

The Civilian

One Department, Two Great Programs: Civil and Mineral Engineering / Issue 18 / December 2014



Environmental Decontamination

NSERC INVESTS \$1.65 MILLION

Lassonde Institute
of Mining
RESEARCH DAY, SCHOLARSHIP
RECEPTION, AND MORE

Issue 18
December 2014

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4 **NSERC INVESTS \$1.65 MILLION**

7 **PROTECTING OUR WATER**

10 **LASSONDE INSTITUTE OF MINING**

16 **CIVIL AND MINERAL SCHOLARSHIP RECEPTION**

20 **COMING EVENTS**





It's always surprising how fast a school term goes. It seems like it was only a short time ago that I was travelling up to the Gull Lake Camp with the second year Civil Engineering Class for an overnight stay, stopping on the way for a tour of the LaFarge Quarry in Brechin and a visit to the Kirkfield hydraulic lift locks. At Camp students learned about biodiversity, camp hydrology, and on-site water and wastewater treatment systems. This year Camp saw a record number of students for the Survey Camp course, a total of 165 students split into two camps. Camp curriculum has evolved significantly in recent years and now includes exercises on hydrology, wind and solar energy, and water quality.

I am pleased to welcome Professor Elodie Passeport to the Department. Elodie joins us after completing postdoctoral fellowships in Earth Sciences at UofT and in the Department of Plant and Microbial Biology, University of California, Berkeley. Elodie is cross-appointed with the Department of Chemical Engineering and Applied Chemistry at UofT. Her research is focused on tracking emerging contaminants in surface waters and applying ecological engineering principles to the development of novel methods for treatment of surface waters.

We recently celebrated the success of our undergraduate and graduate students with the Lassonde Scholarship Reception and the Civil and Mineral Engineering Scholars and Donors Reception. We are grateful for the generosity of our alumni in helping our great students achieve their educational goals. We also thank the companies that host our students for summer jobs, Professional Experience Year placements, and graduate student internships. A number of the graduate students are gaining valuable industrial experience at leading civil and mineral engineering firms through the Industrial Postgraduate Scholarships Program that gets major support from the Natural Sciences and Engineering Research Council of Canada.

Our faculty and students and even our buildings have been winning lots of awards recently. Professor Emeritus Ezra Hauer received the Outstanding Career Centennial Road Safety Award from the Transportation Association of Canada. Professor Frank Vecchio is this year's recipient of the PEO Research and Development Medal for his work in the modeling and analysis of reinforced concrete and the response under extreme loads, such as blast, earthquake, impact and thermal effects. The Gemini House, an energy efficient building retrofit project led by Professor Kim Pressnail was awarded a Canadian Association of Heritage Professionals award for Heritage Education, Awareness and Scholarship: Special Projects. The Goldcorp Mining Innovation Suite in the Lassonde Mining Building was certified Canada LEED Gold, won a Canadian Green Building Award and received Honourable Mention at the 2014 Heritage Toronto Awards ceremony.

Our students are getting their resumes ready for the January 8, 2015 CIV-MIN Career Fair, so this will be a great opportunity to meet our students. Be sure to mark your calendars for the CIV/MIN/GEO Alumni Reception to be held January 30, 2015. I look forward to seeing you there.

Brent Sleep
Professor & Chair
Department of Civil Engineering

NSERC invests \$1.65 million to train students in environmental decontamination

Jenny Hall

The University of Toronto has been awarded \$1.65 million from the Natural Sciences and Engineering Council (NSERC) to support student training and research in the area of environmental remediation.

Professor Brent Sleep of Civil Engineering will oversee the establishment of the Remediation Education Network (RENEW) with the funds, which come from NSERC's Collaborative Research and Training Experience (CREATE) program.

Sleep reports that a recent publication by the Parliamentary Budget Officer of Canada estimated the cost of cleaning up 22,000 federal contaminated sites in Canada at \$4.9 billion.

Contaminated sites in need of remediation include former industrial sites, rail yards and abandoned gas stations. These sites are contaminated with hazardous chemicals that may pose a risk to human health, ecosystems and the drinking water supply.

