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THE IRON WARRIOR

THE NEWSPAPER OF THE UNIVERSITY OF WATERLOO ENGINEERING SOCIETY

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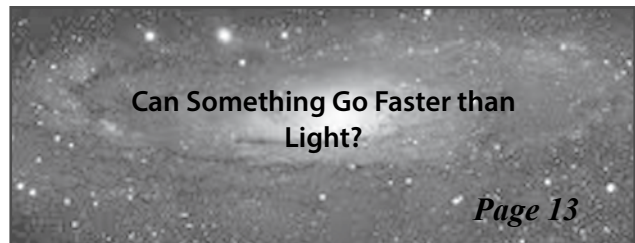
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National Hero Joins University of Waterloo

VINCENT MAGAS
2A MANAGEMENT

Ground Control to University of Waterloo. Commencing countdown, engines on! From the reaches of outer space to the very halls we may walk, the famous ISS Commander Chris Hadfield is coming to the University of Waterloo! The news surfaced on October 8 of this year that Chris Hadfield will be joining the University of Waterloo faculty as a professor. It is expected that he will provide instruction and assume advising roles in aviation programs offered by the Faculty of Environment and the Faculty of Science starting from the upcoming Fall Term in 2014. Hadfield is also currently involved with ongoing research with Professor Richard Hughson of the Faculty of Applied Health Sciences regarding the health of astronauts upon return to earth after prolonged time in space.

This is not the first of Hadfield's involvement with the University of Waterloo. As many know, a space-to-ground downlink between him and the University was held back in February, and a smiling Hadfield is seen with a University of Waterloo banner. Prior to this however, Hadfield has been both a guest and student at the university. Back in 1982 Chris Hadfield studied as an NSERC (Natural Sciences and Engineering Research Council of Canada) postgraduate with the Faculty of Engineering. He conducted research and studies dealing with aircraft fuel pump designs. In 2007 Hadfield was a special guest and keynote speaker here at Waterloo during the official launch of the Waterloo Aviation program. His return to aviation enhances the experience of his work here at the University.

Not only did Chris Hadfield take David Bowie's Space Oddity to a whole new level by performing it in space, but this Canadian astronaut is also a national hero. He is known as the first Canadian to walk in space, and the first Canadian given command of an International Space Station crew which only a few others in the world hold the distinction. Prior to his ca-



National Aeronautics and Space Administration

Though already technically an adjunct professor, retired celebrity astronaut Chris Hadfield is not expected to begin teaching at the University of Waterloo until 2014.

reer with the Canadian Space Agency and NASA, Hadfield was a fighter pilot in service with the Royal Canadian Air Force. After studying and earning a degree in mechanical engineering at the Royal Military College, Hadfield was trained as a pilot in Manitoba where he was the top pilot in 1980. In the following year Hadfield was once again given honours as the overall top graduate from Basic Jet Training in Moose Jaw, Saskatchewan and shortly after was trained as a tactical fighter pilot. Hadfield spent years on the field as a fighter pilot flying CF-18s for NORAD where he flew the first CF-18 intercept of a Soviet "Bear" aircraft.

It was in 1992 that Chris Hadfield was selected as one of 4 new Canadian astro-

nauts out of over 5300 applicants. His work with the CSA and the NASA involved numerous projects ranging from addressing technical and safety issues for Shuttle Operations Development to supporting shuttle launches at the Kennedy Space Centre in Florida. In 1995, Hadfield broke records during his service as a Mission Specialist on the STS-74 space shuttle mission, in which Hadfield flew as the first Canadian mission specialist, became the first Canadian to operate the Canadarm in orbit, and became the first and only Canadian to board the Russian Space Station Mir. Hadfield has also been NASA's Chief CapCom for 25 space shuttle missions, and throughout the years of 1996 - 2000 served as the Chief Astronaut

of the CSA representing CSA astronauts and overseeing their activities. In the years of 2003 - 2006 Hadfield worked at the Johnson Space Center in Houston, Texas as the Chief of Robotics.

In these coming years, Chris Hadfield will surely continue to bring pride to many Canadians and continue to reach new heights and accomplishments. The University of Waterloo will be part of that journey as he himself becomes a part of the UW community. Hadfield brings with him an incredible wealth of information and experience to the University, given all of his past research, work, and life experiences. Students at the University of Waterloo will have the honour to be taught by a wonderful Canadian hero.

New Rapid Transit Buses and Trains in the Works

LRT from Fairview Park to Conestoga Mall planned for 2017

CAMERON SOLTYS
1A MECHANICAL

The Region of Waterloo Rapid Transit Division is gearing up to begin providing faster and more efficient public transportation between Waterloo, Kitchener, and Cambridge. Starting in 2014 a new adapted bus rapid transit (aBRT) will begin operating between Fairview Park mall in Kitchener and the Ainslie Street Terminal in Cambridge. The buses will operate on normal roads—just like current GRT buses do—but will travel faster by having fewer, more distant

stops and getting priority at intersections.

2014 also marks the beginning of construction of a light rail transit (LRT) line from Fairview Park to Conestoga Mall in Waterloo. There are currently several candidates for the bid to design, build, and operate the system including SNC-Lavalin, an international Montreal-based engineering group, which was blacklisted by the World Bank earlier this year over a series of scandals. This means that SNC-Lavalin is not allowed to work on any World Bank-funded projects.

The transportation makeover, which is projected to cost \$818 million for both

the aBRT and LRT projects, has been the cause of much debate. Cambridge mayor Doug Craig has been one of more vocal protesters, claiming that the project is "not what we need at this time in our evolution as a region". He also put forward a request to the Regional Council, of which he is a member, to investigate how much it would cost to scrap the project. The petition gained the support of only two additional council members; the others felt that this was simply the first part of a plan by Craig to have the project completely dismantled.

Under the current schedule, the LRT

system will be operational in 2017. It is hailed as a "long-term, environmentally sustainable solution to help manage the region's future growth and transportation needs..." by the Rapid Transit Division. And while the price tag is quite hefty, it may be what is required to accommodate the projected growth of the region in the near future; by 2031 it is estimated that the population of the Waterloo Region will increase by almost 40% to 730 000 people. Growth of this kind could easily outpace current transportation capabilities, and the LRT system may be exactly what is needed to combat this possibility.

Letter From the Editor



ALEXANDER LEE
EDITOR-IN-CHIEF

Hello readers,

After a three week break we are back with another issue! I hope everyone who had midterms so far did well on them, and best of luck to those who still have some to write. The explanation for the three week break is twofold: Thanksgiving and midterms. They followed in such close succession that this was the most ideal way to do things. Once again I'd like to thank my staff for providing the wonderful content in this issue. I'd just like to remind everyone that anyone who wants to help out is still free to do so. Just show up for our weekly Tuesday meetings at 6:30PM in E2-2347.

This issue, Peter H. Roe, director of exchange programs for engineering, sent in a piece showcasing exchange opportunities in France. The PCP this week is on the ELPE, and its effectiveness or ineffectiveness. Also in this issue is an article that people may already have seen online. I have printed Meagan Cardno's article on the Fukushima Nuclear Disaster at her request. It did not make the previous issue because of spacing constraints. Finally, Yasser, our current EngSoc President has revealed the results of this term's EngSoc elections in his report.

Once midterms end, many of us can take a well deserved break and relax a bit. But it's important to remember that finals are right around the corner. I personally find it a little scary that we're already more than halfway through the term, and that in just over a month, we'll be taking final examinations. In addition, courses often get faster after midterms, as the professors have to cover a set amount of material, and there is less time to cover it. So don't slack on your courses now that midterms are over. In fact, it's even more important to study hard and pay attention. As important as finals are, they don't hold a candle to the importance of the final examinations. Stay alert.

Other than the hustle and bustle of midterms, another event passed last Friday: rankings came out. I'm sure many people felt joy when they checked JobMine on Friday, and some felt disappointment. Keep your head up! There's still two months of continuous phase for you to land a job. Many people will find their jobs during the continuous phase, and you will likely be one of them.

Oh, I almost forgot. This newspaper will be coming out on October 30. The day after that is Halloween. If you're reading this on the day it comes out, make sure you have some fun on All Hallows Eve. Go out trick or treating, or at least make sure you have some candy

to give to kids that knock on your door. If you're reading this after Halloween, well, I hope you had a good one and that you didn't spend it inside studying. Unless you had an exam the next day. Or on Halloween. That would suck. In that case, good work studying.

I've been home once since the beginning of the term. I probably won't go home again until after exams are done. It's been quite the experience. I lived on residence last year, but I went home every weekend I could, so it didn't affect me as much. This term has been different as I've much busier, so I've barely been able to go home. It's only after having not had any contact with my parents for a month that I realized how much I took them for granted. I'm sure not everyone had the same relationship with their parents that I did, but my parents always supported me in my many endeavours, and I often leaned on them for their support. I can no longer lean on them as often, and it's been a little tough to adapt to that feeling of loss.

However, this was not entirely unexpected. I always knew that I would not be able to rely on my parents forever, and that my relationship with them would grow and change as I grew up and matured. Knowing this did not stop me from being affected by it. I had ways of adapting. I'm currently rooming with 5 friends in a house, four in the same program. They've been a huge help to me and have been true friends so far. My parents have also come up to Waterloo twice while I've been unable to get back home, which helped a lot as well.

However, there's still been immense pressure on me as I have to deal with six classes, the heavy workload that being EIC brings, and a few other extracurriculars as well. The pressure was at its most intense a few weeks before midterms, and I felt I was going to collapse from it. Still, thankfully that week passed pretty quickly, and after that I felt reinvigorated.

Change is the driving force behind growing and maturing. Often we'd like for things to stay the same because we are familiar with it. But where's the fun in that? Life quickly becomes boring and stale when things stay the same for too long. I've been immersed in both change and familiarity, as has everyone, and I personally would take change every time, with both its positives and negatives. It's natural to be afraid of threatening, unstable things, but you cannot have anything exciting or fulfilling without risking negative consequences. It's these things that make you alive.

Of course, it isn't always good to live life on the edge. Familiarity and stability have their places too. It's just important to remember to balance the two, as when things stay the same for too long, it becomes hard to imagine life being any different. It's easy to imagine life always going on in the same manner. If life actually did this, that'd be great, but inevitably you will face a big shake up that will destroy that stability. When that happens, if one has been complacent for too long, one has a hard time adapting to the change and it will be hard to get around the feeling of instability and loss.

At the end of the day, I feel that balance is the key. Don't have too much or too little of anything. Have just enough. Balance on its own already implies change, as humans tend to operate in cycles. As long as we don't moderate risk and unpredictability with comfort and stability, you'll handle everything life throws your way with and adapt quickly.

I've heard it said that what doesn't kill you only makes you stronger. Every now and then I am reminded of how true those words are in many situations. It's important to remember that even when things seem to only be getting worse and worse, there will come a point where it will get better again, and that you only need to hang on until that time. And then, your burdens will feel bearable again.



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Send your submissions to iwarrrior@uwaterloo.ca

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

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

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

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Geneva Hosts Iran Nuclear Talks



CAMERON SOLTYS
1A MECHANICAL

Spirits are high in Geneva following talks between Iran and the P5+1—the five permanent members of the security council and Germany—over Iran’s nuclear program. The negotiations, which took place over the 15 and 16 of October, sought to reach an end to the dispute between Iran and the other parties over the Iranian nuclear program.

Iran’s nuclear program has been the subject of dispute since 2003, when it was revealed that Iran had not declared an uranium enrichment program—a crucial step in the development of atomic weapons. This action was deemed by the US to violate the Non-Proliferation Treaty, of which Iran is a signatory, which states that non nuclear-weapon-possessing members may not pursue a nuclear weapon program.

As Iran continued with its nuclear program the UN imposed sanctions on its

nuclear and oil industry. But until now, there has been little progress towards a diplomatic solution to the issue, with the West continuing to accuse Iran of pursuing nuclear weapon capability while Iran insists that its program is civilian in nature.

There are still many issues between Iran and the other countries at the negotiation table. Many US politicians are petitioning for Iran to shut down its enrichment centres before sanctions are lifted, while the Iranian Deputy Foreign Minister Abbas Araqch claiming that the West’s demand that Iran export some of its enriched uranium crosses “our red line.” There is also concern about Iran’s newest research reactor, scheduled to begin operation in 2014, which uses heavy water as a neutron moderator and therefore produces large quantities of weaponizable plutonium as a byproduct.

The talks reportedly made much progress between the different parties, though many of the exact details are being withheld. According to Russian Foreign minister Alexander Lukashevich “[the talks were] very tough [but]... quite



Associated Press

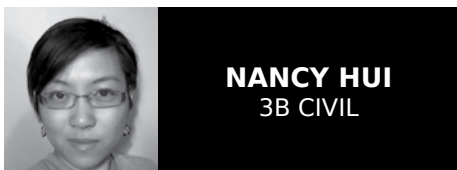
Iran has faced tensions and sanctions over its controversial nuclear program since it was discovered in 2003.

promising.” His Deputy, Sergei Ryabkov, took a more somber note, saying that the different sides were still very far apart.

While opinions may differ on the results,

there is little doubt that progress has been made and this progress is expected to continue in further talks on November 7 and 8.

This Week in Vehicle Collisions



NANCY HUI
3B CIVIL

Last week was a bad time for vehicle collisions.

On October 20, at 1:00 AM, a black Mazda sedan hit a curb and flipped over in front of an office building at 235 King St. E. The occupant was taken to Grand River Hospital, but died. Waterloo Regional Police are treating the case as a homicide because of “suspicious” circumstances surrounding the incident: the driver had been engaged in an argument half an hour before the collision.

Then at 4:30 AM, a man with severe head trauma was discovered at Hazel Street and Austin Drive. He was pronounced dead on the scene. Police believe that he was struck by a red SUV.

Then at 7:00 AM on October 24, an elderly pedestrian was killed by a pickup truck on Speedville Road in Cambridge.

Interestingly, only 5795 collisions were



Canadian Broadcasting Corporation

At 1:00 AM, this Mazda sedan flipped over, and its occupant was fatally injured.

reported in 2012: down from 6031 in 2011, and the lowest since 2009. The number of fatal collisions and collisions causing injury also decreased: Collisions involving

pedestrians remained stable, but horse-and-buggy collisions increased 33% from 6 in 2011 to 8 in 2012.

