The Civilian

One Department, Two Great Programs: Civil and Mineral Engineering / Issue 13 / June 2012

Mining Success

Lassonde Mineral Engineering
Celebrates an Outstanding Year

An Attitude of Graditude

Annual Campaign Sees Record Results

welcome

You may have seen in the news recently that UofT is one of the founding members of the exciting new Center for Urban Science and Progress (CUSP)[1].

A partnership of seven universities and nine global companies, one of the primary objectives of CUSP is to turn applied science and engineering research into market-ready tools for cities around the world.

Here at Civil Engineering we are excited to be a central partner in this exciting initiative.

One of our first initiatives is to create a new professional Master's program in Cities Engineering and Management. This unique program keeps one foot solidly planted in engineering, but also provides courses focused on city-related issues: Empirical Analysis of Cities; Infrastructure and Urban Prosperity; Challenges of Urban Policy-Making; Cities as Complex Systems; Economics & Infrastructure; and, Integrative Decision Making.

We hope to start the program in Sept 2013.

The Department will be undergoing several reviews this year, including an accreditation review for both the civil and mineral undergraduate programs in October.

More recently, however, we were visited by an external review committee from four of our North American peer institutions.

This was a broader departmental review that examined all aspects of our operations and activities.

Although we have not yet received the final report, I was very pleased by the positive feedback and constructive comments from the committee.

This process is extremely important in our quest to be the best in the world.

I hope you enjoy this issue of the Civilian.

See you at the Survey Camp reunion on Sept. 15th.

Cover: Donors to the annual Graditude fundraising campaign showed off their spirit this spring by sporting commemorative pins.

Brenda McCabe
PhD, PEng

Associate Professor & Chair
Department of Civil Engineering

Letters

Still a Great Place

Thank you for seeing that this most interesting issue of the Civilian reached me along with the Autumn Issue of the U of T Magazine.

Memories of Gull Lake Camp are still pretty clear, though the pictures look different.

I attended the camp session with the SPS class of 1935. For me it was a memorable session, with my name painted on the ceiling of the bunkhouse along with the others, but specially appended "'36."

My guess is that the fellowship amongst students then was close to the current grade. It was a great place to be.

Richard H. Miller
CIV 3T6

Richard Miller's time at U of T is not only remembered by his signature up at Camp. He took an extra year in 1932, quarterbacking the U of T Varsity Blues football team to a championship victory. In 1933 he played back-up quarterback with another team you may have heard of, the Dominion champion Toronto Argonauts.

Off Road at Dorset

Classmate **Bob Howard** and I had both come into the second year of Civil Engineering at the University of Toronto from Architecture.

We started into the third year of Civil Engineering studies in the summer of 1954 by going to the survey camp held at the Dorset Forest Ranger School.

This was known as the modern facility compared with the much more rustic amenities found at Gull Lake. Each camp accommodated about half our class.

My first two weeks of spare time at the Dorset camp were taken up with concentrating on writing four supplemental exams on subjects carried over from my second year. I was very happy to receive confirmation on September 11th that I had passed.

I could then give my attention to survey studies (perhaps not my full attention, as I recall.)

I was fortunate to have wheels in the form of a 1941 Dodge coach. When it was announced that there was to be an evening of dance with the summer help and waitresses at the prestigious Bigwin Inn on Lake of Bays I readily volunteered my services as a taxi.

As there were no girls in our year this social event was very much looked forward to. Several of the very lovely girls were from South Carolina and I recall our fascination with their southern accents.

My car was later put into service to carry the survey party I was with and our equipment across a farmer's field to one of our assigned survey exercises.

The drive to our site led across a small

stream crossed by a temporary bridge made up of logs.

With care my car easily negotiated this and we continued to our location.

At the end of a successful day of surveying, we got back into my car and, with a bit of a shock, came to a raging torrent where previously our narrow stream had existed.

The very temporary wooden bridge was now loosely floating with a strong possibility of disappearing downstream in the ever rising water.

It seems someone had decided that it would be fun to breach the beaver dam upstream just before we had arrived.

My loyal classmates quickly exited the car rather than risk going "down with the ship." I made a very quick decision to try and cross what was left of the bridge.

I gunned the car and pointed the wheel toward where I hoped most of the bridge still sat below the waterline.

With a wild lurch and the squealing of tires I somehow ended up on the other side and back on a path to the exit. Behind me the remains of the bridge broke up and floated downstream, but my little Dodge was still intact.

My loyal classmates happily all piled back in for the return trip to the Forest Ranger School and in time for one of their excellent dinners with homemade pie.

Up until this point I had been rather envious of one of our survey Professors and his beautiful black 1938 LaSalle sedan. I doubt, however, that his big heavy car would have been so resilient on the remains of the bridge that day.

David Conboy Brownlow
CIV 5T6

Cressy Award Reflects Leadership, Academic Success

Graduating student **David Cheung** (CIV 1T1 + PEY) was honoured for his longstanding leadership this spring with a citation at the 2012 Gordon Cressy Student Leadership Awards.

As President of the Engineering Society, David represented over 4,800 students and helped administer a budget of more than $1 million.

He spearheaded the development of a website that allows all students to view past exams and courses, a site which is now used by most students here at the University.

He has also been a great resource for the Office of Student Services, volunteering his time for recruitment events and other opportunities to showcase our remarkable programs.

David is now set to graduate this summer after completing a Professional Experience Year (PEY) with the City of Toronto.

The Gordon Cressy Student Leadership Awards were established in 1994 by the University of Toronto Alumni Association (UTAA) and the Division of University Advancement.

