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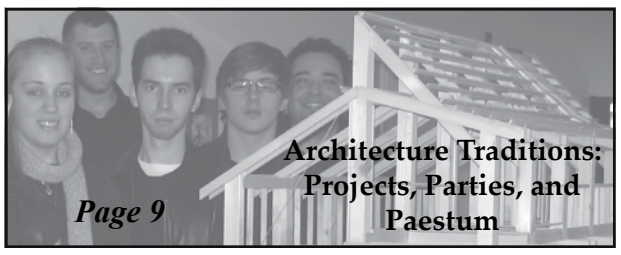
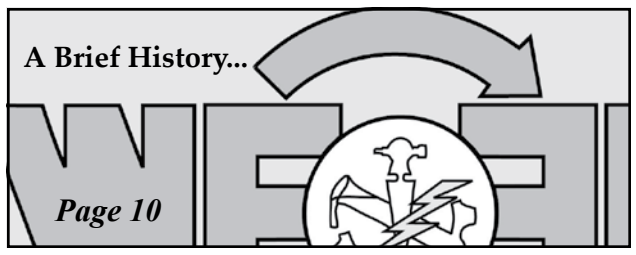
THE IRON WARRIOR

THE NEWSPAPER OF THE UNIVERSITY OF WATERLOO ENGINEERING SOCIETY | VOLUME 28 ISSUE 10 | WEDNESDAY, JULY 25, 2007





http://iwarrior.uwaterloo.ca

98 Students to Start Management Engineering in September

JACLYN SHARPE
3A MECHANICAL

This September, 98 students will make history as the first class to study Management Engineering at the University of Waterloo, graduating in 2012. Management Engineering will be a regular 8-stream co-op program, so the inaugural class will be beginning 1B when current students return to campus in the Winter 2008 term. It will be offered as the 13th program within the Faculty of Engineering, and the 11th to offer a Bachelor of Applied Science degree, with Architecture and Software Engineering being the exceptions.

Planning for the Management Engineering program began in 2004, with approval coming from Senate in June 2006. The program will be unique in Canada and is expected to fill a need for engineers who can manage multi-disciplinary teams effectively. It will fall under the Department of Management Sciences, which previously did not offer any undergraduate programs.

Management Engineering is designed to offer students a strong knowledge of how businesses operate and are managed, while having a solid grounding in engineering analytical and problem-solving skills. Feedback from industry so far has been very positive, and a high demand for graduates is anticipated. Graduates are expected to be in demand wherever institutions want to improve effectiveness and efficiency based on engineering analysis and scientific management. Innumerable fields should be interested in this. Students are not expected to have trouble finding co-op jobs, as they will have grounding in a variety of fields, and planning and management skills that will be useful in a variety of situations.

Like Mechatronics Engineering, the Management Engineering program will be taking an option and expanding it into a full program. The Management Sciences (MSCI) option has been around for over 25 years, and is currently the most popular option for students in the Faculty of Engineering – about 20% of all Engineering students graduate with the MSCI option. Though many gradates find the option extremely valuable it is limited to only six courses. Expanding the option to a full undergraduate program will allow for much more depth and breadth of subject matter to be covered.

Having a full program will allow the number of courses offered by the Management Sciences Department to grow significantly. This will benefit students

See CURRICULUM on Page 11

Meet Your New Executive

Newly Elected Engineering Society "A" Executive (clockwise from top left): Brandon DeHart, Tyler Gale, Dave Halford, Adam Melnik, Jeffrey Lipnicky, and Lee Anne Belcourt. ***Story, Page 3.***

ECE Students Travel to Hawai'i for ASEE Conference to Present Research

BILL BISHOP
ECE LECTURER

Representing the University of Waterloo's Microsoft Online Learning Initiatives (MOLI) Project, Jason Shirtliff (4A Computer) and Adam Neale (4A Electrical) recently travelled to Hawai'i to present a conference paper at the 114th Annual American Society of Engineering Education (ASEE) Conference and Exposition. Their conference paper described a graphical simulation tool that was developed to help students learn electromagnetic theory in ECE 471. The simulation tool was based on a project developed while Jason and Adam were employed by the university under the supervision of Bill Bishop. The conference paper, entitled "Online Computer Simulation Tools for Dipole Antenna Radiation Patterns," was co-authored by Jason, Adam, Bill, and ECE Lab Instructor Cutberto Santillan Rios.

The Microsoft Online Learning Initiatives Project is a $1 million, five-year research and development project funded by Microsoft Canada. One major goal of the project is the development of online teaching tools and technologies for the purpose of enhancing laboratory studies in Electrical and Computer Engineering at the University of Waterloo. The project is currently led by Bishop. Since September 2003, a total of 23 co-op students have been hired to work on the project. A total of fifteen courses offered by Electrical and Computer Engineering have been enhanced, in some way, by the project. In some cases, the enhancements have been small (e.g., the production of a short tutorial or a website), and in other cases, the enhancements have been large (e.g., the redevelopment of the laboratory studies in ECE 223, ECE 324, and ECE 471). Further details on the MOLI Project can be found online at www.moli.uwaterloo.ca.

This year's ASEE Conference and Exposition was held at the Hawai'i Convention Center, perhaps best known for its cameo appearances in the popular television show, Lost. Throughout the five-day conference, Jason and Adam participated in the technical sessions, spoke with other conference attendees, and made valuable contacts with educators from across North America. They also delivered an interesting and informative 20-minute presentation on the final day of the conference on their conference paper about the graphical simulation tool.

Adam Neale and Jason Shirtliff flew to Hawai'i to present a paper at the American Society of Engineering Education Conference and Exposition.

Of course, Jason and Adam also took time out to enjoy a few of the many wonders of Hawai'i including the famous Waikiki Beach, the Dole Pineapple Plantation, and the North Shore which is home to some of the best surfing in the world. Upon their return, they expressed that one week is simply not enough time. They hope to return to the islands again someday soon to enjoy some of the Mai-Tais they left behind.

What It Takes to Produce a Quality Newspaper

BAHMAN HADJI
EDITOR-IN-CHIEF

It is currently 11:30 pm on Sunday night, three days before the publication date that appears at the top right of this page. I am sitting in the IW office working on my very last issue as Editor-in-Chief of *The Iron Warrior*. Four of my friends, with whom I've been classmates since 1A almost four years ago, are across the hall in the Orifice working on a paintball-shooting semi-autonomous tank, their fourth-year design project. Luckily, my group finished our project (a car horn musical player) on Friday, meaning I could spend the whole weekend on the newspaper. Angus, probably taking a break from trying to find a voltage regulator that can handle the amount of current the motors on their tank require, walked in here a little earlier and asked me, in his blunt way, "So, you're gonna be up all night, right? Why would you ever do this? You couldn't *pay* me enough to do what you're doing."

It suddenly dawned on me: I'm spending almost literally an entire weekend working on this newspaper – for the fifth time in the past ten weeks. Why *am* I doing this? The obvious answer which I gave him was that, with the amount of time I've invested in the paper this term, another ten hours doesn't make an iota of difference – and besides, I took on this voluntary commitment at the end of the Fall term knowing roughly how much time it would take out of my schedule. But I still did it. Why?

I'm not sure what the exact answer to that question is, but the best answer I can come up with is that I get a sense of satisfaction from producing something that people like, and it's important to me to have a quality newspaper representing Waterloo Engineering to our students, students in other faculties, university staff and faculty members, and people at other schools. I think Jaclyn, my Assistant and Layout Editor this term, and the EIC last Fall, explained it best. The editor of *The Iron Warrior* is always the only student qualified to do it who is willing to sacrifice a significant amount of time because they care enough about the paper to produce a decently-sized, professional newspaper. And someone always steps up. To my knowledge, no editor has ever had to go through the pain of doing it for more than one term, even though the onus is on them to find their successor, essentially meaning that if no one wants to do it, either you let the paper die – literally (no publication) or in spirit (it turns into something unrecognizable because someone incompetent is put in charge) – or do it yourself again.

So, why does it take such a huge time commitment? Given that most people aren't familiar with the process, I thought I'd shed some light on what it takes to put together a typical issue based on my experience this term.

Since we print on a biweekly basis on Wednesdays (except the extra one-week break during midterms), there are two weeks to produce each issue. Planning begins about two weeks in advance of publication. At our weekly staff meetings, we discuss ideas for articles and assign stories. I take notes at each meeting and send out the minutes to the staff afterward, letting everyone know what is expected to be written. I also announce at Engineering Society meetings and over the mailing list when the deadlines are and ask for submissions. On an on-going basis, we also try to contact companies and acquire ads, but selling the newspaper, drawing in new advertisers, and making sure old ones follow through is a full-time job in and of itself – the only constant sources of advertising revenue we have are the Sandford Fleming Foundation and, since last term, the Engineering Society.

The deadline for submissions is the Friday of the week before the paper is published (the importance of this deadline and why we stress it so much will become apparent shortly). The paper has to be delivered to our printer in Stratford electronically via their FTP server by 3 pm on Monday, so nearly all of the production is done on the weekend. The process begins on Friday night, when Jaclyn and I come into the office, usually after dinnertime. This is when the planning for what the issue will look like is done. I add the submissions we've gotten to our online content management system, which allows Harout, my Copy Editor, to access them and assign them between himself and our team of proofreaders.

While that's going on, we plan the layout, mostly using Jaclyn's handy Excel spreadsheet which can give us a ballpark idea of how to arrange the stories and ads we have and are expecting on the 12, 16, or 20 pages for the issue. There are certain pages that are easy to estimate, such as the back cover and the page with the Exec reports, but aside from that, we group stories based on their type (news near the front, opinion near the middle, with features dispersed throughout, and arts content near the back) and work out a plan for which stories go on each page. The editor is supposed to read every word that gets published (there are around 30,000 for a typical 16-page issue), so while the planning is going on, I also begin to read stories that have been proofread and mark them "ready for publication," signalling that they can be safely imported into the layout (we use Adobe InDesign). We usually go home at a decent time on Friday night, not too late past midnight.

After a night of rest, we meet back in the office around 8 or 9 am. Jaclyn begins getting into the heavy portion of the layout, arranging stories and seeing how good her spreadsheet was at predicting how things would stack up. By this time, we've decided what (if anything) needs to be cut for layout, and I finish reading everything that has been submitted by Saturday afternoon. If there are still short news articles that still haven't been submitted, or if there is an event on the weekend we'd like to cover, I put my second Assistant Editor, Dave, in charge of covering and writing the story. I usually begin doing the research for my editorial on Saturday night (granted, I didn't need to do any research for this one), and write most of it on Sunday morning and afternoon, ideally finishing it by nighttime.

But layout is always what takes up the most amount of time. "It's like a jigsaw puzzle, except you can change the shape of the pieces," Jaclyn says. "And you make up the pictures as you go along." Put simply, layout involves drawing a series of boxes on a page, importing text and pictures into them, and moving the boxes around until everything looks "right". This is qualitative to say the least, but the way a paper is laid out is arguably just as important as the content it contains. It's hard to say how long each page takes on average, but overall, the paper takes at least a good portion of both Saturday and Sunday to lay out. If everything goes according to plan, I finish my editorial just as Jaclyn finishes the rest of the layout, and she inserts it into page 2, indicating the end of our work for the night.

That just leaves printing the issue off on paper so that we can look it over for seemingly obvious mistakes in the morning after a good night of rest. After working on something for nearly 40 hours over three days, you miss things like "Sedra" being spelled "Serda" on a computer screen quite easily until reading it over on paper, allowing you to fix the mistake before the deadline.

Of course, the above is a pretty ideal schedule, which I think we met twice this term. Sometimes, because of unexpected problems or just because there is more content, it takes staying up on Sunday night to finish the issue. But in the end, we always have something that we are proud of, which took us a lot of effort to put together. So, take some time to read through the copy you have in your hand, because the readers are the only reason publications exist.

So, why do I do this? Because it makes me proud to say that we have the only all-volunteer, student-run, full-length newspaper on campus, and because the tradition has to continue.

Letters to the Editor

Re: Tool Absent from Canada Day Festivities (Ruth-Anne Vanderwater, July 11)

Not Allowing Tool at Public Events Hypocritical

I agree with Ruth-Anne that it if the UW Police don't have a policy against the wearing of masks to public events, the Tool Bearers should not be given special treatment. In the photo of Canada Day 2003, the Tool Bearers are wearing Canadian Flags over their faces as coverings, making them look as menacing as King Warrior. Why should they not be allowed to make an appearance, especially since the public obviously wants to see them and The Tool? The Tool needs to go out and show our UW Engineering pride, and how can it do that when its guardians are prohibited from public events?

Sarah Scharf
1B Electrical

Re: Letter from the Editor (Bahman Hadji, July 11)

Book Would Be Interesting Read

I have always had an interest in local history, be it the history of the Niagara Peninsula or of southern Ontario in general, as I lived for a number of years in London, Ontario. The recent fortieth anniversary of Brock University has seen a welcome publication of historical photographs of some of the original buildings of the campus. I have read Martin Friedland's book,*The University of Toronto: A History*, the alma mater of my daughter (class of 0T7) and myself (class of 7T6). The site of my son's undergraduate studies, the University of Waterloo, would be a welcome diversification.

Joe Seliske
Font Hill, ON

Early Pioneers Shaped Our Experience

I take a lot of pride in the University of Waterloo, particularly the "unconventionality" of it. Much of my pride is based on what I understand of the school's history. I strongly believe that the personality we see around campus today, particularly within Engineering (where it really all started) stems from the early origins. James Scott's 1967 book *Of Mud And Dreams*, about the first ten years of UW's history, describes the first group of students as a "mixed bag", with students ranging from the highly academic to those with a great deal of interest in industry work, and I don't feel that this has changed a lot over the years. The contributions of these early pioneers have shaped our experience today.

Amanda Hoff
3N Mechanical

THE IRON WARRIOR

The Newspaper of the University of Waterloo Engineering Society

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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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Engineering Society Executive Election Results

THE IRON WARRIOR
NEWS BUREAU

On July 19, the Engineering Society held elections for the two contested positions on the Engineering Society "A" Executive for 2007-08. Adam Melnik defeated Mark Hazlett with 68% of the vote to win the position of Vice-President Finance, while Dave Halford edged out Samantha Pinto in a close race for Vice-President External by capturing 54% of the vote. The election had about a 10% turnout of eligible voters, with just over 200 ballots being cast.

The remaining Executive positions were acclaimed because only one candidate was nominated. Lee Anne Belcourt, Jeffrey Lipnicky, and Tyler Gale were ratified by the Engineering Society Council at the July 11 meeting for the positions of Vice-President Internal, Vice-President Education, and President, respectively.

There was no election for the position of WEEF Director, as Brandon DeHart, the current WEEF Director, was the only candidate nominated. He was endorsed by the Engineering Society Council on July 11 and ratified by the WEEF Board of Directors at their meeting on July 18.

All Executive members as well as the WEEF Director will be in office for 16 months beginning in September, with their term ending in December of 2008, just after the next election is held.

Guitars, Apples, and a DJ

JACLYN SHARPE
3A MECHANICAL

If you were wandering the halls of CPH on Thursday, July 19th, you may have heard a peculiar sound coming from POETS. You weren't dreaming – that pleasant serenade was coming from your fellow engineers, who were playing at this term's TalEng, the Engineering students' talent show.

The night started out with a beautiful piano piece played by Andrew Cameron. Barend Dronkers followed on acoustic guitar and vocals, and played a mix of original and cover songs. A volunteer from the audience followed on guitar and vocals.

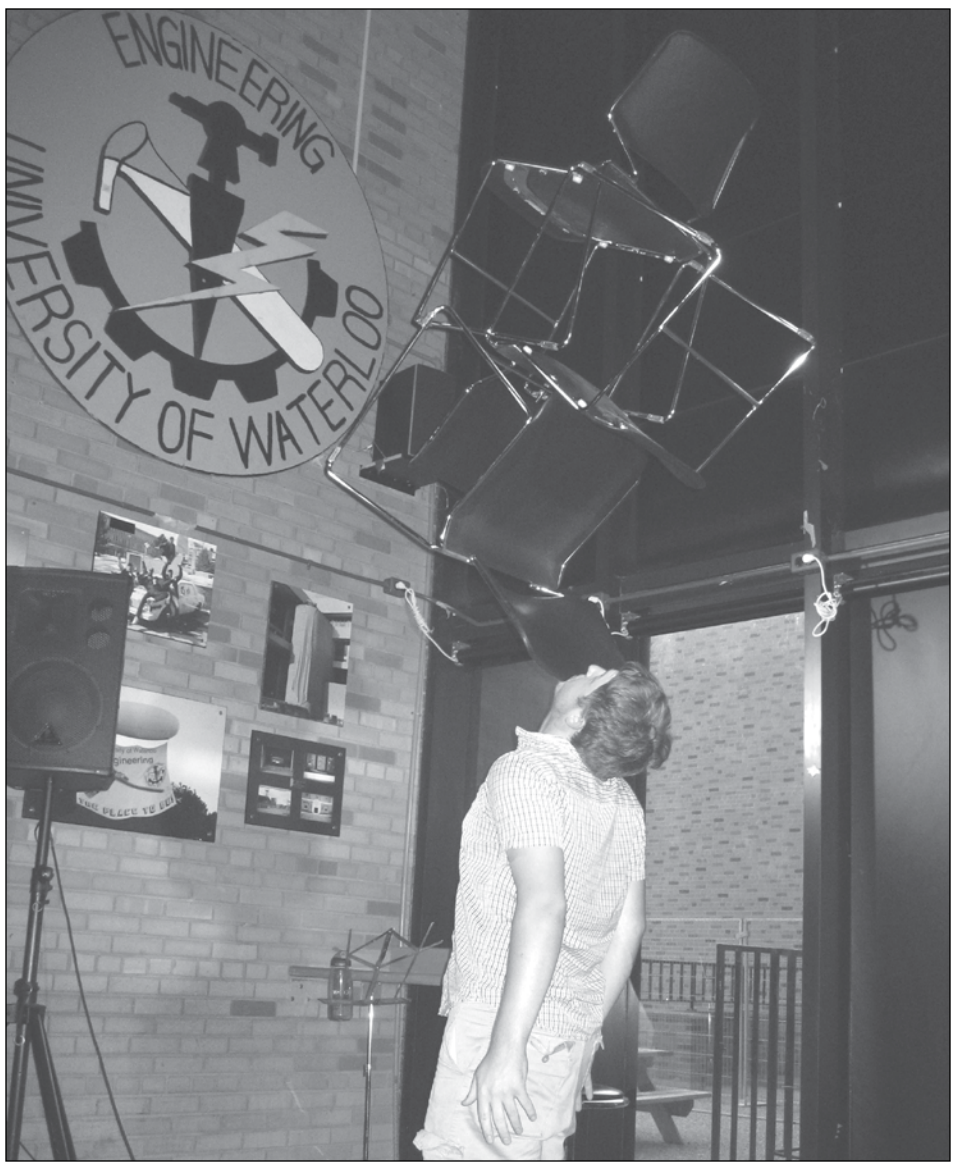
Much to the audience's disappointment, Alex Grant was unable to get chainsaws, or even knives for his juggling routine. Grant made do with some apples from the convenience store. His first request from the audience was to demonstrate Mill's Mess. Impressed by his performance, the audience upped the ante and requested that Grant eat one of the apples while juggling. Grant did not disappoint and had to finish his act with an apple core which threw off his balance. After putting the apples away, Grant fetched three chairs from the CPH Foyer, and to the delight of the audience, proceeded to balance them all on his chin.

DJ Fobulous (also known as Yuvraj Goel) next took the apple shrapnel-littered stage. Goel started with a few Linkin Park covers, and moved onto original material sung to a beat that he recorded.

Greg Fitzgerald followed on acoustic guitar, but was interrupted by the arrival of The Tool. The Tool Bearers were made honorary judges for the rest of the evening.

Adam Schubert was the next to perform. He played guitar and was accompanied by Devin Cass and Greg Fitzgerald on vocals.

