

# INGENUITY

FACULTY OF APPLIED SCIENCE  
ENGINEERING NEWS  
FALL 2013 / WINTER 2014

**FOLDED:  
ORIGAMI ENGINEERING –  
THE ART AND SCIENCE OF  
SELF-FOLDING PAPER**

**Q&A WITH DEAN MARC PARLANGE  
SOLUTION TO DROPPED CELL CALLS  
UBC SOLAR CAR PREPARES FOR FLIGHT**



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA



## Dean's Message

Dear UBC Engineering alumni and friends,

Since my appointment as dean of Applied Science on September 1, I have enjoyed meeting many of you across Canada. Thank you for your consistently warm welcome.

Inspired by the remarkable work you — our alumni and professional community — do, it is my goal to fully prepare our students with the skills and education necessary to become leaders like you. By bringing students closer together with professional engineers, their professional development and learning will enhance significantly. They will best learn the expectations inherent to engineering and develop a tool kit stocked with experience from leaders in the field.

These connections will lead to greater opportunity for international exchanges, co-curricular learning and co-op work terms — all with an eye toward developing future engineers with a global outlook. Leveraging the wealth of experience in our professional community to engage young people and inspire the next generation of engineers will not only provide students with a greater education, it will best prepare them for the workforce and for solving the challenges facing society.

In the quest for greater professional development, I am restructuring certain areas of our leadership. Notably, I recently appointed Professor Elizabeth Croft, P.Eng. (BASC '88 MECH), to serve as associate dean, Education and Professional Development. This new position enables us to put a much stronger emphasis on professional development, international and experiential education and recruitment. We look forward to a future when the face of our profession reflects the faces of our wider community.

I hope to meet many more of you during the upcoming months and would be very pleased to hear your thoughts on partnering with UBC Engineering. I hope you will attend UBC's Alumni Weekend in May, as it will be my pleasure to host our reunion groups this spring.

Sincerely yours,

Marc Parlange  
Dean, Faculty of Applied Science

*"Leveraging the wealth of experience in our professional community to engage young people and inspire the next generation of engineers will not only provide students with a greater education, it will best prepare them for the workforce and for solving the challenges facing society."*

Marc Parlange  
Dean, Faculty of Applied Science

### ON THE COVER

Thermoplastic polymers applied to ordinary sheets of paper shrink when heated and re-form it into predetermined 3-D shapes.

Photo credit: Martin Dee



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# FOLODED

## ORIGAMI ENGINEERING – THE ART AND SCIENCE OF SELF-FOLDING PAPER

As non-renewable resources diminish and landfills fill with plastics, we increasingly need new, sustainable materials for product designs.

Enter 3-D paper.

“Rather than using a non-recyclable material such as plastic, 3-D paper may be the new material best suited to produce resilient objects, such as stools, tables and lamps,” says Ata Sina, a master’s student in Mechanical Engineering at UBC. He studies with Pulp and Paper Centre Director Professor James Olson, P.Eng. (MECH, B.A.Sc. ’91 ENPH, PhD ’96 CHML), and Professor Mark Martinez, P.Eng. (CHBE, PhD ’95 CHML), director of the Advanced Papermaking Initiative at UBC.

Other possible applications for 3-D paper include custom packaging, noise and heat insulation, decorations and interactive toys.

Equipped with an undergraduate degree in mechanical engineering from the K. N. Toosi University of Technology in Iran and seven years of experience as a piping design engineer in the oil and gas industry, Sina earned a Master of Science degree at Linnaeus University in Sweden. His research there focused on measuring the bending and stiffness of lumber, thus leading to the current phase of his career studying in the Pulp and Paper Centre with Professors Olson and Martinez.

Intending to defend his master’s thesis in spring 2014, Sina has spent the last two years developing

a novel method of creating complex self-folding 3-D paper products.

“I like to call it origami engineering,” says Sina. “The combination of art and science drew me to the project initially. My dream is to have a career that combines the two.”

After much trial and error, the research team has discovered a new approach to making self-folding paper products. They have developed a novel method for creating folds that can produce 3-D paper structures from ordinary 2-D sheets of paper. Their patented method uses strategic placement of thermoplastic polymers onto a design so that when heated to a specific temperature, the polymers shrink and lift the paper at various angles, thus turning the paper into a predetermined 3-D shape.

Sina often sketches the designs himself but also modifies hundreds of available origami patterns. The self-folding material is composed of pre-cut and pre-creased paper, along with heat-shrinking thermoplastic polymers. Sina uses a computational drawing tool to design folds for a particular 3-D shape. He then uses a computer numerical controlled cutter to cut both the paper and polymers.