In naming the awards after Gordon Cressy, former Vice-President of Development and University Relations, the UTAA recognized his commitment to higher education and his leadership in fundraising and community service.

The Department congratulates David on his past success and we look forward to the next step in his engineering career.

David Cheung (CIV1T1 + PEY)
Photo by Engineering Strategic Communications

Alumni Travels

Wahed Fidaali (CIV0T7 + PEY) recently returned from a year abroad. His work helped build local capacity through science and mathematics education.

Wahed Fidaali with students in Usagara, Tanzania

In early 2010 I was offered an amazing opportunity to travel to Tanzania to do some volunteer work very close to my family roots.

Tanzania is a country in East Africa about the size of Ontario. My father is from Tanzania, and I travelled to Tanga, the town where he was brought up, to work at Usagara Secondary School (Usagara), my father's former high school.

In 1999 my father and a group of Usagara's Alumni based in Canada organized a high school reunion for Usagara Alumni.

Over 400 hundred alumni from all over the world attended the event in Toronto, and since then the Alumni have been raising funds to invest in their former alma mater.

In 2009 the alumni network formalized these efforts by forming Tanga Education Support Association (TESA) a Not for Profit Company in Canada. I grew up hearing stories both of Tanga, and Usagara, and the decade long commitment by Usagara's Alumni to invest in their alma mater really impressed me.

When some TESA members approached me about helping their efforts, I couldn't refuse – I wanted to help out and felt a real connection with the project.

I was very fortunate to garner support from Halsall Associates, whom I had been working with since graduation in 2008. Halsall generously offered me a 10 month leave of absence.

I embarked on my journey to Tanga in June 2010 with the intent to stay in Tanzania until the end of the year.

Earlier in 2010, TESA had set up the TESA Learning Centre (TLC) at Usagara – essentially a library and study space. I arrived in Tanzania with three main tasks: to assess the operations of the TLC, to work with TLC staff to improve our services, and to provide teaching support at Usagara.

Tanzania, like many developing nations, faces a critical lack of science and math teachers, and Usagra's students and administration were very happy to have a Canadian Engineer at their school.

I was assigned to teach Form 3 Mathematics, the equivalent of about grade 11 math.

My form 3 students made my time in Tanga very special. While I helped them navigate functions, circles and geometric progressions, my students helped me improve my Swahili (the language spoken in Tanzania).

I was inspired by my students, who despite the myriad obstacles, such as poverty, poor access to resources, continued to stay positive about their education.

When I wasn't teaching, I spent my time in the TLC, working on various service improvement projects. I was really pleased with the success of the TLC, and the locals were too - well over 100 students visited the centre each day.

I was mainly focused on increasing the number of resources we provided while also improving and updating the existing ones.

The TLC mainly stocked textbooks from the Tanzanian curriculum, and I was able to significantly increase the number of textbooks we carried.

Close to the end of my stay in Tanga, I put my engineering skills to use, and planned and carried out a renovation of the centre to make space for a computer lab.

I left Tanga with warm memories of great experiences and wonderful friends. The best part of my experience was that I returned home feeling that I had made a difference.

Tanzania is a very poor country, and I witnessed many types of poverty on a daily basis. Apart from the physical poverty characterized by lack of material goods, there exists institutional poverty – strained school systems, government agencies that lack the human and know how resources and very real lack in physical infrastructure.

I've returned home with a deeper appreciation of how lucky we are as Canadians, as well as a desire to return to Tanzania when I have more skills to contribute to build upon the work I started in 2010.

Mining Success

A warm welcome to **Prof. Kamran Esmaeili,** who joined the Department of Civil Engineering earlier this Spring.

We are very pleased to introduce you to our newest faculty member, Prof. Kamran Esmaeili.

Prof. Esmaeili has more than 8 years of experience in the mining industry and academia. He joined the Department of Civil Engineering and the Lassonde Mineral Engineering Program in February 2012 from Golder Associates-Montreal, where he was project manager or senior mine specialist for several geomechanical mine design and mine feasibility study projects in Canada, Africa and South America.

Kamran received his PhD in Rock Engineering in 2010 from Université Laval.

He will be conducting research and teaching in the fields of geomechanical mine design, numerical modeling, feasibility assessment of mining projects, and the application of geostatistical techniques in mine design and planning.

"We are tremendously excited to have Kamran on board," says Prof. Brenda McCabe, who participated in the work of the selection committee. "Prof. Esmaeili's approach is a great addition to our Departmental team, and his research interests will advance the already great work coming out of the Lassonde Mineral Engineering Program and the Lassonde Institute of Mining."

Philippe F. Morissette Wins for Best Paper

Philippe F. Morissette, a PhD Candidate under the supervision of Prof. John Hadjigeorgiou in the Geomechanics Research Group and the Lassonde Institute of Mining, has been recognized for his outstanding work by the Canadian Geotechnical Society – Southern Ontario Section.

The CGS held its annual Graduate Student Presentation competition earlier this spring, and included submissions from five universities: Toronto, Ryerson, Waterloo, McMaster, and Western.

The local section's competition is a way of preparing each university's entry to the national competition.

Philippe was the Southern Ontario Section winner with his presentation: Validating a Support Performance Database based on Passive Monitoring Data.

His first place win includes a $500 prize and two tickets to a Toronto Raptor's basketball game.

Philippe's presentation was recorded along with a follow-up question and answer period, and this will now be sent to the national competition level.

Please join us in wishing Philippe the best of luck.