"At the really old contaminated sites," says Sleep, "hazardous wastes were not properly managed, often being disposed of in unlined pits or buried in drums that eventually rusted, leaking contaminants into the environment. More recent spills have been caused by accidents like pipeline leaks and train derailments.

"The problem with many groundwater contaminants such as chlorinated solvents is that once they're in the ground, they stay

there for a long time, because they're fairly recalcitrant," he says. "They're trapped in the subsurface as pools of liquid that are slowly dissolving into the groundwater. They may also produce vapours that may be hazardous."

The NSERC funding will support 42 master's students, PhD students and postdoctoral fellows over six years. Many of them will attend U of T — the first cohort will be admitted for the 2014 – 15 school year — and will study with Sleep or with co-investigators Professors Elizabeth Edwards and Edgar Acosta of Chemical Engineering & Applied Chemistry and Professor Barbara Sherwood Lollar of Earth Sciences. Some will attend Queen's, Western and Waterloo Universities and study with project partners there.

At U of T and their home universities, students will conduct research into the hydrogeology, chemistry and microbiology of contaminated sites and into processes that might be used to remove the contaminants or transform them to harmless compounds.

Students will also spend 20 per cent of their time working with partner companies. RENEW has secured the partnership of seven environmental remediation companies who will provide internships for the students, giving them practical experience in site assessment and clean-up.

"The CREATE program not only brings benefit to U of T in the form of student support and training," says Professor Peter Lewis the university's interim vice-president, research and innovation, "it tackles some of society's most pressing problems."



Photo: Panelists Michael Masserman, Marcy Burchfield and Sean Rathwell, and moderator Eric Miller (L-R),

Mobility 3.0: THE FUTURE OF URBAN TRAVEL IN THE PALM OF YOUR HAND

Jamie Hunter

Torontonians have a lot more than patience to lose while sitting in gridlock.

According to a recent Global News story, congestion costs the GTA more than \$6 billion a year in lost wages, wasted time and fuel. The price tag associated with getting from point A to B in Canada's largest city is staggering. But our smartphones may offer hope.

Sean Rathwell, partner and vice president of integrated mobility at MMM Group Limited, a

community planning and infrastructure design firm, believes that one viable solution to our travel woes lies in dynamic, navigation-based mobile app technology. The app will route and re-route an individual using various modes of travel—cars, bikes, private and public transportation—based on real-time traffic reports, wait times and service availability.

“All of that can be done today but nobody has brought it all together yet,” Rathwell said. “And nobody is trying to figure out how to do that kind of dynamic management, looking for your problems along the way. To me, that is the future.”

He said that the app will also be capable of far more than providing just transit options.

It will even allow you to reserve parking spots, swipe in and out of parking lots and even coordinate parcel deliveries directly to your car. He said there will likely be

a reward system tied into the app, providing users with free coffee coupons as a thank-you for taking sustainable modes of transportation on their commute.

Rathwell was part of a panel of industry experts who gathered in Toronto on October 29 for The 3rd Urban Revolution: Re-thinking the Future of Transportation. The event, which was an installment of U of T Engineering's ongoing BizSkule speaker series, provided a platform to present attainable solutions to an ongoing challenge.

According to Rathwell, Toronto is highly respected in North America for its accomplishments in all modes of transportation, including cycling and walking. At the same time, there is a structure in place in Toronto that makes it difficult to move forward.

A lot of the decisions end up being political,” he said. “We’ve rested on our laurels,” said

News

second panelist Marcy Burchfield, executive director at Neptis “Foundation, a charitable foundation that specializes in research, analysis and mapping related to the design and function of Canadian urban regions. “We have had the growth but we haven’t necessarily maintained the infrastructure to support it.”

As director of international government relations at Lyft, a San Francisco-based peer-to-peer ridesharing company, Michael Masserman, the evening’s third panelist, spends

a lot of time speaking with city officials about how they can improve mobility. He said he’s often faced with a segregated outlook on different areas of transport instead of thinking about bike and car sharing, public transportation and taxi services as being part of the same network.