The entire process is automatic and continuous with the help of a servo-robot developed in-house that assists with the welding of polymers to the paper once the design has been cut and created.

One day this innovative method may be applied to various applications on a large scale, but for now the team plans to create a book with their designs that will shed light on the potential of using paper as a sustainable material in product design. This decorative do-it-yourself book aims to bridge the gap between art and science by engaging its audience to stay curious, to continue asking questions and to have some fun too. ■

Thermoplastic polymers, when heated, lift flat paper to create 3D forms.



PHOTOS CREDIT: MARTIN DIEZ



Ata Sina was one of five Canadian university students selected to attend the Marcus Wallenberg Symposium for Young Researchers in Sweden. The Wallenberg Prize recognizes, encourages and stimulates groundbreaking scientific achievements that contribute significantly to broadening knowledge and to technical development within forestry and forestry-related industries. Sina presented a poster on his 3-D paper folding. Their Majesties the King and Queen of Sweden attended the award ceremony and banquet. For more information, visit [www.ppc.ubc.ca](http://www.ppc.ubc.ca).

# Q & A WITH DEAN PARLANGE



PHOTO CREDIT: WENDY MCHARDY



Dean Marc Parlange (left) with Materials Engineering student and varsity track-and-field athlete David Slade. For the first annual Turkey 2K Trot, Dean Parlange offered to match the United Way donation of anyone who completed the course before him. Slade raised \$491 from friends, family, faculty and staff in his quest to beat the dean. Slade won the race, finishing in just over five minutes and the dean matched his donation. In total the community above raised \$2,072 for the United Way.

Dean Marc Parlange took the helm of UBC Faculty of Applied Science on September 1, 2013. As dean, he oversees all engineering programs and research at the Vancouver and Okanagan campuses, as well as the Schools of Architecture and Landscape Architecture, Community and Regional Planning and Nursing. Together with 600 faculty and staff, he leads the education of more than 5,000 undergraduate and 2,000 graduate students.

Parlange recently took a moment to talk about UBC, leadership and goals for collaboration.

**You've lived in Australia, Switzerland and on the East and West Coasts of the U.S. and served as dean at one of the top up-and-coming universities in the world.**

**What brings you to Vancouver and UBC?**

UBC — coupled with its location in Vancouver — presents a unique opportunity. The stunning geography of mountains and ocean draws people who love the outdoors and value protecting the environment. Canada is known for protecting human rights, providing universal health care and welcoming people from other countries. Place a university amid this wonderful setting and, naturally, you're surrounded by very smart people with common values. Although it's similar to EPFL in Switzerland, what sets UBC apart is the opportunity we have to combine our strength in Applied Science with world-class professionally focused programs such as medicine, law and business.

**Do you have a personal philosophy or guiding principle for leadership?**

Surround yourself with a team of good people who share your vision. As I said, UBC attracts very smart people with similar values. It's my job to ensure that everyone clearly understands UBC's goals and to provide the necessary support to succeed.

**What are your goals for UBC Applied Science?**

Our goals build upon those articulated in UBC's *Place and Promise* strategy. They include researching innovative solutions to address societal challenges, educating and empowering graduates who effect positive change, enhancing educational programs with an eye toward sustainability and hands-on design skills, promoting a culture of entrepreneurship and facilitating technology transfer, improving the participation of under-represented groups in engineering, and building connections within Applied Science, across UBC and with other universities.

**How do you plan to attain these goals?**

With the exception of the last, all of our goals critically depend upon collaboration with our professional community comprising UBC Engineering alumni, engineers and industry partners. We depend on industry partners to bring us challenges to further research. We rely on alumni to return with their experience to help educate, employ and provide opportunities for our students. It is our professional community who will help us attract future engineers from all genders and nations. And it is our alumni and industry partners who we look to collaborate with and fund research and education for the next generation of UBC Engineers.

**What new initiatives would you like to introduce?**

In addition to continuing to attract the best and brightest faculty and undergraduate students, I'd like to focus on attracting top graduate students to UBC by providing more support for them. Compared with other top-tier universities, we can do much better in supporting our graduate students.

I would also like to partner with industry to establish a centre on campus that supports an ecosystem of innovation for research and development. I envision this centre as providing research and employment opportunities for graduate students, entrepreneurship opportunities and a physical place for industry to bring us challenges.

**These goals obviously require copious time travelling and meeting with people. How do you find balance? Is there a metaphor for this?**

As far as a metaphor goes, I'd say it's a marathon. Fortunately, I like to run. And that's where I find work-life balance. If I have the opportunity to take a lunch break to fit in a jog, I do. That's how I find the balance and energy I need to be successful. ■

## Dean Marc Parlange

### Academic positions

Dean, School of Architecture, Civil and Environmental Engineering, École Polytechnique Fédérale de Lausanne (EPFL), Switzerland  
 Professor, Johns Hopkins University  
 Professor, University of California, Davis

### Research topics

Measurement and simulation in hydrology, water resources and the lower atmosphere.