Mummies Survive, Rocks Under Threat

Qui Yi Li (MIN 1T3) is getting some unique first-hand experience in applied rock mechanics this summer.

Thanks to a research fellowship offered by the J. Edgar McAllister Foundation, Qui Yi is working with **Prof. John Harrison**, Keck Chair and Associate Director of the Lassonde Mineral Engineering Program, to understand the effect of humidity in underground archeological excavations.

The dry Egyptian sands have long been credited for preserving the ancient history of the land with remarkable longevity, but all that can change when a site is exposed to air, light, equipment or, of course, moisture.

"Many underground archeological sites in Egypt show increasing evidence of instability in the form of degradation of the rock within which the excavations are made," writes Prof. Harrison. "Some published work suggests that this degradation is due to increased air humidity within the excavations."

This summer's work will focus on one site in particular: the catacombs of the canine god Anubis in Saqqara, Egypt.

Saqqara is well known to tourists as the location of the famous step-pyramid, but well below the searing heat of the sun is a vast and largely unexplored network of tunnels used to bury the mummies of an estimated 8 million sacred dogs and other animals.

According to the team of researchers working on the project from the Cardiff School of History, Archaeology and Religion at Cardiff University, the site probably served a religious, cultural, and economic function at a time when Egypt was just opening up to the broader Mediterranean world.

The number of new burials there probably started to decline around 30 B.C., and it was rediscovered sometime in the 19th century or even earlier.

Despite this, most of the network has never been examined due to safety concerns over the poor condition of the rocks in the site.

How will we understand the historical, archaeological, and religious significance of the catacombs that served millions?

How do we preserve the vast and complicated network for future scientists?

How can we better understand the amazing ancient mining techniques that allowed this construction over 2000 years ago?

Bring on the mineral engineers.

"The instability may be a function of a complex relationship between air humidity, rock petrology, clay mineralogy and rock strength," Harrison explains.

Qui Yi will be assisting in this project by investigating the clay mineralogy of various rock samples from the catacombs.

He will use previously published data on clay swelling characteristics together with rock strength models to determine the threshold humidity values that will allow conservation of the site.

The data collected in this project will be used to inform the much larger project being carried out by various expert teams in their own disciplines at this amazing cultural crossroads.

Not bad for one summer's work.

Qui Yi is one of a handful of students engaged in fascinating summer research in the Department of Civil Engineering. Look for more research profiles on our website.

An Attitude of Graditude at Skule(TM)

This year's student / alumni fundraising campaign saw record success thanks to hard work and creativity

The joint student/alumni Graditude campaign has had its best year yet, boasting strong support from every discipline at U of T Engineering.

The graduating class from the Lassonde Mineral Engineering Program, MIN 1T2, stole the show again this year with a 100% participation rate, the highest rate in the faculty.

The MINs also came through with the highest per capita funds raised.

The Civil Engineering contingent came first in total funds raised and third in total participation, with over one half of all students pitching in to the project.

With Civil and Mineral combined, our department raised approximately $1,760 for next year's student clubs to use for events, promotions, and extracurricular activities.

About $6,073 was raised faculty-wide.

Students earmark special funds for Iron Ring celebrations, enhancements to study and social space on campus, and to distribute to other student led initiatives.

Thanks to a generous matching donation from **Charles William (Bill) Daniel** (MIN 4T7) and other alumni supporters, this number is set to more than double.

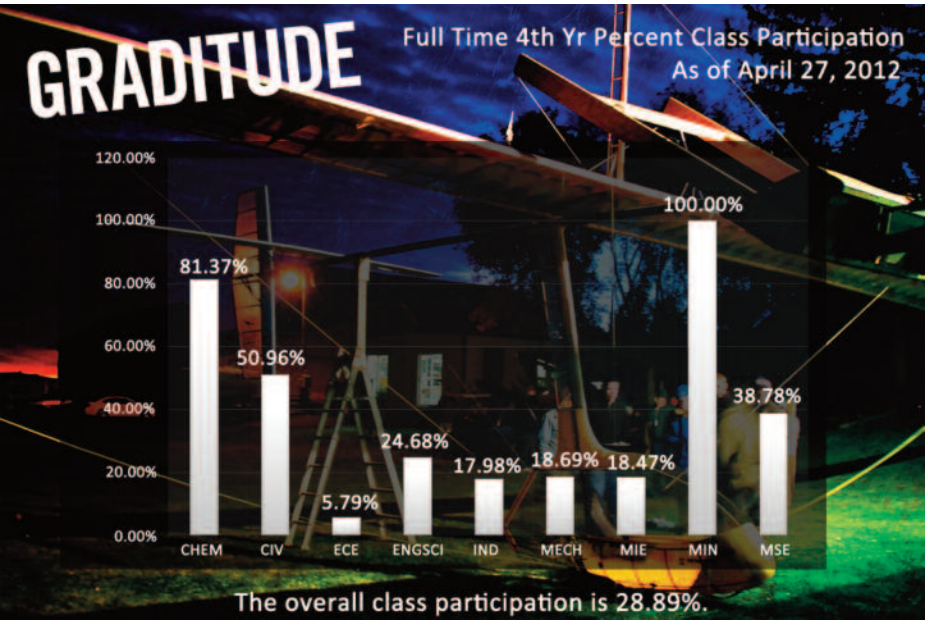
Alumni matched all donations made before March 2, 2012, and also contributed an additional $1,000 for every 5% of the class that participated (meaning an additional $5,000 this year).