King Street and University Avenue in

Waterloo is the third-most dangerous intersection in the Region overall, and the worst for pedestrians: 11 pedestrians were hit by vehicles in the last five years.

Case Writing Competition

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Spend a Term or Two in France

PETER H. ROE

DIRECTOR OF EXCHANGE PROGRAMS

Why not go to France? All Canadians have learned a little French and all French people understand a good bit of English, so you can get by. France is a country known for its history, culture and scenery, as well as for the quality of its Engineering education.

The first place to visit is Paris. Who wouldn't want to enjoy the vibrant life of the left bank, or see the famous works in the Louvre and other museums, or stroll around the Arc de Triomphe, or cruise on the Seine, or so much more? You can do all this while spending an exchange term (or two) at Ecole Centrale de Paris (ECP), one of our partner institutions.

If you'd prefer to live in a small town, just 60 Km. north of Paris, choose Compiègne. This medieval city was the location of the hunting palace of the Kings of France, on the edge of the Forêt de Compiègne, where you can enjoy nature on its many sentiers (trails). Compiègne has a long history; it is the city where Joan of Arc was captured; it is also the place where the armistice ending the First World War was signed at 11:00 AM on November 11, 1918. The Technical University of Compiègne (UTC) is the oldest of our French exchange partners and is a great place to study. It's also not far from Charles de Gaulle airport, very convenient for travel while you're in Europe.

Maybe you like mountains. If so, Grenoble's the place for you –Grenoble likes to be known as the Capital of the Alps. It is surrounded by mountains, great for skiing and snowboarding, but is also a centre for the chemical, electronics and nuclear industries. It's worth a term's study at INPG, the Institut National Polytechnique de Grenoble. You can reach other cities easily, just hop on the TGV (train de grande vitesse) bullet train, North to Paris, or South and East to Marseille, Italy and distant places like Istanbul.

Another choice is Lyon. When you live there you'll be in France's second city, close to the Alps but also easily accessible to Geneva, Switzerland and Paris. The greater Lyon area is just a little smaller than the GTA in population. Lyon is a UNESCO world heritage site. It has (according to Wikipedia) developed a reputation as the capital of gastronomy in France. You can eat well there. It is also a major centre for the chemical, pharmaceutical, and biotech industries. The city contains a significant software industry with a particular focus on video



Gérard Janot

The École Centrale Paris is one of the Oldest and most Prestigious Engineering Schools in France. You can choose to spend a term there!

games (Wikipedia). We have two exchange partners in Lyon, both occupying the same campus. The first is INSA Lyon (Institut National des Sciences Appliquées de Lyon), the largest of a special group of six highly-regarded engineering schools distributed throughout the country. The second is Ecole Supérieure de Chimie Physique Electronique de Lyon (CPE de Lyon). CPE de Lyon is smaller and more specialized than INSA Lyon, but its name, Ecole Supérieure, tells you that it is highly regarded in the French Engineering education system. We have negotiated a special arrangement with CPE de Lyon that enables UW Engineers, who have done a two-term exchange there, to return after 4B and, in just one year, obtain the "Master" degree, which is somewhat equivalent to UW's MEng (professional Master's). It's worth looking into.

Another really interesting place is Toulouse, in the south of France. It is the centre of the French Aerospace industry, the HQ of Airbus and the location of the Toulouse Space Centre, the third largest in Europe. Our exchange partner, INSA

Toulouse (in the same group as INSA Lyon), is also part of a consortium of institutions of higher education which make up the third largest university in France, and one of the oldest in Europe. Toulouse is near both the Mediterranean Sea and the Pyrenees, some of the highest mountains in France.

If you're not attracted to the south, you could consider living for four to eight months in Metz, near to Luxembourg and to the Rhine valley. The town was much fought over in the Franco-Prussian war (1871), World War 1, and World War 2, and is located on the Moselle River. Our exchange partner in Metz is Ecole Nationale d'Ingénieurs de Metz (ENIM), one of a national group of engineering schools, known as the ENI's. ENIM's campus is somewhat like UW's in that it is bounded by a ring, not a road as here, but a river. The campus is on an island which gives it a feeling of isolation, but is quite near the centre of the city.

Space doesn't let me talk about all the exchange opportunities in France; after your exchange there, you'll come back

fully fluent and bilingual in our two official languages. Your high-school French will have gone, first enhanced by an intensive language course at our partner school, and then deepened by living in France. All fear of a foreign language will have vanished, and you will have one more asset beyond the advantage of being a UW engineer.

You can study in France, become completely bilingual, broaden your knowledge of the world, and do all this without compromising your degree program at Waterloo. For details, get in touch with the Engineering Exchange Office. It's on the ground floor of CPH, room 1320, probably on your way to the Engineering C & D. The first step to get yourself on the list for one of our exchange programs is to get in touch with Cindy Howe; send her an email (cindy@uwaterloo.ca) or sign up in the office for an appointment.

Peter H. Roe,
Director of Exchange Programs
Faculty of Engineering

Impact with Input

**GORDON STUBLEY &
CLARISSE SCHNEIDER**
ASSOCIATE DEAN, TEACHING &
COURSE CRITIQUES DIRECTOR

Course evaluation packages will soon be sent to your professors and instructors, who have been asked to bring them to class between November 11 and 22, 2013. Student representatives will be called upon to distribute one questionnaire to each student in each class, collect them when they are completed, and deliver them to the EngSoc office. Your Course Critiques Director will work with student volunteers to prepare the packages for computerized scanning and processing. It's a process that has been repeated every semester for over 40 years.

Yes, it's quite a big undertaking, but

it's one we believe is well worth it.

On the day after grades are due, a package is mailed to each course instructor with a summary of the numerical data as well as the original completed questionnaires so that they can read the feedback you've written on the back. The numerical data is also used to prepare summaries for department chairs and entered into a database that the Associate Dean, Teaching uses to inform course improvement efforts. The data is also posted online so that you and future students may review the results. And, new this term, you can view ten-year data trends for the summative question along with some background information on the faculty Student Course Evaluations page (<https://uwaterloo.ca/engineering/student-course-evaluations>).

Your thoughtful and candid responses

to course evaluation survey questions have a big impact. Instructors rely on your feedback to help improve their teaching. The faculty and departments use your feedback to make tenure and promotion decisions. And your feedback helps the Associate Dean, Teaching to gauge how effectively our teaching supports our students.

Thank you for your time, your feedback, and, most importantly, for your continued support of this longstanding and valued process.



University of Waterloo Faculty of Engineering

Point Vs. Counterpoint

POINT

Is the ELPE effective, or should it be replaced?

COUNTERPOINT

NANCY HUI
3B CIVIL

It appears that someone is complaining that the University of Waterloo has acquired a reputation for churning out graduates who are somewhat lacking in oral and written English communication skills. As a result, the ELPE is up on the chopping block.

It is true that the ELPE is not an accurate representation of student writing skills, and does not assess oral communication skills at all. Many of my peers reported merely scraping a pass on the ELPE despite good scores in high school English. Conversely, something is clearly wrong because some students who do pass the ELPE do so with minimally functional English skills. But just because the ELPE is flawed doesn't mean that we should scrap it altogether.

A short test is the easiest, most cost-efficient way to cursorily screen students for English-language proficiency. The ELPE, at its core, aims to serve this purpose: students who pass the test are cleared to continue on the rest of their university careers. Students who fail enrol in an ELPE tutorial or a remedial English course.

The ELPE's failure appears to be in failing to screen out all the students with inadequate written English skills. We are, of course, assuming that taking a remedial English course for credit will improve a student's skills enough for life after university, but that will be addressed later. Thus what the University needs is a better ELPE with less cursory marking that doesn't weight 90% of the ELPE essay on the proper five-paragraph template, and instead concentrates on the flow of ideas and the student's mastery of sentence structure and grammar.

To remedy this difference between the student's actual skills and the student's ELPE score, an audit should be conducted on ELPE grading practices. Based on the results, the marking scheme should be adjusted to better reflect a student's actual writing skills rather than their willingness to conform to an essay template that isn't used after high school and isn't even a particularly effective means of making an argument. The passing mark might also need to be raised or lowered based on the results of this audit. Afterwards, the ELPE will be effective enough to distinguish between those who do and do not need additional help.

It is completely true that the ELPE does not evaluate oral communication skills, particularly because one is not allowed to talk during the ELPE. If the University wishes to evaluate a student's spoken English proficiency, a solution has already been implemented by the Department of Electrical and Computer Engineering and the Department of Software Engineering: a technical presentation milestone, which requires a student to make a 12-15 minute presentation, with a short question period after. The presentations are marked by two evaluators on the bases of organization, overhead quality, presentation style, and response to questions. Those who fail the technical presentation milestone can retry their presentation during their 3A term, or their 2B work term. Those who have not passed their technical presentation milestone by their 3A work term are not allowed to enrol in 3B courses.

I cannot speak for how onerous the technical presentation milestone is, but

it seems a damn sight less painful than having to take some unholy "SPCOM for engineers" course.

Speaking of mandatory courses, what else might an ELPE be replaced by? Mandatory English courses? Engineering students have enough program requirements that adding another degree requirement would be overly restrictive and time-consuming.

Furthermore, students are likely to regard any mandatory English courses as "birdy" and useless, much like WatPD. As well-meaning as WatPD intends to be, it is still hopelessly shallow and stylizes its case studies to the point of absurdity. An amoeba could pass a WatPD course. The content of any engineering-focused communications course is likely to trigger the same contemptuous student reaction, being hugely inconvenient, disinteresting, and repetitive. The ELPE is also inconvenient and disinteresting, but at least it only happens once, and you don't have to pay \$500 to take it. There's no point in sending a proficient English user into a fluffy "English for Engineers" course. An engineering student will get better practice writing labs, work term reports, and workplace documents.

As for those who are not proficient in English, a 4-month course can't fully compensate for 18 years of nonexistent or sorely neglected English skills, though 8 terms of English immersion in Kitchener-Waterloo might. I cannot offer any suggestions as to how to improve those students' oral and written communication skills to the point of professional adequacy. They would get better personalized help after being screened with the ELPE, rather than getting lumped in with a class of resentful engineering students who used to have an elective they chose instead.

All in all, the ELPE is an important screening tool in identifying which students need additional English practice. Though it needs refinement, it should not be eliminated.

For most university students, the ELPE was the first exam they wrote at any sort of post-secondary level. The unfortunate truth of it, though, is that for many it was an experience that brings back many unpleasant, dissatisfied feelings — not entirely uncommon for an exam, really. But when taken into perspective, the process of confirming English proficiency should not be as painful as it currently is.

The task the exam sets out is to write a four to five page impromptu essay in sixty minutes, choosing from a (very small) set of topics. Looking at this format, combined with the rubric available online for pre-exam prep makes one think that the exam is not testing or English Language Proficiency as much as it tests for Completion Of a Secondary School English Course (but to be fair, COSSECE is not as catchy of a name).

The failure of multiple native English speakers on an exam designed to test English proficiency clearly indicates an issue in either the marking scheme or exam format. Testing for English proficiency shouldn't consist of trying to scrounge up a half-hearted opinion on a subject that no one really cares about, and then attempting to flesh out thought-provoking proof to support said half-hearted opinion. It should be focused on application of proper language conventions, grammar usage and sentence structure.

While the focus on many rather particular details in proper essay writing, such as paragraph structure, proper use and construction of thesis statements, and effective use of persuasion techniques, could be argued as a method of testing for preliminary university-level essay writing, it is far too generic and unrefined to be considered effectual. These sort of particulars often pertain to only one or two styles of writing, and unfortunately there are many diverse faculties at the university that require different writing capabilities. The technical writing that those in science and engineering perform

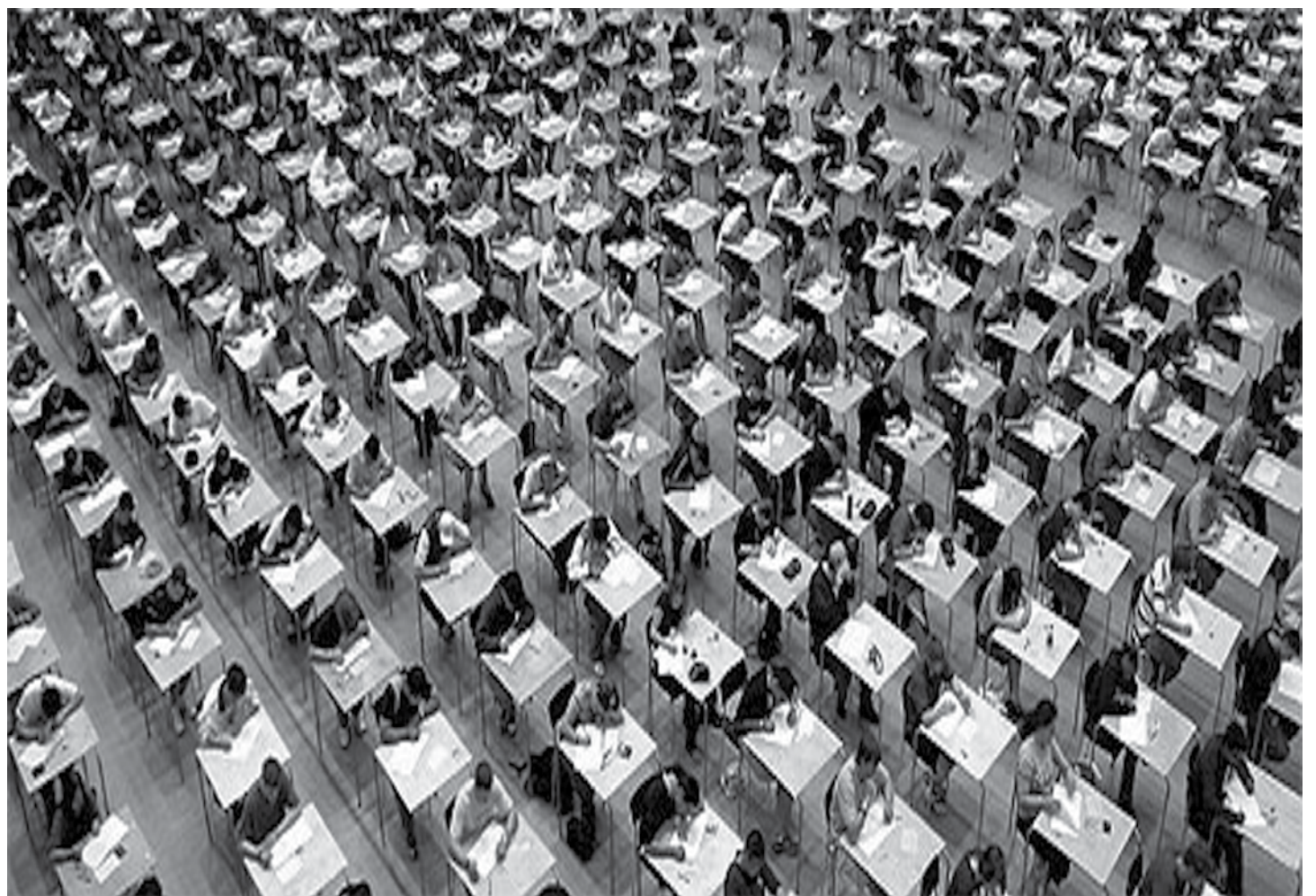
MEAGAN CARDNO
2A NANOTECHNOLOGY

is vastly different than the documentation needed for someone in legal studies, or someone working towards a literature major.

