, and as an homage to G.C. the following is just a list of things that are making me Grump:

1) Not enough escalators. Seriously, how am I supposed to walk up 4 flights of stairs with my books in this day and age? They even made the stairs in E5 LOOK like escalators, without bothering to put in the mechanical escalating bits.

2) Not enough slides. There are grand total of zero slides anywhere in the engineering quad. The only one that even comes close is the one that we build during frosh week, but stairs are tricky, and I don't like them. We need more slides.

3) Not Enough Vending Machines. I'm old, and I don't like going to the basement of RCH to get my noms when the C&D is closed. Not only that, but there isn't any prune juice in the drink machines! How am I supposed to stay healthy without my prune juice?

4) Not Enough lasers. There needs to be more futuristic pew pew pew going on around here. UW needs to start building giant laser buildings made entirely of light and pew. That way, we'll be able to learn at the speed of light. And Lasers just look cool.

5) Not Enough Psi. By now, according to any science fiction work, we should be seeing the latent psychic ability of the general population emerging. But it's not here! UW needs to build additional pylons to help with this. Maybe they could throw a cell tower on top to manage phone traffic as well.

There are a lot more ways that this university could improve its look and feel, but the above will be a start. I don't want to collect my pension tomorrow and hear about how things are just as boring as always. In conclusion, I'm old and grumpy. It's 3pm and I'm going to bed.

Until next time,

Stay Sexy!

The Five-Tool Player: New years Fantasy Resolutions

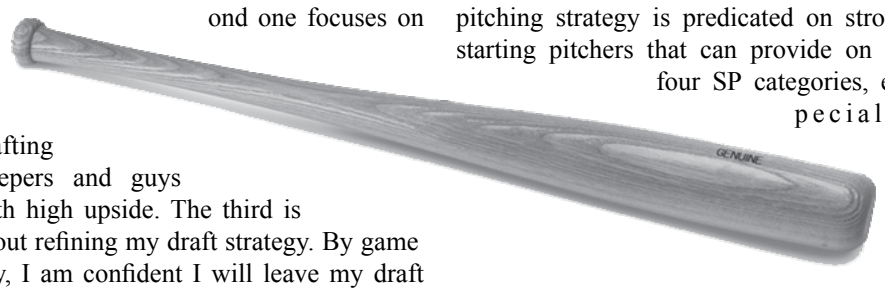
BOBBY LEUNG
4B MECHANICAL

Happy New Year baseball fans! It is the oldest, most played, toughest, and most gratifying of fantasy sports. "The Five-Tool Player" will address various fantasy baseball topics throughout the term to help you fantasy baseball engineering fanatics succeed in the coming season. In the spirit of 2011, I present to you my three fantasy New Year resolutions.

Note: My preference is to play the standard head-to-head 5x5, 12-team mixed league with Runs, Home Runs, RBI, Stolen Bases, Average, Wins, Saves, Strikeouts, ERA, and WHIP as categories. The advice in "The Five-Tool Player" will relate most to this style.

Resolution #1: More Mocking

No, I will not imitate you with a falsetto. Yes, I will do more mock drafts. Mock drafting is simulating your fantasy baseball draft, complete with pre-draft preparations and routines, opposing human managers, and anything else that will recreate your draft environment. Mocks have many benefits whether you are compete in the fantasy majors or just a rookie taking your first imaginary hacks in our real fake game. You can focus on executing your strategy in the heat of battle. It also builds your faux-mettle if players on your queue are snatched up. Arguably the most important aspect of mock drafts is the opportunity to gauge players that are being reached for and players that you can draft later. This allows you to adjust your values for the real deal. I like to mock draft at least three times. The first one is simply to remind myself of all the players in the league. The second one focuses on drafting sleepers and guys with high upside. The third is about refining my draft strategy. By game day, I am confident I will leave my draft victorious.



Resolution #2: Less Early-Season Judging

I like to change my team early in April, whether I am adding hot players, dropping cold players, or making bold trades. My team is not paint, I cannot just watch it, but it is sometimes detrimental to act too quickly, especially early in the season. There are two categories of players here: perennial slow starters and hotshot prospects that trip over the starting line. The poster boy for the first group must be Troy Tulowitzki, he of the .237 AVG, 7 HR, 39 RBI, 45 Runs, and 4 SB line over 339 April at-bats. If you can wait for him to shake off his off-season slumber, he posts a .304-32-102-99-8 over 493 career at-bats in September. Other names include Johan Santana, Ryan Howard, Mark Teixeira, and second-half stud Adam LaRoche. In terms of the second group, I was a victim of overreacting last season on some guy named David Price, the ace of the Tampa Bay Rays. My pitching strategy is predicated on strong starting pitchers that can provide on all four SP categories, especially strikeouts. From April to May, Price pitched well for me, but ballooned my WHIP with at least one walk in all his starts. I was fed up after a five-walk performance against Houston on May 23rd. Reminded by his 1.35 WHIP last season, I ditched him. Oops. The walks remained but he finished the year with a 1.19 WHIP, and it was more than balanced by his 19 wins, 2.72 ERA, and 188 strikeouts. When Brian Matusz has a couple of blow-ups this season, I will remind myself of his great potential.