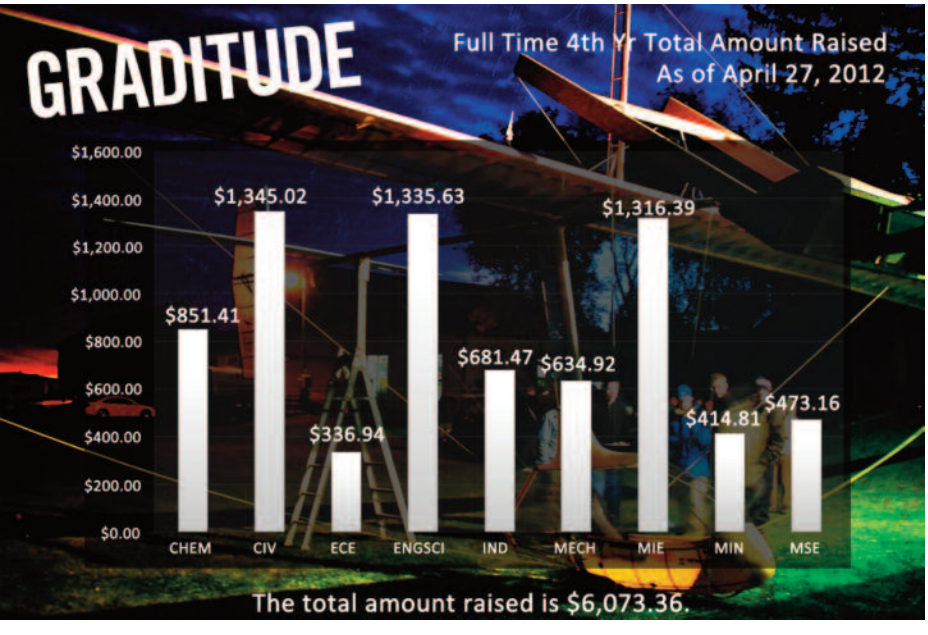
The tradition of Graditude began back in 1983, when a group of students took it upon themselves to address a deficiency in student club funding.

In addition to holding a referendum where students voted to pay an additional $100 per year above regular tuition to help alleviate the shortfall in their equipment budget, they began Graditude as a way for graduating students to make a class pledge to give back to Skule™.

The idea caught on and the rest of the University followed suit.

Students were asked to make voluntary contributions of $20.12 in honour of their graduating year. Students who made this donation received a commemorative pin.





Healthy competition between desciplines kept the challenge alive for students

A Creative Approach Galvanized Donors

Much of the Civil success in the campaign was due to **Mohamed Kamleh** (CIV 1T2), who decided that students needed a little extra incentive to give.

A graduating student himself, he quickly realized that after four long years inside books and equations, students needed a good laugh.

He immediately began a quiet lobbying campaign – a campaign for submissions not from the students, but from professors, technicians, and administrators.

The challenge was born.

Information was leaked that a secret, hilarious home movie was in the works. It would star all the unusual suspects around the department: professors and instructors, the student services staff, and even the chair herself.

But it would only be released if students collectively raised a minimum amount or reached a 50% participation level.

Students responded well, eager to see Prof. Doug Hooton impersonating Prof. Brenda McCabe, and Prof. McCabe impersonating a conniving Dr. Evil, a shadowy figure bent on making student's lives as hard as possible.

It even included Prof. Sheikh's world hip-hop music debut.

Students reached their goal, and the film made its premier at the 2012 Iron Ring Celebration this spring.

Mining Games Team Canada's Best at Drilling, Blasting

If you've ever suspected that our downtown location has students shying away from large bangs and heavy field equipment, think again.

Several University of Toronto undergraduate students have achieved a first place showing in the drilling and blasting events at the 22nd Annual Canadian Mining Games, held at Laurentian University in Sudbury earlier this year.

The U of T team, made up of top students in the Lassonde Mineral Engineering Program, competed in 20 events alongside nine other universities from across Canada that have mining or mineral engineering programs.

The annual competition is an unmatched networking opportunity for students, who get the chance to meet their peers as well as influential leaders in the mining industry.

Sponsor companies send representatives as judges and recruiters, hoping to snap up Canada's top talent in a seemingly insatiable drive for skilled labour.

Of course, it's also a chance to show off a bit in front of friendly rivals, future employers, and educators in the field.

The University of Toronto took gold at the drilling and blasting events, also picking up a second place in ventilation.

A strong showing in the jack leg, speech competition, mineral processing, and, of course, the boat race rounded out a successful trip.

You can find more great photos of the team on our website.

Above: Student Gregory Dimitroulakos delivers his address at the Mining Games Speech Competition.

U of T Mining Games Team participates in the Jack Leg competition. Participants are judged on speed, accuracy and quality.

Opposite: MIN students Hamza Saleem and Nicolas Scarcelli-Casciola participate in mineral identification exercises.

Three MIN Students Among CMIEF 2012 Scholarship Winners

Students **Sabrina Miguel** (MIN1T2), **Graham Clow** (MIN1T1 + PEY), and **Henrique Coppini** (MIN1T4) joined **Danica Pascua** and **Jennifer Lee** from the Department of Geology as the University of Toronto's winners of the 2012 Canadian Mineral Industry Education Foundation (CMIEF) scholarships earlier this year.

Mr. **Graham Farquharson**, Chairman, CMIEF, was on hand to present the awards to the beaming group of undergraduates.

The CMIEF is an industry-supported organization that has been offering scholarships to students across Canada since 1964.