If the ELPE were to be improved, it would be logical to replace the single, exam taken en masse with multiple more specific, faculty-directed examinations that vary marking scheme and tasks depending on the writing skills and capabilities expected in each faculty. This would include a variety of different assignments, such as persuasive writing, creative writing, technical writing and descriptive writing, chosen to best suit and fit a particular student demographic.

A complete alternative for the ELPE would be to require a mandatory English course taken in the first semester of university. Again, these courses would ideally be developed for specific faculties (and possibly even individual programs), and count as one mandatory elective in order to graduate. A course could then gauge oral English proficiency in addition to the written variety. In addition, smaller, more manageable assignments could be used to gauge if writing is as adept as needed. The inclusion of both timed and non-timed assessments would also allow those who struggle with time restrictions and high-pressure environments to still have hopes of passing the course, versus outright failing the ELPE due to less-than-ideal writing speeds.

While passing the ELPE represents an important concept and standard that first years must achieve, as language proficiency is an invaluable skill in any career, it is simply not the right means to achieve the desired effect. Improving upon it or replacing it with a mandatory English course would lead to more accurate representations of English skills, and lead to better outreach to those who need extra help using our ridiculously complex language.



University of Waterloo

Every year, thousands upon thousands of first year undergraduate students take the English Language Proficiency Exam (ELPE) to test for adequate understanding of the English language. But is it really effective? And is it truly worth it?

New Kids on the Block



YASSER AL-KHDER
PRESIDENT

Hi there everyone. I hope midterms are treating/have treated you well. Don't worry first years. I know midterms were rough, but later on in upper years midterms will be...just as rough.

I've been an EngSoc exec for about 30 months now. That's longer than the 2016s have been in the university. But in 2 months or so, I will finally be off the executive team and a new set of executive will take control. So I figured I'd take the time (and some IW space) to introduce the new B-Soc exec.

President

Let's start with the star player, the POTES (President of The Engineering Society), El Presidente (or El President B). Your new B-Soc President will be Allyson Francis. Allyson's been involved in EngSoc from her 1st term, and she hasn't looked back since. She's held at least one directorship every term since her 1B, including the first year mentoring

program this term, which is going so well. She sits on the University Senate, so she already has experience representing you to the faculty and the administration. She has tons of ideas to improve EngSoc, and even though I'm a little bit skeptical of some of them, I really hope that she manages to implement those ideas and improve the society.

VP Education

Her posters may have been a tad ridiculous (c'mon we all know that fetch is not going to happen!), but I'm sure that Permeg Kenth will rock the VP Education role. I did not that she was interested in the role until the beginning of this term, but she went all out to find out more about VP Education and how it can better improve the society. VP Education is one of those positions that can be mystical sometimes because they go to a lot of meetings, some of which are confidential. I'm glad to see that Permeg is interested in making the role a little more transparent. She said that well done is greater than well said, and I expect her to do great things in the next 16 months.

VP External

Sarah-Rose ran a kickass campaign for an uncontested position. I can only imagine how awesome her campaign would've been if she was actually competing for VP External. Basically, Sarah-Rose is amazing. She's enthusiastic, she's energetic, she's friendly, and she gets things done. In her first year she organized a student-faculty hockey game, and she managed to get the Dean to do the ceremonial puck drop. Earlier this year we introduced the First Year Commissioner, and honestly, I could not see anyone other than Sarah-Rose as the First Year Commissioner, and she's doing an awesome job. I know she'll be just as awesome as a VPX.

VP Internal

Your new VP Internal, Mathieu Tremblay, is also the current Student Life Commissioner, which is convenient because the Student Life Commissioner works with the VP Internal to help directors run their events as best as they can. They help directors with scheduling, logistics, advertising, and pretty much wherever the directors need help. Mathieu has also run several directorships in the past. Basically what I'm trying to say is

the man has experience, and I'm sure that his experience will come in handy in the next 16 months.

VP Finance

Last but not least we have the VP Finance aka VP Cash Money. I'm excited to see Melissa Ferguson as the new VP Finance. She already knows how to run Novelties since she has been effectively running Novelties for the past two terms. She also organized coverall day this term, and ran multiple directorships in the past, including POTES manager and mental health. With a little bit of transition from Peter, our current VP Finance, she'll be rocking it in no time.

I also should add that WEEF has a new director as well. Steven Buckley will be the new WEEF director. I'm sure he'll do a great job, and I wish him all the best.

Well there you have it kids. Your new exec. If you see them down the halls, say hi to them, congratulate them, and get to know them a little better. Because they are going to be in charge pretty soon.

Well that's all from me for now.

PEACE OUT!

Yasser.

P**5: TREAT YO'SELF



CATHERINE DECLARO
VP INTERNAL

Have you been hearing "P-to-the-5" being whispered in the hallowed halls of CPH? Any idea as to what it is? P-to-the-5 (P**5) stands for Paul and Paula Plummer Participation Points. It's a term-long competition between all on-stream classes with the purpose of encouraging friendly class competition, promoting EngSoc and extracurricular participation and rewarding spirited and involved classes.

Every time someone from your class at-

tends an EngSoc event, volunteers to help with a service, has a class name, is part of a varsity or intramural team and many more, your class gets points to add to your term total. The Official List of available point earnings can be found on the EngSoc Website under the 'Class Info' tab. The class with the most points at the end of the term will receive a cash prize which can be put towards anything your class wishes!

Rules:

The following are the observed rules for the P**5 competition:

All submissions must be made by the deadline.

Off-stream Society members, Graduates, Ringed or any other special group will not be represented or listed in official standings, but can earn P**5 points (to preserve the competitive spirit).

The official depository for P**5 points coupons and other submissions (other than electronic worksheets) shall be the P**5 Drop Box (aka Sexy Box), which resides in the EngSoc Office.

The P**5 competition operates with transparency. Classes are free to view the allocation of points at any time upon request.

The published points list is the officially used list for the current term, but P**5 directors reserve the right to award or pe-

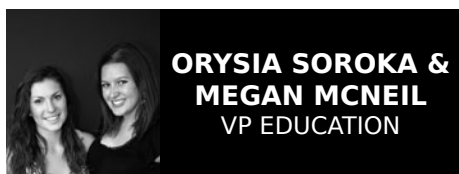
nalize points at their discretion keeping in mind rule 4.

Classes that pull a prank or stunt that is deemed offensive, destructive, unlawful or mean-hearted will be disqualified.

Submissions:

Submissions can be made via the Sexy Box in the Orifice. As well, the P**5 directors (Melissa Ferguson and Stephen Kraemer) will have a spreadsheet available before EOT. Make sure you include your name/class on whatever you're submitting! In the meantime, keep track of your points and make sure you submit your points to the P**5 directors before EOT.

Midterms and Co-Op



ORYSIA SOROKA & MEGAN MCNEIL
VP EDUCATION

Hi Everyone!

To all the first years who have completed their first midterm week, congratulations on surviving such a tough week! To everyone else still facing midterms, keep up the good work. Hopefully everyone's exams go well; if they didn't go as well as expected,

there is still time to turn those marks around. Midterms can be very stressful, especially if you leave your studying to the night before. For midterm week especially, it is crucial to start reviewing material ahead of time and asking questions early. I highly recommend attending professor and TA office hours to ask any questions you have so they can help you understand all of your course content. Also, we currently have an exam bank available on the EngSoc website which is accessible to all engineering students. This exam bank is

kept up to date by engineering students who submit their old exams – so if you have any please email them or drop them off at the orifice. Not only is this process completely anonymous, but you also get to return the favour to other students, and earn P**5 points for your class, so it's a win-win-win situation!

On the subject of coop, a special thanks to everyone who completely the 8 month coop survey, there were over 750 responses which is fantastic. This data will be processed and will be able to strongly represent the feelings

of undergraduate students. I will be creating a report on this data very soon. On the topic of coop, the rankings came out last Friday – good luck to everyone, and I hope everyone remembered that rankings closed on Monday at 2pm. For everyone who has yet to have gotten an interview or a job after this ranking, do not worry! There is still second round rankings, as well as continuous round where you can continue to apply to new jobs every day.

Remember, study, keep a level head, and have fun!



\$2 BUCK TUESDAYS
EVERY TUESDAY

PABST ATTACK
\$4.50/TALL CAN
MONDAY & WEDNESDAY - ALL DAY
FRIDAY & SATURDAY - BEFORE 11 PM

BIGGIE-UP
ANY DAY ANY TIME
A BURGER AND A BEER FOR \$4 BUCKS!!
ADD FRIES FOR \$2
ADD WINGS FOR \$2
PRESENT THIS COUPON
AT TIME OF ORDERING
LIMIT 1 COUPON PER PERSON. OFFER DOES NOT
INCLUDE APPLICABLE TAXES. NOT VALID IF
REPRODUCED, SOLD OR TRANSFERRED.

\$10 PITCHERS
THURSDAYS BEFORE 11 PM

DIRTY BURGER DAYS
\$2 BURGERS AND WINGS \$5.50/LB
MONDAY, TUESDAY, AND WEDNESDAY

SAWDUST AND BEER AT 28 KING ST N, UPTOWN WATERLOO • 519-954-8660 • JOIN CHAINSAW LOVERS ON FACEBOOK

Beer and Other Things



PETER ROBERTSON
VP FINANCE

Is the term going by too fast for anyone else? It's going to be Christmas before we know it! Luckily time hasn't evaded us too much. Lots has been happening within EngSoc and I'd like to outline a couple things below.

The Sponsorship Committee met last weekend to see presentations from all groups and teams that applied for EngSoc Sponsorship this term. Thank you to everyone who came and made a presentation! The Committee will present their proposed allocations at the next EngSoc Council meeting, November 6th, for ratification. Once the allocations have been ratified all teams and groups that applied will be notified of this term's allocations, and the results will be published in the following IW issue.

The ECIF Committee meeting date has been set for Wednesday, November 13th. Please submit any applications by then. I changed the URL slightly to make it easier for you – the application form can now be found at engsoc.uwaterloo.ca/ecif - so you have no excuse! The applications we've received so far don't come anywhere close to the \$9000 we've allocated to ECIF this term, so don't be scared to ask for something big (think improvements that could be made

to EngSoc space – Orifice, POETS, CnD – or anywhere public on campus that would benefit Engineering students).

Finally, I'd like to speak to a topic that has been coming up in EngSoc meetings but I have avoided discussing in the IW until now because I wanted to have the facts straight first. As you may or may not be aware, POETS is one of a few areas on campus that is licensed to serve alcohol. When we (as EngSoc exec) decide when POETS will be serving, it must be done through UW Bar Services and we must abide by their pricing and regulations. This term we have been notified that at events deemed "high risk" by Bar Services (for example, BOT/MOT/EOT or Semi Formal, as well as any other event at the discretion of Bar Services) that we wish to hold on campus and serve alcohol at, there will not be minors permitted in the same space as the alcohol. Yasser and I met with Bar Services recently to discuss this issue and now have information to report back to you, our readers.

The enforcement of this policy means one of two things: minors do not attend the event, or the event has a separate space for those who wish to consume alcohol. Because separating POETS into two sections poses some issues regarding space and capacity, we chose to not serve alcohol at BOT or MOT this term. We are actively looking for a solution in POETS but unfortunately right now there is no solution that is acceptable to Bar Services. Hopefully by the end of



Batch Brothers Beer Breweing

EngSoc would like you to buy more of these.

the term a system will be in place to serve alcohol at EOT.

Serving alcohol on Friday afternoons in POETS happily does not fall under the "high risk" assessment, but it does pose financial risk to the Society, which is why you may have noticed that POETS did not serve alcohol on the first few Fridays of the term. At any event where we request Bar Services to serve alcohol they maintain minimum sales requirements. If those requirements are not met (read: we don't purchase enough alcohol) then the Society must pay the

difference. Over the past 3 or 4 years sales have been noticeably dropping and in recent terms the Society has been paying upwards of \$2000 as a result. This term we've chosen to make two changes to hopefully resolve this issue, and there is one change you as students can make as well. We will no longer have Bar Services on Thursdays, and we have extended the serving hours to 11 am – 4 pm (from 12 pm – 4 pm). Hopefully this will increase sales, but there is one way to know for sure and you can help:

Buy more beer!

Outreach Galore!



KRISTINA LEE
VP EXTERNAL

Hello again!

There is quite a bit going on between now and the end of school. A lot of the opportunities listed below are a great study break or opportunity to meet fantastic new faces!

Community Volunteering

If you're interested in volunteering in the Waterloo community there are a few opportunities coming up in November and December. Engineering a Difference is going to be visiting the Salvation Army to wrap Christmas presents in November and going to the Food Bank closer to December. If you're interested in helping out please join the Facebook group, Engineering a Difference. Please email vpexternal.b@engsoc.uwaterloo.ca if you're interested in volunteering.

Sorry guys but these next two opportunities are for the ladies.

Jobposting.ca presents: Young

Women in Leadership Breakfast

This is a breakfast being hosted by Jobposting on Thursday, November 7th, 2013 in downtown Toronto. The breakfast runs from 8:00AM to 10:00AM and is FREE! Registration is required because spots are limited. There will be a panel and a Q & A session, and an opportunity to network. To sign up for the event please go to jobpostings.ca/form/131760?event_nid=131749.