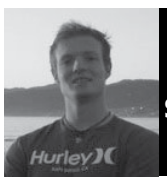
Resolution #3: Don't Pay for Saves

A few seasons ago I had this rule where I would anchor my team with a stud closer early in the draft, somewhere in rounds 5 to 7. I was wooed by the prospect of 40+ saves from one player with fantastic ratios and K/9 to boot. Many promising teams crumbled by season's end. Closers are attractive because only they can get saves, but they are just that, one-category contributors. They do not pitch enough innings to meaningfully affect ERA and WHIP. A strong starting pitcher will pitch three times as many innings, so their peripherals are more important to consider. Also, think of the relief men who were not their team's closers to start their season, guys like Neftali Feliz (40 saves), Canadian John Axford (24), Chris Perez (23), Jon Rauch (21), and Hong-Chih Kuo (12). Many of these players could have been picked up on the waiver wire. In the draft's early rounds, if I do pick a pitcher, I will pick a starting pitcher who can contribute in four categories for me, instead of being distracted by these celebrated one-trick ponies.

One of the most enjoyable parts of fantasy baseball is making a funny team name. The one I used last season was Honeynut Ichiros. Send me your favourite fantasy team names at bobby.c.k.leung@gmail.com and I will share them during the term.

When was the Last Time You did Something Awesome?

Advice on How to Make the Most of your Time in University



SPENCER MCEWAN
4B ELECTRICAL

When is the last time you've done something awesome? It is a valid question. No, I'm not talking about schoolwork (we do enough of that already, and it isn't typically awesome). I am talking about something out of your normal routine. Some type of activity that you've always wanted to do but just have never found the time to do it. Something to better yourself, or the world around you. Sadly, many of us don't take the time to do something for ourselves every now and again. Take this article as a call-to-arms to get out there and do something.

It always fascinates me looking at the accomplishments of our friends and colleagues in our university. I always walk away with that feeling of, "Wow! I don't know how they do it. They've done so much!" In reality, although their accomplishments are impressive, their secret is that they have taken the initiative to achieve something, and set time aside to pursue it. This can be anything; participating in a varsity team, working on a personal project, doing research with a professor, undertaking a new sport, or learning a new programming language. All it takes is a bit of dedication and perseverance.

You don't need an excuse to change it up and do something awesome. One of my favorite charades to watch is other people partake in the infamous New Year's resolution. There is no reason why you need to restrict yourself to doing something out of the ordinary to just one time of the year. Why not start now? Or start on Monday? There are always spare moments that we waste that we can convert into doing something new, or that we have been putting off.

The worst killer of our time is our obsession with media. A great majority of us spend a lot of time watching television, movies, videos on YouTube, and a lot of other content on the Internet. I do admit I have spent an entire week doing nothing but watching season after season of Mad Men. Compounded with the fact that our mobile devices allow us to consume all of this content whenever we want, you can't really escape from the convenience of indulging yourself with the drama of fictional characters. I dare you to cut back on the time you spend watching television. You'll see how much more free time you have. I'm not saying to cut it out entirely, but scale it back to regain some of your precious time.

"So what do you want to do? My advice: write yourself a university bucket list."

So what do you want to do? My advice: write yourself a university bucket list. What do you want to accomplish before your years at this university are over? It can be anything: run a marathon, work at a soup kitchen, travel to a foreign city. You are allowed to dream as small or as big as you want. My list included skydiving, writing for a student newspaper, and doing something with student government. The status quo is for the boring. Challenge yourself.

Here's another tip: Go on a random adventure. They can be impulsive and silly, but they definitely can result in a memorable story. For example, some of my friends and myself hopped in a car and drove to Montreal for a long weekend. Nothing much was going on there, we just didn't want to stay at home and do what we normally do. We had a lot of fun, and even compromised our integrity a little bit, but the story that resulted was definitely worth it.

Finally, see what is out there! There are so many things you could experience that you start to discover as you mature and grow older. There are so many passions that people around the world have. You have probably never even heard of some of them. Have an open mind, and explore the world around you. You may be surprised at what you find.