The program is designed to promote awareness of the interesting career possibilities available in the worldwide mining industry.

And it seems to be working.

All the students are active participants at other mining-related events such as the Mining Games, and many have job offers in far-flung locations lined up for the near future as well.

Coppini, for example, is off to Thompson, Manitoba to begin a placement with Vale at their nickel mining operations.

The type of industry fellowship that the CMIEF supports goes a long way towards ensuring that we continue to attract the best people that will make the future of mining safer, more sustainable, and more efficient. With these students at the forefront, the future is in good hands.

Going Deep: MIN 2012 Field Trip to Sudbury Mines

Podolsky Mine

By **Andreas Steckenborn**, (MIN 1T4)

For our second year MIN225 Field Trip, we visited the Podolsky Mine in Sudbury. The mine is owned and operated by Quadra FNX, and produces mainly copper and nickel ore, along with a significant amount of platinum group elements (PGEs).

We were guided through the site by Ian Horne, who is the Director of Environmental Affairs for FNX Mining and is also an instructor for the Lassonde Mineral Engineering Program here at the University of Toronto.

We entered the mine by descending in a cage moving approximately 1000 feet per minute to a level 1,700 feet below ground. At that point, we walked down a decline to the 2,350 level before taking the cage back up to the surface.

Along the way, we were able to observe production stopes, backfilled stopes, blasting patterns and explosive types used at the mine site, along with the different production steps and equipment.

This included a remote controlled load haul dump (LHD) unit dumping ore into an ore pass, and the installation of a split set rock bolt for ground support.

One of the students was also able to try out a rock scaling device and succeeded in wedging loose rock free from the rock face.

Once we returned to the surface, we were taken to the surface plant which houses the headframe and the hoist for the cage. We watched the crushing of ore by a primary and secondary crusher with a cyclone as well as the waste rock disposal process.

Lassonde Mineral Engineering Program firld trips bring students to real mining locations.

McCreedy West Mine

By **Mike Chen**, (MIN 1T4)

The MIN225 field trip then visited the McCreedy West mine, also in Sudbury. The McCreedy West, along with the Levack mine, is part of Quadra FNX's Levack complex.

The McCreedy West mine produces copper, nickel, and PGEs out of a massive footwall ore body, which is accessed through a main decline that descends to the 1,900 foot level.

The mining methods utilized at McCreedy West are dictated by the ore body's spatial geometry, and the need to minimize waste rock dilution.

The class had an opportunity to observe prominent chalcopyrite mineralization along the footwalls, as well as blasting patterns and hydraulic mining processes which are used to dislodge rock and other sediments on the production stopes.

The ore is removed using LHD units and loaded into trucks for haulage up the decline, or dumped into an ore pass located above the 1600 level, where it is subsequently loaded onto a rail transport system that is connected to the Levack mine.

From there, it is hoisted to the surface.

The prevention of acid rock damage is taken care of through the use of advanced water treatment processes, which bring the final water quality up to Provincial standards for safety and environmental sustainability.

On behalf of the entire class we would like to extend our sincere appreciation to Quadra FNX for taking the time to tour us through their facilities. This was the first time students in the class had an opportunity to visit a working underground mine, and it was a wonderful learning experience for all of us.

Better... Stronger... Faster: Concrete Canoe Benefits from Alumni Support

University of Toronto Concrete Canoes. This year's award-winning theme was "Monty Python and the Holy Grail."

University of Toronto team moves up in national rankings, bests Ontario.

By **Evan Ma**, (CIV 1T3)

The University of Toronto Concrete Canoe team worked diligently to improve their national standing in the upcoming CSCE Canadian National Concrete Canoe Competition in Moncton, New Brunswick this May.

After finishing 6th in the 2011 Canadian National Concrete Canoe Competition (CNCCC) in Quebec City, the team placed 4th overall in a tie with the University of Moncton.

The CNCCC features a dozen engineering schools across Canada and is sponsored by the Canadian Society for Civil Engineering. The interdisciplinary U of T Team is comprised entirely of undergraduate students with roughly half of the membership in civil engineering.

Having learned from past mistakes, the team is proud to present an innovative canoe with an improved flexural strength, a lighter mix and an improved hull.

After months of design and testing, the team achieved the highest 28-day flexural strength in its history with the combined use of an optimized slag-cement binder ratio, poly-vinyl alcohol fibres and carbon fibre reinforcing.

The Hull was designed for speed and manoeuvrability, and a finite element analysis was conducted using Solid Works. In order to improve the athletic performance of the paddlers, a used canoe was purchased and additional practices were scheduled on Lake Ontario. Sustainability was also incorporated through the use of salvaged construction materials, recycled aggregates, and supplementary cementitious binders.

These innovations would not be possible without the generous contributions from alumni and sponsors. We are extremely grateful for the financial support from the Alumni association, the Engineering Society, Deep Foundations Contractor, and Peto MacCallum Consulting Engineers; as well as material sponsorship from LaFarge, Euclid Chemical, and BASF. We would also like to thank alumni Paul Radcliffe and Mike Collins for their individual financial contributions to the team. Furthermore, Casting day in February was a successful event with the participation of a number of alumni.

We strongly believe that Concrete Canoe is excellent training for future careers and leadership roles in engineering. Unfortunately, in a recent Engineering Society election, the Concrete Canoe team lost its student levy which accounted for more than 60% of our funding in part to the unusual number of teams on the ballot this year. With the continued support from alumni, we hope to remain competitive for years to come.