### Awards of distinction

2010 EPFL teaching award, as selected by the student body  
 2009 American Geophysical Union Hydrology Award  
 2006 Dalton Medal of the European Geosciences Union  
 1997 Macelwane Medal of the American Geophysical Union

### Fellowships/memberships

American Geophysical Union  
 American Society of Civil Engineers  
 American Meteorological Society  
 American Association for the Advancement of Science  
 Swiss National Science Foundation Council for Engineering and Physical Sciences

### Graduate supervision

20 PhD students  
 25 master's students

### Research publications

190 journal articles

### Education

PhD, Civil and Environmental Engineering, Cornell University  
 Master of Science, Agricultural Engineering, Cornell University  
 Bachelor of Science, Applied Mathematics, Griffith University, Australia

UBC RESEARCHER DISCOVERS

# SOLUTION TO DROPPED CELL CALLS

New research finds a way to use television and radio channels to transmit cellular signals when cell systems are pushed beyond capacity.

Mai Hassan harnesses wireless signals on radio and television frequencies to deliver calls and texts that would otherwise fail during an emergency. Her use of smart antennas in mobile phones to direct transmissions leaves the original channels untouched and mobile users reassured.

When a natural disaster strikes and too many people take to their mobile phones at once, cellular networks easily overload. But a University of British Columbia engineering graduate student has developed a solution to ensure that calls don't get dropped and texts make it to their destination.

In a study published in *IEEE Transactions on Wireless Communications*, Mai Hassan, a PhD student in the Department of Electrical and Computer Engineering, found a way to use television and radio channels to transmit cellular signals when systems are pushed beyond capacity.

"I proposed a more effective way to use any channel in the neighbourhood, even if those channels are being used by radio or television stations," says Hassan. "The challenge was finding a way to make sure the cellular signals didn't interfere with the programming or reasons people were using those channels in the first place."

Hassan's solution involved changing the shape of the wireless signal so she could transmit on channels that use radio or television frequencies. She then had to change the direction of transmission away from the original channel. Instead of using traditional antennas, which transmit signals in all directions, she used smart antennas in mobile phones. Smart antennas transmit signals in a single direction and can steer the beam to

any direction. By manipulating the direction of the cellular signals, Hassan was able to transmit calls and texts to a receiver while avoiding any interference with the original radio and television signals.

Professors Jahangir Hossain, P.Eng. (PhD '07 ECE), in the School of Engineering at UBC's Okanagan campus, and Vijay Bhargava, in the Department of Electrical and Computer Engineering at UBC's Vancouver campus, supervised Hassan's research.

#### Background: A problem into an opportunity

Hassan's study first used mobile phones with multiple smart antennas. With more than one smart antenna in the phone, signals overlap and interfere with one another. Sometimes overlapping signals will cancel one another and block transmission, which is known as destructive interference. Other times the interference enhances the signal, known as constructive interference. Hassan aligned the constructive interference to help get the cellular signal to its receiver and aligned the destructive interference to cancel in regions where the original radio or television signals were being transmitted.

As a next step, Hassan considered a more cost-effective system. She exploited the crowd of mobile phones found in the network, with each phone having

only one smart antenna, to cooperatively achieve the same constructive/destructive interference pattern. The phone users were in different geographical locations, but Hassan was able to overcome any asynchronicity in their transmissions. She was able to turn the problem of crowded phone users into an opportunity. ■

#### Mai Hassan, PhD candidate

Age  
25

Place of Birth  
Cairo, Egypt

Education  
Undergraduate and master's degrees from Cairo University

#### What brought you to Canada?

I knew I wanted to get my PhD in North America. I was drawn to Canada because of its cultural acceptance and diversity. I applied to the Universities of Toronto and Waterloo and UBC.

#### Why did you choose UBC?

I was interested in working with Professor Vijay Bhargava on cognitive radio.

#### How did you connect with him?

I searched the Internet for experts in cognitive radio. I found Professor Bhargava and emailed him. The email correspondence with a leader in cognitive radio led me to choose UBC over the other schools.

#### How did you get interested in cognitive radio?

I read about cognitive radio during my master's studies on cellular networks, and I realized I could contribute to this field.

#### What are your long-term goals?

Eventually I'd like to be a professor and continue in academia.