The last piece of entertainment was the outgoing Engineering Society "A" Executive welcoming the incoming Executive with a pudding-eating contest. After washing up, the incoming Exec performed an improvised skit.



Alex Grant wowed the crowd with juggling and chair-balancing.

Debt Load Survey Results

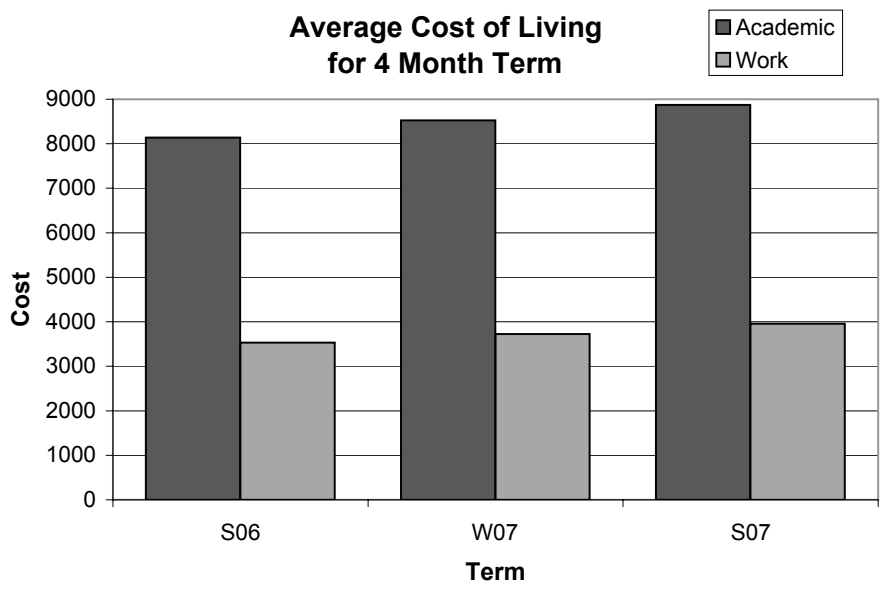
OM PATANGE
2B NANOTECHNOLOGY

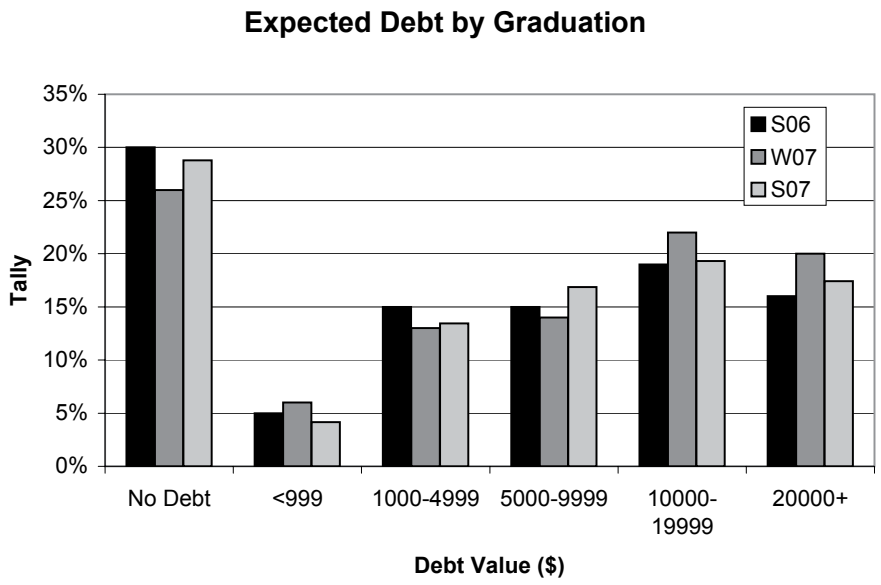
The government of Ontario's freeze on undergraduate tuition rates was in effect for two years starting in the Fall 2004 term. However, with the freeze over, the Fall 2006 term saw a 4% rise in undergrad Engineering tuition at the University of Waterloo, followed by an additional 4% increase in the Spring 2007 term. Fortunately, due to the work of a task force on financial aid that Dean of Engineering Adel Sedra held with the University at large, UW now has established a policy to help financially-strapped students continue their education. "Waterloo now makes a guarantee that students will not be prevented from completing their program because of a lack of finances," Dean Sedra told *The Iron Warrior* earlier this term.

To keep track of students' financial status and how students are handling the tuition hikes, the Dean of Engineering Office and the Engineering Society jointly conduct the Debt Load Survey for undergraduate students every Winter and Spring term (twice a year, once per stream). The results are published in the final issue of *The Iron Warrior* each term the survey is run.

Other than a steady rise in cost of living (which includes tuition), most other statistics have varied little over the past few terms, indicating that no overt, undue hardship is being faced by Waterloo Engineering students.

The complete results for this term's Debt Load Survey can be found on page 14 of this issue of *The Iron Warrior*.





The Tool arrived at TalEng during Greg Fitzgerald's set.

Genius Bowl Teams Bring It

Facts, and Spirit Too

LEE ANNE BELCOURT
2B MECHANICAL

Last Thursday, thirty teams of six people each met in DC to undertake the challenge of the infamous Genius Bowl, a trivia competition held every term by the Engineering Society. Some teams entered the game with the idea that Samuel Jackson and Darth Vader have an endless list of accomplishments; it's just too bad that points were not given for amusing answers.

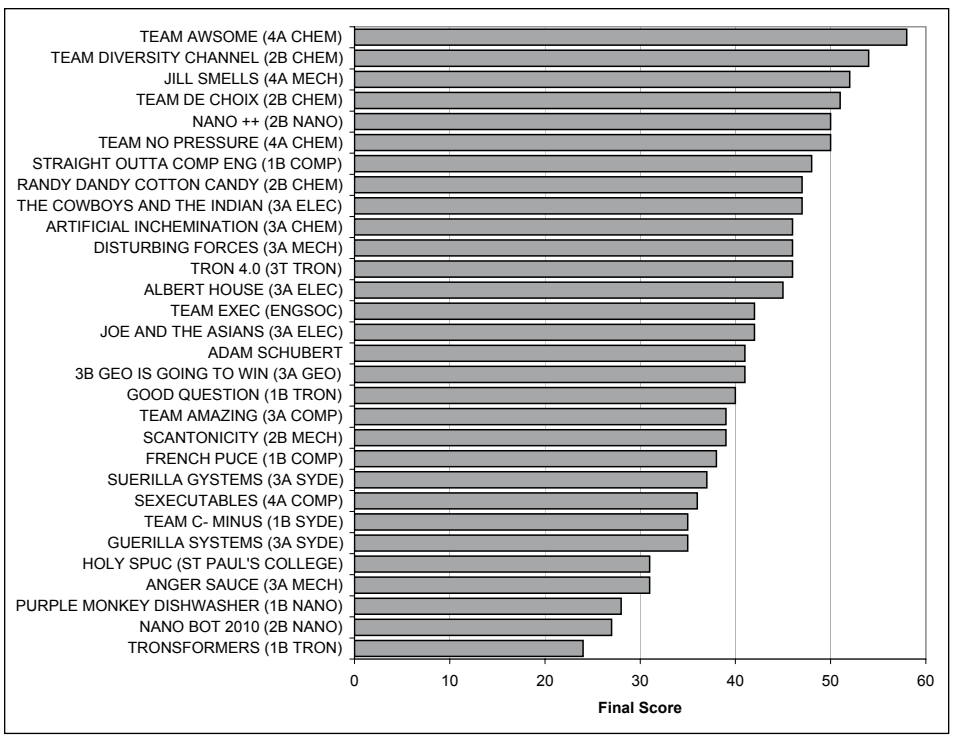
After the five rounds were completed, Team No Pressure (Chem '08) held strong in first place, taking the title and a $150 cash prize. Team Diversity Channel (Chem '10) came in second, and Jill Smells (Mech '08) won a tie breaker against Team de Choix (Chem '10) to claim third place.

The scene was also impressive to look at since many teams showed up in costume to compete for the spirit prize. There was a wide assortment of themes from forest fire and trailer trash to pyjamas and "pot" heads. In the end, "The Cowboys and The Indian" (3A Elec) took home the award for most spirited team. The Tool, the Engineering Society's mascot, also made an appearance to show off its stunning good looks. The Sexecutables (Comp '08) won a special lightning round, giving them the opportunity for a team picture with the Tool.

As mentioned before, the teams had to answer questions of a broad subject base. While the Avro Arrow was the unanimous answer for the Canadian aeronautical advancement that was scrapped by the government in 1959, other questions often had more creative answers. Though the name of the astronaut arrested for attempted murder in February 2007 was Lisa Marie Nowak, some teams seemed to think that "psycho-astro diaper killer lady" and similar variations were equivalent substitutes. There is also an aspect of strategy to the game, such as picking between a few answers. A team that had not quite mastered the skill crossed out 'sword' and chose 'itself' as the most reasonable choice for the object that the Academy Award statuette holds in its hands.

"The Cowboys and The Indian" won for team spirit.

However, regardless of the answers people submitted, it appeared to be an enjoyable time for all participants. On behalf of myself and the other Genius Bowl directors, I would like to congratulate all teams on their efforts and thank everyone for coming out and making it a great event.



ECE Department in Search of New Chair

THE IRON WARRIOR
NEWS BUREAU

The Department of Electrical and Computer Engineering is in search of a new Chair following the announcement earlier this term that Professor Catherine Rosenberg would not be seeking a second term. Rosenberg had served as Chair since 2004, previously having been with Purdue University. She will be leaving her post at the end of August.

Professor Sujeet Chaudhuri will serve as Interim Chair of the Department for an eight-month period from September 1, 2007 until April 30, 2008, during which time a nominating committee will be established to begin the search for a new Chair. Chaudhuri has been with the ECE Department as a faculty member since 1977, having also served as Chair from 1993 to 1997 and Dean of Engineering from 1998 to 2003.

What is WARG and What Do They Do?

Waterloo Aerial Robotics Group

SERGIO SUAREZ
1B MECHANICAL

WARG is an undergraduate student team that competes every year in the International Aerial Robotics Competition (IARC). This 17 year old competition requires flying vehicles to complete a search and rescue mission while being fully computer controlled. WARG has been a leading competitor in this competition since the team was founded in 1997.

The IARC began in 1990 and has been held at various locations throughout North America. The main goal of the competition is to provide an incentive for the advancement of unmanned aerial vehicle (UAV) technology. The types of technologies developed in these competitions are very useful in a wide range of military and civilian applications. In the early years of the competition, teams were required to move a disk across a field or locate a specific object in the grass. The third mission required a vehicle to search a disaster site and report the positions of survivors to rescue workers. This competition was successfully completed in 2000 by the Berlin University of Technology using a small unmanned helicopter with an onboard camera and sensor system. The current mission requires a vehicle to travel a 3km course to a city, locate a marked building, enter the building through a small window and search the interior within 15 minutes. This mission was started in 2001 and will remain the same until a team completes the objectives, making this competition more like a marathon when compared to many of the other student engineering competitions that have 1 year cycles.

Fuselage frame of WARG's newest airplane, the Hyperion.

WARG is noted in the competition for developing most of its technology in house (i.e. autopilot systems, airplanes, camera hardware/software), rather than purchasing the necessary components from a manufacturer, like many other teams in the IARC do. This has allowed us to maximize our level of innovation, but has also proven to be a weakness since this is a very time consuming process. Overall, however, this has proven to be a successful approach, as in 2004 we were able to complete level one of the competition and were the best team overall that year. Currently, WARG has maintained second place overall, trailing only behind Georgia Tech, and has won many other awards, such as best technical paper, best presentation and most innovative approach.

Our present and future is perhaps more challenging than what our past has been. With a new airplane on its way and a very complex strategic approach, the team is facing one of their biggest challenges ever. There is also a big change in the administration of the group, as many of our current members are leaving to follow their own career path. Please read the Orientation Week issue of *The Iron Warrior* in September, where we'll outline the details of our technical strategy, our plans for the future, and how you can help us to achieve our goal.

Heated Arguments Make for an Entertaining SFF Debate Final

BRYAN SACHDEVA
3A COMPUTER

A huge crowd gathered to watch the Sanford Fleming Foundation Debate finals on July 13 at noon in the CPH Foyer. The semi-final round saw Thilan Costa (3A Computer) and Pareet Rahul (3A Electrical) going up against Nicholas Hayduk and myself (3A Computer), to debate the resolution "Be it resolved that laptops be prohibited in the classroom." Nick and I were the government, arguing for the resolution. Ironically, we did this despite the fact that we are both in-class laptop users. After a clever exchange of arguments, the semi-final came to an end, and the judges gave the win to the government.

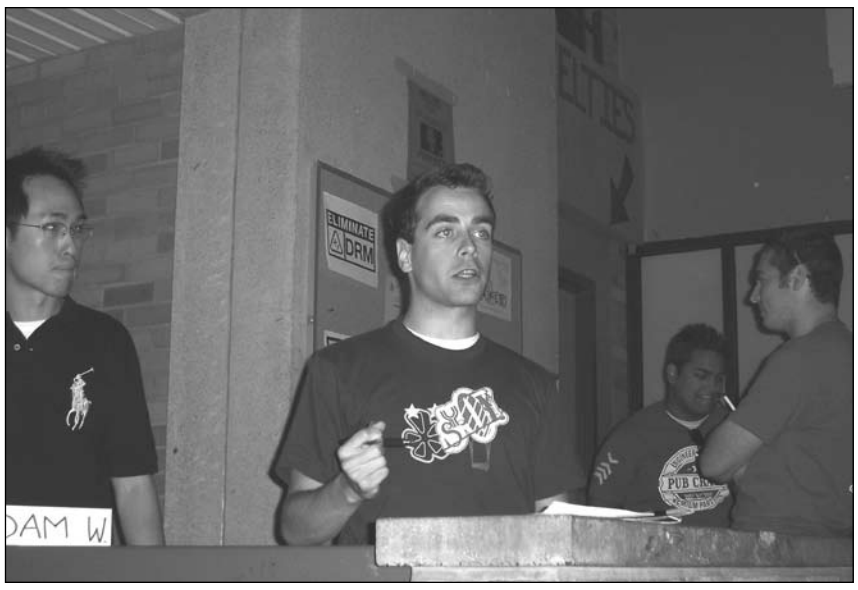
The Sandford Fleming Foundation runs these debates every term. For those who've never participated in them or don't know how parliamentary debating works, let me give you a quick summary. The competitors agree on a topic, chosen by the debate coordinators. They then have five minutes to prepare their arguments. The "government" consists of two individuals: the Prime Minister and the Minister of the Crown. The "opposition" consists of a Leader of the Opposition and a Member of the Opposition. Each has five minutes to speak in the order of PM, LO, MC, MO, after which the LO gives his or her two-minute summary of the debate, and then the PM closes the debate with his or her two-minute summary.

The final round, which took place a mere 10 minutes after the semi-final, was quite the intense round between our team and the team of Adam Wilson and James Goh (4A Computer). Nick and I were the opposition this time, arguing against the resolution "Be it resolved that UW will move to three work terms of eight months". The government outlined the plan of offering both the status quo and this new streaming as options to UW students. Their main arguments, to the best of my recollection, were something along the lines of benefiting students on the job, increased appeal to employers, the fiscal benefits for overseas employers, and reducing administrative costs. Our main refutation was with the fact that they were offering both streaming as an option and how this would increase administrative difficulty for UW, and how the co-op system isn't broken so we shouldn't fix it. We also brought forward the argument that students in the six work term stream still have the possibility of returning to their employer to essentially give them the same result if desired. The intensity and passion in the debate was heightened by a nearly intolerable level of arguably bad heckling from the government, even when they were not allowed to do so (during the closing remarks). Nevertheless, the debate came to an end, and the judges (in a split decision) gave the win to the government.

I've been involved in parliamentary debating since high school and know how it should work, so my main issue was not with the result but how the debate was conducted. In a proper parliamentary debate, the Prime Minister is expected to define the terms of the resolution and clearly outline a policy in favour of the resolution and define a plan to set the policy in place. Time permitting, the Prime Minister can begin the government's constructive arguments defending the need for the policy and showing how the plan will meet those needs. Following this, the Member of the Opposition should either point out flaws in the definition of the terms (possibly redefining them), refuting the basis of need for the policy, or as is more typical, pointing out the fallacies of in the governments plan. In some radical debates, I've even seen the opposition introduce a new plan that would achieve the policy and prove that their plan implements the policy better; this is known as a counter-plan approach.

Next, the Minister of the Crown refutes the refutations of the MO as well as the arguments brought up. Finally, the Leader of the Opposition is expected to deliver the final refutations as well as deliver any opposing arguments that attack the basis of need established by the government. Typically the LO's speech time is extended compared to the others to give two extra minutes at the end to summarize the debate and to justify why the resolution should fail and the government should not win. Finally, the PM gets up again to deliver a final summary of the debate and justify why the government is, in fact, correct.

Aside from the general form of the debate, there were several issues with what the rules outline as points of order during the final. A point of order occurs when a member of the team opposite from the one currently speaking interrupts the debate to inform the speaker of an infraction of the rules. There are some archaic rules still lingering around, like the fact that you are not allowed to speak while holding a pen since it might be construed as a weapon. There are also more important rules, like not being allowed to introduce new arguments during a summary or a violation of protected time (time during which you cannot be heckled). The speaker is then responsible for deciding on the point and ruling in favour or against it. Of the five or six points of order raised by the government (typical number is zero to one), only two were sustained.



The goverment, foregroud, speaks while the opposition confers in the background.

The most noticeable source of "friction" in the debate was the excessive heckling from the government. In debating coaching and training seminars, the rule of thumb is "if the heckle is more than a few words, it probably shouldn't be said". A heckle is meant to be a quick comment during the opposing team's speaking time (barring protected time), where you effectively counter their argument by restating something that someone has said. Obviously, it is not a time for petty insults (not that this ever happened), nor for presenting your own arguments or refutations.

So, aside from this move away from standardized parliamentary debate and the fact that the judging seemed to favour mostly persuasive speaking, the debates were quite a lot of fun. In no way am I upset with the outcome of the debates, nor with the competitors; the rules and judging simply needs to be tightened up. Most of the argumentation was smart and fun to hear. All participants should be commended for finding the courage to actually get in front of a crowd and come up with their speeches on the fly. I'm sure it was quite enjoyable as a spectator.

To conclude this ramble, I strongly encourage anyone who enjoys arguing and thinking about issues to try the SFF debates next term or even join the UW Debating Society. It's important to be able to structure your arguments and, of course, employers (especially for management jobs) love to hear you've been in debating in the past.

Housing Concerns Addressed at Student Life 101

DAVID MORRIS
1B ELECTRICAL

On July 21, Frosh-to-be swarmed the Waterloo campus for Student Life 101, a university-wide event designed to introduce incoming first-years to the different residences, student teams, and societies on campus, as well as what university life will be like overall. Several Engineering student teams such as the Alternate Fuels Team, Midnight Sun Solar Car Team, and Aerial Robotics Group were all presenting their current projects and goals, as well as Engineers Without Borders, which was showing off its treadle pump (a water pump which can be powered by alternately pushing down on pedals).

In order to satisfy the hunger of the masses, a societies barbeque was held, where the profit is divided between the different societies based on the number of volunteers from each. The Engineering Society got about $500 last year due to their having the largest number of volunteers. EngSoc once again seemed to have the most volunteers overall this year, meaning that it should be getting a good portion of the profit.

The Federation of Students, Director of First Year Engineering Ajoy Opal, and Dean of Engineering Adel Sedra all made presentations to students, discussing different challenges that students may face, discussed various clubs that students can get involved in, and introduced UW academically (including the co-op program and the Professional Development for Engineering Students program). There was also a student panel where current students answered various questions from the future members of the class of 2012, and encouraged them to get involved, but "not too involved."

Students building a device to move forward, and then fire an egg.