Keeping Tap Water Clean and Clear

Professor Ron Hofmann named NSERC Associate Industrial Research Chair in Drinking Water

By Liam Mitchell

When you turn on your tap, you probably don't give a second thought to the quality of the water that comes out.

North Americans can generally take for granted that the water provided from municipal supplies is clean and clear. However most are probably not aware of the engineering deployed to keep it that way.

Among those developing the research and techniques for water purification is Professor **Ron Hofmann**, who has recently been named NSERC Associate Industrial Research Chair in Drinking Water.

He explains that while confidence in our water supply is understandable, complacency can be deadly.

"Drinking water in North America is very safe, but given that there are over 300 million people drinking it every day, there are still occasional illnesses," said Professor Hofmann, who added "... we are still trying to make drinking water safer."

The public not only expect tap water to be safe to drink, but also be clear and odourless, which is the challenge Professor Hofmann will tackle during the term of his research chair.

"From time to time there are algae blooms in Lake Ontario that make Toronto's tap water unpalatable.

Professor Ron Hofmann, NSERC Associate Industrial Research Chair in Drinking Water.

Photo by Liz Do.

The water is still perfectly safe to drink, but the earthy-musty smell erodes public confidence. I'm trying to improve the cost-effectiveness of removing these offensive tastes and odours," he said.

He is exploring new ways to make the use of granular activated carbon (GAC) more cost-effective. GAC is currently used to remove taste and odour-causing compounds from drinking water and is familiar to anyone who uses black charcoal to purify their aquarium.

"GAC adsorbs organic molecules that create tastes and smells, removing them from the water. The GAC has a limited capacity for adsorbing the molecules, so eventually you need to remove the exhausted GAC and replace it with fresh material," Professor Hofman said.

The challenge is that GAC is very expensive, so Professor Hofmann is working to better detect when it becomes exhausted and needs to be replaced. The aim is to use the material for a longer period, thereby reducing the overall cost. He is also exploring the benefits and challenges associated with using ultraviolet light and chlorine to destroy offensive taste and odour-causing chemicals.

The awarding of Professor Hofmann's Associate Chair follows the recent re-appointment of fellow Civil Engineering Professor **Robert Andrews** as the Senior NSERC Industrial Research Chair in Drinking Water Research.

The funds associated with the research chair will support funding for five to six graduate students per year as well as additional research activities.

Paul Cadario (CIV 7T3)

The Industrial Research Chair is supported by the Natural Sciences and Engineering Research Council of Canada (NSERC) with corporate support from General Electric, Peterborough Utilities Corporation, Lake Huron and Elgin Area Water Supply System, as well as the regional municipalities of Durham, Halton, Peel and York, and the cities of Toronto and Barrie.

Professor Hofmann explained that the industrial partners not only provide financial support, but intellectual support for the ongoing research projects as well.

"The industrial partners contribute intellectually to the research, first by identifying research needs from their perspective, and then working with me to translate those needs into appropriate research projects," he said, noting, "there's a very active channel of communication between the University and the partners, which will serve to benefit both."

Paul Cadario Appointed as a Distinguished Senior Fellow in Global Innovation

By Strategic Communications Staff

The Faculty of Applied Science & Engineering and the Munk School of Global Affairs announced the joint appointment of **Paul Cadario** (CIV 7T3), a Senior Manager at The World Bank, as a Distinguished Senior Fellow in Global Innovation.

In this role, he will share his experience and expertise with students and faculty members at the Munk School of Global Affairs and the Faculty of Applied Science & Engineering.

Cadario has spent more than 35 years working in international development at the World Bank, a Washington, D.C.-based international financial institution that works to reduce poverty around the globe. The majority of his work has focused on development in Africa and Asia, though he has also overseen World Bank activities in central and eastern Europe and the former Soviet Union.

In his new role, Cadario will deliver two public lectures during the course of his fellowship, which began May 1st until April 30, 2015. He will also mentor students in the Master of Global Affairs program and at the Centre for Global Engineering, as well as meet and work with faculty members from throughout the University.

"We are very pleased to welcome Paul Cadario home to the University of Toronto and especially Engineering," said U of T Engineering's Acting Dean, Professor Yu-Ling Cheng, who is also Director of the Centre for Global Engineering. "Paul will expand our efforts to educate truly global engineers and enrich the experience for our students and scholars."

"We are delighted to partner with Engineering in this important area of innovation," said Professor Janice Gross Stein, Director of the Munk School of Global Affairs. "Our students will benefit enormously from Paul Cadario's global experience and his mentorship."

"I am thrilled to be working with Munk and Engineering, key players in the University's mission to prepare global citizens. Both are renowned for their scholarship on the great global challenge, to make societies peaceful, prosperous and sustainable. True innovation requires an applied knowledge of the local situation, something engineers, thinkers and leaders need to do together, and I look forward to helping make that happen," said Cadario.

Two New Graduate Scholarships in Environmental, Transportation Engineering Build Research Capacity

Canadian Automobile Association Graduate Scholarship in Transportation Engineering

The Canadian Automobile Association has created a new scholarship at the University of Toronto.

The Canadian Automobile Association Graduate Scholarship in Transportation Engineering will be valued at $10,000 per year over the next five years.

It will be awarded to a graduate student in the Department of Civil Engineering who demonstrates academic excellence and who is undertaking advanced research relating to alternative vehicle technologies and sustainable transportation, intelligent transportation systems, dynamic congestion charging, adaptive signal technologies, transportation development planning, road infrastructure, or transportation-related advocacy and policy information.

This award will help to proactively confront the challenges to our transportation networks nationwide, and heralds a broader shift away from merely dealing with congestion problems once they arise.