“It’s the responsibility of those who are planning our cities now to understand that it’s a broader ecosystem,” said Masserman, “and to think about how to invest in all these different modes of transportation.”

“The Industrial Revolution brought us mechanized transportation for the first time, the second revolution came with the automobile and I would argue that we desperately need a third revolution in terms of how we think of transportation,” said moderator Eric Miller, U of T civil engineering professor, transportation expert and alumnus. “But I’m optimistic that we are on the cusp of redefining mobility in the city.”

UofT Cities postcast episodes: THE FUTURE OF TRAFFIC AND TRANSIT

Brianna Goldberg

UofT News featured a mini-series of podcasts including experts from engineering, geography, architecture and more as they explain their boundary-breaking research to listeners and anyone interested in the future of cities.

Civil Engineering’s Professor Baher Abdulhai and Professor Eric Miller spoke about the future of traffic and transit in the city of Toronto.

Part One: Smarter traffic lights

Post-doctoral researcher Samah El-Tantawy (CivE) explains her work with Professor Baher Abdulhai (CivE) as they develop a system known as MARLIN-ATSC (Multi-Agent Reinforcement Learning for Integrated Network of Adaptive Traffic Signal Controllers).

Part Two: A new kind of ride on Toronto streets

Civil engineering’s Professor Eric Miller is the go-to commentator for transit planning issues in Toronto.

Miller explains why he has such a clear picture of the kind of transit plans that will work – and the ones that won’t.

He also shares a cautiously optimistic forecast for specific transit upgrades in the next few years – and one very pragmatic wish for the future of transit.



Photo: Professor Eric Miller

Dr. Elodie Passeport Joins the Department of Civil Engineering

We welcome Dr. Elodie Passeport who has joined the Department of Civil Engineering, bringing with her a diverse background in hydrology, chemical engineering and environmental engineering.

Jointly appointed to the Departments of Civil Engineering and Chemical Engineering & Applied Chemistry, Dr. Passeport's research is focused on emerging chemical contaminants in watersheds and the development of remediation technologies for their removal. This is a particularly urgent issue in Canada where 89% of drinking water comes from surface water sources. Her work also involves ecological engineering practices, which include constructed wetlands and bioretention cells for contaminant treatment.

Dr. Passeport holds a Ph.D. in Water Sciences from the National Research Institute



Photo: Professor Elodie Passeport

of Science and Technology for Environment and Agriculture (irstea) and AgroParisTech (France). She received her M.Sc. in Chemical Engineering in 2006 from the National Institute of Applied Sciences (France), and a second M.Sc. from the Department of Continental Environments and Hydrosociences at AgroParisTech (France) in 2007.

More recently, she completed postdoctoral fellowships in the Department of Plant and Microbial Biology at UC Berkeley and in the Department of Earth Sciences at the University of Toronto. She has published 15 peer-reviewed articles and presented at many international conferences.

City hires new director of transportation and infrastructure planning

Helen Noehammer was appointed as director, transportation and infrastructure planning by the City of Mississauga.

Noehammer is responsible for the Transportation and Infrastructure Planning Division.

A longtime Mississauga resident, Noehammer has 20 years of experience in the transportation

municipal engineering fields. She spent the majority of her career at the City of Toronto.

Noehammer holds a Bachelor of Applied Science in Chemical Engineering and a Masters of Applied Science in Civil Engineering from the University of Toronto.



Protecting our water:

Q&A with CivE Professor Jennifer Drake

Dominic Ali

The University of Toronto is home to many experts who study how cities can be improved. One aspect of cities that may be taken for granted is one of the most important: water supply.

At U of T, water conservation efforts have been underway since the 1970s. For example, underground cisterns on the downtown campus collect rainwater, which is then used by a smart irrigation system that only waters lawns if there is no rain in the forecast. But as cities continue to grow, so does the need for everyone to protect and manage water resources.