There was a seminar concerning the creation of triple rooms at Ron Eydt Village, one of the first-year on-campus residences, and the fact that some incoming students don't actually have housing assigned to them yet. The Department of Housing and Residences had been expecting about 5100 first-year students this year, but were amazed to find that a total of 5800 would be flooding in, giving them an extra 650 students to accommodate. In order to do so, housing had to deny rooms to upper-year and grad students as well as to transfer and international students, and create the previously mentioned triple rooms, leaving them with about 150 students without housing. However, because of inevitable cancellations, the Housing Department is extremely confident that all 150 will receive accommodation without taking any drastic measures (such as converting lounge space into rooms).

Finally, a student design competition was held between two first-year classes: the 1B Computer and 1B Chemical classes. The competition itself involved building a device that would move forward as far a possible, and then fire an egg. Points were scored for both distance moved and distance the egg was launched. Although the Chemical class won in distance moved, the Comps won in the egg-launching portion causing the ruling to be a tie. Along with the main competition, there were three "bonus competitions" which involved building a bridge made out of pasta (which the Comps won), a wet-sponge relay race (which the Chems won), and a trivia competition (which the Comps won by a single point). In the end, the judges declared the competition a tie, as, although the Chems had more competition points overall, the Comps had more team spirit earning them extra points.

Overall, it was an extremely busy, yet satisfying day, in which both the future students and the volunteers had a great time being involved.

ENGINEERING SOCIETY EXECUTIVE REPORTS

Presidential Report

RUTH-ANNE VANDERWATER
PRESIDENT

Well, classes certainly are winding down. The labs are busy, as we all are working on completing end of term projects (or in my case, a fourth-year project). That being said, I hope everyone takes some time out of their busy schedules to come out to potluck (the final Council meeting of the term) for the swearing in of the new Engineering Society Executive, some end of term awards and, of course, food. Now before I start saying my thank yous, I do have a few items to attend to.

First, thank you to everyone who came out to Joint Council; with your help we were able to get the quorum we've been looking for. It's because you, the class reps, committed to coming out on a busy Saturday afternoon that EngSoc was able to officially define a relationship with WASA in our Constitution and change the Constitution so that making future amendments doesn't require Joint Council. Both the A-Soc and the B-Soc Executive appreciate the efforts made by all the classes. We are quite impressed.

Secondly, the outgoing EngSoc Executive members are working on updating the Executive Resource Manual and preparing transition documents for the incoming Executive. One issue we've been working hard to fix during our term is this issue of retaining memory through transition. As we have explained before, when we were transitioned into our jobs, there were a lot of issues, projects, and otherwise ongoing things that we were not aware of. Therefore, we've been working to update an Executive Resource Manual that has been in need of an update for a few years. We're also preparing transition reports that will outline current projects, issues and other important information that will be important for the new Executive.

As this is my last Exec report I would like to take the time to say a few closing words. First to the new Exec: Tyler, you have a great team and your plans for the upcoming 16 months are quite exciting. Although I'll only be around to see some of it, I know you will follow through as you did with your goals as VP Education. Dave, your previous involvement with some external organizations is a great start to your term. Use the experience you've gained through your directorships to help your directors. Keep the Waterloo traditions alive in ESSCO and CFES. Jeff, you have some innovative ideas for the VP Education portfolio. Run with them and if you need help, don't hesitate to ask questions. Lee Anne, your hard working nature will help you with your Exec position. Keep a smile on your face and continue to be approachable. Adam, your experience with finances in various capacities will help you with your responsibilities. Always remember that Mary is your best friend. Continue on the tradition of the outgoing VP Finance by having amusing Exec reports in *The Iron Warrior*.

Next, I'd like to use this opportunity to say a few words about some individuals with whom I've had the pleasure of working over these past 16 months. First, to my Executive as a whole, you have been a great team and I couldn't have done this without you. To Angus, your contributions to the Executive through the wiki, your insight at conferences and your willingness to attend boring PEO meetings have helped EngSoc on the local scale and maintained UW's tradition of being very involved with external organizations. To Tyler, your "just get it done" attitude has given EngSoc's academic services a significant boost. Your efforts on PDEng have provided a constructive way for students to provide feedback on the program. Kiri, your willingness to take on a directorship that was left vacant and running an extra event through your own initiative shows your commitment and dedication to EngSoc. And Todd, thank you for keeping EngSoc's finances in order and for keeping us all amused at EngSoc meetings and through your IW Exec reports. The polices you put in place will help maintain transparency within EngSoc.

I'd also like to thank all the directors I've had the pleasure of working with. You guys are awesome and you're what make EngSoc great. Keep up the great work. Next, I'd like to thank Betty for keeping the office running every day. Not many student societies can say their office is open during regular working hours. And finally, I'd like to thank Mary Bland. Mary, you've helped the Executive so much these past 16 months. You've helped me so much. I couldn't have done this without you. Thank you for putting up with all my questions (especially at the beginning). Thank you for your continual advice and support.

And with all that being said I know that the incoming Executive will do a great job. I encourage everyone to keep them accountable, ask them questions, and get involved. Thanks for the great past 16 months!

VPI Report

KIRI NEUFEGLISE
VP INTERNAL

Well, the term is finally drawing to a close and my term in office is almost done and over with. Somehow, my soul is still intact, although I don't suppose losing it to EngSoc would be that terrible.

Either way, since the term is essentially over, I no longer have events to talk about to fill my entire Exec report. Although, I'll make a quick mention of EOT this coming Friday (27th) and A**5 Bowling (July 30th). But otherwise, the term is pretty much over from an events perspective and I know we're all getting ready to write those dreaded finals and get into the real world.

I'd like to thank all of my directors for the term since I wouldn't exist as an Exec without you. You all did a great job and I hope you all keep on applying to directorships since you're really what makes EngSoc so awesome. I'd also like to thank my fellow Exec for a hell of a time during these past 16 months and, of course, I'd like to thank Mary for being such a huge help to all of us, as much as she hates these public thank yous (nobody reads Exec reports anyway). Finally, good luck to my replacement, Lee Anne. I'm sure she'll do as good a job as me, if not better.

Otherwise, thanks for having me as an Exec. I know I had a good time, and I hope all of you did too!

VPF Report

TODD RADIGAN
VP FINANCE

So, it's finally that time. This is my last Exec report as your VP-Finance. You may have even started to enjoy my Exec reports, and you may have been wondering what my last one will be like. How does the story end?

As usual, I will begin with all the finance information you need to know. There isn't anything left for me to tell you. I've shared everything with you. All I can offer is a simple reminder to directors to submit your expense reports as soon as possible so that I can get you your money before exams.

Now, back to what you're really reading to find out. After 16 months, what suitable end could there possibly be? If I were to write one last story, it would have to be the most fantastic, wonderful, and ultimately non-sense story yet. That's a lot of pressure to put on one Exec report.

I suppose the only thing left for me to write about is my vacation in the land of money (mentioned in my last report). Well, I didn't end up winning the swimsuit competition. I came in second, but it was close. After a night of partying however, I was voted most likely to take over the island. The vacation wasn't nearly long enough. Drinking on the beach all day is a tough job, but I'm always up to the task.

I've had a great time being your VP Finance, but sadly it's over. Make sure to come out to the pot luck EngSoc meeting tonight in POETS and meet your new Exec.

VPX Report

ANGUS MCQUARRIE
VP EXTERNAL

At this point in the term, I can't imagine that any of you are really reading this part of *The Iron Warrior*. Don't you have exams to study for and projects to finish? In the last two weeks, my life has been consumed by the construction of a laser-guided paintball tank, and not a whole lot has happened since my last Exec report. Student Life 101 was last weekend, and as always was a glorious enterprise full of fanfare and delight. Also, I hear we had an election recently, which means that this is the last time you'll be subjected to any rants of mine in an official capacity. In the future, you will be ranted at by Dave Halford, the new VP External for EngSoc A. Expect his rants to be significantly longer.

I've had a great time serving as your VPX in the last 16 months, and I hope you've all enjoyed having me do it. Praise and consideration can be addressed to me in the future at ahmmcqua at the usual uwaterloo domain. If you didn't enjoy my tenure as VPX, please e-mail my press secretary, Tyler Gale, and you will be added to the list of those whose lives will be destroyed at a future date, to be announced pending my domination of the world, one country at a time (you're next, Chad).

Good luck on exams all, and always remember: Every group of friends has a member whom the others make of fun of when they aren't around. If you don't think this is true of your group of friends, then you are that person.

VPEd Report

TYLER GALE
VP EDUCATION

Course critiques are coming to a close for the term. Thanks to the directors, volunteers, and academic reps that assisted with this process. Thank you also goes to all of the directors that ran academic services and events for the Engineering Society this term.

Debt load survey results are published in this issue of *The Iron Warrior*.

Continuing with the 16 months in review, as promised:

Status of plans for an independent review of the PDEng program:

This information is being relayed from the Dean of Engineering, and is the Faculty's tentative plan to conduct an independent review of the PDEng program.

The Faculty's intention is to execute an independent review of the PDEng program this coming Winter (2008) term once all five PDEng courses have been created. The plan is for the review committee to consist of faculty members and an expert appointed external to the University. Committee members will be appointed over the course of the fall, and results of the review are anticipated to be available at the end of the Winter term. Students will be heavily involved in the data collection phase, similar to the departmental reviews that were conducted a couple of years ago.

This plan jives well with the fundamental concerns that students expressed at the PDEng student forum conducted earlier in June.

If you are interested in more details with regards to this, or you have any academics related question in general, feel free to pop me an e-mail: asoc_vpedu@engmail.uwaterloo.ca

WEEF Report

BRANDON DEHART
WEEF DIRECTOR

Well, this will be my last WEEF Exec Report for the term. There is an extra Funding Council meeting on Thursday, July 26th at 5:30 pm in RCH 306 for all of the class reps that are currently on-stream. It should be a very short meeting, but it is also very important, so please show up.

This term's funding results can be seen on the opposite page, and there is also an article on how WEEF came to be and some of its major milestones on page 10. There will be T-shirts and patches available for sale from the Novelties Shop (next to POETS) during exams this term, and I have to say they look awesome, so come on out and get yourself endowed.

Finally, I would like to thank my four assistants and the assistant director for all of their help this term.

Innovative Algorithm for 3D Video Games in Development

IEEE Summer Lecture Series

MIKE SELISKE
1B COMPUTER

The University of Waterloo IEEE Student Branch finished off their summer lecture series on July 11th with an interesting talk by Electrical and Computer Engineering Lecturer Bill Bishop titled "Perceptually Adaptive Normal Map Compression for 3D Video Games". This talk was based on applying 3D textures to 3D environments in the most efficient way possible.

The topic of video game design is becoming increasingly important in today's society because games are becoming more popular and the industry is taking in over $7 billion annually, which is growing ever year. Software companies are doing their best to provide tools to help game developers make efficient, realistic, and easily developed 3D video games. There are three major players in the video game software design market: Autodesk, maker of the popular Maya software, Softimage, maker of XSI, and Newtek, which created the LightWave 3D software. Each of these kits provides developers with a powerful interface to design and add texture to 3D objects.

Using the 3D design software available to them, developers and game artists must use one of many texture-mapping schemes which allow them to add amazing 3D textures to an otherwise flat object. In his talk, Bishop talked about three ways to add texture but focused on a particular approach called normal mapping.

Every object in a video game starts off as a wire frame base made of thousands of polygons linked together to create a 3D object. Depending on the number of polygons, the model can either be very detailed or extremely rudimentary. Although it would be best to create a super high-resolution wire frame and use that in the video game to create a very good looking object, it would also be very graphics and memory intensive, so alternative methods of adding detail had to be developed. Normal mapping helps to create a high-resolution image using as few polygons as possible by using both high-resolution and low-resolution models, then interpolating.

The normal in normal mapping stands for the normal vector and is the basis behind normal mapping. It works by using the high-resolution wire frame to draw normal vectors on the low-resolution model, which is perpendicular to the curve of the high-resolution model. Since the low-resolution version of the model will have flat lines when the high-resolution model will have a curve, the normal vectors simulate the curve by protruding from the flat line in the perpendicular direction of the curve. Although normal mapping simulates a high-resolution image with a low-resolution model, it is still useful to compress the mapping so that the games aren't spanning 6 DVDs.

There are three main types of normal map compression: DirectX texture compression, 3Dc, developed by ATI in 2004, and Perceptually-Adaptive Normal Map Compression (PANMC), which is in development by Bishop, a graduate student, and an undergrad student. This type of compression aims to increase compression ratios while still maintaining the high quality of the original map. It works by adapting its algorithm based on the image itself. For example, it will scan the image and look for a large area of solid colour and interpret that as one pixel instead of hundreds while leaving certain sections only mildly compressed. This is more efficient than compressing the entire file with the same algorithm and will warrant higher compression ratios with the same quality. In comparison, the current standard for compression, 3Dc, produces a 4:1 compression, while PANMC is up to around 7:1 with the same visual quality. The algorithm is still being tweaked and will hopefully produce amazing results.

"If you take anything away from this talk today, it is that PANMC and 3Dc are indistinguishable," Bishop said at the end of the talk.

Just A Little Goodbye for Nano

YUSUF BISMILLA
2B NANOTECHNOLOGY

So it's that time again, exams are approaching, living arrangements for co-op are being arranged, and most of us will be leaving A-Soc for a brief four months. However, my class – the 2B Nanotechnology class will be the first Waterloo Engineering class to endeavour onto a mandatory eight-month co-op for all 70+ of us.

What does this mean, and why do you care? Well, for all of you '08 grads, this is the last term you will see us. We will be rejoining campus with B-Soc for Spring '08, followed by A-Soc for Fall-08 (3A and 3B back-to-back). Then we'll have eight more months of co-op before returning to campus for our 4A term in B-Soc Fall '09, and finishing with A-Soc for our graduating 4B term in Winter 2010. Now it may seem like we're switching streams all willy-nilly and such but it actually makes sense – to us.

Just like the rest of Engineering, we still have four work term reports due – however, we have one due at the end of each of our eight-month work terms. We still have to do all of the PDEng courses, although 35 and 45 will be on consecutive four-month terms. However, there is a plus side.

Contrary to last issue's counterpoint that I wrote for the PCP feature, we will have *advantage* of being at an employer for two work terms in a row. Being at one employer, we will have the ability to see our projects through for an extra four months, enjoy our new living arrangements for eight months instead of four, and overall get a deeper work experience; although, some students may still elect to complete their two consecutive work terms with two separate employers.

According to some employers the eight-month work term is a reason some Nanos got interviews this term. Whether or not this is an advantage is up to debate. There are some employers who have simply stated they don't have the ability to commit to a student for a full eight months, and for a Nano, if that first four-month job is away from the KW area, it would make finding a job for the second term through JobMine nearly impossible due to the difficulty of scheduling interviews.

There are more downsides though: Because of this setup, we are (obviously) no longer fully compatible with the EngSoc dual society system. Running for Executive positions in our upper-years is basically impossible, along with any other commitments that rely on being on campus in an alternating stream system.

But joining B-Soc will have some interesting sides to it. On one hand we'll be on-stream with some people who we haven't seen since 1A; however, a lot of familiar faces around the Engineering buildings will no longer be there. There'll be new traditions and new people to get used to.

How this whole stream-switching every eight months thing will work is anybody's guess. For now it's Nano's own thing, but the University might be using us to trial yet another idea. I look forward to going away for eight months. I look forward to meeting a whole new set of B-Soc students, and I look forward to rejoining with A-Soc come Fall '08. All in all, this was just a "little" goodbye, about a "small" scheduling change – and yes, bad puns intended.

WEEF Funding Results

Proposal	Requested	Allocated
Architecture		
Library Seminar Room: Increasing Its Usability For Students	$5,000.00	$3,185.00
Wet Sink For Shop	$4,352.52	$4,352.52
Air Cleaners For Shop	$3,219.48	$3,219.48
Electrical and Computer Engineering		
E&CE Nexus Computer Upgrade	$12,600.00	$4,200.00
E&CE Nexus Monitor Upgrade	$6,440.00	$6,440.00
Digital Control Lab - Ball & Beam Apparatus	$5,949.18	$5,949.18
Optical Table Assembly with Isolators	$10,033.10	$4,125.00
E&CE '30' Series: "Semiconductors and Electronic Circuits"	$9,300.00	$6,300.00
Systems Design Engineering		
Assistive Technology Design Prototyping (for SYDE361)	$600.00	$600.00
Tools Box for Workshop Lab	$540.00	$540.00
Solderless Breadboard for Workshop Lab	$1,400.00	$1,400.00
JTAG-USB Cables for Xilinx FPGA Boards	$280.00	$280.00
Nanotechnology Engineering		
Probing Station For The Ne-242 Lab	$6,488.00	$6,488.00
Departments Total	$66,202.28	$47,079.18
Engineering Student Teams		
UW2TT Vehicle Improvements	$2,965.00	$2,065.00
Funding For Engineers Without Borders Printer	$250.00	$250.00
UW GNCTR	$7,350.00	$5,600.00
2008 Spring Term Wombat Funding Proposal.	$4,162.00	$3,140.00
Clean Snowmobile Challenge 2008	$3,100.00	$2,765.40
The Iron Warrior	$1,483.46	$1,483.46
Midnight Sun Solar Race Car Team	$5,300.00	$4,800.00
2008 UW Formula SAE Team	$7,600.00	$3,050.00
UWAFT Modelling/Simulation Notebook And Ladder Safety	$1,146.61	$1,095.96
University of Waterloo Micro Air Vehicle Team	$2,190.75	$1,596.00
University Of Waterloo Robotics Team	$5,575.00	$3,575.00
Aerial Robotics Group (W.A.R.G.)	$3,750.00	$2,750.00
2007 International Genetically Engineered Machine (iGEM) Team	$2,750.00	$1,150.00
Student Teams Total	$47,622.82	$33,320.82
Grand Total	$113,825.10	$80,400.00

Dreamliner Takes Flight

ALEX GIROUX
2B MECHANICAL

As another school term draws to a close, I start dreading the inevitable: the flight home. Now, it's not that I don't like flying; I actually enjoy it very much. But the thought of four hours (or more!) crammed into a flying tin can, breathing dry air and attempting to keep my arse from going numb will send me scurrying towards Via Rail's website.

However, Boeing recently unveiled their new airplane, the 787 dubbed the Dreamliner. It attempts to make flying just a little bit more human. They've revamped the lighting, increased overhead storage, and thanks to the use of composites in the airframe, will be able to increase cabin humidity and adjust the cabin pressure for a more comfortable flight for passengers. Cabin air humidity in regular aircraft is kept relatively low, due to the risk of corrosion. The changes to the cabin environment are designed to help minimize the physical and mental impact of long haul flights, and to make the flights themselves a bit more comfortable. Unfortunately, the Boeing site doesn't have information about how much leg room will be available, but I'm hopeful that they've increased it, even a little bit.

The use of composites instead of the metals and alloys that have been used up until now also means that the overall mass of the aircraft is significantly reduced, resulting in better fuel economy. Also contributing to the 20% reduction in the required fuel per passenger are the redesigned engines, aerodynamics, and systems applications. These improvements serve to reduce the emissions produced by the plane while in operation, directly reducing the impact of air travel on the environment. Increasing fuel efficiency also increases the economical range of the aircraft, which in turn cuts down on the need for stopovers.

Now, all these things seem well and good, but when will you be able to take a trip on the Dreamliner? Air Canada has purchased the 787, as have a number of other airlines around the world. However, commercial flights won't start until May 2008, so there's still a bit of a wait yet.

Overall, as a consumer of air travel, I'm excited, even though the odds of a flight to Saskatoon in a Dreamliner are slim to none. As an Engineering student, I'm very interested to see how the composite based airframe will hold up – it's claimed to require less maintenance and to last longer.

If you want to find out more, check out http://www.newairplane.com/ and go to "Launch 787 Dreamliner Site".