Women in Engineering Mentoring Initiatives (WEMI)

This is a fantastic opportunity for female students in 2nd year or higher. Participants will be partnered with female engineers in the Ontario Public Services. To sign-up for this program please apply at surveymonkey.com/s/WEMIsignup.

CEAB Graduate Attribute Feedback

The Canadian Federation of Engineering Students (CFES) is looking for feedback about the graduate attribute system of accreditation. Here's some background on the subject. The Canadian Engineering Accreditation Board (CEAB) introduced a new way to assess the quality of graduating engineering students. The 13 attributes are: A knowledge base for engineering, Problem analysis, Investigation,

Design, Use of engineering tools, Individual and team work, Communication skills, Professionalism, Impact of engineering on society and the environment, Ethics and equity, Economics and project management, and Life-long learning. If you would like more information on the attributes please go to engineerscanada.ca/e/files/report_ceab_08_txt_only.pdf. The CFES is looking for student feedback on these 13 attributes and will be bringing your feedback to the CEAB. Please fill out the form at surveymonkey.com/s/CFES_Academic.

Board of European Students of Technology (BEST) Winter Courses

BEST is the European version of CFES and are extending an invitation to CFES member schools to attend their Winter Courses series as an observer. Your tasks will include helping organize social and cultural components of the course, attending the academic sessions, sharing your experiences with the CFES, and showing your Canadian spirit. Courses are typically 1 to 2 weeks in length, with about 20 hours of instruction each week. Each course costs 45€ and the cost of your own airfare. If this interests you please email me and I'll forward you the details.

MORE CONFERENCES!

There is a never ending list of conferences for the Fall! Applications for both conferences are due November 1st by 11:59pm. Conference delegate will have all delegate fees and reasonable travel costs covered.

CFES Congress


Congress is a weeklong conference and a great introduction to the CFES. During the week you will attend day time sessions, listen to key note speakers, and interact with students from across Canada. This year's Congress is hosted in Sherbrooke, QC from January 5-11th, 2014. Please apply online at engsoc.uwaterloo.ca/congress2014.

ESSCO First Year Integration Conference (FYIC)

FYIC is a first-year only conference held every year by ESSCO. FYIC is a great introductory conference for first year students to ESSCO and there are a lot of leadership development session. This year FYIC is being hosted by Carleton in Ottawa, ON from February 7-9th, 2014. Please apply online at engsoc.uwaterloo.ca/FYIC2014.

Thank you! Have a great week and Halloween!

Upcoming Events Calendar

Wednesday October 30	Thursday October 31	Friday November 1	Saturday November 2	Sunday November 3	Monday November 4	Tuesday November 5	Check out up-to-the-day event postings on the EngSoc website at engsoc.uwaterloo.ca
	Halloween Games POETS Engineering Strength and Conditioning 6:30PM PAC	Pubcrawl #4	Fall Open House	First Year Mentoring: Sports Olympiad 1:00PM V1 Green	Milk Moustache 2:00 PM WEEF Meeting #1 5:30 PM E5 3101 Engineering Strength 6:30PM PAC	Charity Grilled Cheese 11:30 AM CPH foyer Ice Ice Baby(Cupcakes) 5:00 PM WEEF Meeting #2 5:30 PM E5 3101	
Wednesday November 6	Thursday November 7	Friday November 8	Saturday November 9	Sunday November 10	Monday November 11	Tuesday November 12	 
EngSoc Meeting #4 5:30 PM Cookie Decorating 7:00 PM	Engineering Strength and Conditioning 6:30PM PAC Interview Skills 6:30 PM RCH 112	WEC Band Wars 8:00 PM Maxwell's Music House	WEC EngHack 7:00 PM M3 1006	WEC EngHack	Milk Moustache 2:00 PM WEEF Meeting #3 5:30 PM E5 3101 Engineering Strength 6:30PM PAC	Charity Grilled Cheese 11:30 AM CPH foyer First Year Mentoring: Retro Video Games 6:00PM POETS	

Starting from Scratch



Apple had an event last week to announce their new slate of devices for the holiday season, as well as updates to iWork, their productivity suite, which has been relatively static for the past four years. To the casual observer, the new versions of Pages, Keynote, and Numbers look great. In true Apple fashion, their revamp heavily simplified the already rather sparse interface in an attempt to redefine the purpose behind these applications. In particular, the Inspector view, which effectively managed all the formatting and settings options for your documents, has

been replaced with an Inspector sidebar, which dynamically changes depending on what the user is selecting or using at the time.

Power users of the old iWork have been vocal about some changes made in the new versions, particularly the removal of most of the AppleScript functions previously included, that were used to perform macros and other functions between applications much like you can do in Microsoft Office. Yet with the announcement of iWork for iCloud and the updates for the iOS versions of iWork, there is an imperative for the iWork applications to work seamlessly between devices, and that means catering to the application that can do the least. In the last versions of iWork, a user could save a Pages document to iCloud on their Mac and open it on iOS, but this typically meant that the iOS version would have

to undergo a file conversion since it did not feature everything the Mac version did. This would leave the user with multiple versions with varied levels of functionality, leading to a generally poor user experience for those who wanted to achieve the ideal of switching between the two to finish documents.

This isn't unusual for Apple though, as the same thing happened in previous years with Final Cut Pro X and iMovie '08. Both video editors showed heavily decreased functionality for features that professional users were hoping to get out of the programs, causing some consumer backlash until some functionality was able to be added back in subsequent versions. Final Cut Pro X was a significant example as the previous examples of Final Cut Pro were good enough that editors of multi-million dollar movies were using it for their video editing. What Apple had done in both cases was rewrite the applications to remove years of built-up additions that may or may not have been relevant anymore (ideally making it more lean) and refocus the application to serve a better audience. For iMovie '08, they aimed to target makers of small videos shared to YouTube or Facebook that would have been recorded off an every day camera, and for Final Cut Pro X, Apple hoped that the completely rebuilt application would make workflows easier for professional video editors. Unfortunately, in both cases, essential functionality was removed that many had relied on in exchange for building what was effectively a 1.0 version of a new application.

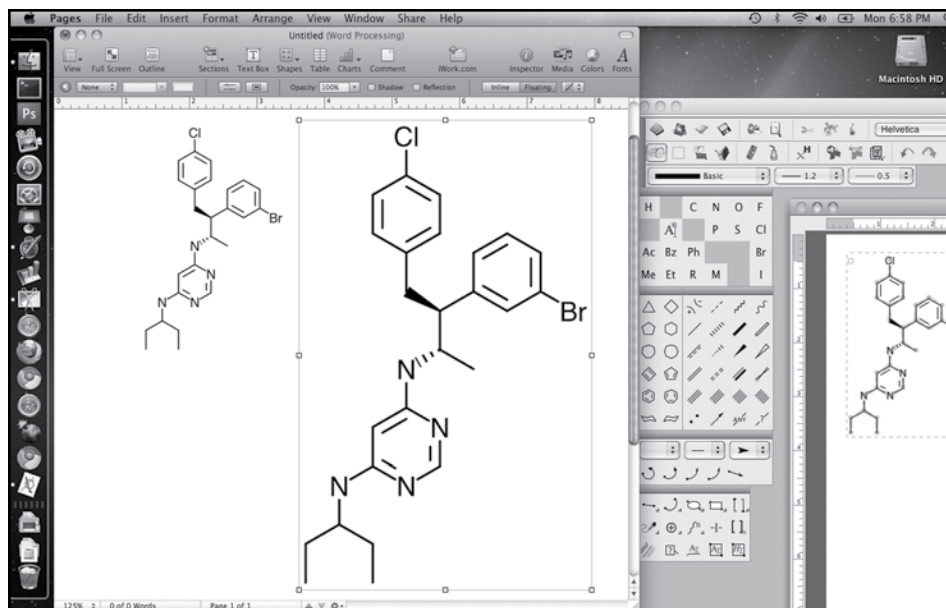
Yet in most cases, the functionality returns in a couple years with the benefits of the new workflow. iMovie '09 was a much better improvement over '08, returning some features that were included in the previous iMovie while maintaining the new interface that was targeted towards easily shareable videos. Final Cut Pro X returned much of the functionality requested by editors within the first six months, and is now gaining a little more acceptance than the initial backlash it suffered. Perhaps the best example of software that survived this process is OS X, which now runs on Macs very well but was at first a bug-ridden, slow-performing operating system that was disliked by many previous Mac OS 9 users until performance was good enough that it could replace Mac OS 9. Today, OS X is what many Mac users like about their computers and it continually adds new functions that work better in the Unix-based operating system.

Microsoft has gone under changes like

this as well recently. Windows Vista, although despised by many longtime users of Windows XP, was less of a fundamental rewrite than OS X was but did introduce many changes to how the operating system worked that were annoying or unclear to converts. Windows 7 fixed many of these changes while keeping most of the Windows Vista aesthetic and workflow, bringing greater acceptance to users who had stuck to XP. Office 2007 was another rewrite introduced by Microsoft that introduced a new XML-based file format that in the end was a clearer file format than the old binary file formats but was heavily incompatible with previous versions of Office. It also introduced some workflow changes like the Ribbon that were unnerving for people who were very used to the old Toolbars, but were theoretically easier to learn for a user who was not used to either function and also keep common functions visible at all times. Office 2010 improved on areas which received heavy customer criticism and gained wider acceptance than Office 2007.

Today, Windows 8 and iOS 7 have been two examples of operating systems that may not be ideal in their first iteration but lay a groundwork for a more ideal future. The Windows 8-style applications accessible from the Start screen ideally make the system easier to use for longtime users, but the operating system still delegates much functionality to the Windows 7-style desktop, making it a confusing and inconsistent experience for users of the current version. In the future, the newer style of application will be more consistent as developers learn how to work with their new layout, and will likely achieve higher consumer acceptance. The Windows 8.1 update has already introduced some features (e.g. the Start screen button on the desktop mode) that have allowed users to accept the system more. iOS 7 introduced primarily visual changes in how the operating system functioned, which also has a few issues, but will likely be fixed in upcoming versions.

Applications go under changes like this frequently, and although they may be frustrating at first, letting the developers know which functions really can't go versus those that no longer have much use is a great way of making sure application rewrites go more smoothly. There is a benefit to having an application be rewritten as it allows for removal of code that has only lasted due to negligence and years of upgrades, but the first step is always a little bumpy to get over.



icchemlabs.com

Often when application features are cut, as was the case with iWork, they'll return within a few years.



Professionalism.
Leadership.
Communication.

There's more to an engineering education than engineering.



Debates

Thursday
November 8
11:30-3:30
E5 5047

1st Team **\$500**
2nd Team **\$300**
Top Rookie Team **\$100**

Technical Speaking Competition

Tuesday
November 6
11:00-2:00
E5 5047

1st Place **\$400**
2nd Place **\$200**
3rd Place **\$75**
Participation **\$25**

Rookies welcome!
No experience necessary.
Topics are given at the debates,
so no advance study required.

Debates occur in teams of two.

Registration: email the organizer,
Derek Rayside, at drayside@uwaterloo.ca
by November 3 to register. Individuals are
welcome to register and will be matched
with a partner by the organizer.

For general questions, please e-mail the
appropriate organizer. Please use the subject
SFF Debates or **SFF Speaking Competition**.

Topics must be technical in nature and based
on research, work-term experience, or
personal interest.

Send a brief abstract (less than 300 words)
and a preliminary set of slides (ppt, pptx, or
pdf) on or before November 3 to the organizer,
Douglas Harder, at dwharder@uwaterloo.ca.

Six engineering undergraduate students
will be chosen, based
on submitted material,
to present at the
competition.




Sandford Fleming Foundation

Metal 3D Printing

BRIAN CHAN
2A NANOTECHNOLOGY

A new breakthrough has come through! The European Space Agency's (ESA) Amaze project is bringing together 28 institutions to help develop new metal components which are lighter, stronger and cheaper than standard parts. However, the true breakthrough is the fact that they want it done by 3D printing. This is huge because the only thing 3D printers could originally print were plastic objects, but soon you may be able to create metal parts using 3D printing for just about anything, including cars, satellites etc. There are so many advantages to this, but also some pitfalls.

If you read the last issue of the Iron Warrior, there was a PCP done on the issues of regulating 3D printers. It was stated that 3D printers can be used for recreational use but it also has dangerous implications like

the creation of weapons and forged goods. The only way for such implications to exist was if 3D printers were able to print metal, and soon they may be able to. However, the metal being printed is made from special materials that can utilize such a printer. There are advantages with this technology. Essentially everything in life will be more cost efficient.

There is still one issue with this printing however. There is still porosity in the metals or small air bubbles. This is an issue because if the objects are used in important equipment such as planes or spacecraft, the porosity can cause unforeseen damages and could harm the lives of many innocent civilians who use may use devices created from a printer like this. The technology is in its infancy, but all it needs is a bit more time before this technique to be perfected and brought out into the commercial industry.

Keeping Your Health Up in the Winter

JULIA HELTER
2T CHEMICAL

Winter is coming. And with the changing weather and dropping temperatures, runny nose and coughing is also around the corner. Here are a few ideas to help prevent, or speed up, those soul-draining colds and flus.

Drink lots of water. Water will help flush out toxins and bacteria and other gross stuff. And it's always important to stay hydrated while you're sick. For a bit of healthy flavor, squeeze some lemon juice into your water, or add a quarter of an entire lemon. Lemon is filled with vitamin C, which is an immune booster.

It also helps to destroy bacteria and clean your system by getting rid of toxins. If you wish to put parts of an entire lemon, make sure to clean the outside of the lemon first to get rid of nasty pesticides and other chemicals. It's also a good idea to grate the lemon zest to add some extra pizzazz to chicken, rice, vegetables, or even yogurt. For the adventurous, try adding a small pinch of cayenne pepper to your water, or any other foods. This magical red spice raises your metabolism, and regulates your blood sugar. Cayenne pepper can also provide natural pain relief, and helps clear congestion. I would recommend trying a very small pinch in your water, and then

increasing it slowly as you get used to it. Have it with lemon in water to reap the benefits of both!

Another great health food is ginger. Ginger is an anti-inflammatory, which means it can help with nasal and chest congestion. Try as a tea with some yummy honey.