Enter Professor Jennifer Drake (CivE), an expert in water security. Drake's research expertise includes stormwater systems, watershed planning and stormwater management. She's especially passionate about building and managing urban water systems that minimize the impact on the natural environment.

The increasing frequency of extreme weather events such as droughts and floods is drawing attention to Drake's research and the challenges and opportunities of protecting urban water resources in the 21st century. U of T writer Dominic Ali spoke with Drake about the importance of water for cities in the 21st century.

Why is water management so important?

We only have a finite amount of water and it is

cycled in the environment over and over again. This means that no matter where you are, the water in the natural environment will be used by someone for drinking, irrigation, recreation, etc. Water security includes issues of availability and water quality.

My research focuses on issues of quantity such as flooding (i.e., protecting us from when there is too much water) and quality such as developing new technologies to improve the quantity of urban runoff before it is returned to a natural system like a creek or lake.

Canada's infrastructure deficit is estimated at \$123 billion of which \$31 billion is for water/wastewater. Improvements to water infrastructure are critical to the Canadian economy. Moreover, when we invest in our water resources and foster healthy aquatic environments we make our cities more liveable and create opportunities for residents to experience the beauty and peace of the natural environment.

Why is low-impact development seen as better for water management?

Our water resources are much more resilient and secure when we work with nature instead of against it. For example, if you live in the U.S. southwest, a region of water scarcity, your lawn should be landscaped with drought-resistant plants, not turf grass. In Ontario, low-impact development practices aim to restore the hydrology that is often lost as a result of urbanization.



Photo: Professor Jennifer Drake

This is achieved through innovative technologies like green roofs, bioretention systems and permeable pavements.

What are some of the water challenges faced by cities?

One of the biggest challenges facing cities like Toronto is the uncertainty regarding water availability in the future. All of our economic and social systems depend on reliable source waters (groundwater, lakes, rivers and streams) with sufficient quantity and quality. Not only do we require water for drinking and recreation but all agricultural, manufacturing and resource-based industries require secure water supplies, too.

Climate change will alter the availability of water at local and national levels. Cities need to invest in infrastructure, which improves our resilience during extreme weather. In Ontario it is anticipated that climate change will change the type (snow vs. rain) and timing of precipitation. To adapt to climate change infrastructure investment, replacement and maintenance will be essential for cities. Some cities, such as Kitchener and Mississauga, are already adapting by developing new revenue mechanisms to support these costs.

What first attracted you to this field?

I first became interested in urban water management and water security as an undergraduate student during a summer co-op placement with the City of Burlington.

I observed first-hand the challenges associated with managing water infrastructure. This inspired me to ultimately research water security.

One of my tasks was to research maintenance costs for stormwater management pond cleaning. I was amazed to discover that, at the time, Ontario's municipalities had invested in ponds for flood and water quality control but did not have sufficient funds to conduct the cleaning projects that need to be completed every 10 to 15 years.

This issue became even more compelling when I realized that a mid-sized Ontario municipality may operate 50 to 100 ponds and a single cleaning project could cost over \$500,000.

Lassonde Scholars Reception

The annual Lassonde Scholars Reception was held on October 15 in the Goldcorp Mining Innovation Suite in the Lassonde Mining Building. The event was attended by students, parents, members of the Lassonde Advisory Board, and faculty and industry representatives. The event is a celebration of the excellence of undergraduate students in the Lassonde Mineral Engineering Program and graduate students associated with the Lassonde Institute of Mining. The achievements of 25 undergraduate and 3 graduate students were recognized by the award of scholarships generously supported by Dr. Pierre Lassonde. Dr. Lassonde was in attendance and presented each scholarship recipient with a certificate naming them a Lassonde Scholar.

Xin Ma, fourth year Lassonde Mineral Engineering student and second time recipient of the Lassonde Scholarship Award thanked Dr. Lassonde on behalf of her fellow students who also received this prestigious award. “What the Lassonde Scholarship has meant to me is not just financial aid, but it is an award that confirms that I made the right decision to study something that I truly like. And it has given me an immense amount of confidence in my academic capabilities.”