Third-year ECE Controls Lab Gets Well Overdue Upgrade

WEEF Contributes $8500 to Modernize Classical Lab

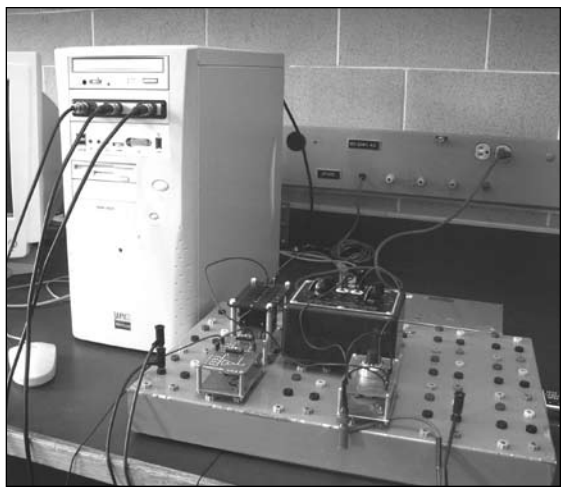
BAHMAN HADJI
4A COMPUTER

Last term, the Waterloo Engineering Endowment Foundation (WEEF) donated $8,478.72 to the Department of Electrical and Computer Engineering to buy equipment to upgrade its third-year control systems lab consisting of 16 workstations in E2-3341, which had not seen a major upgrade since 1989. The amount was the largest donated to any proposal in the Winter 2007 term and was one of only six out of the 42 proposals to get full funding from the WEEF Funding Council of undergraduate class representatives. To get the full story, I spoke with ECE Lab Instructors Carmen Caradima and Kevin Luscott, who are in charge of upgrading the equipment and designing the new software to be used by students, as well as ECE Lab Director Bill Ott. Ott, who is retiring next year, actually designed the current system, which lasted for 18 years and is now being replaced in time for the Fall term.

Every Electrical and Computer Engineering student takes a core course on analog control systems, ECE 380, in their 3B term. The course is offered in the Fall and Winter terms and is taken by three classes a year, totaling anywhere between 240 and 360 students. It is focused on classical control systems, having a lab component directly related to the course material, which consists of two lab projects dealing with the major concepts in the course.

The structure of the labs themselves will not change in any way as a result of the upgrade, and the experiments being run will use the same circuits and models. What is being upgraded is the software and equipment used to conduct the experiments. The lab currently uses equipment as old as 20 years

See OVERHAUL on Page 12



An ECE 380 lab station as it will appear in September.

My Term as a Nuclear Safety Engineer in France

KEVIN CEDRONE
4A MECHANICAL

The Spring term is coming to a close and with the intense fourth-year project crush I'm looking forward to co-op in the Fall. Some of you may be panicking about not having a job for co-op yet or maybe you're planning ahead for a later co-op term. In either case I want to tell you the story of my last work term. It was my fifth work term, and I had a standing invitation to return to Research in Motion, a few interviews taken and several more interviews on the schedule when I decided to throw caution to the wind and go for broke.

I dropped out of co-op and organized my own job, a work visa, and living accommodations. For all this I got to spend four incredible months as a nuclear safety engineer in France. Oh, and when I started all this, I was nowhere near fluent in French.

How did I get to spend four amazing months in Europe? I contacted the human resources departments of a few companies in France. I got some of these contacts from an uncle who lives there, others from the Internet. I sent them my CV, university transcripts, and a letter of intent in French. They were translated – brutally – with online translation engines and the help of some friends who were in French immersion before university.

Most companies responded in one way or another. A few weeks later I got a request from a nuclear power plant asking for preferred work term dates, what a BASc was, and what I'd like to study while there. A few weeks after that, I had a signed offer letter for a paid internship at the Bugey Nuclear Power Plant in southeast France near Lyon. I later received a package including information on my subsidized apartment and some of the documentation needed for my work visa.

I arranged my work visa in a matter of days, actually. It turns out that Canadians can get a work visa for France without even having a job lined up. In fact, I needed more supporting documentation because I claimed to have an employer lined up already! The instructions on the French consulate website are clear, but my advice is to follow their instructions to the letter. They need three copies of some documents, and four of others, and they are absolutely inflexible about having documents stamped when they ask for it.

After e-mailing a copy of my work visa to my new employer, Electricité de France (EDF), I received the first hint that this was going to be an unconventional work term: I had been assigned a tutor. At first I thought I mistranslated the word for supervisor, but it turns out internships there are a bit different.

"Co-op job" and "internship" are names given to student employment in Canada. When I work here on co-op, I'm essentially a temporary, junior engineer. I've got projects, deadlines, meetings, bosses, and subordinates. A P.Eng needs to sign off on my work, but other than that I'm just another cog in the works. In France interns work in the capacity of a student. In fact, many professionals from all levels within an organization take part in a work-exchange program, going for days or weeks at a time to learn about related industries.

I had some assigned work and deadlines, but the objective of those tasks was to teach me things I stated as research interests in my letter of intent. I had freedom and security clearance to wander around and learn essentially at my leisure.

I learned to speak French fluidly, lacking only the vocabulary to be truly fluent. I was surprised at how soon I started to think in French. My family and particularly my girlfriend noticed I had a slight French accent when I was speaking English. Even now I think the cadence of my speech is lilted in a French way.

As with most of my co-ops here in Canada, the best part of the whole experience was the people with whom I worked. To start with, I turned down my subsidized apartment and chose instead to live with my relatives in a suburb of Lyon. Their free chartered bus to the plant and free broadband Internet made that a no-brainer. They became like parents to me in a way. Instead of learning how to live over the course of 18 years they taught me the French way to live, eat, and talk in about four months.

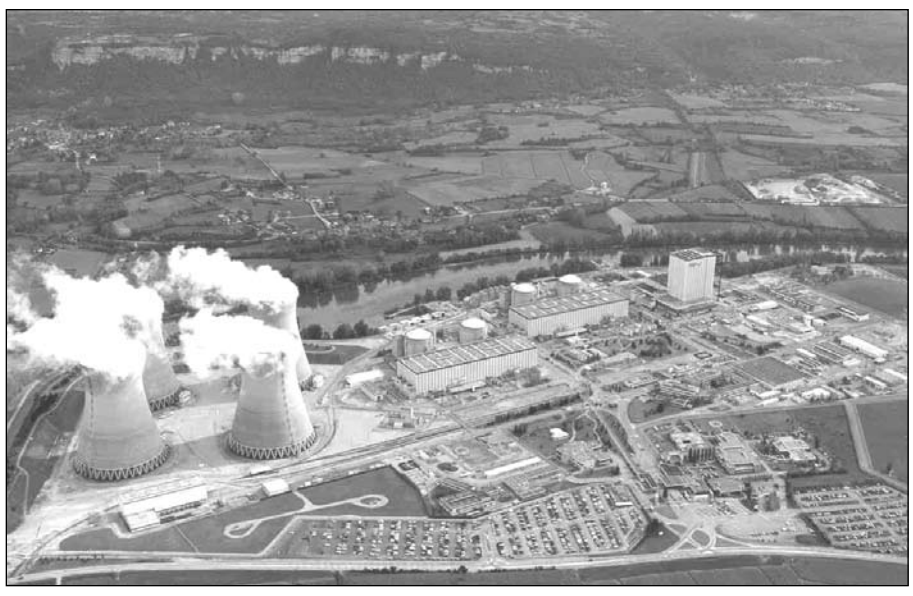
The Site Engineering Services team at the nuclear plant was excited to have a Canadian on the team for a few months. I was told that Canadians are cousins to the French. In fact I found that, as a Canadian, I was warmly received everywhere I went, even as a student from a university named for their greatest military leader's biggest defeat.

As it turned out, my tutor, roughly speaking my boss, was something of a celebrity in nuclear safety circles and although he normally didn't accept interns because of the low return on invested time he decided to take a chance. I guess he liked my grades and the amount of work I did to get a work visa and living accommodations. Maybe he liked how arrogant and ambitious it must have seemed; to go to a foreign country whose language I didn't speak and work in an industry in which I had zero experience. In any case, we got along famously. I learned a great deal from him about nuclear power plant design, construction and operation, European politics, British cars, and Irish whiskey. I became more of a protégé than an intern.

Ultimately he convinced the director of our group to give me a performance bonus for successfully completing my project on time, under budget, and to a high standard of excellence. My report would save the plant some tens of millions of euros in the event of an emergency shutdown, and I got a month's salary as a bonus.

That month of salary didn't amount to much unfortunately. University is much less expensive in France than it is here in Canada and French students in professional programs like engineering do their required internships at the end of their degrees, after they have completed all their courses, so their financial need is reduced. The pay wasn't unmanageable though, since most of my living expenses were already covered directly or indirectly by the plant. As a result, my meager pay was essentially a travel budget. Instead of making a profit on the work term I broke even and came back with a lifetime of memories.

The French work week is 35 hours long, so I worked alternating four- and five-day weeks taking long weekends to go traveling. I visited almost every region of France including Provence, Alsace, and the D-Day landing beaches in Normandy. I made it to Switzerland more than once, Germany three times, Austria, Italy, and Ireland. I slept in train stations and hostels on weekends, and consulted on post-emergency shutdown nuclear safety procedures during the week. Suffice it to say that it was an awesome work term.



An aerial view of Bugey Nuclear Power Plant near Lyon in France.

7 Steps to Your Amazing Work Term:

1. Find a country where you want to work.
2. Send out your CV, transcripts, and a cover letter (letter of intent) to several companies in that country.
3. With or without a job, get a work visa and return travel arrangements for that country (http://www.cheapair.com).
4. Do the other paperwork for insurance and planning. As much as I complained about the paperwork when I was doing it, it has a way of working itself out and you forget about it when you're having a blast.
5. Go!
6. Have fun with the stereotypes that some foreigners have of Canadians – we're all maple-syrup chugging lumberjack ice hockey players at heart.
7. Make a good enough impression that other UW students will be welcome there after you leave.

THE TIN SOLDIER

HOW DID THIS GET IN HERE?

VOLUME Π ISSUE e^x | TUESDAY LAST WEEK, AROUND 4 PM

Apples vs. Oranges

Also Known As *The Ironic Warrior*

UW APPROVES CREATION OF GIGATECH ENGINEERING PROGRAM

DARTH CORNELIUS
3A SYSTEMS DESIGN

In a surprise move, the University of Waterloo Faculty of Engineering announced the approval for the creation of a new "Gigatechnology Engineering" undergraduate program at an on-campus media conference late Tuesday evening. The program, which focuses on the specific challenges of engineering on the gigametre scale, will start accepting students in September 2009.

Professor Edward Johnson, one of the foremost champions of the program, reacted to the announcement with palpable excitement in an exclusive interview with *The Tin Soldier*.

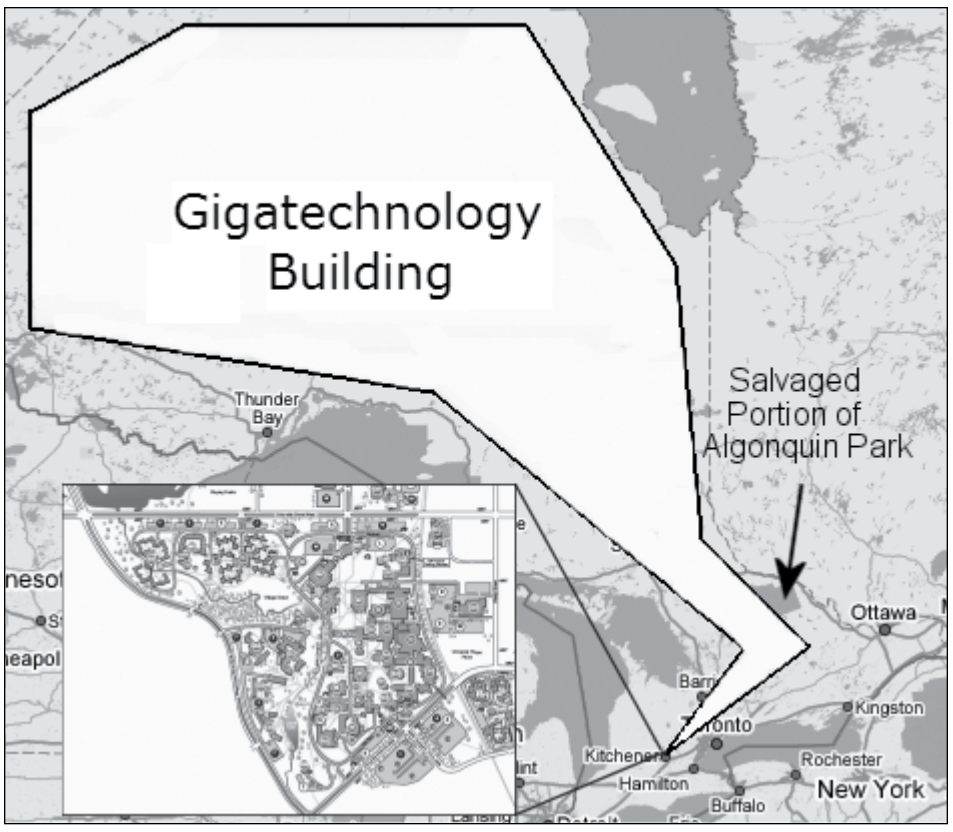
"Waterloo has always valued the importance of new and exciting things. We've been pioneers in fields which many other schools are only beginning to grasp the importance of. So, I thought, why not be a pioneer in a field that no one thinks is important? It's time that Waterloo finally moved forward into the 22nd century."

Johnson, who introduced the concept of the program to the administration, stated that the idea came to him late one night while still somewhat intoxicated: "I came home around 3:00, 3:30ish, didn't feel like sleeping at all. *Star Wars* was on TV – the first one, from back in the 70's, before the teddy bears and other crap. When I saw the Death Star, I said to myself, who would have the expertise to build something like that? I mean, you'd have to consider relativistic effects and everything – I really don't think the U of T curriculum equips their students to deal with that. This is really an area where Waterloo can specialize: gigatech." Johnson went on to admit that, upon waking the next morning, he did some unit conversions and found that the Death Star was actually probably significantly smaller than a gigametre, but stuck with the name because it sounded "hella cool".

Despite his child-like enthusiasm, Johnson admits that the lack of current applications for the field was a source of some reservations about introducing the program. "There were some backwards thinkers out there who were obsessed with things like 'practicality' and 'the state of current technology'. I say to them, 'in the spirit of *why not?*', why not Gigatechnology Engineering?"

"I like to explain it to them like this: Mechatronics was 'leading edge'. Nanotechnology was 'bleeding edge'. But Gigatechnology is 'beating edge'. As in, this program actually beats the edge to where the edge is going before the edge even knows that it's going there," Johnson explained. "Now, you might ask, 'What if the edge changes its mind? What if the edge goes in a different direction?' And I'd say, well, an edge is one-dimensional. It can only go forward or backward, and I don't know about you, but it looks like technology is going forward to me. So the edge *has* to get there – it's simple Grade 9 physics."

A PowerPoint™ slideshow was played for *The Tin Soldier* staff, giving more details about the new program. Unfortunately, the show consisted of only one slide, describing the program as "innovative", "forward-thinking", "revolutionary" and "pioneering". Professor Johnson apologized, conceding that "I never needed another slide – the program was approved after the third bullet point."

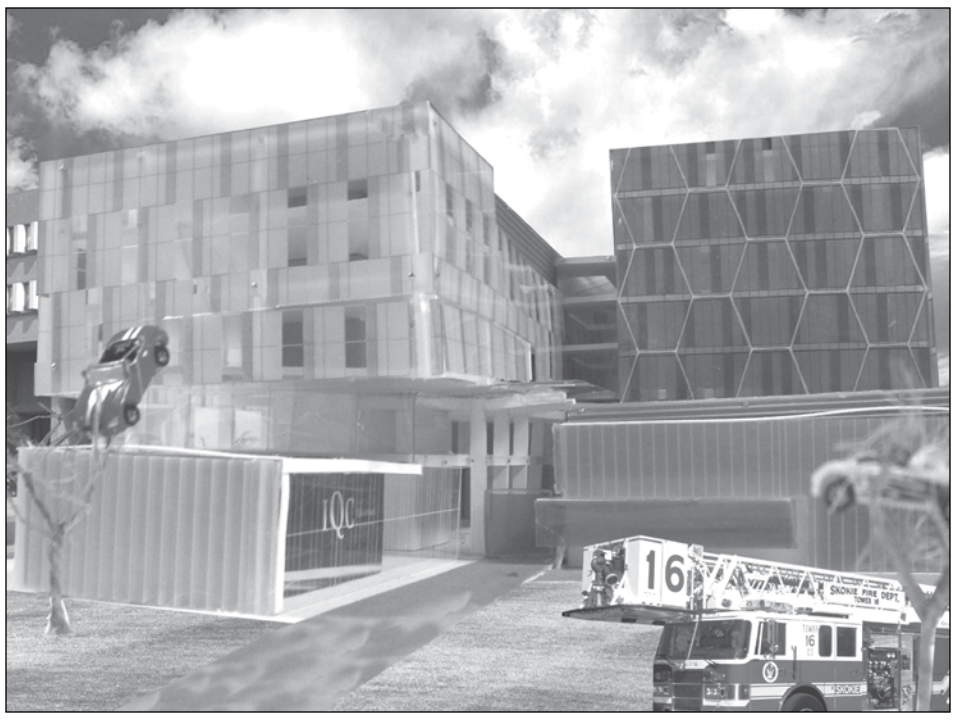


Latest Gigatech Building location proposal, updated due to environmental concerns. The new design "maintains significant Algonquin Park greenery," according to the architects.

Organizing applicable co-op positions has proven to be a difficult task for the Faculty. Few companies are currently working on projects on the kilometre scale, let alone the gigametre scale (approximately 80,000 times the diameter of the Earth). As such,

See [KEY WORD] on Page 4

Cars Fly Outside Nanotechnology Building



The Fire Department had to be called to get the cars down.

DANIEL MILLER
SENIOR FUTURE CORRESPONDENT

The Quantum-Nano Centre was the scene of chaos yesterday, as an experiment gone awry left several cars hanging from trees outside the building. No injuries have been reported, but the Waterloo Fire Department had to be called to get the cars down.

A Nanotechnology undergraduate student, who asked to remain anonymous, stated that several students were testing a group of new cars designed with quantum microcontrollers, when a software fault caused the cars' navigation systems to go haywire, leading the cars to become treed. According to the student, the fault resulted from a failure to "carry the one" in one of the microcontroller's computations. It has not yet been determined who was responsible for the error.

UW Dean of Engineering, Todd Radigan, expressed concern over the bad publicity that would result from this incident, stating, "This is the worst thing to happen to Waterloo Engineering since the Engineering Society-Iron Warrior embezzlement scandal of 2007." The scandal 25 years ago eventually led to the impeachment of Editor-in-Chief Bahman Hadji and resulted in him serving a lengthy term in a cryogenic prison. He was released on parole from the cryoprison last year, but could not be reached for comment.

Heralded as the new centrepiece of campus upon its completion in 2010, the Nanotechnology building has attracted less attention ever since the construction of the Centre for Picotechnology Engineering back in 2018 and the scrapped proposal for the massive Gigatechnology Building in 2008. The University still plans to go ahead with the groundbreaking of the new Femtotechnology Engineering Building, slated for this fall.