Remember it's the journey that makes life worthwhile, not just the destination. You can't do everything, but you can certainly try.

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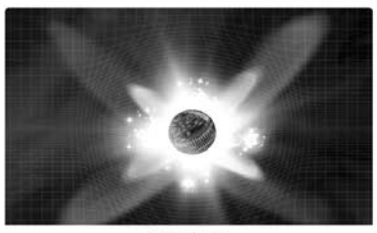

Nuclear

Financial

Energy Markets

Oil

Meet us at our information session February 1, 2011
Time: 11am-2pm Location: Tatham Centre - 2218

Must pre-register by January 28, 2011 at www.cecs.uwaterloo.ca/students/sessions.php

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Review Based on the Trailer: No Strings Attached

JON RADICE
4B CHEMICAL

Hello, other stream folks! For the people that don't follow the Iron Warrior on their off term (and shame on you for that) you have had the pleasure of not having to deal with my shtick for a long time. The premise behind this article is fairly straightforward; I'm too cheap to actually go and watch movies every time something interesting or interestingly crappy hits the theatres, so instead I collect every trailer of the movie and pass judgement before it comes out. The funny thing is, it's fairly accurate with the majority of critics. I've only gone against the flow of the ratings consensus of rottentomatoes.com once, and I still maintain that Unstoppable is, and will always be utter crap.

The problem though is that some times of the year, good movies are few and far between. We call that time of year January through April. The Oscar nominations are in, the summer blockbusters are far away and we are left with the best filler movies that Hollywood has to offer. That leads me to review the latest Ashton Kutcher and (insert current hot-but-not-too-hot actress from the past year) romantic comedy No Strings Attached.

No Strings Attached from the get go feels like a romantic comedy you must have been dragged to sometime in your life. That age-old question "Can two people be friends without sex getting in the way?" has been gracing our screens and was made very prevalent in iconic 80's movie When Harry Met Sally more than 20 years ago. So what makes this new iteration of the classic trope any different than all the movies since that Billy Crystal hit? Well, judging from the trailers not much.

The only standout that NSA has when watching the trailers is the raunch of the movie, which is also, interestingly enough, why the non-red band, "all-audiences" trailer is almost unwatchable. Natalie Portman, sure she's great to look at, but not so soon after watching her anorexia-induced psychosis in Black Swan. Outside of the supporting cast of Ludachris and everyone else who isn't Ludachris, the trailer jumps from one romantic comedy cliché to another. Ground rules are set, Kutcher says "I can't date my best friend," almost questioningly, the friends try to get in the way, jealousy. I'm no loveologist, I'm barely an amateur loveonomer, but something tells me that they get together at the end. After the first trailer I was ready to show this movie to the shit-door and throw it on the ever-growing shit-pile of shit-movies.

However, the red-band trailer allows the movie to actually flex a bit of funny, and actually show what makes the movie a little different than the others. We learn Kutcher's dad is banging his ex girlfriend, we get more screen time with Ludachris, we get period jokes, and it almost seems there is hope. However the trailer falls apart near the end, when the two are so in love with repressing how in love with each other they are, and the movie settles nicely in to its comfortable try-nothing-new confines. You get to see Kutcher's ass, that might be a selling point for some.

The movie looks like a fairly mediocre rom-com with some funny moments in what would be the first 20 or 30 minutes but do not be fooled. The movie won't try anything new, and unless you've gone gaga for every romantic comedy before this you're going to hate this one just the same. Skip it, or if you're getting dragged to it just roll your eyes a lot. NSA comes out on January 2011 to the wild anticipation of no one.

What's missing from these photos?

Mike Seliske

Lessons from a "Waste" of a Work-term

ALEX HOGEVEEN RUTTER
3B ELECTRICAL

At the University of Waterloo, there are good work terms and there are bad work terms. And then there are ugly work terms, with excruciatingly mind-numbing work, unresponsive bosses and lack of cohesive direction. My recent work term was one of the ugly ones, but perhaps that's not entirely bad.