Eat onions and garlic. These flavor packed foods are incredible ways to prevent sicknesses, and to speed recovery. They are both antiviral and antibacterial and boost your immunity, which means bye-bye bad bugs! To get the most out of garlic and onions' healthy molecules, it's best to eat them raw. Try crushing and chopping them,

letting them stand for 10 minutes and then eating them with toast and some olive oil. By letting them stand, this enhances the health-promoting benefits. Just make sure to eat these at night, and never before an interview!

By far the best way to prevent illness is to wash your hands! Make sure to scrub with warm water and soap for the length of time it takes for you to sing happy birthday to yourself, twice. This is the best way to prevent those nasty bugs from getting into your body in the first place.

Good luck for the coming winter, I hope these tips will help prevent or reduce your colds!

It's Not All Bad

MATT MCLEAN
3B MECHANICAL

Alright, that was a pretty tough hell week. After an experience like that, I have to ask myself 'Why am I here? Why am I in Waterloo Engineering?'

I reached out to some fourth year friends for some moral support about this issue. Their responses were generally negative (Jaded fourth years, what?). But I am a strong believer in the power of positivity and I want to share some of the positivity I found with anyone who may be having the same thoughts as me.

We all know that co-op is the best feature of Waterloo Engineering, so I'm going to skip over it and talk about the positive things that school terms brings to us.

Waterloo may or may not be one of the top schools in Canada, but incoming students think that they will get top quality education by coming to Waterloo. This perception brings the best people to Waterloo. A lot of fourth years I talked to mentioned that the people at Waterloo are some of the best they've ever met.

Waterloo's recruiting works and some of the most innovative, smart, and passionate students attend Waterloo Engineering. Henry Chan (4A Chemical) echoes this, "Waterloo engineers are in my perspective very clever individuals. These same engineers that you acquaint over the years would become the foundation of your professional network."

Waterloo Engineering supports these great people with the Student Design Centre and Velocity. Nabeel Syed (4A Mechanical) says that, "I can speak from experience that Waterloo has a strong commitment in [student teams]...They value them, and not just ones that bring trophy's, things like Aquaponics." The investment in student teams is further evidenced by things like Waterloo being only one of 15 Universities in the world competing in the EcoCAR2 competition. The school recognizes that there are indeed extraordinary students entering Waterloo, and they support them in their endeavours.

The school is not only investing in students beyond the classroom, they are investing in classrooms. In the past 4

years since the current fourth years were in first year, there have been two new engineering buildings and the Quantum Nano Centre. The school is evolving as we speak. Everyone only sees a snapshot of parts of the school, so it is hard to see changes. Changes are there, curriculum is developing, and the content and the

delivery methods are improving.

Waterloo Engineering can get you down, especially after midterms. But if you recognize good things when they come, it will bring happiness to your 5-7 years here, and allow you to get through it.

"C&D is cheap. And that makes me happy" Mike Benoit - 4A Mechanical



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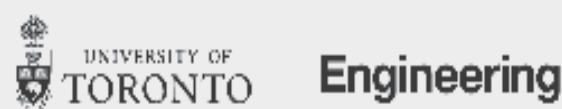
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5 Things to do in Kitchener



Kitchener! That mysterious place to the south that the iXpress disappears to when I forget to get off at King Street. I kid, Kitchener is in the middle of a revitalization as a cultural and community hub, with countless places you need to discover. Here are 5 favourites to get you started!

Kitchener Market (kitchenermarket.ca)

Similar to the famous St.Jacob's Market just north of Waterloo, the lesser-known Kitchener Market lacks some of the farming 'feel' of its counterpart, but has its own advantages. Kitchener market is just south of Charles Street terminal on King street; you can take the iXpress and a little walk or the 7 right to the market. The Kitchener Market is also predominantly indoors which makes it nice in the winter, tends to be less busy than the one in St.Jacobs, and it's open Mon-Sat.

Pyrus Cafe

If you're in the area of Charles Street Terminal, it's worthwhile stopping by Cafe Pyrus. They serve up some great vegetarian and vegan food on top a great

selection of Coffee and Teas. If you're heading in/out via the terminal, it's the perfect place to grab a drink or a bite to eat if you have a bit more time to kill!

Kwartzlab (kwartzlab.ca)

Kwartzlab is KW's flagship makerspace, located a short walk from the iXpress Ottawa Street stop. If you've ever wanted to use a laser cutter, 3D printer, or do anything else that's ever seemed cool to you, this is your place. Kwartzlab aims to build a community around sharing knowledge and creating...what more could you ask for? Check out their open house Tuesday nights from 7-10pm.

KW Symphony (kwsymphony.ca)

The KW Symphony plays out of a few different locations, but their main two are Centre in the Square and the Conrad Centre, both in Kitchener. The Symphony sells student tickets at a fraction of the normal cost, and perform a great range of shows.

Grand River Rocks (grandriverrocks.com)

Barring the Outers Club's bouldering wall in the PAC, Grand River Rocks is undoubtedly the best climbing in the KW area. The massive indoor space has top-rope routes along the walls, and a massive bouldering feature in the middle. There are routes for all levels of experience, and GRR offers lessons if you're looking to top-rope and don't know how to belay!

LinkedIn in a Nutshell



**ELIZABETH
SALSBERG**
2A NANOTECHNOLOGY

THE NETWORKING ENGINEER

LinkedIn. It's another one of those social media sites that seems to have become standard, along with Facebook and Twitter among others. Since its inception, LinkedIn has been marketed as a networking tool for literally everyone, allegedly connecting employers to job searchers with nothing but the click of a mouse. Well dear readers, I think we can all agree that this would be practically impossible. That being said, there is no question that LinkedIn certainly has its uses, as are outlined below.

When you first head over to the LinkedIn

site, you create a personal profile, which is more or less like your resume. You can also add interests, causes or issues you care about and of course a profile photo. It is also important to add your skills to your profile (they go in a separate section) so that employers can quickly scroll down and have a look at specific technical skills you may have that match what they are looking for. A definite advantage to this profile is that you can present your work experience, education, goals, etc. in considerably more detail than on a traditional two to three page resume. Keep in mind that conciseness is key for every section and experience you choose to discuss.

Now that you have your LinkedIn profile, how will you use it? Start off by adding professional people from all aspects of your life as connections. I put special emphasis on the word 'professional' because employers

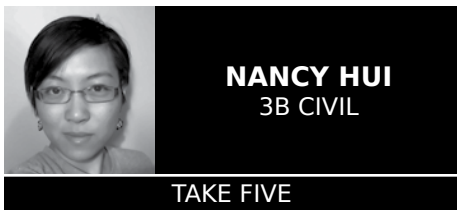
will be able to see who your connections are if they are looking at your profile, so be careful! Next, Make sure you add any contacts you make after an informational interview or any other new people you meet. This is a good way to keep track of your network contacts without spending a lot of time.

However, just because you have added someone on LinkedIn does not mean that you are actually still acquainted in real life. Like all social media sites, this is the major downfall as it does not give you a real relationship with your LinkedIn connection – why, they probably have over 500 connections if they have been working for a long time, so you may be nothing but a statistic. The take home message here: Follow up by phone or by e-mail: It sets you apart from those other 499 connections!

Now that we've addressed that pressing

issue, we can move on to some of the hidden gems buried within LinkedIn. Remember the skills section I mentioned earlier? Your connections can endorse you for skills you have on your profile or even those that you may not. Multiple endorsements for particular skills will help draw employers and recruitment personnel to your profile. Another handy feature is being able to 'follow' companies that you may be interested in. This way, you can get the latest news on their business and products as well as potential job openings. Groups are also useful for this: Many of them are based on school or general interest activities, but there may be good contacts to be made, particularly if you can bond over similar interests. Well there you have it. LinkedIn certainly has its ups and downs, but it is still a good networking tool that is easy to make use of.

The Fans



NANCY HUI
3B CIVIL

TAKE FIVE

Lady Gaga is arguably the North American celebrity who is most aware of her fans, dubbed "Little Monsters". And why not? When fans number in the millions, they're bound to make ripples, if not waves, in culture.

Furthermore, when you have millions of fans, a few of them are bound to stand out. Celebrity fans will write creepy-but-addictive real-person fanfiction. Television ones may petition for a sequel, un-cancelling a season, or film their own entirely. Occasionally they'll go completely mad and dedicate their life to destroying their former idols.

Here are five movies about fans.

Galaxy Quest (1999)

Eighteen years after a science fiction show is cancelled, the jaded cast is approached at a convention by a delegation of actual aliens with no concept of fiction to save their civilization from a genocidal warlord. The cast is forced to assume their onboard roles once more, but this time on a real live working version of the NSEA Protector.

Galaxy Quest is a loving parody of the original Star Trek franchise, down to the egotistic, oft-topfree captain (Tim Allen), token logical alien (Alan Rickman), and sole female bridge member (Sigourney Weaver). As such,

it is much better to watch it with at least a fleeting familiarity with TOS's hamminess, poor special effects, and television "logic" for drama's sake. Of course I didn't know that the first time I saw it on TV, though ten-year-old me still found Galaxy Quest moderately amusing.

Almost Famous (2000)

In 1973, William Miller (Patric Fugit) is a 15-year old rock journalist. A twist of fate with lead guitarist Russell (Billy Crudup) sends William on a Rolling Stone assignment to document the up-and-coming band Stillwater on tour. This is a coming-of-age story with groupies, drugs, and rigorous fact-checking.

Sad things occasionally happen in Almost Famous but optimism and a gentle touch on serious subjects prevent it from becoming an extremely depressing movie along the lines of Requiem for a Dream. The characters are infused with hope and treated with respect. William came from a loving family, and it shows when he consults adults and makes logical decisions under pressure. Penny Lane (Kate Hudson) might be a teenage groupie, but she insists she follows the band for philosophical reasons - even when sold to a different band for \$50 and a case of beer.

Son of Rambow (2007)

In the 1980s, two sprouts from the opposite sides of the tracks (Bill Milner and Will Poulter) work to recreate the enchantment of Rambo: First Blood, but its production strains their budding friendship.



Disney, Inc.

Still waiting for that sequel.

The charm of this movie comes from watching the two young director-writers-actors perform Sylvester Stallone's stunts in a sleepy bucolic playground. But unlike Almost Famous or Super 8, their actions appear to have few consequences: a school is set on fire, a dog is stolen, and a jeep has an accident with a pile of scrap metal. Despite an in-universe deadline for the boys to submit their film to a contest, there is little urgency to the film. It's like watching a gifted fifth grader construct a

science fair project: I couldn't care more than occasionally coo at the precociousness.

The Incredibles (2004)

The golden age of superheroes have passed, and Mr. Incredible is living a mundane life as an insurance agent, with his wife and three superpowered children. Craving the excitement of his heyday, he falls for a deranged ex-fan's plot to re-install himself as a hero.

This film proved that Pixar didn't have to anthropomorphize toys or animals to tell a human story. Sure, I enjoyed Finding Nemo and Toy Story, but The Incredibles packs exuberance like a comic book. I can't think of another superhero movie that is so tightly wound or hyperphysically coloured. And I never liked talking cars anyway.

Super 8 (2011)

In 1979 Lilian, Ohio, Charles (Riley Griffiths) and Joe (Joel Courtney) are filming a low-budget zombie movie using a Super 8 camera for an international film competition. They do a scene in a train depot to add "production value", but the shoot is interrupted by a massive train accident, beginning a chain of strange events in the town.

Super 8 captures adolescent behaviour beautifully, even as the increasingly prominent science fiction subplot eclipses Charles' zombie film. You may ask, why a science fiction conspiracy and not a zombie one? Well, to have a zombie uprising destroy Charles' zombie flick would be overly ironic to the point of black comedy. Furthermore, Super 8 was produced by Steven Spielberg and directed by JJ Abrams. As such, Super 8 boasts a blockbuster backbone with deft nostalgic touches strongly reminiscent of E.T. I adore this movie.

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Getting Up to Speed on the World Series



**ELIZABETH
SALSBERG**
2A NANOTECHNOLOGY

THE BENCHWARMER REPORT

Baseball fans, it's that time of year again: The World Series! This year's edition of the Fall Classic features two of the best teams in baseball history, the St. Louis Cardinals and the Boston Red Sox. The best-of-seven series is currently tied at one game apiece heading over to St. Louis for the next 3 scheduled games. So far it's been a whirl of a Series with some serious ace pitching and clutch hitting—expect it to only get better as we approach game 7.

Here's a quick recap on the series so far: In game 1, the Sox totally blew out the Cardinals 8-1. However, the Cards came back in game 2, eking out a 4-2 come-from-behind victory thanks to the phenomenal pitching of hard throwing, re-surg-ing sensation Carlos Martinez.

Taking over in the seventh inning, with the Cards leading 4-2, Martinez had an efficient 10-pitch inning, striking out one and getting the other two on groundouts. In eighth inning, however, things got a little messy. To start off, Red Sox centerfielder Jacoby Ellsbury reached base on error by Cards second baseman Matt Carpenter. Martinez kept his cool though, striking out the next two batters, including Dustin Pedroia. Only then David Ortiz (aka 'Big Poppy') came up. Ortiz was on a roll having homered back in the sixth and in game 1, so pitching him carefully was key. Though Ortiz did not homer this time, he did get a single, to bring up the go-ahead run in

first baseman Mike Napoli. Four fastballs later, Napoli popped out and the inning and effectively the game was over, tying up the Series.

Scheduled starters for game 3 are Jake Peavy (ERA 4.04) for the Red Sox and Joe Kelly (ERA 2.69) for the Cards. This should be a great matchup, moving into a somewhat more hitter-friendly ballpark than Fenway Park. This one could be a pitcher's duel if both starters are on their game—keep in mind that the Sox have not played a single game in the new Busch stadium, so Kelly may have an advantage if he can keep the big bats quiet for the first couple of innings.

Expect the Sox to come out hungry in this one, with a slight lineup change given the fact that there is no designated hitter in the NL. To keep Ortiz's fiery hot bat in the lineup, Sox skipper John Farrell will likely bench underperforming regular first baseman Mike Napoli and play Ortiz over at first. Though it has not been confirmed that Ortiz will start each of the next three games, it would certainly be logical, particularly if the Sox want to head home with the Series lead.