Dr. Lassonde thanked Xin Ma for her inspirational speech. He congratulated the students on their outstanding academic achievements and praised the proud parents present. In closing, Dr. Lassonde spoke about the future opportunities he envisions for careers in the mining industry.



Photo: Pierre Lassonde with this year's scholarship recipients.

Goldcorp Mining Innovation Centre Receives Honourable Mention

The Goldcorp Mining Innovation Centre received an honorable mention from the 2014 Heritage Toronto Awards for its promotion and conservation of our city's heritage. Located within the Lassonde Mining Building, the centre is unique in its adaptive reuse of the once unused attic and rooftop areas, and for its state-of-the-art sustainability systems integrated with heritage resources.

Celebrating 40 years of outstanding contributions, the Heritage Toronto Awards recognize exceptional contributions to the conservation of Toronto's heritage.

Goldcorp Mining Innovation Suite Wins Awards

The Goldcorp Mining Innovation Suite on the 4th floor of the Lassonde Mining Building was awarded a Green Building Award from the Green Building Council.

Located within the Lassonde Mining Building at U of T Engineering, the previously unused attic underwent renovations in 2010 that incorporated advanced sustainability and energy efficiency methods. Architects and engineers worked with the century-old structure of the existing building to integrate the addition, which accommodates 100 undergraduate and 24 graduate students.

The Canadian Green Building Awards, in partnership with Sustainable Architecture & Building Magazine (SABMag) and ecoHouse, recognized the building for its excellence in eco-conscious design and execution.

The focus on sustainability and energy efficiency in the design and construction of the Goldcorp Mining Innovation Suite was also recognized by the awarding of Canada LEED Gold status.

The elements of preservation of the heritage of the Lassonde Mining Building, first constructed in 1905, were also recently recognized with an Honourable Mention in the William Greer Architectural Conservation and Craftmanship category at the 2014 Toronto Heritage Awards ceremony.

First Annual Lassonde Institute of Mining Research Day

The first annual Lassonde Institute of Mining Research Day was held on October 15, 2014. The event was attended by the Lassonde Advisory Board, guests from the mining industry, and researchers from the University of Toronto. The Research Day began with three keynote talks on opportunities for innovative research in the mining industry. The three talks, held adjacent to the Canadian Mining Hall of Fame in the Lassonde Mining Building were:

- Reliability and Optimization in the Mining Industry, presented by Professor Emeritus Andrew Jardine, Department of Mechanical and Industrial Engineering, University of Toronto and Director of the Centre for Maintenance Optimization & Reliability Engineering (C-MORE)
- Human Factors Related to Mining presented by Professor Birsen Donmez, Department of Mechanical and Industrial Engineering, University of Toronto and Director of the Human Factors and Applied Statistics Lab
- Application of Unmanned Aerial Vehicles in Mining presented by Professor Angela Schoellig, University of Toronto Institute for Aerospace Studies and Director of the Dynamic Systems Lab

The keynote talks were followed by the Graduate Student Research Poster Showcase. Thirty-seven graduate students and post-doctoral fellows presented research that spanned from exploration and applications of rock mechanics to mining and metallurgy. The poster session was held in the Goldcorp Mining Innovation Suite on the 4th Floor of the Lassonde Mining Building.

Lassonde Mining Building Participates in Doors Open

Doors Open presented by Great Gulf is an annual event created by the City of Toronto to celebrate buildings of architectural, historic and cultural significance. This year, the Lassonde Mining Building featured in the 15th annual Doors Open Toronto weekend held on May 24th and 25th, 2014 and was toured by more than 3,000 visitors.

Since its inception in 2000, Doors Open Toronto has attracted more than two million visits to nearly 600 unique locations across the City. It is Canada's largest Doors Open event and one of the three largest Doors Open events in the world.