The CAA has long helped facilitate a good working relationship with researchers pursuing knowledge in the field of Intelligent Transportation Systems, which apply information technology and other advanced methods and techniques to improve transportation system performance.

Ultimately, of course, it also improves our economic and social well-being as well.

The establishment of this award will deepen the connection between our organizations and also offer an excellent opportunity to expand our research connections.

Please join with us in thanking the CAA for their generous support of our programs and the advancement of knowledge that this award will enable.

Prof. David M. Bagley,
University of Wyoming

David M. Bagley Graduate Fellowship

Professor David Bagley's academic career is focused on making something useful out of waste: he designs new systems for turning wastewater into energy, nutrients, and even restored potability.

So when Prof. Bagley left the University of Toronto to pursue work at the University of Wyoming, he wanted to make sure that the resources left over from his work here were put to something useful.

In that spirit, he donated the entirety of his research funds to the creation of a graduate level scholarship designed to support advanced research in environmental engineering.

PhD Candidate Pulin Mondal, a student studying under the supervision of Professor Brent Sleep, was named as the first recipient of the award this spring.

Pulin's research is focused on virus and virus-sized particle transport in variable-aperture dolomite rock fracture.

The results of this research have helped in identifying the important factors and their effects on solute, virus, and virus-sized colloid transport in fractured dolomite rocks, which can be useful in determining the risk of pathogen contamination of water supplies in fractured dolomite rock aquifers.

Once he finishes his PhD studies, Pulin intends to pursue further work at the University of Toronto as a Post-Doctoral Fellow.

Prof. Bagley is currently the Department Head of Chemical and Petroleum Engineering at the University of Wyoming College of Engineering and Applied Science.

The Department of Civil Engineering and the Environmental Engineering Research Group would like to thank Prof. Bagley for his generous donation and congratulate Pulin on his tremendously important work.

Alumni Dinner Table Sponsors Bring Industry Support to Annual Event

The fourth Annual CIV-GEO-MIN Alumni Dinner was a success in our new location this past February.

The event moved to the lovely Faculty Club right here on campus this year, offering guests a chance to come back to campus and experience the dinner in an intimate but formal environment.

Numerous industry sponsors came forward this year to purchase tables at the event for staff groups.

The sponsorships also allowed us to host several student leaders and club representatives.

Special thanks to Anchor Shoring and Caissons, Bondfield Construction, Deep Foundations Contractors, Munro, Exp, Fabian Papa & Partners, Halsall, Holcim, MMM Group, and Telstorm for their generous support of this wonderful event.

We hope to see you at the next alumni events coming up. Check the back cover of this magazine for your invitations to our CAMP Reunion and the Fifth Alumni Dinner, taking place in February, 2013.

One of several alumni groups to be photographed at the Faculty Club this year. More photos are available on our website.

Professors Baher Abdulhai, Amer Shalaby, Matt Roorda and Khakdker Nurul Habib surround Prof. Eric Miller, who presented Jim Curran with a commemorative certificate in honour of his remarkable career and impact on transportation in the city of Toronto earlier this spring.

CBC's Jim Curran Visits, Reflects on 40 Years of Transportation Reportage

Jim Curran, traffic and transportation reporter for CBC Radio 1 since 1972, recently joined us at the Intelligent Transportation Systems Centre and Testbed for a talk on his amazing career.

Jim retired from CBC earlier in the year after 40 years on shows like Toronto's Metro Morning.

His impact on the city has been huge.

He has worked closely with emergency services and has advocated for safer driving over the years.

Jim spent a week broadcasting live from our ITS Centre a few years ago.

He was presented with a commemorative certificate in honour of his wonderful career.

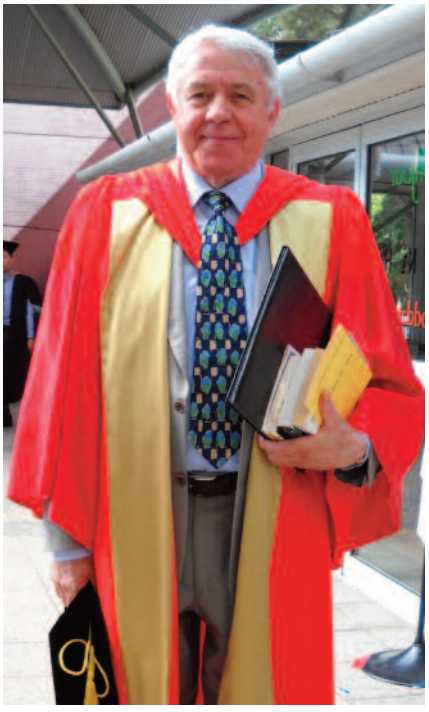
Professor Michael Collins Receives Higher Doctorate for Lifetime Achievement

Prof. Michael Collins has been honoured with Higher Doctorate designation by his alma mater, the University of New South Wales.

The recognition was bestowed in Sydney today at their annual convocation ceremony, citing a lifetime of research and academic achievement.

Prof. Collins also had the opportunity to deliver the Occasional Address to the graduating class of engineers from that University.

The Higher Doctorate designation is presented to an academic of high distinction and gives formal public recognition to scholars who have made substantial, original, and distinguished contributions to knowledge in their field of expertise.



Prof. Michael Collins attends convocation at the University of New South Wales.

Civil Engineering Students Write First Worldwide Standard AHELO Test

Civil Engineering students took part in the first running of the international Assessment of Higher Education Learning Outcomes (AHELO) this term.