As far as predictions go, this one could really go either way. The Red Sox were not even supposed to make playoffs this season, much less the World Series. Yet their strategy of seeing multiple pitchers per at bat and quality pitching from their starters has boosted them up and over many good teams. As for the Cards, they've gone 5-1 at home throughout the post-season, riding some excellent starts from all of their starting pitching as well as their relievers. They will need to swing the bats a bit more to get past Sox power pitchers Lester, Lackey, Peavy and Buchholz but if they can



Major League Baseball

The World Series Trophy

manage that, they could just as easily win the series. This should be an exciting series, so try to watch the next couple of games!

Well, Enjoy the rest of the Fall Classic friends! It's going to be a great one.

The verdict: Sox in 7.

Oarfish Found Dead



NINA FENG
2B ENVIRONMENTAL

LEAFY THOUGHTS

On October 13, an 18-foot, 200-pound oarfish was found dead in the shallow waters of Toyon Bay at Catalina Island in California. Just days later, another one measuring 14 ft washed up on a beach in San Diego County. As a rarely seen species, this was certainly an unusual occurrence. Although oarfish occasionally beach themselves, especially after a storm, the sudden appearance of two in such a short span of time could be an indicator of other environmental conditions.

Oarfish are long, eel-like creatures with a dorsal fin spanning their entire length, long pelvic fins, and small to nearly absent pectoral, anal, and caudal fins. They are the longest bony fish on Earth. It's very likely that early sightings of these creatures were the source of the many old folk tales of sea serpents. They're scale-less and silvery in colour, often giving off and pink or blue sheen. They may have markings in the form of dark streaks and dots. This is the fish that Miltotic, "the most beautiful of all Pokémon," is thought to be based on. However, oarfish spawn do not look like Feebas. They are small, nearly-transparent 'larvae' that feed on zooplankton and live near the ocean's surface. One of the washed-up oarfish was pregnant with hundreds of thousands of eggs in its 1.8-metre-long ovaries.

Unlike most fish, and unlike one would intuitively imagine, oarfish swim in a vertical orientation. Their heads face upwards and they are propelled from side-to-side with undulating movements in their dorsal fins. This allows them to see the silhouettes of their prey from below.



deepseanews.com

Oarfish are giant eel-like fish that swim in a unique vertical orientation

Oarfish diets include zooplankton, shrimp, and even other small fish, jellyfish and squid. They lack teeth and instead tend to filter tiny organisms in through their gills. Often frequenting depths of 1,000 m, adult oarfish tend to surface only when spawning, sick, or dying.

Scientists are still unsure about the cause of death for the oarfish. However, given that

their style of swimming isn't particularly powerful or efficient, it is speculated that they were accidentally beached when unable to fight the current and waves. It is also thought that the appearance of dead oarfish signify an imminent earthquake, although there is little scientific proof for that belief. Many dead oarfish were said to have been found in the time between the Chilean

earthquake of 2010 and the particularly disastrous one that hit Japan in 2011. They happened to have been found close to the epicentre of the latter quake, and thus were thought to have been indicators of disaster. Despite the lack of scientific evidence, perhaps studies should be conducted to test the myth, as deep sea fish do respond more to seismic activity than other fish would.

Tips for Safe Cycling



KEVIN LIANG
4A CHEMICAL

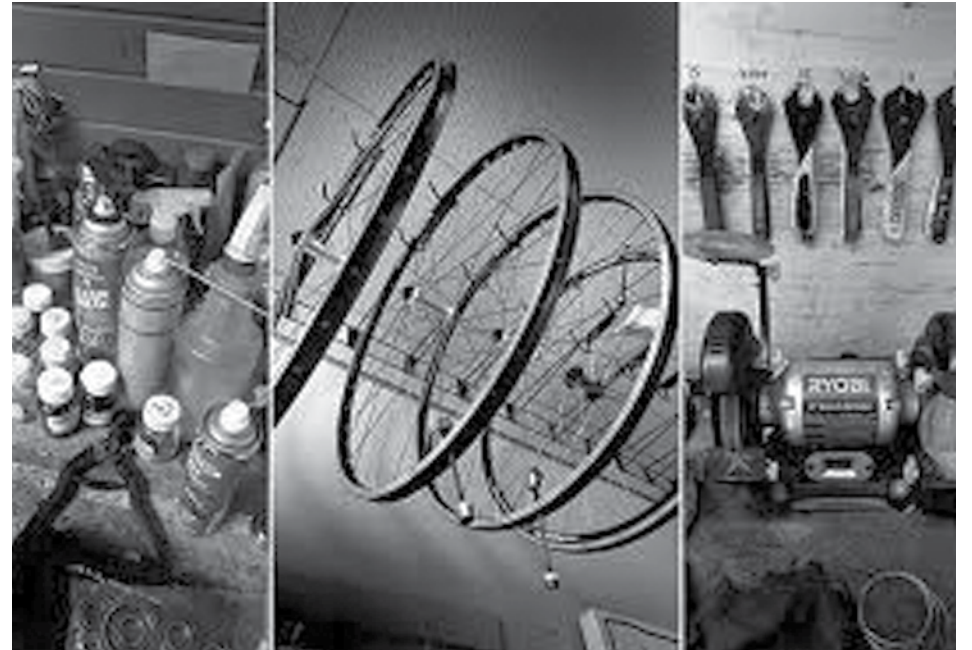
THE BIKE LANE

It's a task often avoided by people who ride bikes. It stems from the "if it ain't broke, don't fix it" mentality; if the wheels spin, it's good to go. This is not always the best mindset, especially for anything mechanical. Preventative maintenance is required to prevent catastrophic failure later on, which could cost severe downtime and money. This edition of The Bike Lane will talk about simple things anyone can perform to prolong the life of their bicycle, improve pedal efficiency, and if required, repairing critical parts.

The first thing someone riding a bike should regularly check is the tire pressure. It seems obvious but I've seen people riding on two flat tires and when I mentioned it to them, they were shocked. Properly inflated tires will greatly improve pedal efficiency and road traction, which will lead to a more enjoyable commute. There is a world of difference between riding on flat and inflated tires. The desired tire pressure will vary depending on the tire, but luckily this value is written on the sidewall of every tire. Sometimes it's only written on one side so make sure to check both sides. If you've never looked at the sidewall of a bike tire, there will be a lot of confusing numbers. Typically, the tire size will be labeled first. This will usually be in the form 26 x 2.10 which means that the tire is 26 inches in diameter and 2.10

inches in width. Many other tire sizes are out there like 29 inches in diameter for mountain bikes and 700c for road bikes. The important information will often, but not always, be located after the tire size. The tire pressure typically be in units of psi, but sometimes it's in bar or kPa. Once the proper tire pressure is known, the next step is to determine the valve type. There are two valve types on bicycles: Schrader and Presta. The Schrader valve is the same valve found on car tires. Schrader valve equipped tires can be inflated for free at gas stations. Presta valves are found on higher end bikes and they can hold more pressure than Schrader valves. They will require a bike pump. Most modern bike pumps do come equipped with valve heads that are both Schrader and Presta compatible.

The most important safety feature on a bicycle is its brakes. Properly working breaks should be able to lock up both wheels when they are squeezed hard enough. If wheel lock up is not possible, then your brakes might need an adjustment or your brake shoes might need to be replaced. There are many different types of bike brakes but all function the same way. A mechanism is used to move the brake shoe inward towards the rim of the wheel or towards a disc mounted near the hub. When breaks are in the open position they should be adjusted as close to the rim or disc as possible without actually touching the surface when the wheels are spinning. Since there are so many different types of bicycle brakes I will not be going through how to properly adjust each one. One resource I recommend is sheldonbrown.com. This site has extensive tutorials on proper maintenance on every type of braking system.



Fixing a bike may seem intimidating, but such a skill is a valuable life lesson.

Rick McGinnis

The drivetrain is another component of the bicycle that should be looked after regularly. The drivetrain typically consists of the chain, the front chainrings, the rear cassette, and their respective derailleurs. Keeping the chain clean and well lubricated is very important to a long lasting and efficient drivetrain. Derailleurs are what most modern bikes use to shift gears. Weird noises coming from the gears or chain is an indication from your bike that it needs attention. This can sometimes be caused by a misaligned derailleur which is set between sprockets. The chain jumps between two sprockets and causes jagged pedaling. There are barrel adjusters near the shifters or near the derailleur that can be turned to make

these minute adjustments. When a bicycle is operating properly the pedals should turn smoothly and quietly throughout the pedal stroke. If you have these problems with your bike take it to the Bike Center in the dark corner of the SLC basement and someone can show you how to repair the issue as well as use any tools that might be required. They are open Tuesdays through Thursdays from 11:30AM to 7:00 PM.

Bicycles are not complicated machines. With a little practice anyone can repair their bike by themselves. Performing routine maintenance, such as lubing the chain, can greatly improve the life of your bicycle and increase the enjoyment of riding every day.

Fukushima Daiichi Nuclear Power Plant



MEAGAN CARDNO
24 NANOTECHNOLOGY

WORLD IN A NUTSHELL

Mention "Japan" and "Nuclear Reactor" together in the same sentence and your memory should be brought back to the eastern coast of the country back in 2011, to the Fukushima Daiichi Nuclear Disaster, following the 2011 Tōhoku Earthquake and subsequent tsunamis. However, nearly three years after the initial incident, the clean up process is still nowhere near completion, and when I talk with some of my friends and classmates, it seems that many people are not aware of the continual struggle that the Tokyo Electric Power Company (TEPCO) -- owner of the power plant and thus responsible for all clean-up efforts -- has been having with storage of irradiated water.

The 2011 nuclear crisis was triggered after major equipment failures, particularly the major and backup power generators. The secondary emergency pumps managed to survive the initial earthquake and tsunami damage, but unfortunately did not have the lifetime to sustain the paramount cooling of the nuclear reactor. With no way to cool the incredibly hot nuclear rods, meltdown was inevitable. Hydrogen formed by the oxidation of the zirconium alloy fuel rods with water vapor in the reactor core ignited in the three active reactors, causing massive hydrogen-air explosions.

Ranking a Level 7 on the International Nuclear Event Scale (INES) -- the only event in history to achieve this rank apart from the Chernobyl Nuclear Disaster -- Fukushima had a 20-km evacuation radius established around the plant, forcing 160 000 people from their homes. Even today, only a select few regions have had the evacuation mandate lifted, and workers can spend only strictly governed periods of time in the area. If

you search 'Ōkuma, Fukushima Prefecture, Japan' on Google Maps and take a look at the street view of the region nearest to the plant, you can see abandoned houses, buildings destroyed by the earthquake and Tsunami, and even spot a few HAZMAT-donned workers in the area.

All fifty of Japan's reactors were shut down following the disaster, partially due to safety concerns of the other facilities and partially due to rampant public opinion against nuclear energy after the meltdown. Last year, two units were put back online, but desires to make Japan nuclear-free still ran high. These crippling shutdowns have forced Japan to import expensive fuel from elsewhere in order to satisfy its fuel needs. After last December's election of Prime Minister Shinzo Abe, a strong advocate for Nuclear Energy, Japan has once again put plans to re-start reactors in other plants around the country, with updated safety protocol and emergency procedures.

The clean-up of the area around Fukushima and complete decommission of the plant will be a very lengthy and delicate ordeal. While original estimates quoted a completion time of at least forty years, thus far the process has been far from perfect. In December of 2011, contaminated water leakages were reported due to cracks in the foundations of the treatment system. In March of this year, the plant had a scare when the cooling systems failed for twenty-nine consecutive hours; TEPCO reported that power failure occurred from a rat gnawing through switchboard wiring. From April to August, TEPCO had a near-continuous stream of incidents to report, mainly concerning leaks of several hundred tons of radioactive water from storage tanks. This water has been confirmed to be leaking into the groundwater supply, eventually reaching the neighbouring Pacific Ocean.

At the end of August, Japan's Nuclear Regulator official raised the severity of the Fukushima plant's INES rating to a Level 3, classifying it as a 'serious incident'.

In September the company stated that the



Tim Worstall

In 2011, an earthquake hit Japan that caused one of the worst nuclear accidents in history.

radiation emitted by the leaking water was eighteen times more severe than originally thought-- the original value of 100 mSv (millisieverts, used to expressive the effective dosage of radiation) per hour was documented due to the equipment being unable to take readings past the 100 mSv range. A better suited device recorded the radiation closer to 1800 mSv per hour-- an incredible difference, when considering the workers who were subjected to such radiation while at work on the clean-up.

Just recently, on the third of October, another tale of radioactive water leaking from a storage tank was released to the public-- this time, the error was attributed to excess rain-water following a storm pressuring the workers to push the tanks past their normal capacity, thus leading to the subsequent overflow. The international criticism that has arisen towards TEPCO and its clean-up conduct is no secret.

Fortunately, the Japanese government has decided to lend a hand to the company's struggling efforts. Nearly half a billion US dollars has been allocated for the implemen-

tation of a frozen wall around the plant to prevent further leaks of nuclear water from entering the water table or the ocean. Shafts drilled approximately 27 m underground surrounding the damaged reactors will be filled with circulating liquid coolant, freezing the adjacent soil to prevent any flow of water underground. Construction has already begun on the project, as well as an offshore steel wall to keep any existing contaminants from spreading further into the Pacific. The projected completion date is March of 2015.

The pressure is mounting for Japan to clean up its clean-up act; last month, it won the Olympic bid to host the 2020 Summer Games in Tokyo, and with all the time and money that will be invested into its preparations, the government won't have much in free resources to deal with any further complications from the plant, nor does it want nuclear waste on the public's mind while the events are taking place.

Undoubtedly more news concerning the plant's status will be released in the future-- we will just have to wait to see if it's going to be good or bad.

CHVRCHES - The Bones of What You Believe



ALEX TOTH
3B CHEMICAL

ALBUM OF THE WEEK

I decided to break from the pattern that's been dictated from the first two album reviews and cover an album that has zero ties to hip-hop. CHVRCHES are a trio hailing from Glasgow, Scotland who specialize in pretty, off-kilter synth pop. In a lot of ways, they sound like a stripped-down, female-fronted Passion Pit (or does that mean they just sound like Passion Pit?). Two of the members, the ones that aren't the lead singer, have been in somewhat notable bands previously. The guitarist was a member of the Scottish band Aereogramme, who I know almost nothing about. The other was a member of post-punk band the Twilight Sad, who I'm really only familiar with because of the grandness of their most famous song ("Cold Days from the Birdhouse"). None of this really matters, however, since CHVRCHES sounds almost nothing like either of those bands.