Lassonde Institute of Mining hosts Canadian Mining Innovation Council's 2014 National Mining Innovation Forum

On October 30, 2014 over 100 mining industry professionals gathered at the University of Toronto for the 2014 National Mining Innovation Forum. The Forum examined and discussed real time detection, real time monitoring and decision making across the life-of-mine, from exploration to environment. University of Toronto President Meric Gertler opened the event and spoke about the need for industry, government and academia to work together to bring innovation to the Canadian mining sector. President Gertler then introduced Dr. Pierre Lassonde who delivered the morning keynote. The Forum included presentations on detection systems/platforms and monitoring in real time, case studies on translating data to decision making, and a panel discussion on how data is used to make timely decision that directly affect the efficiency of mining operations and shareholder value. Speakers included Jim Gowans, Co-President of Barrick Gold and Rick Howes, President & CEO of Dundee Precious Metals. The Forum ended with a networking reception at the Goldcorp Mining Innovation Suite in the Lassonde Mining Building.

U of T Engineering students

VANIER CANADA GRADUATE SCHOLARSHIPS

Erin Vollick

Cancer; climate change; aging infrastructure; heart disease: these 50 letters can cost billions of dollars and countless lives.

On August 14, four U of T engineering students received Vanier Canada Graduate Scholarships – prestigious awards from the Government of Canada – to enable pioneering research in these areas:

Miles Montgomery (IBBME PhD 1T6) for his work in heart disease and regenerative medicine;

Cameron Ritchie (CivE PhD 1T6) for developing novel structural designs; Shrey Sindhvani (IBBME PhD 1T7) for breakthroughs in nanotechnology and cancer detection; and,

Lorraine Sugar (CivE PhD 1T0) for her contributions to city-based climate action.

The awards were announced at an event at the University of Toronto, where 34 doctoral students and post-doctoral fellows from U of T garnered Vanier scholarships or Banting Postdoctoral Fellowships – the most of any institution in the country.

Biomedical engineering student Miles Montgomery, who hopes his work “will save people’s lives 20 years from now,” showcased his research on live, beating heart tissue at the announcement.

“Two hundred families are going to lose someone they love today – and the cost of heart failure to the health system will be an estimated \$21 billion,” he said. “That’s the

reason I come into the lab every morning ready to work.” Before disclosing this year’s winners, the Honourable Ed Holder, Minister of State (Science and Technology) joined the Honourable Peter Van Loan (U of T alumnus and Leader of the Government in the House of Commons) to tour the cardiac tissue engineering lab led by Professor Milica Radisic (IBBME, ChemE). The lab is where Montgomery aims to overcome the challenges associated with creating an injectable patch of living, human tissue into patients with damaged hearts.

The Vanier Canada Graduate scholarships and Banting Fellowships were launched by the Government of Canada in 2008 and 2010 respectively to attract and retain world-class doctoral and post-doctoral talent.

“On behalf of the Faculty, I offer my warmest congratulations to Miles Montgomery, Cameron Ritchie, Shrey Sindhvani and Lorraine Sugar on this prestigious honour,” said Dean Cristina Amon. “With promising research in regenerative medicine, infrastructure, nanotechnology and climate change, these bright young researchers are a testament to the ambitious and innovative minds our engineering graduate programs attract.”

Considered the most prestigious awards of their kind, this year they represented a \$34.7 million investment in research across the health sciences, natural sciences and engineering, social sciences and humanities.

“I’m proud that more than one in 10 of these awards has gone to the University of Toronto,” said Professor Locke Rowe, the University’s dean of graduate studies, who noted that U of T has received approximately 150 over the last five years. “These are core assets to the University and core assets to Canada.”

Professor Shalaby and Research Team

BEST PAPER IN PUBLIC TRANSPORTATION, TRB 2014

“Using Mass Motion to Analyze Crowd Congestion and Mitigation Measures at Interchange Subway Stations: Case of Bloor-Yonge Station in Toronto, Canada”, a paper written by Professor Amer Shalaby, David King and Siva Srikukenthiran was selected by The Transportation Research Board Executive Committee for the best paper in public transportation at TRB 2014.

Professor Shalaby’s research interests include public transportation, intelligent systems with emphasis on advanced public transit systems, transportation planning, and simulation and modelling of transportation systems.