Dean Sedra to Participate in Boat Races

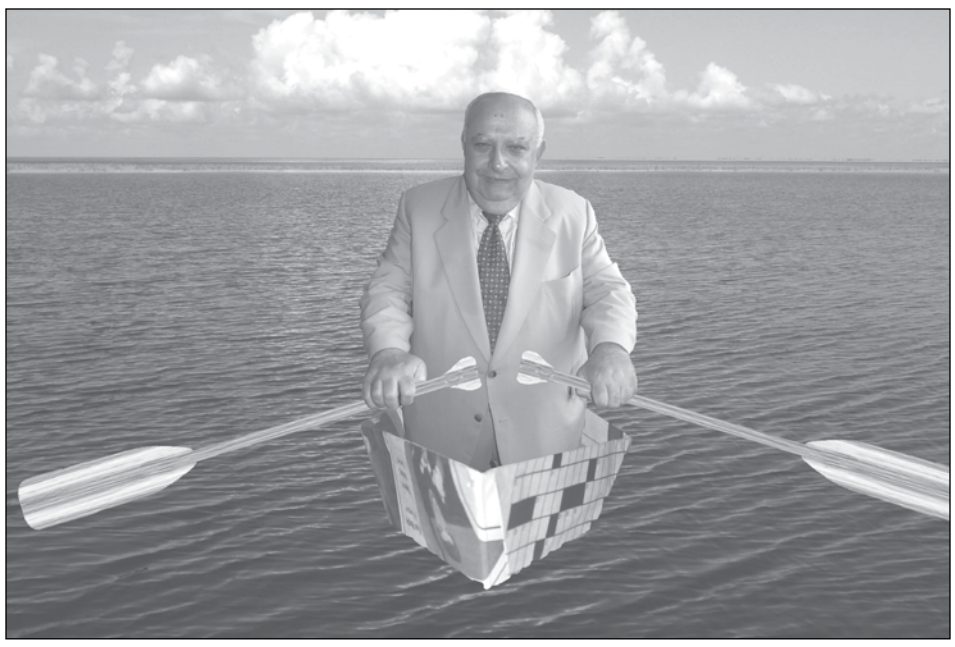
THE TIN SOLDIER
"NEWS" BUREAU

The Dean of Engineering, Dr. Adel Sedra, was recently spotted training for the Engineering end of term boat races that occur every term. Though generally loved by students for his sense of humour and engagement of undergraduates, the Dean still feels the need to get "closer to the students," and participating in such a popular event allows him to get away from the sometimes tiring life of approving events and bureaucratic politics.

A staff photographer snapped an exclusive shot of Sedra for *The Tin Soldier* as he prepared for the weekend race, looking in fine shape. When questioned about his training routine and schedule, the Dean made it known that it was confidential and part of his secret to success, being quite confident of the outcome.

"I have been training for years for this event and expect to crush the competition. Those amateurs don't know what they have coming at them," said Sedra of his competitors, expected to be mostly students. He went on to explain that he has been training hard since the beginning of term but has been recreationally racing for years. "I have built up quite the tolerance for boat races – against muscle aches, spasms, and pains."

Sedra feels that his time is faster than ever and that he is not to be underestimated, as he himself is an engineer and experienced boat racer. All eyes will be on Sedra when the races get underway on Saturday afternoon, and he hopes to succeed and won't settle for any letdowns.



Dean Sedra prepares for the end of term boat races at Columbia Lake.

Rant to the Editor

START COUNTING THE DAYS

THE ONLY THING YOUR READERS LIKE ARE THE CROSSWORD, THE SUDOKU, AND TODD'S EXEC REPORT. BUT YOU HAVE REMOVED THE SUDOKU AND THE STUDENTS ARE STARTING A REBELLION.

- YOUR READER

Wireless Willie Found

BAHMAN HADJI
4A COMPUTER

Once a Waterloo Engineering icon, former Engineering Computing mascot Wireless Willie was found on Sunday begging for change on King St. in downtown Kitchener. His name won't ring a bell to younger students, but upper-year students will remember the colourful groundhog as the face of Engineering Computing's push for students and staff to use the free wireless Internet service on campus.

Willie, now barely recognizable compared to his golden days, has become completely jaded at the cruel world of academics and advertising, and has nothing but disdain for his former employers.

"I was on top of the world, man. Money, cars, chicks – the works. When you went to laptop.uwaterloo.ca to sign in, my face was right there. You couldn't even walk around one of the Engineering buildings without seeing my picture. There were signs all over saying 'You are now in Wireless Willie territory.' *My* territory!" Willie hysterically reminisced. "But then those EC guys dropped me faster than Fox drops a new sitcom as soon as all of campus caught on to the whole wireless thing, and suddenly they didn't want to promote it anymore or even pay my salary, which I admit may have been too much at the time."

Willie has since learned to live a ragged-down life where he gets by day-to-day by begging for change and doing some stand-up comedy gigs on the side. He refuses to be typecast as a groundhog, saying, "Sure, I could go get work as a token groundhog in a no-name town like Chappaquiddick or something, but the beauty of Wireless Willie was that I wasn't another Punxsutawney Phil or that tool Wiarton Willie, who does the same thing every year and comes out to see his stupid shadow. I was promoting leading edge technology and taking groundhog-based advertising to levels never seen before."

Willie is not the only mascot in Waterloo history to be banished to the streets. The whereabouts of UW's former official mascot, The Warrior, are unknown. The once-proud gladiator slipped into a deep state of depression after being replaced by the cooler, hipper, King Warrior (the lion) in 2001, and was last seen wandering the streets homeless five years ago, still wearing his beat-up breast plate and helmet.

Orientation Week 2008 FOC Chosen

DANE CORNEIL
3A SYSTEMS DESIGN

Bypassing the interview process entirely, UW administration revealed on Monday their choices for the 2008 Engineering Federation Orientation Committee (FOC): deceased spiritual leader Mother Teresa, teenage doctor Doogie Howser, *Star Trek* android Data, and U.S. Presidential candidate Barack Obama.

Engineering Society spokesperson Annie Vanderbeer responded negatively to the proposal: "We wholly reject the university's decision to unilaterally select FOC leaders, without any student involvement. The Engineering Society will not stand for this."

Vanderbeer called the selection of leaders "completely inadequate". "None of the appointees are undergraduate students in Waterloo Engineering. Several are fictional and/or do not qualify as living human beings, while one is a U.S. Senator!"

A UW spokesperson responded by criticizing EngSoc's discrimination based on "lack of affiliation with the faculty, humanity, reality, or the realm of the living". "FOC leaders are not required to belong to some exclusive 'club'," the spokesperson said.

"The choices reflect the perfect team," the spokesperson went on to state. "Data's focus on facts is balanced by Mother Teresa's experience with people. Obama has a great deal of expertise in navigating dangerous political waters, and Howser will be on-hand for any medical emergencies that may arise."

Following a tense 24-hour standoff, previous FOC agreed to consider Barack Obama. In return, the administration has conceded to replacing Doogie Howser with a student who has undergone CPR training.

The Galt Gauntlet

School of Architecture Revises Admissions Process for 2008

CYNIC GIRL
2B ARCHITECTURE

Architecture admissions officers have announced that after the mayhem of the past year's process, next year will be entirely different. This revolutionary new method is being nicknamed "The Galt Gauntlet", referring to the series of tests which have been devised for weaning out the applicants who will not survive the Archi lifestyle based in Cambridge. Increasing numbers of Architecture students are just not properly prepared for the experience – but this new procedure should give anyone brave enough to consider Waterloo Architecture the best preparation possible. The following is a brief version of "The Galt Gauntlet", which will be integrated into the admissions process this winter.

To begin, all Architecture hopefuls will line up along the banks of the Grand River, just below the walls of the School of Architecture. Upon the signal, all applicants must dive into the water and begin the cross-current swim to the other side while avoiding losing digits to snapping turtles or catching a lethal virus from the water itself. As the dripping students pull themselves up the three foot shear concrete edge and out of the river, they are faced with the first of a series of locals who pester them for change and holler crude comments. A line up of such people is positioned along the bank of the river, making a treacherous 200-metre-long dash to get to the street level at the Concession Street Bridge. Following routes along Water Street South, the group of applicants will have to use their courage and wit to pass by those locals whose occupation is frowned upon by the authorities.

Turning left back across the Main Street Bridge, the leaders of the pack of Architecture hopefuls will arrive at the coffee stop. To continue in the process, each applicant must consume four cups of strong coffee, which has been proven to be enough to cause an immediate lifelong dependency. After downing the final drops of coffee, the students will enter into the school and be blindfolded at the doors. Now, entirely hyperactive from the coffee and still wet from the river swim, the applicants must blindly navigate the building to get to the studio on the third floor. While in studio, students must scavenge the third floor for scrap cardboard and materials with which to build a model. The instructions for this activity will be extremely ambiguous with the exception of the fact that tools of any kind are prohibited, as is glue, tape or pins. Each model successfully built will be scrutinized by a team of professors. Any applicant who is reduced to tears will be asked to stop the admissions process immediately, as they surely will not be able to be a successful architect.

The same panel of professors will continue to test the students with a series of flash cards with images of famous buildings on them. A set of 25 cards will be shown, and should any Architecture hopeful name fewer than 15 of the buildings correctly, he or she will be mocked for his or her lack of architectural literacy and removed from the admissions process. All remaining applicants will be required to return to their homes and collect all images, phone numbers, and addresses of their friends and family. This contact information will be given over to the School of Architecture to be destroyed at the "Architecture Is Your Life Now Ceremony", wherein the successful applicants will start their careers as Waterloo Architecture students.

Counterpoint

Campus Response Team vs. Cathode Ray Tubes

Counterpoint

I want to preemptively respond to my critics who will cry that I cannot compare a piece of technology like the CRT to UW's Campus Response Team. "That's like comparing apples and oranges," they say. Yes. Yes it is.

KEVIN CEDRONE
4A MECHANICAL

This comparison is insulting and like its author, actually quite asinine. You can't compare a Cathode Ray Tube with a team of CPR and first-aid trained well-equipped individuals like those of the University of Waterloo's Campus Response Team (CRT) whose life-saving capabilities have been improving UW campus health and safety for ten years. That's ridiculous. Their emergency training and medical supplies make UW events safe and they do this as volunteers! That works out to be cheaper than CRTs on craigslist.

I've seen the CRT in action. During a Campus Rec outdoor soccer match, one of the players on the opposing team was the unfortunate recipient of a fracture or sprain of some kind. While waiting for an ambulance and paramedics, the CRT put on an impressive display of helping this poor chap avoid going into shock. Now I think he may have been diving to draw a card, but those splinters of tibia protruding from his skin tend to indicate otherwise. I suppose we'll have to agree to disagree on that one.

In addition to their role in easing the transition from no care to professional medical care, the CRT have been known to make regular appearances at The Bombshelter. They usually park themselves at a table with their gear and they are there ensuring that your bombination, while spirited, is never reckless. I spent a summer working security at The Silver Spur so believe me when I say that I know what a chore it can be to look out for the safety and well-being of a horde of drunken morons. There is one key difference between being a bouncer at The Spur and being on UW's CRT: the CRT are the ones putting the drunks back together after the fight. And the spiffy red shirts they sport while doing their hero's work speak for themselves.

CEDRIC KEVINS
4A MECHANICAL

I want to cut this debate off right here. The Campus Response Team is great, as my handsome and articulate opponent said. He is forgetting one crucial detail; that you don't actually need a Campus Response Team if you never leave your room, and thanks to the wonders of the Cathode Ray Tube, that is a real possibility. Cathode Ray Tubes can give you many of the things you need to survive, including (virtual) contact with the outside world.

Most TVs have CRTs in them. TV can be used for entertainment, learning, video games, and pornography. You could probably rig up a closed-circuit surveillance system for one or all of those purposes, if you were so inclined. For the more outgoing, the social contact you need to stay sane can be obtained through creative use of the aforementioned applications of television.

If television isn't your thing, you probably know that many computers use CRT monitors as display devices, although the full-figured CRT is being phased out by its anorexic successor the LCD monitor. I blame the media for the unrealistic standard of electronic packaging, but that's another opinionated article better left to another day.

Just like with TVs, computers and their CRT monitors can be used for entertainment, learning, video games, and you guessed it – pornography too. On the topic of pornography, computers can be used to access the "Internet". Although I believe this new fangled "web" of information to be a fad, it seems to be catching on. I might soon venture forth and explore it on one of the many CRT computer monitors in Engineering computer labs.

The last thing that CRTs give you is the soothing warmth of a lover's embrace. Well, I assume that's what a lover's embrace is like. I have spent so much time with video games and pornography that I am socially atrophied and very alone. Alone, but warm. And tanned. My old monitor is leaking several kinds of radiation falsely giving my skin the appearance that I leave the basement on occasion. But the closest thing to love you get from those volunteers on the Campus Response Team is the kiss of life, and that's only *after* you lose consciousness.

And believe me – they know when you're faking.

Counterpoint

Apples vs. Oranges

Counterpoint

KEVIN CEDRONE
4A MECHANICAL

Apples have oranges beat dead to rights. Apple produces a wide range of exciting technologies. First you have your portable music players, the ubiquitous iPod, which is almost synonymous with "MP3 player". These well-designed players are stylish and functional. Some of these players have colour screens for watching video content. They can be used for music or information media and, you guessed it – pornography. They interface with Apple's iTunes software, and more than 100 million iPods have been sold since their introduction in 2001. iPods count for more than 90% of hard drive MP3 players and more than 70% of other players. The revolution in portable media helped coin the nearly eponymous term "podcast" allowing anyone to publish an audio broadcast to the internet. Along with the iPods, Apple has an impressive media capability with AppleTV, which is basically a video-iPod which can stream high definition video to your television.

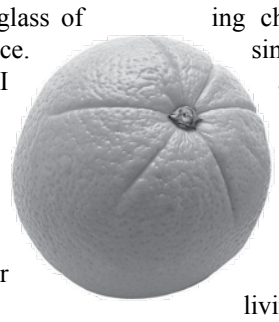
Apple computers have considerably less market share, but are no less impressive than iPods and Apple computers are at least stylish as stylish as iPods. Apple started out building personal computers and developed in the niche market of computers suited to media tasks such as video and audio editing. They come in desktop and portable versions so you can take the computing power with you where you need it.

Apple produces a series of local area wireless network equipment called "AirPort" (think WiFi but more stylish). You can share files, printers, and Internet access with these boxes and even stream music from iTunes to your disappointingly un-Apple stereo.

Last on this list of impressive Apple products is the iPhone. This thing has been called the Jesus Phone. Anything that sacrilegious is sure to be two things: a) OK with me, and b) Damn impressive. This touch-screen phone has wireless Internet, a camera, media playing capability, and the blessing of Steve Jobs. It's all part of their iLife. If they assimilate you into their brand image, that's altogether less thinking you have to do yourself.

KEVIN CEDRONE
4A MECHANICAL

Oranges are by far superior to Apples. This debate is settled every morning when people reach for a glass of freshly squeezed orange juice. That's right. Not Apple juice. I mean, sure, you could put an iPod or a laptop in a blender (http://www.willitblend.com/), but silicon and plastics used in iPods have less vitamin C. That's no way to start your morning.



I will concede that oranges lose out to Apple on the processing potential side of things, but have you ever had orange marmalade? Question: How delicious was it? Answer: A lot more delicious than a boiled, macerated MacBook Pro from a mason jar.

Oranges grow on trees. Trees help reduce atmospheric CO_2 levels. If you are against oranges, that would tend to indicate you hate the environment. Correct me if I'm incorrect, but doesn't that would put you at odds with the whole Apple-using, granola-eating, poncho-wearing, shower-not-taking, no-tire-fire-having, respect-the-Earth hippie movement? What gives, you hypocrite?

Oranges smell great. Countless companies spend tens of millions of dollars adding chemicals to their products to simulate an attractive citrus smell, and make them smell more like oranges. What's more, people actually pay to disguise their iPods (http://hideapod.com/). They want their Apple to look like something else!

Just because you're happy living your iLife doesn't mean you can't enjoy a delicious orange every now and again. An Apple usually has one fruit at the controls already.

When was the last time you had to recharge an orange? Have you ever cracked a screen on an orange by dropping it? When was the last time you were gunned down in the subway for your orange?

Exactly. The defense rests, Your Honour.

Undercover with Hippies

RORY ARNOLD
3A MECHANICAL

Journalists are always searching for new opportunities to cover a great story. In the past they have traveled to some of the most dangerous and desolate places on the earth. So, in looking for the story to put me into journalistic superstardom, I spent the past year living undercover with one of the most enthralling groups of people. Hippies.

To prepare for my journey I had to get myself into the mindset of a hippie. I taped my eyes open and forced myself to watch Michael Moore, I practiced smoking weed and listening to Phish, neither of which was any easy task. I grew out my hair and stopped washing it, I filled my wardrobe with tie-dyed t-shirts and flip-flops, I had to trade in my Grand Cherokee for a Volkswagen, and probably the most difficult task I had ever undertaken: I ate meals that consisted of no meat, not even fish.

My goal was to dig deep into the hippie lifestyle so I created a new persona for myself, his name was Rafael Noballs and he was the worst kind of hippie, a college no-it-all hippie. I met all different kinds of hippies. I met members of PETA, treehuggers, and even a few members of Feds.

We lived at a small retreat in the in the Virginia foothills spending our days growing organic trees. Unfortunately, because the harvesting had to be done by hippies, no one could stand to see a living tree cut down. At nighttime we got high and had lots of sex.

Every weekend we would load up our fleet of microbuses and head off to the nearest music festival to take down the corporations, and I think we almost took down Coca-Cola. We would join giant drum circles and voice our opinions about politics and the economy, and I can only assume all those Harvard graduate politicians would listen to us because, out of the small fraction that actually had degrees, they were in important fields such as psychology and liberal arts. But then again, I was on acid.

We protested everything from the way farms treat their livestock, to the war in Iraq. We held huge rallies outside corporate headquarters calling them barbarians for the way they treat the environment. We never actually did anything useful, but who doesn't love to go and tell the most influential people in our society what they are doing is wrong.

When the time had finally come for me to return to my past life I waved goodbye to everyone I had spent the past year living with and waited at the retreat's gate for my friend to come pick me up. When he pulled up in his Suburban we pulled the barbeque out of the back and had a pig roast with the Charlie Daniels blaring, all within sight of the hippies as they weeded their gardens and walked around naked, being one with nature.

GigaTech (cont.)

[KEY WORD]
Continued from Page 1

the Faculty has conceded that students will have to start somewhat smaller.

"Several organizations have expressed interest in having co-op students work on space-based weapons systems. SPECTRE, the Illumunati, and Google are looking at taking five to six students each. However, we recognize that some of our students may have ethical concerns regarding this work. As such, we've included an 'Introduction to Legal Liability' class into the Gigatech curriculum," Johnson said.

"Coming back to the Death Star example: Let's say that the engineers who designed the Star somehow ended up facing a military tribunal regarding the destruction of Alderaan. Well, if those engineers took Waterloo's GigaEng program, they would know that they were not responsible in the least. For all they knew, the Death Ray was going to be used to heat a very large tea kettle."

Rumours abound that Gigatech Engineer-

See [KEY WORD] on Page 4

Sippa Chai Seeks Feds Recognition

ERIC MIGICOVSKY
CHIEF
FOOD & BEVERAGE
CORRESPONDENT

A new motion put forward to the Feds Student Council calls for unilateral support and recognition of all fraternities and sororities in the Waterloo area. A UW Engineering student and member of the Sippa Chai fraternity, Jeremy Asho, is the key signatory of this motion.

In a recent interview with *The Tin Soldier*, Asho explained that the spirit of the motion demands that "Feds recognizes the sizable amounts of fraternities on campus, in particular Sippa Chai. Lots of Sippa Chai members, know simply as 'leaves', are important figureheads of our community and people that you would probably recognize from your local coffee shop or C&D. These organizations are steeped with tradition, despite their relative lack of recognition."

Asho described the current treatment of Sippa Chai as "brash discrimination that goes completely against the Ontario Human Rights code, and partially violates the Canadian Food Pyramid." He points out that many other groups, such as the Campus Crusade for Cheese (CCC) and the Engineers With Bananas (EWB) are all allowed to book rooms and preach the benefits of proper drinking habits. "All we're asking for is equality...and a proper barista at the Turnkey Desk."

These 'food groups' have come under close scrutiny in the recent past, due to highly publicized incidents as the Duke University Eta Lasagna trial, the UBC Beta Karotin vegetable mishap and the expanding Long Island chapters. University representative Catherine Adams has made it quite clear that "UW does not condone the elitist tendencies of these pretentious social drinkers. This foreign habit is not particularly welcome here and we suggest that they save it for back home, somewhere like London."

Enthusiasm recently boiled over with a splash of mildly caffeinated debate that spread like a wave over Internet forums like teadrinkers.com and Facebook, to engulf the Tim Horton's drinking masses in a wave of new-age theory and tastes. People from all sides of the coffee shop are ringing in with support and criticism of these secret societies.