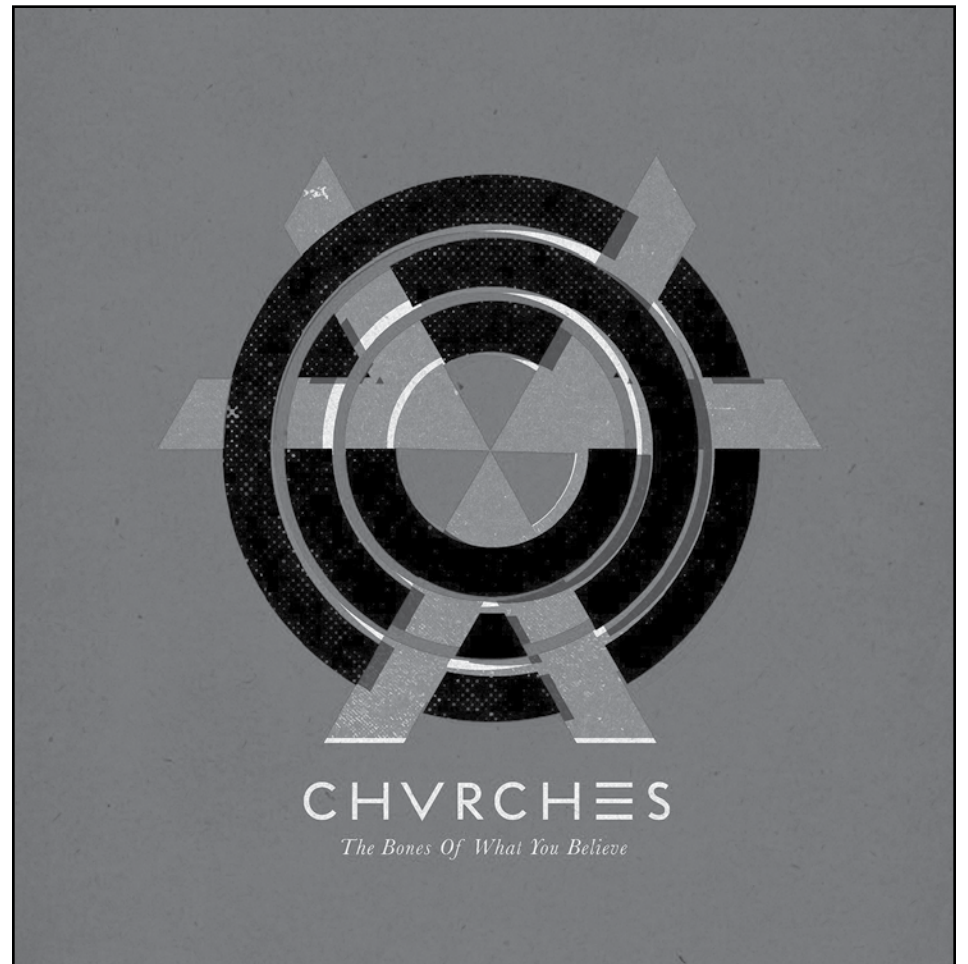
Lauren Mayberry, the lead singer of CHVRCHES, is a huge part of what separates CHVRCHES from the innumerable other synth poppy bands vying for attention. Her voice is clear, forward in the mix, and just so appealing in a way I can't put my finger on. The other two band members are trying their best to make her the focal point and build compositions around her, and this tactic works wonderfully in the context of the album.

For an indie-rock purist, this type of music can be difficult to decipher; it's surgically clean, hugely melodic and incredibly earnest. But CHVRCHES find a way to turn these elements into their largest strengths. Take "The Mother We Share," the band's first single and the leadoff song on the album. Although its title is a clear reference to the Knife ("We Share Our Mother's Health"), whom they share a few clear ties with (namely a love of synth melodies), there is none of the rickety, queasy nightmare music that the Knife per-

fectured with their 2006 album *Silent Shout*. Instead, after a chopped vocal starts the song, Mayberry glides beautifully through the first verse into the chorus. And oh what a chorus it is. Mayberry declines to force the song into the rafters with her vocals, instead opting to allow the swelling synths backing her up to carry the song into arena-rock territory. It's possible that it's the most instantly likeable part of the album, which is saying something when every song has its own earworm ready melody.

Four or five of the songs on the album, "The Mother We Share" included, could easily be radio singles. Take "Gun," the third song on the album, and probably my personal favourite. Once again, it has an arena ready chorus; with chiming synths urging Mayberry along as she insists "there is no place for promises here." Or take "Recover" with its candy-coated arpeggios, artificial handclaps and Mayberry's breathy cadence suggesting Purity Ring if Purity Ring sang about broken relationships instead of zombies and surgery. This isn't to say that CHVRCHES don't deal with serious or slightly uncomfortable topics, however. Just looking at song titles from the album show some of the themes: "Gun," "Tether," "Under the Tide," and "By the Throat" all project some sort of eerie imagery. Mostly these are metaphors for the crumbling relationships and emotions that Mayberry sings about. She is able to be alternately threatening and vulnerable at will, sometimes within the same song.

As I mentioned before, CHVRCHES shares very little with the two previous bands of the members. CHVRCHES songs will be played in movie trailers, in commercials. I have this image of all Scottish bands being comprised of a lot of people in black with many swirling guitars, trying their best to recreate the gloomy weather through music. And this rings true in many cases. However, there are nearly no guitars on *The Bones of What You Believe*, let alone guitar feedback. CHVRCHES deal with sadness, sure, but they do it through imagery and lyrics rather than musical textures. In a way though, this makes sense, because as with everything, Scotland's sad and stormy indie rock scene



CHVRCHES

CHVRCHES is a band formed in 2011 with something special to set them apart from the rest of the Synthpop crowd.

needed to evolve and CHVRCHES seem to be poised to survive the natural selection. They've stormed through the gate in a stun-

ning fashion with *The Bones of What You Believe* and hopefully they can continue in the future.

Can Galaxies Travel Faster than the Speed of Light?



IOANA CRAICIU
4A NANOTECHNOLOGY

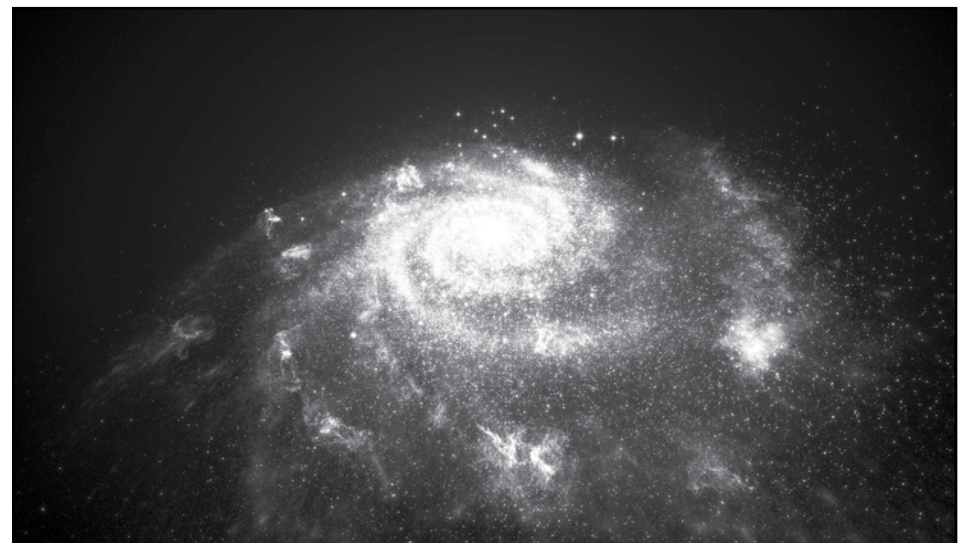
MANDATORY SMALL TALK

An international team of researchers have recently used the Hubble telescope, which has been chilling in orbit and allowing us to make innumerable discoveries about the universe for over 23 years, to discover a galaxy (z8_GND_5296) that is about 30 billion light years away from us. We define 30 billion light years to be the distance that light would travel in vacuum in the span of thirty billion years. So, we can logically conclude that the galaxy is at least 30 billion years old, since it had to have existed at the time it sent the photons that traveled across the universe for 30 billion years before reaching the Hubble telescope. But we also know from cosmic microwave background measurements that the universe is 13.798 ± 0.037 billion years old. How can it be that a galaxy sent light our way 30 billion years ago, but that galaxy (and the rest of the universe) didn't come into existence until 13.8 billion years ago?

There are a few reasons behind this apparent contradiction. First of all, our universe is constantly expanding. When we measure the "age" of the universe, we are measuring the time since the big bang. The big bang is when all of the stuff in the universe was all

in one spot, after which it started expanding. It expanded very, very fast, then slowed down considerably, but is still expanding today. The typical metaphor given to aid in the imagination of the universe expanding in all directions is a raisin bread that is rising. The dough is the space (i.e. the nothingness) between galaxies, and the raisins are the galaxies. Each raisin gets farther away from every other raisin as the dough expands. This isn't just happening between galaxies, though. It's happening to all space, everywhere, all the time. It's as if the boxes making up the grid of space are just getting bigger.

What does this expansion mean in regards to our contradiction. The scientists who computed the distance of the galaxy to be 30 billion light years took this expansion into account, knowing that the galaxy would have been closer to us when it sent its light our way, whenever that was, at some point in time in the past. So the measurement of 30 billion light years is not in error due to expansion. But now the question becomes: if the universe has been expanding for only 13.8 billion years, how did the galaxy get to be 30 billion light years away from us. A simple calculation shows that its speed, if constant, would have had to be $30/13.8=2.17$ times the speed of light. Perhaps you heard that Einstein's theory of special relativity tells us that nothing made up of energy (or matter) can move faster than the speed of light. This theory was proposed in 1905, and to this day has not been disproven experimentally (al-



Wikipedia

Is it galaxy or space itself that can move faster than the speed of light?

though there was a close call with neutrinos last year). But our calculation implies that the galaxy must have been moving away from us faster on average than the speed of light, which means either we've just proved Einstein's theory wrong, or our calculation was wrong, or that we're missing some subtlety.

It happens to be the latter. Einstein's theory tells us that energy (or matter) cannot travel from point A in space to point B in space faster than the speed of light. But this does not imply that two objects, our galaxy and z8_GND_5296, cannot become separated from each other with a speed greater than the speed of light. This is because space itself

(which is really nothingness) is expanding, and Einstein's theory says nothing about the speed limit of the expansion of space.

So there you have it. The expansion of the universe is such that some galaxies are today 30 billion light years from each other. This is so far that light could not travel such a distance even if it had the entire age of the universe to do so. But, luckily for us, in the early universe, when all galaxies were closer together, they were all sending light all in all directions, and only today we're catching some of this light using the Hubble. The light from z8_GND_5296 was sent our way around 13.1 billion years ago.

How to Talk to: uWaterloo Geese



CHING O'MALLEY
3A BIOMEDICAL

HOW TO TALK TO

Are you ever harassed by these soulless, beaked monsters? Do you find them more delicious than tolerable? If you do, this article will help you and your attempt to talk to the University of Waterloo Geese. The following advice will help you in your weird obsession with the geese on campus but nowhere else, that is stupid, why would anyone talk about geese outside of Waterloo?

When you approach the geese to talk to them, they will not be scared of you, most likely, they will approach you to talk about

Geesus and how fulfilling life is under his wing. The most you will be able to do when you are in that situation is nod politely and say you believe in something else. I personally believe the best way of steering the conversation away from this topic would be ask about how their day shitting everywhere was and is biting first years as fulfilling as it seems?

Point the second, if you approach geese and they find you too callous and abrasive to continue the conversation, just try to debate with them your views on the female geese reproductive rights. Talk about how you believe a female geese's eggs are her own and she has the right to do whatever wants with the eggs. The pro-quackers amongst them will be very offended and that they are against Plants Ops spraying geese eggs to help control the population. The pro-

quackers believe that the number of baby geese a female geese should be the number of eggs that get fertilized. Please remember that the geese population in the University of Waterloo will become higher than the student population by the year 2020. (Not a real statistics, just sensationalism.) Tell the geese that their population is too high and is starting to kill off the student population.

Argument C: the geese have less brain power than we do, so using common English phrases may confuse them. A way to communicate with them would be to honk, flap your arms around and walk around being in the way. The geese may not understand this but everyone else will find you hilarious or insane. The geese are not scared of humans but humans are scared of them. Humans should assert their alpha-ism and show the geese who is boss.

I recommend wearing animal ears and a tail and chasing the geese around whilst quoting your favourite anime. In your own private times, you can yiff to the weird animes. The geese cannot think as hard as us humans, ok, maybe most humans, some geese are really smart, but most geese are really stupid and will not know when and where to pick a fight. If you are attacked by geese, you cannot fight back, it is considered animal cruelty but if some human attacks you randomly, it is called self-defense.

A short disclaimer for the readers of this poorly written article, I have no beef against the geese but they are really annoying.

In finality, geese suck, do not talk to them, they are huge bitches and are really close minded about not being dicks. Be racist against geese, they suck.

Top Wayz to be a Gentleman



WADE WILSON & EDWARD BLAKE
4Z HANDSOMENESS

In today's day and age, we here at Topz (With a Z) are sick and tired of bros with their "yoloswag". We are calling for a revolutionary shift from our pre-existing paradigm which is quite narrow and only serves a few people, namely the people who beat us up in high school. So forget about swag, we're bringing classy back. We don't want to be bros, we want to be kind sirs. We don't want to wear snapbacks and do-rags, we want to wear fedoras and flat caps. And we're enlisting you, dear reader, to join our army. Ladies, we're afraid this week's article is only for our brethren, but you can do your parts too: dump that hunky, confident, and charming "dude" for the spineless, kowtowing, hanger-on that you've so nefariously cast into the plutonian friend-zone. Young whippersnappers, consider this your training manual for the top wayz to be a gentleman.