TRB awards are given in recognition of outstanding achievement and service. The William W. Millar Award to best paper dealing with public transportation is awarded annually and was instituted in 2012 in honour of William Millar who served as TRB Executive Committee Chair; TRB Executive Committee member; Chair of the TRB panel that provided the rationale and blueprint for the Transit Cooperative Research Program; and President of the American Public Transportation Association.

Emma Shen Ph.D. 2013

AWWA’s Academic Achievement Award

Dr. Ruqiao (Emma) Shen has received the American Water Works Association’s First Place Academic Achievement Award for the best Doctoral Dissertation for 2014.

Her work in the water supply field, investigating the link between pharmaceuticals and disinfection by-products in drinking water, has contributed significantly to the global study of nitrosamines.

Dr. Shen has also contributed research to studies in Innovative Advanced Oxidation with UV & Chlorine, and The Impact of Coagulation on Pharmaceuticals and Endocrine Disrupting Compounds.

Each year the OWWA and AWWA honour their members through various achievement awards.

Recipients of these awards are recognized for their hard work and dedication to the water profession. AWWA’s annual conference was held on Jun 8-12 2014 in Boston, Massachusetts.

Andrea Lisjak, Ph.D. 2013

ISRM Rocha Medal 2015

Andrea Lisjak Bradley has been selected the winner of the Rocha Medal 2015 by the Rocha Award Committee, for the thesis “Investigating the influence of mechanical anisotropy on the fracturing behaviour of brittle clay shales with application to deep geological repositories”.

The Rocha Medal is intended to support young researchers in the field of rock mechanics.

The bronze medal and cash prize have been awarded annually since 1982 for an outstanding doctoral thesis.

Ezra Hauer

TAC LIFETIME ACHIEVEMENT/CAREER AWARD

Dr. Ezra Hauer has been awarded the 2014 TAC Outstanding Career Centennial Road Safety Award.

Dr. Hauer, known as The Father of the Road Safety Science has brought historical changes to the nature of road safety in Canada and worldwide, and contributed tremendously to the transformation of road safety into a science.

Dr. Hauer has impacted the way planners, road designers, traffic engineers and governments integrate road safety into their daily decisions and future plans. His work transformed the Ministry of Transportation of Ontario's approach to road safety improvements and was instrumental in shaping the Ministry's current road safety management policies.

In North America the TAC Geometric Design Guide and the AASHTO Highways Safety Manual, two key guiding road safety and design references are highly influenced by Dr. Hauer's principles and Empirical Bayes method for road safety evaluations.

Dr. Hauer has pushed the importance of safety research, which has led to better research methods and techniques, and has had a lasting impact on reducing the amount of injury and death from traffic crashes.

AC Outstanding Centennial Road Safety Awards recognize outstanding contributions to road safety over the past 100 years.

Individuals who bring transformational and long-term improvements to the field of road safety in Canada are recognized for their hard

work and achievements. The career award is attributed to individuals who have devoted a substantial portion of their career to road safety work and have made historic contributions as a result.

Jenny Hill

ASTM SCHOLARSHIP



Photo: Jenny Hill

Jenny Hill has been awarded an ASTM Awards Graduate Scholarship.

Hill is a doctoral student in Civil Engineering at the University of Toronto. She is currently researching the optimization of water management in extensive green roof systems, and references green roof standards from ASTM Committee E60 on Sustainability.

A graduate of the University of Birmingham, Birmingham, United Kingdom, where she received a B.Sc. in chemistry with analytical science, Hill also holds a M.Sc. in forensic science from King's College London, and an M.A. in landscape architecture from the Birmingham Institute of Art and Design, also in the U.K.

The ASTM Graduate Scholarship rewards graduate students who have demonstrated high levels of interest or involvement with ASTM standards.

The ASTM Graduate Scholarship program works to enhance a student's knowledge, understanding, and application of ASTM and its standards.