In response to some of the scalding remarks over the inherent exclusivity of such an organization, Asho defended the Sippa Chai policy disallowing coffee-drinking members saying "including these types of drinkers would simply further dilute our concentration of taste-sensitive individuals." Asho also remarks that since UW itself contains exclusive groups, like the CCC, criticizing the exclusive nature of fraternities is akin to the pot calling the kettle black.

Overall, it seems quite clear that these teatotallers would be unwilling to give up their glorious fraternities for all the tea in China.

Written with input from our Ottawa news desk.

KWEEF Director Attempts Self Endowment

NODNARB TRAHED
KWEEF DIRECTOR

By the time you read this, I will have landed in the Philippines along with the complete principal of KWEEF: $100 billion.

It wasn't easy to get, requiring multiple *Office Space*-style applications to quietly siphon the money into my Swiss bank account. I wish all of the Engineering and Architecture undergrads whose money I took the best, and good luck with your classes. I will be living like a king for the rest of my natural life, but will always look back fondly on my torturous time in UW. Enjoy trudging through the assignments, projects, and labs and forget about the fact that I will be laying in the sun on a beach, towelling myself dry with C-notes. So long and thanks for all the fish!

Editor's Note:

The IP address of this submission was tracked to Helix Lab. The KWEEF Director was found asleep on his keyboard due to exhaustion. He has since been put through a negative filter to retrieve the elected WEEF Director, who immediately reversed the effects of the white-haired KWEEF Director. Security measures have now been enacted to ensure that the elected Director will never sleep again to prevent such an incident in future.

The Iron Warrior to Become *The Building Warrior*

MIKE SELISKE
1B COMPUTER

In a move initiated by current Editor-in-Chief Bahman Hadji, the Engineering Society newspaper *The Iron Warrior* will change its name to *The Building Warrior* as of the Fall term, due to the amount of building-related content in the past few issues this term.

Aside from the name change, the new policy manual will also mandate that 75% of the paper's content revolve around buildings on campus. There will be news on upcoming buildings, construction on current buildings, and tips and tricks on how to get the most out of the older ones. Secret passageways will be revealed and old articles from when the current buildings were being built and renovated will be reprinted.

"We did a couple of stories on the planned buildings and got some really good feedback, so we're gonna try to build up on that momentum," the editor said. "People liked the focus on buildings and the pictures of buildings and maps on the front page, and we even got great comments about our reports on the construction to current buildings like CPH."

He went on to say that the name would be a better reflection of the school and was inevitable based on the amount of construction happening on campus. The new and improved paper is sure to have interesting content and articles that people will want to read.

Watch for the new name and banner in September.

GigaTech (cont.)^2

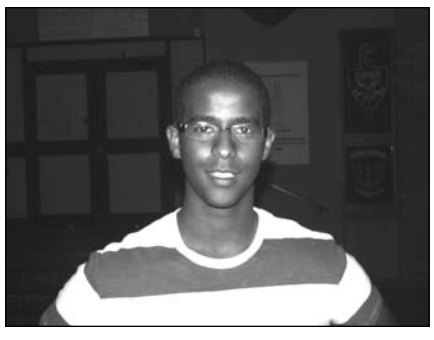
[KEY WORD]
Continued from Page 4

ing will not be the last new program introduced by the Faculty of Engineering. An anonymous source recently disclosed that, based on the popularity of the *Harry Potter* book series, Magical Engineering will be introduced as an undergrad program sometime before 2015.

THE TIN TRIBUNAL

David Morris, 1B Electrical

"What do you dislike most about Engineering?"



Zach Jama
3A Systems

"Ah, so much."

Dangerman
3A Danger

[Insert long-winded essay about how much he hates capitalism.]

Nodnarb TraHed
3A Tronamechics

"It's too hard to launder money."

Jorge Quan
2B Electrical

"PDEng."

Todd Radigan
4A Computer

"People bitching about PDEng."

Architecture Traditions: Projects, Parties, and Paestum

ANDREA MURPHY
2B ARCHITECTURE

The School of Architecture has a plethora of traditions, starting the moment you start your undergrad, right through fourth year. Every student hears the tales of the previous year's dining pavilions, or the field trip to New York, and of course the much anticipated term in Rome. Most of these narratives are told with a chuckle and a smile by the School's Director, Rick Haldenby, who has helped to inspire and separate the facts from the fables for this article.

Since rejoining the Faculty of Engineering two years ago, Architecture has joined in the Engineering Orientation Week traditions of "Earn Your Hard Hat" and "Junk Yard Wars". We, however, enjoy some archi-only time during the week, which begins your Architecture career with the infamous mug shot. This convict-style photo is taken when you begin first year and consequently haunts you until you are done. These have been mandatory since the opening of the School of Architecture in 1967, which means that somewhere in the archives, you can find pictures of many of our professors from way back when they first stepped into studio.

A 2A framing model project being presented in the atrium while first-years and second-years look on.

As a first-year class, our students embark on an educational field trip nearly every fall which results in class bonding and an influx of architectural literacy that only a trip to the big city can provide. This has in the past been a trip to Toronto, Montreal, or New York, but began with a class trip to Cypress Lake Provincial Park in 1974. How the times have changed – from camping excursions with tent building projects to big city trips with case study assignments. Either way, students have always returned with smiles on their faces and a sense of the big wide world of architecture into which they are about to embark.

Come the first October that you are in Architecture School, you will start to notice the excitement building as costumes are discussed and themes are tossed around for the annual Halloween Party. A partying tradition, if there ever was one, this event dates back to 1971 (but has been truly annual since 1988) and is planned by the 3B class every fall. Themed costumes and elaborate decorations are just the beginning of this event, which often results in lasting memories, some of which you wish you could forget.

After the mayhem of first year, second-year Architecture is filled with traditional projects – some of which are old, and some of which have recently been added to the program. First there are the large scale building projects, including a framing project (circa 1985) and the full scale dining pavilion, which was conceived of in 1987 and has become a renowned summer event which showcases the broad spectrum of student talent. During these deadlines, the student workshop becomes a frenzied swarm of activity and the whole school knows just to avoid the second-years and ignore the mess because they were once there themselves.

Also in the beautiful summer months of 2B, students take to the stage for the tradition of the 2B class play. As a project of the cultural history course, students produce a full length play, pulling out all of the dramatic and artistic talent that they can muster. Starting in 1974, this tradition has been an optional component, which has in the past been replaced with a historical model building exercise, resulting in phenomenal representations of classical works, now residing in the Musagetes Architecture Library in the Architecture Building in Cambridge.

Andrea Murphy, Kim Ho, Rick Haldenby, Eugenio Villareal, Kathryn Bell, Amir Marzban, Shamir Panchal, and Tyler Bowa's 2B floating dining pavilion project in the middle of the Grand River.

This marks the midpoint of an Architecture student's career, discounting co-op terms, which are often taken abroad and in such cities as London, New York, San Francisco, and Los Angeles. More students are looking beyond Canada for employment each year, and it is more common to hear a city name instead of a firm as the answer to the question "Where are you going for co-op?" Somehow the will of the traveler lives in many Architecture students and drives our co-op statistics to over fifty percent out of the country. This all began with work terms in 1970 when firms in New York and London first opened their doors to Waterloo students, and will most likely continue to flourish in the years to come.

By the time that a class reaches third year, the students have bonded through endless deadlines and group work, and have become accustomed to the upper-year tales of this year's pavilion projects or last fall's Rome trip. Even co-op terms abroad have lost their wow factor, as your peers share stories and photos from architecture firms across the globe. The greatest Architecture tradition remaining to be experienced is the 4A term in Rome.

The Waterloo School of Architecture has a studio in Rome, Italy, where fourth-year students have enjoyed their second-to-last academic term since 1979 – and you thought that Cambridge was a satellite campus! The curriculum is, of course, extremely different from a typical undergrad experience, including many field trips up and down the country to discover the architectural history for which Italy is known. Electives are replaced by essays and sketches on weekend trips north and south of Rome, core courses come alive in the heart of Rome, and studio takes on a whole new dimension when surrounded by the buildings of classical antiquity.

Of all the field trips, one of the most famed is the excursion to Paestum. Every year since the start of the Rome program in 1979, students have gathered on the beach of Paestum to enjoy a bon fire, a game of soccer or football, many group photos, and a swim. Swimming in the Tyrrhenian Sea has its dangers of course, including spiny fish which every year sting frolicking Architecture students. Luckily, years of experience and tradition have provided swimmers with the knowledge of the antidote for the sting: getting a friend to urinate on the swollen foot. After four years of studio life together, peeing on a peer's foot is apparently not as strange as it sounds. At the end of the night on the beach, there are rumours of a traditional skinny dip, and although photographic evidence doesn't exist, this isn't a hard tale to believe.

While touring the Italian countryside, fourth-years have always had a tour and lunch at the summer home of the Director of the Rome program, Lorenzo Pignatti, who is, in fact, a Count. The Villa Pignatti is on the site of two historical battles for Italian independence in the 19th century. Other dining traditions include a Thanksgiving dinner which dates back to the start of the program, as well as Tortelli di Zucca in Mantova, and grilled boar in Todi.

Throughout Architecture undergrad courses, in one way or another, one becomes familiar with the landscape of the Roman Forum. The dream tour, offered by the Director of the School of Architecture, Rick Haldenby, is a highlight for fourth-years that finally will see the ruins themselves. This grand tour lasts about nine hours, and as the story goes, ends every year with getting the whole class, Director and all, thrown out of the forum.

Fourth year ends in the summer term of 4B, when all of the knowledge from undergrad is put to the test with the comprehensive building design project for design studio. Yearbooks and graduation parties have been done over the years, but as of yet, there is no grand tradition for the graduating class to partake in at the end of their undergraduate studies.

Without a doubt, the longstanding traditions of the School of Architecture will surely continue on into the future years, but only time will tell what new projects, parties and field trips will be talked about in years to come.

4A students experiencing a lecture being given by Rick Haldenby on Capitoline Hill in Rome.

From The Iron Archives: The History of the Waterloo Engineering Endowment Foundation

The Long Road to Achieving a Well Endowed Student-Run Fund

BRANDON DEHART
3A MECHATRONICS

After reading my article in the previous issue of *The Iron Warrior*, you should all now be well-versed in how the Quality of Education Maintenance Fund (QEMF) was conceived, dealt with, and met its unfortunate end in 1982. Some of you may have supported the fund as it was, and others may not have. Some may have supported a donation, but not in the ways given. There are many reasons that it may have failed back then, but I believe and hope that the biggest reason is that the undergraduate engineers of the time desired a better solution to the problem at hand.

In the Spring of 1989, John Vellinga, Engineering Society "B" President at the time, and Avi Belinsky, thought that they had an idea of what that better solution might be. Things were looking even more dire than they had been in the early 80s when the QEMF was dreamed up. The Canadian Engineering Accreditation Board (CEAB) had just completed a review of the Faculty's programs and three of them had been given a half accreditation of only three years based on the poor equipment and stated that the base funding was inadequate to support the future of the given programs.

In addition to this poor vote of confidence, a look into how the engineering students' tuition was distributed was done. An individual student only paid 20% of their own education costs, and the entirety of the tuition went into a sort of university melting pot. Of this pot, only a fraction went to undergraduate education. This means that for every $4 dollars in tuition that was spent, only about $1 actually contributed to undergraduate education. According to values compared to recent years given by Dean of Engineering Bill Lennox at the time, the government was giving the schools 30% less funding, while the student to faculty ratio had gone up 25%, the enrollment numbers were up 60% and the tuition had actually gone down 30%. The equipment costs for the Faculty at the time were about $20 million dollars, while according to the budget there were only 200 thousand dollars available: That meant it would take 100 years to upgrade the technology to 'modern' times.

Vellinga and Belinsky looked into a variety of different ways for the undergraduate Engineering students to be able to contribute to their own education, finally coming to the conclusion that an endowment fund would be the solution they were looking for. An endowment fund consists of a principal of money which grows based on donations and investment gains, while the interest generated is spent. In order to ensure that the fund could benefit undergrads as much as possible as soon as possible, three sources of donations were proposed.

The first was a Voluntary Student Contribution of $75 per term, which is what we all see now as the WEEF Donation that appears on QUEST. The second was the newly incepted Plummer's Pledge, a promised donation from recent grads of a set amount for the three years after graduation. The final one was an Employer Matching Contribution, which was the only source of funding that never ended up being put into effect. The idea was that the employer of a UW Engineering co-op would match any contributions the student had made during the previous term.

While the idea of this endowment was being developed, questions arose as to how effective it would be. A shining example of Princeton was referenced, a school approximately the size of Laurier with an endowment fund of $2.8 billion based solely on alumni donations. This endowment is what made, and still makes, Princeton the amazing school that it is despite it being so small. Additionally, in response to the doubts, Vellinga took to randomly questioning Engineering students he found in the hallways, the C&D, and POETS. Here is one such encounter described by John in the October 20, 1989 issue of *The Iron Warrior*:

I was in POETS the other day and I asked a third year computer engineering student, "What would you say if I asked you to give $100 per term to the university and at least that every year after you graduate?" "I'd tell you to go to Hell," he said. I then asked him, "What if I told you the money would be used for undergraduate education only *and that some would be used to improve the EE 318 lab?" After thinking for about 3 milliseconds, he replied, "I'd give you as much as I could afford!"*

There were also doubts as to where the money would go once it was put into the fund. In order to ensure that the money was being spent on the items that the student body wanted, a Board of Directors with at least a 2/3 majority of students had to ratify any funding decisions made. The decisions themselves would be made by the Funding Council, a group made up of one student from every on-stream class and an elected endowment Director. Since the quality of a degree is based solely on the past and present students within that program, if the allocation was following the needs of the current students, then it would not only help to invest in their education, but would also increase the value of the degrees already presented within that program.

Finally, there were doubts about how the Faculty of Engineering would respond to the students funding projects and department labs. To ensure that the fund would have no negative effect in this way, before it was created a declaration was signed by the University administration stating that they would not ever adjust their funding or their funding policies due to the effects of this fund on the students' education. In addition, the fund was looked at as a direct benefit to the amount of alumni donations to the school in general, since at the University of Toronto the alumni donations tripled upon hearing that the students had enacted their own version of an improvement fund.

When the Voluntary Student Contribution was put to a vote within the Engineering Societies on both streams, the overwhelming support at 95% was enough of a statement that even then President of the University of Waterloo, Douglas Wright, congratulated the engineers on its inception and stated that it was a "brilliant idea". This was the beginning of the Waterloo Engineering Endowment Foundation, as without a student contribution, the alumni and employer contributions would be lacking to say the least. As the very first elected WEEF Director, Milos Djokovic, said, "If students don't show how important the under funding issue is, then why would anyone else support the cause?"

Let's fast forward a couple of years to the beginning of 1993, when the principal of the endowment fund has just surpassed one million dollars. The last set of funding given out in 1992 was 60 thousand dollars, a short two years after the fund's inception. In 1993, overjoyed by the huge principal value, the student representatives almost spent more than the feasible amount. This led to the Board of Directors instating given maximums per term to ensure that the fund was never in worry of having no money to give for a time. As stated by the new WEEF Director at the time, David Roorda, "The Board of Di-

See CAPITAL PROJECT on Page 12

Power Systems Generating Interest at Waterloo

HAROUT MANOUGIAN
4A ELECTRICAL

Innovation is not rare within the bounds of Waterloo's Ring Road. However, some fields tend to attract more media attention than others. Computer science and electronics usually take centre stage and people associate the campus with industrial partners such as RIM and Microsoft. Of course, though, our school excels at much more than just computers. This article discusses just one of our other specialties: power systems.

Waterloo's Power Group, consisting of professors from the Electrical and Computer Engineering Department, is world-renowned. That is why Professor Kankar Bhattacharya, a more recent member with wide international experience, decided to make the move to Canada. He recently agreed to an interview with *The Iron Warrior*.

Dr. Bhattacharya earned his Ph.D. from the Indian Institute of Technology, New Delhi. From there he worked on power sector policy at the Indira Gandhi Institute of Development Research in Mumbai. As the new phenomenon of electricity market deregulation was being introduced throughout the world, he monitored the dramatic shift in various jurisdictions and supervised Ph.D. students with similar research interests. After a time, he represented South Asia at the World Energy Council Project with the International Institute for Applied Systems Analysis in Vienna, where he served as a visiting professor. In early 1998, he was granted the Frederick Lamm Chair position at Chalmers University of Technology in Sweden, where he started one of the earliest undergraduate courses in deregulation. Since Bhattacharya was in constant contact with power industry experts, some would come to speak to the students in his classes firsthand.

Upon being offered a position at Waterloo, Professor Bhattacharya accepted and arrived on campus in early 2003. He now teaches an array of power systems courses, including a fourth-year special topics course on Power System Operation and Markets, which will be granted its own course code in Winter 2008. A graduate-level special topics course on electricity markets, ECE 760, goes into even more depth on the market side of restructured power systems. The course teaches students (including two ECE undergrads) about the classifications of system operators in deregulated jurisdictions and cover topics from bidding models to transmission and ancillary services. Practices of the IESO, the system operator in Ontario, are the focus of the course, but regular comparisons with European, American, and Australian markets provide students with a wide perspective of differing practices.

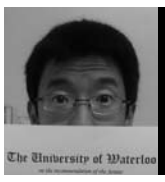
ECE 760, though a graduate-level course, would be a suitable technical elective for a fourth-year ECE student with some basic background from a co-op term. Currently the only fourth-year power systems courses are ECE 463 on power electronics, and ECE 467, the new power system operations course. Students who enroll in these courses and have good academic standing may qualify for one of five Hydro One Networks Inc. Undergraduate Scholarships, valued at $2000 each. These awards are given annually to outstanding fourth-year students enrolled in the Electrical and Computer Engineering programs. Selection is based on academic excellence and a demonstrated interest in power engineering as evidenced through enrolment in fourth-year power Engineering courses. This fund is made possible by a donation from Hydro One Networks Inc. to encourage Engineering students to consider a career in the Power and Energy industry.

Waterloo is also home to the only fully on-line MEng program in power systems, designed to serve the needs of professionals currently in industry. The project is a joint effort between all the members of the Power Group with strong support from Hydro One. Started in 2003, it has already graduated its first group of students.

In the coming years, as a large percentage of power systems professionals approach retirement, new graduates will be greatly needed in the field, especially as new challenges arise in Ontario and throughout the world regarding distributed generation planning and the integration of renewable sources into the existing power system. As protection, communication, and control schemes are updated to deal with changes, new standards are continually being researched and updated.

With exceptional faculty, strong industry co-operation, new courses and programs, and world-class students, there is no doubt that the University of Waterloo is a real powerhouse.

An Engineer's Life in Arts



DAVID YIP
'07 MECHANICAL

This past April I took my last Engineering course, wrapped up my fourth year project, handed a bevy of reports, and joined a the large contingent of proud but tired engineering students collectively known as the Class of 2007. Many went on Eurotrips – evidenced by the stream of Facebook galleries, or some went on to work immediately. Some others, like my own friends, pursued advanced degrees, either staying here, or going onto greener pastures such as the University of Toronto, or MIT.

I do not fall into any of those categories. I write now as an undergraduate Political Science student – oh that's right, an Artsie. My Iron Ring is practically burning a hole through my pinky.

"Why, though?" one wonders. Why would you obtain an incredibly desirable and employable degree (Engineering) and go on to Political Science? Why not something at least remotely related to Engineering, like Economics?

It puts a new spin on that small-talk staple: "What are you doing in school?" If I say "I have an Engineering degree," people will usually reply "Oh, good for you." However, if I say "I have an Engineering degree, but I'm now in Political Science," the typical reply is "What are you going to do with that?" as if I'd just told them I was in Scandinavian Translation Studies.