Grow a Luxurious Mane of Facial Hair

What is the difference between a boy and a man? Puberty. And what better way to demonstrate your pubescence (pube.) to the hot young señoritas than to grow out your pube. hair on your face? Yes, nothing tells the world exactly what kind of a man you are more than a pube. beard. The two of us at Topz used last Movember as a great way to start growing our moustaches and today are proud to say we are up to fourteen hairs on our upper lips ... collectively. One thing you may notice on your journey to a euphoric face forest is that hair doesn't grow as fast on your cheeks as it does on your other cheeks. A helpful tip is that you can just grow out your beard under crimson chins. Yes, a neck pube. beard is a great way to look just like Chuck Norris and make it a double-win by hiding your double-chin! Yes all m'ladies will want to lick this icing on your muffin-top of a neck.

Use Anachronistic Language

Fact: how you speak will impact how people perceive you. Fact number two: people from generations-gone-by were objectively classier than modern twittering troglodytes. Therefore, we propose elucidating the proletariat to your refinement through the use of classy vernacular. As a general rule of thumb, if you aren't using your online thesaurus at least once per hour, then you are doing

Priority Seating

must be vacated for persons with disabilities

10-11
AODA Compliance Regulation 191-11

Government of Ontario

Chivalry isn't dead, m'lady.

it erroneously, old sport! If you keep up with your class, you will thereby be fraught with an immeasurable passel of win. We tip our hats to you, good sirs. And m'ladies, save that ass for a man with class.

Be a Chivalrous White Knight

The internet and real-world are full of trolls and bros. And it is your duty as a gentleman to protect women from their confidence. A true friend protects women from guys who try to flirt with them without pining for and Facebook stalking them for years (what assholes!); a true friend offers his seat on a crowded bus to anyone with ovaries (insisting repeatedly, since women's legs are weaker than men's); a true friend likes every single photo of women on Facebook. This is why we don't call it the friend-zone, we call it the gentleman-zone. Chivalry, like anachronistic language, is a way to go back to time when gentlemen roamed the earth, and protected women from things like having to pull out their chair, pay for their own food, defend themselves from insult, vote, think, and reject your romantic advances. If they are not interested in you or your fedora, then they're just skanks and deserve the bro that they end up with!

Advocate Men's Rights

As a gentleman, you must look out for

your fellow gentlemen. Not many people are aware of this, but straight, white men are the single most persecuted group in this country! Oh sure, the feminazis would like for you to think that issues facing women such as acquaintance-rape, slut-shaming, and antiquated notions of an inability to perform in STEM fields are more critical, serious, and systemic than issues facing men. But have they considered men being excluded from ladies' nights, expectations to foot bills at restaurants, or men never being told they're beautiful? The mere fact that they are suggesting that women are more persecuted than men makes them sexist bitches! If they really cared about equality, they would say that men and women are equally persecuted! For the record, we aren't suggesting that you try to address boring issues facing men like unreported sexual assault, higher rates of suicide, and drug abuse. No, a real gentleman mostly whines about ladies' nights and has imaginary debates with strawman feminists who hate all men.

Clothes Make the Man

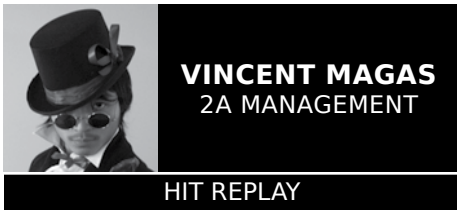
Lastly, comes the uniform. A gentleman understands that clothes make the man. So good sirs, get out your credit cards because it's time to go SHOOPPPPINNNGGGG!!!! Be sure to stock up on the following items of clothing in multiple shades of black (at least fifty):

fedoras, flat caps, trench-coats, canes, non-prescription glasses, boots, vests, blazers, scarves, pocket-watches, and fingerless gloves. Now these are a good starting point, but if you want to be Topz-level classy, you need to draw upon even more out of date clothing styles. A corset is nifty way to both look as classy as Curry and to hold back your disgustingly fat gut. Monocles are like magnifying glasses, but for grown-ups, making you as classy as Cumberbatch. Just be sure to always put it away at the end of one conversation so you can majestically pull it out during your next and keenly look at the person you're talking to until they acknowledge the monocle. Replace all your zippers with buttons. Zippers are the shame of Canada, as they are basically bro-ish grills for your hoodies and jackets. Keep in mind that if you're on a budget you always pair any one of these items with your witty graphic tee and cargo shorts to class it up a little (but seriously, don't forget your fedora).

All these tips are great ways to be a gentleman, but we cannot stress enough the importance of going past skin-deep. Most importantly, a gentleman must be gentle man. To accomplish this, it is critical that you moisturize your skin every day with creams and soaps that offer sub-dermal exfoliation. We at Topz (With a Z) only use fair-trade organic lavender soap. Viva! Viva la revolución!

Polaroid Cameras

A Snapshot of Yesterday



Smile! Perhaps here you have an award winning smile instantly in the palm of your hands ready for the world to see, or wait maybe it's the most horrendous picture of you ever to see daylight and it's instantly manifested itself in the physical world! Once upon a time there was an object of strange wonder, before the age of DSLRs, Digital Cameras, Cellphones and Instagram. An object that could snap a photo and instantly as if by magic (but really a pinch of optics, a dash of chemistry and some creative compact engineering)! That's right, photo enthusiasts, hipsters and impatient people rejoice! On this issue of Hit Replay, we will look at the marvel that is the Polaroid Camera which has made a comeback to popularity and society!

To many people, a camera is a neat little device on your phone that lets you take pictures, and since the decline in

popularity of Polaroid Cameras few even know that they are still in use by people in many places. Simply put, a Polaroid Camera which is also known as an instant camera is a type of camera that can take a picture and print and develop it on the spot.

The first appearance of an instant camera called the Polaroid Model 95 appeared in the late 1940s, credited to one Edwin Land. The camera featured of the main module, and an accordion-like darkroom component. People essentially wielded in their hands a camera with a built in darkroom for development! Despite of the camera's fairly high price at the time, the Polaroid camera hit the wave of consumerism and caught on. In the 1960s the Polaroid lineup expanded with more models and more were produced. It became a gigantic success starting a large trend especially with teenagers. The Polaroid Model 20 Swinger of 1965 was the first popular market aimed camera that was inexpensive. This camera was extremely popular throughout the mid-60s to the early 70s.

At the time, the process of taking a

picture and developing it took time. It was only natural that Polaroid cameras with their instant picture printing gained popularity. The idea of being able to see how the picture turned out on the spot allowed users to retake the photo if they didn't like it. The instant cameras were also hugely popular with professional photographers for previews to check for lighting and balance before taking the final shot. It was common to see ID services, passports and the like use instant cameras for quick and easy processing of the documents. Even in police investigations and interviews, instant cameras were used to take crime scene photos or mug shots. Instant cameras provided a quick and easy way to see photos without the long wait time.

It was at the dawn of the digital era when Polaroid cameras went into a decline in popularity. As better technology appears, it is natural to see people gravitate towards the new. In the case of Polaroid cameras, most of the advantages that it provided were easily replaced by the digital camera, and digital imaging. The killing blow to Polaroid Cameras in the battle versus

digital was that Polaroid cameras cost more due to the special film that it uses, while digital cameras used no film at all. In 2008 the manufacturer of instant cameras, Polaroid itself, announced a discontinuation of the production of the film after a major drop in sales during the decade.

In 2009 however, Polaroid once again announced that it will continue producing its famous instant cameras. And in recent years the popularity of Polaroid cameras have increased in comparison to the early 2000s. Kickstarter campaigns seeking to bring back old photography techniques have also surfaced within the last few years, and corporations such as Fujifilm have given their attempt new modern instant cameras. Polaroid cameras are slowly making their way back to popularity in an extremely digital world. Some argue that instant cameras have an authenticity and uniqueness that digital cameras don't quite capture. Perhaps it is the same magic that captured the hearts of many long ago, the ability to have a physical photo in your hands moments after you take the shot. Smile!

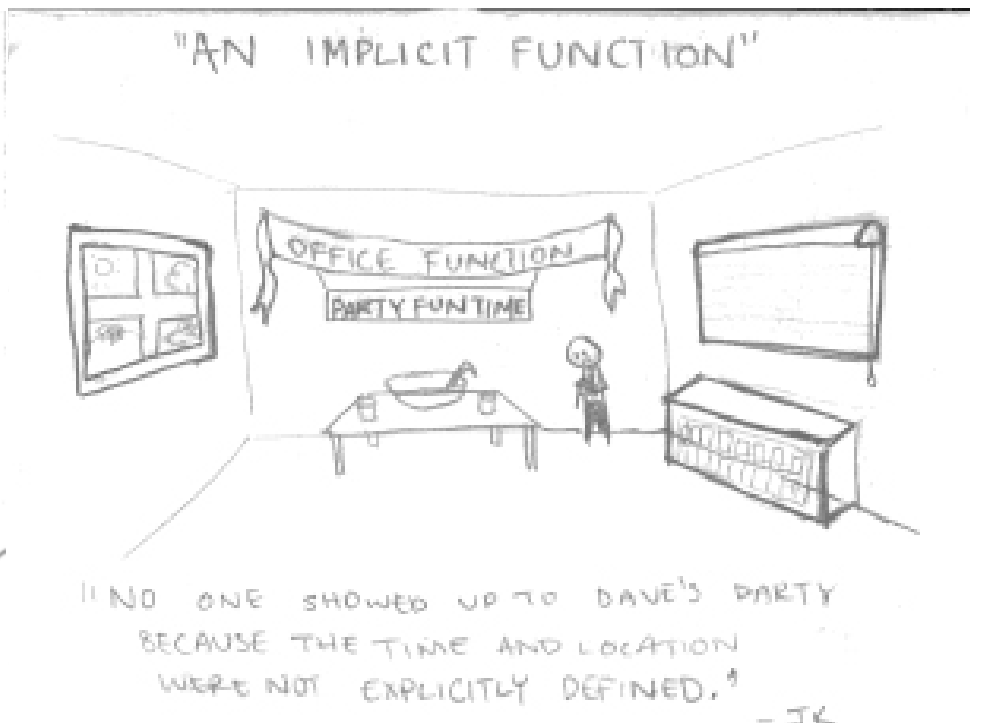


Polaroid Corp.

After nearly facing extinction in 2008, Polaroid cameras have recently been making a comeback.

Comics

JESSICA KEUNG
2A CIVIL



The Iron Crossword

Sadness

NANCY HUI
3B CIVIL

1	2	3	4		5	6	7	8		9	10	11	12	13
14					15					16				
17					18					19				
20				21					22					
			23				24				25	26	27	
	28	29				30				31				
	32					33				34				
35						36				37				
38						39				40				
41					42				43					
44				45					46					
		47	48					49			50	51	52	53
54	55					56				57				
58						59				60				
61						62				63				

Down

1. Wail noisily
2. Reverberate
3. Cabbage "salad"
4. Heartburn medication
5. Home of the Cowboys
6. Up in the air
7. A unit of dust
8. Negative life outlook
9. Like bread, or like Jesus?
10. Initial bet
11. Until death
12. Geological timespan
13. Pig house
21. A. A. Milne's sad donkey
22. Guitar notation
26. Melding card game
27. Shield of Athena
28. The most introverted of the four temperaments
29. Foster as one's own
30. North African country
31. Sugary
32. Thief archetype
33. Despondency
34. "Honey, I ___ the kids!"
35. Vehicles
42. Online anonymity software
43. Remove sediment from wine
45. "The Divine Comedy" author
46. Ticks
48. Second smallest great lake
49. Not all
50. A giraffe kiss?
51. Paradise
52. Left, right, front, or back
53. Stroganoff
54. Initials of Harry Potter's middle son
55. Accountant designation

Across

1. Number one
5. A little wet
9. Hourly charges
14. American advocacy group (abbrv.)
15. Plant with soothing leaves
16. Not chemically reactive
17. "___, bam, thank you ma'am!"
18. Property parcels
19. Wander
20. Opposite of overconfidence
23. Gourmandize
24. Somerhalder or McKellan
25. Anger
28. Fifth months
30. Mario and Luigi (abbrv.)
31. Like a bug in a rug
32. Iterate again
33. Drunk driving (abbrv.)
34. Yogi
35. Hue
36. Norton and Elric
37. Rohirian fortress: ___ Deep
38. Love of humankind
39. Fruit preserve
40. Depend with full trust
41. Smallest of litter
42. X
43. Obligation
44. $1/\cos\theta$
45. "What's up, ___?"
46. Adult males
47. Limerence or cardiovascular disease?
54. Oak seed
56. Modicum
57. Revise
58. Cleave into two
59. Portention
60. Surrender territory
61. Recipient of a cheque
62. The original eggholder
63. Was aware of

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

Sudoku

#2013-12

ALEXANDER LEE
2A NANOTECHNOLOGY

Easy

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

Medium

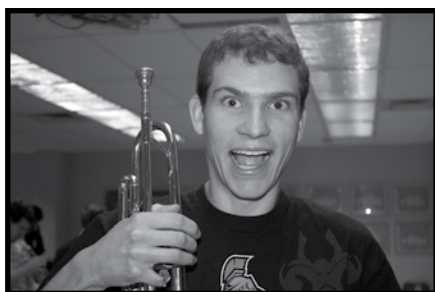
	9	5			4		2	
3								4
			6	3	7	1	5	9
						7	5	
		1		7		2		
2	8							
4	6	3	2	1	9			
5								9
	8		7			4	6	

Hard-ish

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

THE IRON INQUISITION
Alex Lee, 2A Nanotechnology

"What are you doing on Halloween weekend?"



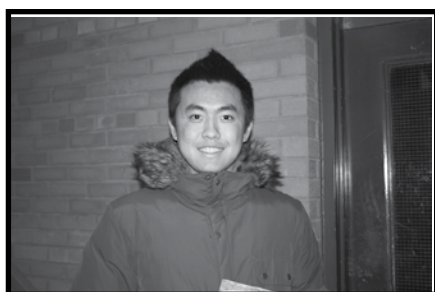
"Cry alone at home.."
Ross Arnold, 4A Chemical



"Make use of that pentagram in my room!"
Stuart Linley, 4A Nanotechnology



"Dress up as a tornade, and go drink."
Michael Yuen, 4A Environment



"Write an exam."
Alex Wu, 2A Computers and Financial Management



"Dress up and go trick or treating."
Matthew Yao, 1A Mechanical



"Study."
Akshaya Venkakesh, 1A