Civil and Mineral Scholars Honoured at Reception

OUR ANNUAL APPRECIATION EVENT

This year's Civil and Mineral Engineering Scholars and Donors Reception was met with much excitement. Students and their parents gathered in the Galbraith Building eager to meet their respective donors and thank them for their support.

For a scholar meeting the donor of their award provides them with a unique opportunity to develop a personal connection. Hosting such a special event is the perfect way for the Department of Civil Engineering to thank the donors that support our wonderful students and their academic ambitions.

Remarks for that night included those from **Professor Brent Sleep**, Chair of the Department of Civil Engineering, who spoke about the importance of the scholarships awarded, and his appreciation towards the donors who make it possible.

Mrs. Margaret Kende (CIVE6T0) shared a heartwarming story about her time as a student and how the support she received during her undergrad ultimately led to her success.

Ms. Xin Ning Ma (LME IT5), then spoke on behalf of all of the students thanking the donors for their generosity and support.

The scholarship reception is an important event that recognizes the passion and drive such a donation inspires, passion that carries forward into the world.



Photo: Professor Brent Sleep



Photo: Margaret Kende



Photo: Xin Ning Ma



Awards and Honours

Matthew R. McFadden, MASC 2012 2014 HENRY GRANJON PRIZE

Mr. Matthew R. McFadden won the 2014 Henry Granjon Prize at the IIW Annual Assembly & International Conference in Seoul, South Korea in the category of Design and Structural Integrity.

As a licensed Professional Structural Engineer, Mr. McFadden has a wealth of experience in bridge inspection, evaluation and design as well as construction supervision.

His research has contributed significantly in the area of weld design and fabrication. Mr. McFadden currently works for the MMM Group where he is designing elevated guideway structures for the Ontario Light Rail Transit Project, as well as overpass structures for the Ottawa West Transitway Extension.

Adam Weiss TAC SCHOLARSHIP

Adam Weiss, MASC candidate has been offered a TAC Foundation Scholarship from the Transportation Association of Canada for his work in Dynamic Activity-Based Travel Demand Microsimulations.

TAC Foundation scholarships provide educational assistance in technical areas or disciplines which will contribute to safe, secure, efficient, effective and environmentally and financially sustainable transportation services in support of Canada's social and economic goals.

The Foundation's primary focus for educational support (scholarships) is on roadways and their strategic linkages and inter-relationships with other components of the transportation system.



Photo: Matthew R. McFadden

The International Institute of Welding (IIW) honours significant contributions in the fields of welding and technology. Individuals are recognized for outstanding technical and research achievements and long meritorious service to IIW.

Professor Frank Vecchio and Marta Escedi, CIVE7T6 2014 OPEA RECIPIENTS

Professor Frank J. Vecchio and Marta Escedi have received OPEA Awards for 2014.

An internationally respected authority on the behaviour of concrete structures, Professor Vecchio received the Engineering Medal for Research and Development.

Marta Escedi has been awarded the Professional Engineers Citizenship Award for her influence on the engineering profession and has transformed it into a more inclusive, diverse and equitable community.

The Ontario Professional Engineers Awards celebrate the wide-ranging accomplishments of Ontario's engineers.



**Your
Company
goes here.**

**Civil +
Mineral
Engineering
career fair**

Thursday, January 8, 2015
10:00am - 2:00pm
Medical Sciences Building
1 King's College Circle

Contact Nelly Pietropaolo (nelly@ecf.utoronto.ca) for more information.

Coming Events

CSCE Civil + Mineral Engineering Career Fair

January 8th 2015

Lobby, Medical Sciences Building
10:00 a.m. - 2:00 p.m.

Registration:

[www.civil.engineering.utoronto.ca/
news/events/careerfair2015.htm](http://www.civil.engineering.utoronto.ca/news/events/careerfair2015.htm)

CIV-GEO-MIN Alumni Reception 2015

January 30th 2015

Faculty Club, University of
Toronto
6:30 p.m. Reception

Ticket sales and registration:
[www.civil.engineering.utoronto.ca/
news/events/alumni2015.htm](http://www.civil.engineering.utoronto.ca/news/events/alumni2015.htm)

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