Before you question my sanity, know that it's not another four years. For some reason the Faculty of Arts thinks 15 courses from Engineering can be counted toward my Arts degree, and so I just need another 15 courses to obtain a three-year general BA, or three terms. So I'll be out by April next year. But why did I do it at all? Well – in Engineering, one only learns *engineering*. I wanted to learn a little more about the world – the human world, not just the natural world, and political systems, not just physical ones. Sure, we took electives, but we are kidding ourselves if we think a few CSEs counts as "rounding out" our education. The fact is, we have to learn a lot in Engineering, and few course slots are left over for other pursuits. However, in Arts you can complete the requirements for a major and still have many course slots left over to learn about whatever you desire. A more pragmatic reason my for my extra year is any non-technical advanced degrees I may want to pursue will want some Arts background anyway.

Well, now that I'm here, I must be basking in the glow of fairly even numbers between males and females, and slacking off every day, right? This may surprise you (because it surprised me), but I don't find myself any less stressed out – the only difference is that the results of that stress are higher marks (kind of), but I don't find myself with any more free time than before at all. I've also already had a share of poorly done assignments and exams, much to my chagrin. Many of the classes have multiple midterms and assignments, and so it always seems like something is due.

Additionally, it's taken a bit of time to adjust to the different style of thinking – it's decidedly more creative. It's up to you to come up with your own answer, as long as it is properly supported. Indeed the main thrust of Arts seems to be getting you to volunteer your own ideas in any given field, and ensure they are backed up by existing literature. Conversely for most of the Engineering program, there's only one answer, and it needs to be hunted down – deviating from the expected path will usually lead to undesirable consequences. This took a little getting used to in the first few days as I wondered, in class, how our discussions often seemed to wander far away from the topic at hand. Related to this is that I find instructors are very unwilling to say students have given an incorrect answer. This is partially because there are few truly incorrect answers, but instructors are often even reluctant to mention that the students could be way off base, instead settling on the universal catch-all of "Hmm, that's interesting." I can concede it's a tacit expression of "You're way off base", but I guess I prefer I more explicit statement.

My day has large gaps in it – I usually don't start until the afternoon, and I've three night classes. So far this has meant a lot of sleeping in and wasted mornings, but I'll have to do something about that soon if I'm going to have everything read to prepare for my three term papers. What this usually entails is knowing enough about the course to form an opinion or to answer a question about the course material, with enough supporting evidence from the readings. There's a lot of time spent in the library. I don't eat at the C&D anymore, nor at the plaza. For some reason the SLC and its Tim Horton's seem much more convenient. Classes are generally smaller, and it seems like you could easily make friends with your professor if you were so inclined, whereas class-instructor interaction in Engineering always seemed a bit impersonal. I have also found that my five years of practice in understanding accented English is going relatively unused.

Thanks to my laptop I haven't handwritten anything in ages, and slightly paradoxically, the quality of my handwriting has decreased since I got into Arts (which ostensibly has more words than Engineering). There are lots of readings, and I find myself using the books I bought a lot more than the Engineering books I bought. Looking back, maybe I should have read Engineering textbooks more, instead of just flipping through them to find equations. Perhaps this partially results from habit: Engineering professors don't usually assign readings, just questions.

No one has been particularly surprised that I lack a pocket protector, and I stopped carrying a calculator in my pencil case since the second week. I have had to explain (to my Arts roommates) what makes Firefox better, why torrents are better than Limewire, what the Ring is supposed to represent, and what the deal with The Tool is. I also had to admit once that I'd rather spend $50 on RAM rather than alcohol. On the flipside my roommates (all in Arts – all girls) have recounted a few experiences of condescend and arrogant Engineering students, and some bulbs are indeed dimmer than some others in my classes, so unfortunately some stereotypes ring true.

In all it doesn't really feel like drastic change – I'm just as busy, but with different books, and instead of reports I write papers (although reports are probably easier to write). In a general I find the subject matter more interesting, but not enough that I'll read it without getting tired of school.

Earlier on I didn't answer the question of "What are you going to do with a BASc in Mechanical Engineering and a BA in Political Science?" I have to admit: I really don't know. I can't really say that combination is in demand, but then I believe that university is not merely a place for career training – it's not some kind of glorified DeVry. University is also about broadening horizons, discarding prejudices, and exposure to new ideas. The world is getting smaller, and I may as well make an attempt at getting to know the neighbours.

"Management Engineering Program is a Variant of Industrial Engineering"

CURRICULUM

Continued from Page 1

in all departments, as a number of these courses will be made available as electives.

The program is designed to be primarily an Engineering degree, even if it may not be immediately recognizable as such. "You won't learn how to design a car aerodynamically, but you will be able to design cost effective and efficient car distribution systems," said Beth Jewkes, Chair of the Management Sciences Department. The technical side of the program will allow graduates to conduct a performance analysis of various configurations, manage the human dynamics of the product development, and develop quantitative business plans.

Management Engineering is billed as a "contemporary Industrial Engineering" program. Industrial Engineering, which is not offered at Waterloo, was developed to deal with the new challenges of high volume production and industrialization. ManEng moves beyond that and addresses current issues, such as data mining and information technology. While there are several Industrial Engineering programs offered across the country, this will be the first Management Engineering program in Canada.

According to a comparison done by Professor David Fuller of the Management Sciences Department, Waterloo's ManEng program shares 23 out of 33 core courses with the University of Toronto's Industrial Engineering program, taken with the Operations Research specialization. This specialization of the program was chosen for the comparison because it is the most similar to the ManEng program. Some key differences between the two programs are that Management students will take introductory courses in thermodynamics, mechanics of deformable solids and chemistry, but no human factors courses. They will also take management and business-focused courses instead of systems courses. "It seems reasonable to state that the Management Engineering program is a variant of Industrial Engineering programs, but that the differences are significant enough to justify the different name," Fuller concluded.

"You won't learn how to design a car aerodynamically, but you will be able to design cost effective and efficient car distribution systems"

The program curriculum was designed to meet Canadian Engineering Accreditation Board requirements for math, science, engineering science and design. The Management Sciences Department is confident that the program will be accredited, and to ensure that everything goes smoothly, the Department will be seeking feedback during the first year of the program.

The first year of ManEng will be the same as it is for current programs, with the concepts course (MSCI 100) and Engineering Economics (MSCI 261) being the only management-centric courses taken. Second year will begin to introduce some MSCI topics, as well as introducing students to mechanics of deformable solids and thermodynamics, both from the Department of Mechanical and Mechatronics Engineering. All of the third-year courses will be specific to the Management Engineering program. In fourth year, of the five technical electives required, two must be from other Engineering programs.

The ManEng degree will focus on three main areas of study: Operations Research and Supply Chain Management, Information Technologies, and Management of Technology. "Operations Research deals with quantitative models of complex operations and uses these models to support decision-making in any sector of industry or public services. Supply chain management is the process of planning, implementing, and managing the flow of goods, services, and related information from the point of origin to the point of consumption," according to the undergraduate calendar. Information Technologies focuses on software design and development, data mining, and telecommunications. The final area of study, Management of Technology, will cover accounting, finance, economics, organizational behaviour, and organizational design.

The anticipated class size was 60 students, however because extra offers of admittance are always sent out to account for students who have applied to multiple universities, 98 students ended up accepting their offers. More offers than necessary were sent because no data was available to accurately predict how many offers would be accepted. According to Jewkes, about 25 percent of the incoming class will be female, which is above average in the Engineering Faculty.

To accommodate the addition of an undergraduate degree, the Management Sciences Department will be hiring 14 faculty members over the next five years. New office space is currently being added above the Multimedia Lab in Carl Pollock Hall for Management Sciences faculty members and graduate students.

ManEng will be the fourth new undergraduate program to be added to the Faculty of Engineering since the beginning of the decade, following Nanotechnology (2005), Mechatronics (2003), and Software (2001). While Mechatronics and Nanotechnology were added with the goal of offering more specialized degrees, Management is a broader program designed to offer knowledge in a spectrum of areas. After Management Engineering, no new programs are on the horizon for addition to the Faculty of Engineering.

Nearly Every Piece of Lab Equipment Replaced

OVERHAUL

Continued from Page 8

old, including the antiquated oscilloscopes and function generators used to measure the time domain response of circuits (how the voltage waveform varies with respect to time). It also uses a complicated system called AutoBode, designed by Ott, to measure the Bode plot frequency response of circuits (how the circuit responds in the frequency domain in terms of magnitude (gain) and phase given different frequencies of input sinusoids).

There are eight AutoBode systems in the lab, each shared by two adjacent stations. The AutoBode system consists of a PC (originally IBM XTs, but eventually upgraded to Intel 286s and finally Pentiums) running Ott's DOS-based software written in the Pascal programming language. The PC contains a signal generator ISA card, also designed by Ott, which the software uses to interface with a gain-phase meter (about 20 years old, valued at $3000 at the time), which inputs a range of frequencies into the circuit under test and records the gain and phase responses. The meter reports the values back to the PC through an analog interface card, which the software records and plots on the screen in the form of a Bode plot.

Aside from the troubles of the old equipment, printing in these labs is a nuisance. For printing the time domain waveforms from the oscilloscopes, four mechanical X-Y positional plotters exist, one for each row of four stations. The plotter sketches the waveform shown on the scope by tracing the lines on the screen onto a piece of a paper using a mechanical arm holding a pen in a tedious but somewhat entertaining process. The frequency response Bode plots, meanwhile, are printed using eight dot matrix printers (one per AutoBode system), which are highly susceptible to paper jams and lacking in quality.

The Lab Instructors had been looking to modernize the ECE 380 lab system for some time. After passing on another integrated system and considering the costly replacement of the old equipment with newer "classical" scopes and generators (which would have cost $150000), they decided to go with the all-in-one solution of the Handyscope HS3, which Caradima refers to as "functional and economical". The HS3 is a computer-controlled instrument with multiple functionalities, including an arbitrary waveform generator, two-channel oscilloscope, spectrum analyzer, and multi-meter. It is the size of a small internal hard drive, and using the custom-made brackets designed by herself along with Ott and Luscott, will be able to be mounted inside a PC. The instrument has three ports: two scope input channels along with the waveform generator output. It is compatible with many programming languages using the programming libraries provided by the company. Caradima and Luscott are using the popular development environment LabVIEW to design the custom software to be used by future ECE 380 students for measuring time domain plots and frequency response Bode plots. This also allows them the flexibility to incorporate suggestions that students have into their software as they get feedback.

The ECE Department purchased several computers formerly residing in the Multimedia Lab when it was cleared out earlier this year for renovations, and 16 of these will now be used in the 380 lab. These computers will be running Windows XP and hooked up to newer CRT monitors, as the lab's old CRTs were incompatible with Windows. The monitors were acquired for free from the Faculty of Science, the Engineering Society, and the ECE Department, all of whom had wanted to find a good home for their older but functional CRTs after getting upgrades to their rooms or labs. These computers will each contain a Handyscope inside (stations will no longer have to share systems) and run the newly designed software for use instead of the function generator, oscilloscope, and phase-gain meter in the old system.

The Handyscopes will still be connected to the same circuits under test, and the time domain response will work the exact same way. The only change in the philosophy of the labs is how the frequency response Bode plots are generated: Instead of the old swept-sine wave system for getting the frequency response, the Handyscope's arbitrary waveform generator will output a white noise signal, which simultaneously contains all frequencies, and measure the output response of the system, providing an instant "live" frequency response on the screen – similar to what you'd expect with a scope. The advantage of being able to see all frequencies updated at the same time as opposed to waiting for the generator to sweep is paramount, as changes made to the circuit can be instantly seen on the Bode plot. This method also exposes students to an interesting and different way to generate the frequency response.

The only thing missing from the new system is the capability to print in the lab. In order to avoid risking their custom software not working as Engineering Computing upgrades common software, the computers in the lab will be kept offline. As a result, there will be no printers in the lab, nor will the computers be able to print to the Engineering network printers. Instead, students will use either USB keys or floppies to get screen captures of plots and data off the computers, which also means that they will now have the option of submitting reports electronically in addition to the traditional paper system, should they choose to print their plots off elsewhere. However, the Lab Instructors will consider adding a lab printer if they find that students are really in need of one.

One of the reasons the old system lasted for so long may have been because Caradima and the other Lab Instructors believed that since it is so hard to get funding to rehaul an entire lab and since departmental lab budgets are limited, when there is a system that works, you may as well stay with it. She was encouraged by the investment students are willing to put towards their education and knows the upgrade would not have been possible without WEEF's contribution.

"I didn't ask for more than $8000 because I thought that the Department would match and didn't want to put a strain on WEEF. But they were so eager and ready to get 380 changed. It's great that the students are so generous."

Overall, the upgrade of the entire lab has cost about $20,000 (WEEF paid for ten Handyscopes), which is a rather small amount given what the other options were and considering that nearly every piece of equipment in the lab except for the actual devices under test was replaced. The students in the 8-stream Computer Engineering class of 2009 will be the first to try out the modernized classical controls lab when they return to campus in September.

WEEF 'Hot' under Maclean's University Rankings

CAPITAL PROJECT

Continued from Page 10

rectors is obligated to ensure that the endowment income is as large as possible, however investment security [is the] top priority".

Jump ahead a few more years to 1998, when the millionth dollar of WEEF allocation would be spent, the principal having now reached 2.8 million dollars. A proposal to upgrade the Graphics Lab (E2-1310) was made in order to improve the first-year Engineering experience. However, the proposal would have taken half of all of the money available for funding that term. In view of the benefits of the improvements proposed, all of the departments informed the students that they would prefer to have the money spent as an upgrade to the lab instead of on their individual proposals. In light of this, the one millionth dollar was spent upgrading the entire Graphics Lab, and the lab was thereafter known as the WEEF Lab, renamed to honour the Foundation and commemorated by the plaque that is mounted outside the doors to its main entrance.

Again let us skip some time to the year 2000, for WEEF's tenth anniversary. Some money used as a buffer to offset inflation had grown fairly large and, in order to celebrate the tenth anniversary, both the Board of Directors and the Funding Council decided that a capital project was a good way to not only benefit the undergrads but also to ensure that others knew how much of an impact WEEF was having. So, all of the labs within Engineering were upgraded to use the Waterloo Polaris system from the WatStar system they had previously been using (now Nexus). This led to WEEF being listed as 'hot' under the "Hot or Not" section of the Maclean's University Rankings.

That brings us to the present day, where we are now considering a capital project towards the Student Design Centre of the planned Engineering 5 building to celebrate WEEF's principal reaching 10 million dollars and being in existence for 20 years. While the current principal is around 7.5 million dollars, it grows constantly and is only a few years away from reaching the milestone, so plans must be made well in advance.

I hope after reading this that you have a more thorough understanding of how WEEF came to be and how it works. Maybe you even learned a few things about how the school uses the tuition bill you pay every term. But most importantly, you should realize what an important part your $75 donation every term plays towards your undergraduate education, and be proud of the fact that we have the largest student-run university endowment fund in existence.

Iron Warrior Staff Appreciation Page

BAHMAN HADJI
EDITOR-IN-CHIEF

Being Editor-in-Chief of this newspaper has been an amazing experience. As Jaclyn and I put the finishing touches on the final issue of the Spring term and my last one as editor, I'm feeling somewhat nostalgic. I felt it was important to dedicate some space in this issue to my staff, who made everything possible. We have done a lot of great stories this term, from news no one else had covered to interesting feature stories to thought-provoking opinion pieces, and, yes, some fun stuff. I've been extremely proud of every issue we've done – thank you all.

The EIC gives out two awards every term: the Editor's Award (in recognition of outstanding achievement) and the Iron Pen Award (for the most prolific writer). This term, the Editor's Award goes to Mike Seliske, who always amazed me at the amount of initiative he put worth and the work he got done. The Iron Pen Award goes to Kevin Cedrone, who came through with quality writing ranging between investigative journalism to satirical articles (and we'll all remember how much fun he made the meetings). Congratulations, guys. I'd also like to announce that David Morris, who stepped up and took on the role of Assistant Editor halfway through the term and really lightened the load on myself and Jaclyn, will be the next Editor-in-Chief on A-Soc, in Winter 2008. I know he'll do a great job.

To the rest of my staff: You all deserve recognition, but there's only so much room here. I've left some parting words to a few of you below.

Jaclyn: I couldn't have done any of this without you, and I hope spending five whole weekends in the office with me didn't drive you insane. Thanks for keeping me in line, and putting up with me – but don't forget that you were the one who suckered me into it in the first place.

Andrea: I think you alone are responsible for our entire readership down in Cambridge. It was always interesting to read your articles and get the perspective of someone "down under". Thanks for putting in the time to contribute.

Ruth-Anne: It was great to see your commitment to the newspaper this term even though you had so much other work on your plate as President. Your contributions, in addition to the Exec reports, were a great addition.

Om & Yusuf: You were both great additions to the staff halfway through the term – staying on for more than the Nano conference was great.

Rory: It was fun having someone on the staff I saw eye-to-eye with on most things. Your Better Know a Beer column was very informative and you made it to every single staff meeting. Great job.

Yuvraj: You're a great writer and your contributions were great to have.

Dane: Your submissions were always top notch. I wish you could've gotten more involved or written more this term, but you were too busy wasting your time with EWB. Just kidding – you know I love EWB.

Eric M: You didn't disappoint as the Chief Construction Correspondent (or any other type of correspondent). Like Dane, I wish you had time to do more this term.

Dave Y: You graduated a few months ago, but still helped out in various ways, even though we didn't see much of you here around Engineering.

And the rest of the faces in the pictures on this page are Angus, Dan, Colin, Brandon, Faraz, Eric B, Alec, Jay, Harout, Michael, Jeff, Devin, and Steve.

Thanks again for a great term.

Dude, Where's My Hard Drive Space?

DANIEL MILLER
4A COMPUTER

Have you ever purchased a brand new 320 GB hard drive only to find, when you insert it into your computer, that the operating system tells you it's only a 298 GB drive? What gives? Where did those 22 GB go?

The problem occurs because of differences in the definition of mega-, giga-, and terabytes. Hard drive manufacturers define these prefixes, in proper metric fashion, as 10^6, 10^9, and 10^{12} bytes, respectively. This is the industry standard. Windows, on the other hand, uses a binary interpretation. For example, it calculates a megabyte as 2^{20}, or 1,048,576 bytes. This is a difference of only about 49 kilobytes from the metric definition, which is not particularly noticeable. However, a Windows gigabyte is 2^{30}, or 1,073,741,824 bytes – a difference of 74 megabytes when compared to the SI standard. Thus, when you try to access your new 320 GB drive, Windows calculates the number of gigabytes as: 320,000,000,000 / 1,073,741,824 = 298.02. Macs, as well as system utilities such as FDISK and certain system BIOSes, also report a gigabyte in the same way as Windows.

In December 1998, there was a proposal by the International Electrotechnical Commission (IEC) that would attempt to avoid this sort of confusion by creating the new prefixes "mebi-," "gibi-," and "tebi-" for binary measurements. So, for example, a "gibibyte" (abbreviated GiB) would be 2^{30} bytes, while a gigabyte would remain 10^9 bytes. For the time being, however, the Institute of Electrical and Electronics Engineers (IEEE) has decided that the metric prefixes "mega-," "giga-," and "tera-" may still be used to refer to their binary interpretations, "until such time that prefixes for binary multiples are adopted by an appropriate standards body."

The issue becomes especially confusing when mixing measurements. For example, the bandwidth of a PCI bus may be calculated by dividing its speed in MHz by its width in bytes, yielding a value in MB/s. However, the "mega-" in MHz means 10^6, while the "mega-" in "MB/s" could be interpreted as either 10^6 or 2^{20}. Interestingly enough, this problem seems only to occur with hard drives and other physical storage devices. RAM measurements, for example, are always made in GiB – 256 megabytes of RAM can only be 256 x 2^{20} bytes, never 256 x 10^6 bytes.

In short, you're not being cheated out of hard drive space – if you buy a 320 GB hard drive, you're still getting a full 320,000,000,000 bytes. The catch is simply with the way the number is reported to you.