The test is administered by the Organisation for Economic Cooperation and Development, and is designed to assess standards in Civil Engineering programs worldwide.

The international nature of the test will allow participating Universities to examine undergraduate learning outcomes across different cultural, linguistic, and institutional contexts.

The results of the test will be used in self-assessment exercises and quality control, ensuring that our programs remain top notch on a world scale.

Corporate Social Responsibility Highlighted at Panel Discussion

The Lassonde Institute of Mining played host to a panel discussion earlier this year on the challenges, successes, and the failures of corporations in meeting their obligations in social responsibility.

The panel was made up of Ross Gallinger, Executive Director, Prospectors and Developers Association of Canada (PDAC), Alanna Rondi, Executive Director, Devonshire Initiative, and Shilpa Tiwari, Group Manager, Social Management and Community Development at SNC Lavalin.

Canada is a world leader in the mining industry, with substantial activity within Canada and Canadian companies active in finding and developing mines all over the world.

This means that Canadian companies must play a vital role in the environmental stewardship of industrial activities in remote and developing areas and substantially participate in the economies of remote and developing communities.

Canadians rightly take an interest in the performance of the industry in these roles.

The event was facilitated by the Canadian Institute of Mining as part of the Prospectors and Developers Association of Canada Annual Convention in March.

PDAC is one of the largest mining industry events in the world, with over 27,000 participants from 120 countries regularly attending.

It included a student activities program as well as an Aboriginal program as part of the Corporate Social Responsibility series.

Departmental YouTube Channel in the Works to Highlight Research

It has been said that in the 21st Century having a YouTube Channel is as important as was a web site in the 1990's.

The Department of Civil Engineering is set to invest in the establishment of our own channel.

We want to make the YouTube channel an appealing source of information, debate and innovation, populated by a group of committed and interested students and staff who will propel the channel beyond the first three years.

The videos will focus on outreach and information sharing, industry collaboations, research profiles, and will empower students to lead the educational process.

Students Go Forth: PEY and Summer Jobs in Far Flung Environs

The students in our Civil and Lassonde Mineral Engineering Programs are benefitting from excellent job opportunities at present in locations all around North America and the world.

As US News and Money Magazine recently reported, Civil Engineer ranks once again as a top job in North America in terms of both salary and lifestyle considerations.

Our Mineral Engineering students, too, have a nearly 100% employment rate this summer and have a variety of PEY positions lined up for next year.

We have students posted on Bay Street at places like Franco-Nevada, Roscoe Postle, and Barrick Gold. Others are at Vale in Thompson, Manitoba, Lakeshore Gold and Xstrata in Timmins (Ontario), as well as further flung locations like California, the Yukon, Newfoundland, and Finland.

Other students have received job offers in places like Brazil and Australia.

In all over 40 of our students will be participating in the Professional Experience Year next year, including a contingent of five with the Regional Municipality of York and four heading to work with Holcim in the Greater Toronto Area.

Drew Cheung Wins Faculty Teaching Award for Great Teaching Assistantship

MASc candidate **Drew Cheung** was honoured on April 18 at the Celebrating Engineering Excellence Reception, hosted by Dean Cristina Amon.

Cheung, a teaching assistant for three Civil Engineering courses, is known to his students as a mentor who goes above and beyond the commitment to student success. Not only does he implement a mid-term evaluation of his teaching abilities to ensure he's doing the best job possible, he sets up office hours and special pre-exam review sessions on his own time.

The teaching awards were presented by Acting Dean Yu-Ling Cheng, who introduced Cheung by sharing that he had stayed late into the night helping his students before their exam, even though he had one of his own the next day. "Teaching Assistant evaluations go up to seven, but some of his students write an eight," she added.

Giovanni Buzzeo Wins Agnes Kaneko Citizenship Award

Giovanni Buzzeo, Machine Shop Foreman with the Department of Civil Engineering, has been an invaluable member of the Machine Shop for almost 38 years.

Alumni will remember him for his work primarily associated with the Structural Testing Facilities.

Starting in the junior position of Apprentice Machinist, he has taken on increasing responsibility over the years.

Giovanni uses his experience and ingenuity to bring fresh ideas and solutions to the technical problems he encounters in this unique research environment.

Giovanni Buzzeo.

He was essential in solving many of the mechanical and construction issues that arose during the lab's extensive recent renovations.

Over the years, Giovanni has helped hundreds of students with their experimental programs and is often acknowledged in published theses.

He consistently goes above and beyond his job description to ensure that projects get done to his exacting standards.

He is highly regarded and respected by students and colleagues alike.

Coming Events

Sixth Annual CAMP Reunion

Sunday, September 16th 2012

Gull Lake CAMP, Minden
11:00 a.m. Reception and Lunch

Optional Bus Available from Toronto
(while space permits)

Ticket sales and registration:
www.civil.engineering.utoronto.ca/alumni

CIV-GEO-MIN Alumni Dinner 2013

Friday, February 8th 2013

Toronto, Ontario
6:30 p.m. Reception, 7:40 p.m. Dinner

Ticket sales and registration:
www.civil.engineering.utoronto.ca/alumni

twitter
follow civmin

Find us on Facebook

Civil Engineering
UNIVERSITY OF TORONTO

Department of Civil Engineering
Faculty of Applied Science & Engineering
University of Toronto

Galbraith Building
35 St. George Street
Toronto, Ontario, Canada M5S 1A4

Tel: 416.978.0945
Fax: 416.978.6813

www.civ.utoronto.ca