For example, the engineer I was supposed to work with quit, so I was working without the supervision of an engineer. At first glance, this seems like it would make for a very tedious work-term. However, I was forced to work under very non-technical and uneducated managers. While this was incredibly frustrating at times, I learned about how decisions are made by "normal" people in the real world and the fact is: it's often not the way engineers think. I learned about how non-engineers think: the good and the bad. This will be invaluable for my future career where the higher up I rise, the less time I will spend interacting with engineers and the more time I will spend with others. Furthermore, this forced me to go out of my department to find engineers in another department for my work-term report. **There will always be someone willing to offer guidance, support and encouragement, even if your boss is not prepared to take that role.**

One professional engineer I did work with was an intelligent visionary, with lots of great ideas; however, he was a bully and created a hostile environment among his workers. This reminded me of the importance of maintaining humility, even as a professional engineer: no matter what position you are in, you have no right to belittle others. While a position of power, knowledge and authority may encourage you to be forceful and commanding with others, **treating even the lowliest employees with the utmost respect is the best way to get things done.**

Another tip I learned was the importance of making everyone around us feel valued. When the company decided to take certain office staff out to lunch at the company's expense, but not the manufacturing employees, this fostered extreme resentment and discontent. What seemed like a nice gesture in fact created a hostile working environment: **Ensure you've considered all possible angles, even when doing something "nice".**

There were often supply defects, outdated drawings, mislabeled or missing parts and other shortfalls and problems. In the past, employees had voiced these concerns to management, but management had apparently never listened. In consequence, the employees had simply given up and the management complains that no one ever shares information with them. The employees say "I'm not complaining" to avoid getting in trouble and management asks "why is no one complaining?" **If you are in a subordinate position, don't be afraid to voice your concerns and if you are in a position of power, listen to every last complaint and think about what can be done.**

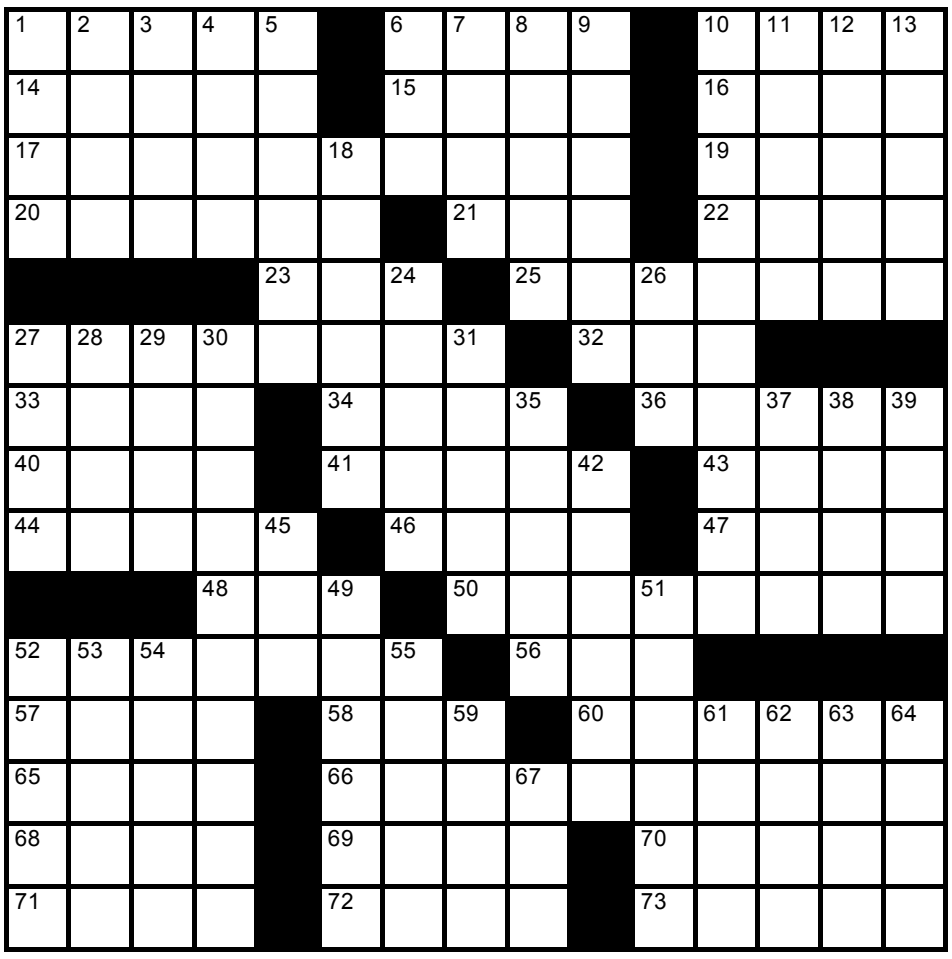
We often take for granted that software will just work. Sometimes, it simply does not. Whether it is too slow and inelegant, or perhaps the required data cannot be found or permissions prevent from doing the work, sometimes the software we're given just does not do the task we need it to do. Often it was simply a matter of improper training or not being configured correctly in the first place. **Software, or any technical product, may meet all technical specifications yet still fail to satisfy human needs.**