Complete Debt Load Survey Results

1 Term Total

Total Responses	551
Number of surveys sent	2574
Response %	21%

2 Does your family support you financially? (771 responses)

Yes	60%
No	40%

3 Average Cost of Living for a 4 month School Term (769 responses)

$8,874

4 Average Cost of Living for a 4 month Work Term (692 responses)

$3,956

5 Have you applied for local aid or other bursaries to pay for school? (770 responses)

Yes	42%
No	43%
Not Yet	14%

6 Have you applied for OSAP? (773 responses)

Yes & Received	34%
Yes & Denied	19%
No	48%

7 Do you have a loan for academic purposes? (771 responses)

Yes	38%
No	52%
Not Yet	10%

7a How much is the student loan? (359 responses)

1-499	5%
500-999	5%
1000-1999	7%
2000-4999	27%
5000-9999	25%
10000+	30%

8 Has the differential tuition increases caused you hardship? (770 responses)

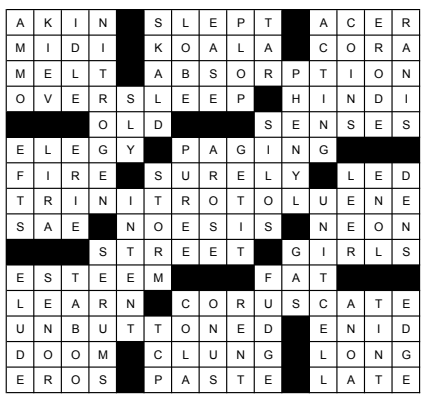
Yes	40%
No	29%
Not Yet	31%

9 How much debt do you expect to be in by graduation? (753 responses)

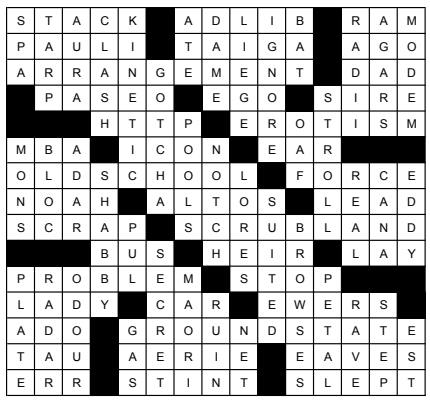
No Debt	29%
<999	4%
1000-4999	13%
5000-9999	17%
10000-19999	19%
20000+	17%

Crossword Solutions

Last Issue



This Issue



Better Know a Beer: Lakeport Pilsner

RORY ARNOLD
3A MECHANICAL

When it comes to buying a case of beer, I choose my next purchase the same way a kid chooses his next cereal. Sure, the taste is important, but not nearly as important as the prize that comes inside. My last purchase was based on exactly that: which beer would give me a free t-shirt. The answer was Lakeport Pilsner.

Lakeport Pilsner is brewed by the Lakeport Brewing Company in Hamilton, Ontario, and was the frontrunner in the current bargain beer revolution to drastically change the beer market in Canada. In 1999, Lakeport brewery was on the brink of bankruptcy when it was sold to AlphaCorp Holding Ltd. who hired Teresa Cascioli as CEO. Cascioli later became the sole owner of the company until their initial public offering in 2002. In February 2007, Lakeport was sold to Belgium-controlled Labatt Brewing Company for $201 million.

Cascioli remains the CEO of the company and can be credited for Lakeport's recent success. In 2002, when Lakeport switched from a premium brewer to a discount brewer, Lakeport's market share in Ontario was 1%. In 2006, it had increased all the way to 11%.

Currently, Lakeport produces a wide selection of beers including Steeler, Brava, a Mexican style beer, Mongoose, a malt beer, and one of my favourite beers, Wee Willy, a Scottish style beer, as well as a number of beers under the Lakeport name including a Pilsner, Light Beer, Strong, Ice, and Red beer. Lakeport Pilsner is currently the 8th best-selling beer and Lakeport Honey is the best-selling honey beer in Ontario. Lakeport prides itself on being the only discount brewer to put the brewery's name on their discount beers.

As Lakeport continues to grow, they look for new ways to reach Canada's vast array of beer drinkers, while still putting out discount beers for the mainstream beer drinker. Recently they have made Lakeport Pilsner, Light, and Honey available in 473 ml cans while still keeping them at the lowest legal price.

Lakeport prides itself on being close to the community, participating with many local charities including the Salvation Army and local food banks. They employ over 200 Hamilton residents and the management team keeps friendly ties with the local union.

Lakeport is a very versatile beer. It's great for weekends at the cottage, drinking while you barbeque, and I have found one of its best uses is to be used in my cooking. For one of our weekend barbeques, I grilled up some salmon marinated in Lakeport and my homemade salsa, which made for a delicious meal.

Whether I'm partying or hanging out at the cottage, I like to complement my Lakeport with a good mixture of southern and country rock with Lynard Skynard, Chris Ledeux, and Montgomery Gentry.

I give Lakeport Pilsner a total score of 7.5/10 as I find it is not the best value beer on the market, but it does not trail far behind. I gave it a perfect score in the cost, image, and drinkability categories because its marketing campaign as a "great beer" at "fair prices" is both descriptive and true, and Lakeport is a great beer for weekend binges (Ed: *The Iron Warrior* does not endorse weekend binges). Lakeport can be drunk easily from the bottle and does not suffer from over carbonation like most mainstream pilsners such as Blue. Lakeport has a light taste with sweet aroma and a bit of a bitter aftertaste.

When it comes down it, you should never feel inferior while drinking Lakeport. Drinking a discount beer no longer means drinking moose piss; it means you can still enjoy the great taste of beer without putting a hole in your pocket.

Video Game Heroes: From Zelda to Halo

COLIN OLIVER
4A COMPUTER

This will be my last Video Game Heroes article this term – but fear not! I may be back in a term or so. Anyway, I think I've got some good ones this week, and I've still managed to keep to one Nintendo character per article. I'm trying to be fair and balanced after all, and not in the Fox News way. As for those of you who think Fox News *is* fair and balanced, well, you can go eat a pinecone.

First on the list is my favourite sword-wielding elf in green, who doesn't speak except to grunt or scream, who loads up on milk instead of hitting the bars, and traps small creatures in clear glass jars (that sort of rhymed). I'm talking about Link of course. He's the only video game character I've ever dressed up as for Halloween – made the costume myself! He's one of those rare cases where the casual observer will have no idea what his name is, because each of his games are named for the princess he so routinely saves, Zelda.

Something that has always impressed me about Nintendo is that they never forget about their roots and what people have enjoyed about their games from the beginning. Zelda games are no exception, and have always followed a strict pattern and principle of adventure gaming that some would consider repetitive. Most people never notice however, because it's so perfect in its execution that we end up being consistently satisfied. Have you ever played Twilight Princess? You should. It's fantastic.

For my second character, I'm breaking my rules a bit. I'm going with someone who really hasn't been around that long. In fact, as of this point, this character has only two games (along with some special guest appearances). But in my opinion, it is because of this character that Microsoft is still around in the console gaming business at all. I'm talking about good old Master Chief.

For those of you who don't know that name, surely you know of Halo. I remember playing Halo for the first time – it was one of those rare circumstances where a game lived up to the massive amounts of hype it was getting. Without it I think the Xbox would have flopped entirely. Both existing Halo games have a fantastic single player campaign with an interesting plot, though perhaps the best part is their multiplayer mode. I'm going to make a bold statement and say that it's the best multiplayer first person shooter experience I've ever had. Disagree with me if you must, but they did a damn good job, and if you haven't tried it, I highly recommend giving it a whirl. I believe both games have been released for PC now. With Halo 3 around the corner, a real time strategy game in development called Halo Wars, and a live action movie in the works, the future looks bright for Master Chief.

Here's something to think about, that I wanted to end on. When we think of Nintendo, we think of Mario. For Sega, it's Sonic. For Microsoft, it's undoubtedly Master Chief. But who is Sony's character? It's not for lack of playing Sony games that I can't think of one – I own almost every system, but I honestly can't think of one particular flagship character. Stealing the Final Fantasy series from Nintendo doesn't count. Is it Crash Bandicoot? Ratchet & Clank? Jak and Daxter, perhaps? If anyone reading this can think of a better one, do me a favour and scream it out loud at the top of your lungs and hope that I'm within earshot, because I don't feel much like giving out my personal contact information – or you could just send it to iwarrior@engmail, and I'm sure someone will pass me the message.

Happy gaming, everyone!

Open Letter to Cyclists

EVAN MURPHY
4A COMPUTER

Dear Cyclists,

It's me, the Pedestrian. We both have common goals. We both want to get to where we are going without polluting the environment. We both like getting good exercise. We both enjoy the outdoors. Your mode of transportation may be faster, but hey, we can't all afford bikes.

I appreciate what you guys are doing, but there's one thing you must understand: The sidewalk is for pedestrians, not bikes. Don't take this the wrong way. I don't mind sharing the sidewalk with bikes. It is unreasonable to expect cyclists to ride on the road under all circumstances. When the road is covered with snow and cars are slipping all over the place, I fully understand why you might be inclined to ride your bike on the sidewalk. If there is no bike lane, and it's a road with a high speed limit, it would definitely be in your best interest to ride on the sidewalk. That being said, a lot of the streets around Waterloo have nice bike lanes, and it's currently summer. There is no reason for you to be zipping down University Avenue on the sidewalk.

But, if you are going to come on the sidewalk, there are two rules you must abide by:

1. Do not pass pedestrians at top speed without leaving any space. I understand you are in a hurry; we've all been late before. But if you ride by me like that and I have my headphones on and don't hear you coming, and, heaven forbid, I decide to stretch out my arm as you ride by, you are taking a quick trip to a face full of sidewalk. Trust me, you don't want that.

2. Do not ring your bell at me and expect me to get out of your way. I have the right of way; you legally shouldn't even be riding on the sidewalk. You ride around me.

If we can both respect each other's spaces, I think we could get along well. You don't see pedestrians walking down bike lanes on the road, do you? Please, Cyclists, understand that you are riding a vehicle and that when you ride dangerously on the sidewalks, you endanger and severely piss off us pedestrians. I can't promise I won't need to stretch my arms next time you ride by if this behaviour continues.

Your friend,
The Pedestrian

Facebook Carpool Application

RAJAT SURI
'07 CHEMICAL

UW is famed nationwide for its technical expertise and supposed entrepreneurial culture. But how often do we hear of new companies being formed by UW students? These are rare at best, but the fact is that there are people in our midst who are taking risks to implement their ideas and their vision. A great example is Facebook Carpool, developed partly by UW engineering students.

As you may have heard, Facebook recently opened up its platform to third-party applications. This has been hailed as a tremendous opportunity for new social initiatives that can employ Facebook's strong online networks to grow and thrive like never before. And there is no idea that can better leverage social-networking for the benefit of society than the concept of online ride-sharing.

The benefits of sharing rides are manifest. Passengers can get to their destinations, drivers can split gas costs and everyone else enjoys less traffic and lower pollution. But despite all these advantages, and the advent of communication technology such as internet ride-share boards and cell phones, ride-sharing is still very much at the margins of mainstream society. Why?

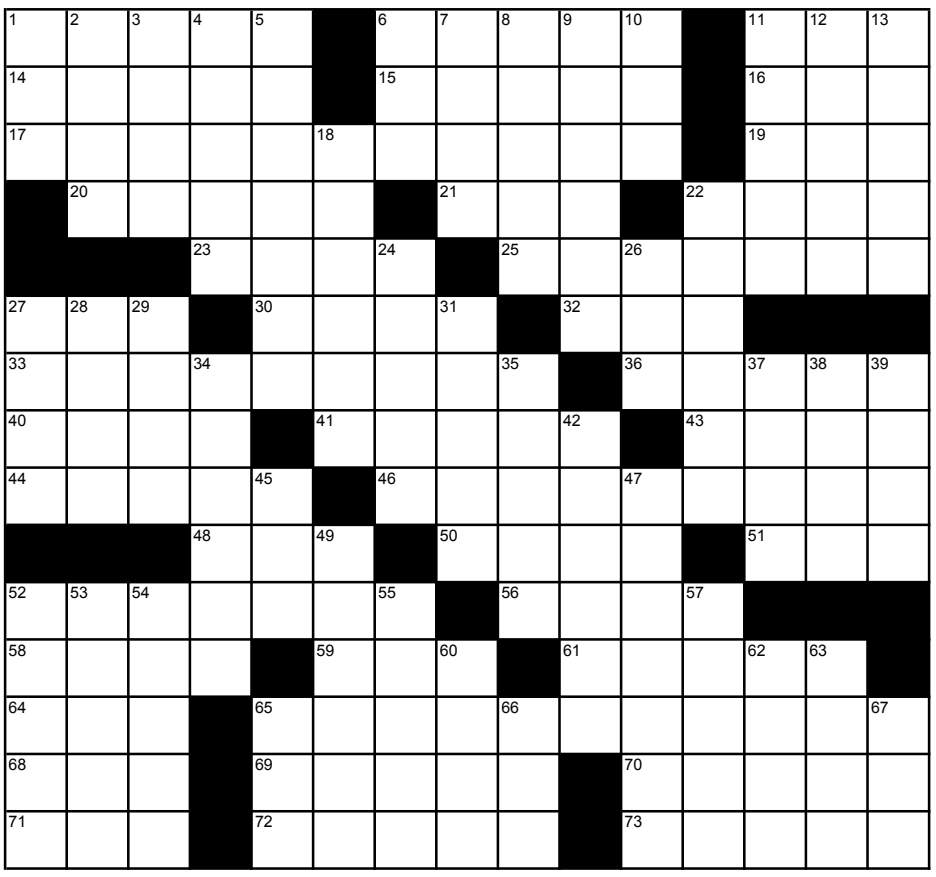
Social-networking has changed the game. This technology has made it possible for people to establish trust in an online environment, thereby shattering the bottleneck for online-ridesharing, and Facebook Carpool, the new ride-sharing application that is embedded into the Facebook interface, is the first sophisticated utility to take advantage. Its mission is to reduce the barriers to a mainstream ride-sharing culture, where everyone can find ride-sharing partners in an easy and safe way.

With this new Carpool app (http://apps.facebook.com/carpool/) comes many innovative features that the developers think will truly revolutionize online ridesharing:

- See all your Facebook friends' rides
- View rides in your network
- Search all rides
- Add ride offers or requests, for commutes or one-time trips
- See the profiles of those you wish to ride with
- Manage your frequent locations using Google Maps
- Determine how far a detour you need to drive to pick someone up
- Track all the rides you've shared and your reduction in CO2 emissions
- ...and many more.

Crossword

MICHAEL SUE-KAM-LING
3A CHEMICAL



Across
1. Poker bet
5. Frighten
10. Shrubbery
14. Rendez-vous
15. College partying garbs
16. Esoteric preposition
17. Controversial new program
19. Drunken speech
20. Tenth month
21. Consumes
22. Endeavour
24. Valley
25. Mimic
26. European vipers
29. Babbles
30. Engineering hangout
31. Hues
32. Trendy
35. Makes a mistake
36. Ascended
37. Italian wine
38. Downhill sport
39. Pertaining to
40. Stolen goods dealer
41. Against
43. Pestilence
44. Civil's instrument of choice
46. Ancient Israeli king
47. Tainted
48. Cartoon prankster
49. In favour
52. Arab chieftain
53. Protects our mascot
56. Give in
57. Hustle
58. Finished
59. Leg joint
60. Two carbon group
61. Probability

Down
1. First-person shooter resource
2. Secretive engineering committee
3. Camping necessity
4. Seventh Greek letter
5. Pilfers
6. French nobility
7. Grows older
8. Jogged briskly
9. Approximate
10. Similar to 57 across
11. Releasing from binds
12. Daredevil's feat
13. Orcs, trolls, et al.
18. We can fix anything with them
23. Party snack
24. They secured our freedom
25. German surrealist
26. Heston visited their planet
27. Dunce
28. Rate of change
29. Devout
31. Salmon relative
33. Imperial distance
34. Shakespeare's profession
36. La fée verte
37. Cover or conceal
39. British buttocks
40. Flautist's instrument
42. Main course
43. Adjustable weight
44. Follow secretly
45. Caesar's empire
46. Saline
48. Raptors star
49. Nudge
50. Tear violently
51. Metal bearing minerals
54. Grain
55. Fuss

Caption Contest

Winner:
"An Elephant Graveyard of the Digital Age: Where Parabolas Go to Die."
Yassir Rizwan and Brandon DeHart
3A Mechatronics

Runner-up:
"Thanks to a disgruntled Civil co-op, these deceiving beams are actually critical load bearing members."
Elliot Powidajko,
Mechanical Grad Student.

Rock Star

YUVRAJ GOEL
3A MECHANICAL

I blast Stairway to Heaven like a new song
Lift my gun up lovingly like a newborn
Whenever God speaks to me I'm ready to talk back
Blood type is Fire, you can check it on my dog tags.

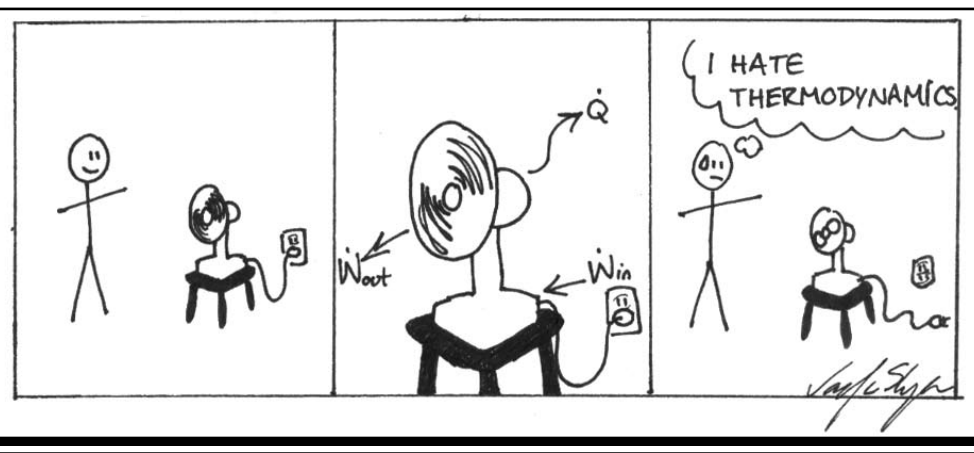
I'm a soldier, eyes cold and heart colder
"Baby I'll kill one of them for you" is what I told her
We play Cops and Robbers in their province
With 31 flavours of death like Baskin Robbins.

But guerrilla warfare ain't a walk through the park
Like that Bon Jovi song you get shot through the heart
That's what happened to my buddy, his killer was a gargoyle
On his face, a disappearing smile, like a war child.

A bloodlust replaces my powers of deduction
Anger is a vixen that devours with seduction
Showers of destruction to wipe out the heathens
In the death of my enemies, I shall find my freedom.

Knowledge: The Bane of My Existance

JACLYN SHARPE
3A MECHANICAL



THE IRON INQUISITION

Mike Seliske, 1B Computer

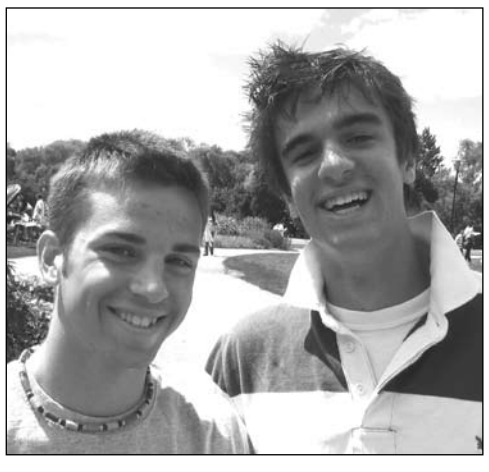
"What are you looking forward to most about Engineering?"

Kieran Crawford
Computer

"Getting away from home."

Nelson Yu
Mechanical

"Actually building stuff."



Wes Olsen and Ryan Wagner
Mechatronics

"Getting our hardhats."

Jeff McClure
Mechanical

"Calculus!"

Tim Lau
Computer

"Chance to do something cool with computers."