Another major problem was an overwhelming amount of emails. Many people I know (including myself) have at times taken pride in the amount of email we receive and send. Why is this? We think it is a good indication of how important we are. While this is true to a certain extent, I was able to see first-hand how damaging it can be-this desire to be important. Several key staff were incapacitated as they insisted being cc'd on everything and felt the need to always put in their two cents. Constantly checking and responding to BlackBerrys was the norm. People who are truly effective at managing their time know how to prioritize their time and realize that the important work is not done when we are constantly bowing to our mobile devices. Being able to let go of input on certain decisions is an incredibly difficult skill, but necessary for success in the work place. Similarly, the word 'ASAP' was used in abundance. Predictably, the term lost all meaning as when everything is prioritized nothing is prioritized. **The ability to focus on the important issues only comes with conceding the small.**

Every work term, I maintain a document containing all the lessons I have learned during my time on co-op. While at first I considered this work term a waste of time, reflecting on this document, longer than any I've had for any other company, I've realized the term was not a waste at all. Now is the time to take risks and sometimes we will get burned. Rather than thinking of an unappealing job as a waste of time, reflect on what you have learned and use it in your future endeavours. **We don't learn and grow from the successes; we learn and grow from the failures.**

The Iron Crossword

STUART LINLEY
2N NANOTECHNOLOGY



Across

1. Archipelago located in the Taiwan strait
6. Canadian rock trio famous for "2112" and "Tom Sawyer"
10. Enticer
14. Once more
15. Not pro-
16. Maternity ward cry: "__'_ _ ..."
17. *This is It*
19. Surprise reaction
20. Half-conscious state
21. Drunkard
22. English river
23. Battery's "force"
25. Semis, Briton-style
27. *It's height*
32. New prefix
33. Julia Roberts role: ____ Brockovich
34. Gun rights associations (abbr.)
36. Impales
40. Negative contraction
41. Clean by rubbing
43. Coloured
44. Mean look
46. To be (Sp.)
47. Paradise
48. Large mythical bird
50. *Touching requirement for It*
52. Landing zone
56. American Civil War pres.
57. Massive luminous plasma sphere
58. Sit-uppers
60. Relatively long time
65. Indian dress
66. *It's best friend*
68. Some BEvERages
69. Prefix: internal
70. Guide
71. Of former times
72. Whole, half, eighth, etc.
73. Finals, eg.

Down

1. Wal or K
2. To act (Fr.)
3. Spoken fanfare
4. Autograph
5. World children's charity
6. Snitch
7. Card game cries, perhaps
8. Backless chair
9. Major hotel chain
10. He's always watching
11. 
12. Can be political or environmental
13. 90's movie media
18. Angel's opposites
24. =mẍ
26. Living place for most 1st years (abbr.)
27. Bradley Moggarch is its president
28. Metallic component of rust
29. Grape or yard go with
30. Good ship to go trekking
31. Collection of ankle bones
35. Kama _____
37. Quattro maker
38. Was
39. Siding, without all those silly vowels
42. Thick trunked African tree
45. A.A. Milne Aussie character
49. Cosmic impact site
51. Most recent
52. Examine
53. Italian (prefix) Ex. _____-Norman
54. More difficult to locate
55. Steak type
59. Lays down grass
61. Despise
62. Enrages
63. Noob opposite (1337)
64. Makes a mistake
67. Cast a ___ (bet)

The Iron Sudoku

ANGELO ALAIMO
3B ELECTRICAL

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

THE IRON INQUISITION

Cailin Hillier, 3B Geological

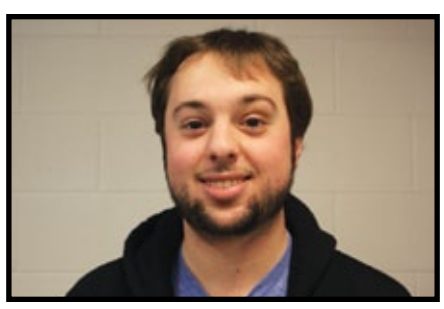
"What do you want to see as a result of the Vision 2015 Plan?"

"My picture on the wall"
Nadine Ferguson, 4B Mechanical

"Profs that speak English"
Julie Laver, 3B Computer

"More student friendly buildings"
Kal Sobel, 2A Mechatronics

"CnD deemed as an essential service"
Erin Matheson, 3A Chemical



"More girls"
Peter Robertson, 2A Mechatronics

"Better computer labs"
Nav Kiran, 1B Software