## UBC SOLAR CAR

# RAVEN PREPARES FOR FLIGHT

By Lawrence Garcia, second-year Engineering Physics

The UBC Solar team stands behind Raven, their first-generation, solar-powered car. Team Solar credits the design and creation of this vehicle as valuable experiential learning in applying science. Maitrayee Dhaka (centre) leads the team; David Schwartz (right of Dhaka) takes over as lead in 2014.

In July 2014, the UBC Solar car team will compete in back-to-back competitions: the Formula Sun Grand Prix (FSGP)— a three-day track endurance race at the Circuit of the Americas in Austin, Texas — and the 2014 American Solar Challenge (ASC) — an eight-day, 1,700 mile road course through seven states from Austin, Texas, to St. Paul, Minnesota. The grueling schedule gives the team only a one-day break between the events.

The races will be the culmination of more than four years of hard work on the team's first-generation car, Raven.

Composed of a sleek black carbon-fibre exterior, covered in about 1,000 watts of solar panels, and weighing in at about 400 pounds, Raven demands attention. Designed to run on lithium-ion batteries charged by top-range solar cells, Raven was also designed to reach speeds between 80 and 100 kilometres per hour, while being completely road legal per ICBC safety standards.

Maitrayee Dhaka, a fifth-year Mechanical Engineering student (mechatronics option) and team lead, remembers being attracted to the car even before its solar panels were added. "The way these cars are designed... really advances automotive technology," she says. "There's a huge scope if you're starting from scratch."

David Schwartz, a fourth-year Engineering Physics student and the current motor controller project lead, remembers that starting point from his second year.

"At the time, none of the panels were on; it was just the roll cage," says Schwartz.

Since becoming team lead in September 2012, Dhaka has also altered much of how the team was originally

organized. "[We are] trying to move toward a more professional setting, operating like a company," said Dhaka, who stresses accountability, technical due diligence, innovation and good engineering practices as some of the team's core values.

In recent months, the team has partnered with the Composites Research Network — a collaboration of research and industry partners — to get feedback from consulting members. The team has also developed a curriculum for school outreach initiatives for students from grades 5 to 12.

And while pushing to finish Raven in time for competition, the team has already begun design on the second-generation car, which Dhaka estimates will cost about \$250,000. The team plans to build a high-efficiency custom electric motor for the next car from scratch — a feat of its own.

"It's a ridiculously ambitious project," says Dhaka, who brightened up visibly at the prospect. "It sort of defines UBC Solar."

"Solar taught me basically everything I know about engineering," said Schwartz. "It's a project like this that shows you what engineering is actually like, what it's all about."

In January 2014, Schwartz will take over as interim team lead during Dhaka's Engineering Co-op work term at Tesla Motors in California. She plans to take time off for the upcoming competitions to help lead UBC Solar to victory. ■

For more information, visit [ubcsolar.com](http://ubcsolar.com)

## Shell Canada Renews Support for UBC Students

Since 2006, Shell Canada has supported education and student initiatives across UBC through its Campus Ambassador Program (CAP). The program, for which Shell renewed its support by committing \$250,000 over the next three academic years, augments the curricular experience of mining, chemical and biological, and geological engineering students by involving Shell representatives in guest lectures and mentoring programs and by sponsoring field trips, conference participation, field schools and design project awards. It also supports UBC's Women in Engineering program by funding professional development seminars, mentoring events and work-study positions.

Within the Shell CAP program, students can also apply for financial support for extracurricular initiatives through the Shell Engineering Student Fund. In 2012-13, 11 engineering student teams, clubs and organizations received a total of \$18,000 — the top beneficiary being UBC Solar, which received over \$3,300.

Shell's support represented a welcome funding injection to UBC Solar, which manages a significant operating budget. A new solar car

costs approximately \$250,000 to build, and the team must also cover travel- and competition-related expenses. With Shell's funding, the team was able to send four members as spectators to the American Solar Challenge (ASC), a 1,500+ km cross-country road race through the heart of the United States, and the annual Formula Sun Grand Prix, a circuit track race held on a closed course that serves as the qualifying event for the ASC, where they witnessed firsthand what is truly required to design, build and race a solar car in challenging competition conditions. The team was also able to organize an important retreat, during which they overhauled the team's structure and developed a diversity plan and a value statement.

Maitrayee Dhaka, team lead of UBC Solar, is well aware of the importance of the funding provided by Shell Canada through its Engineering Student Fund. "The support takes some financial pressure off our team members, who all have other costs related to their education," she says. "Shell Canada's renewal of CAP is very important to UBC Solar."

# Newsworthy



The Engineering Student Centre by Urban Arts.

The atrium of the new Engineering Student Centre (ESC) will be named in recognition of Fluor, whose donation of \$500,000 in October 2013 is the largest ESC gift received to date. The two-storey atrium is the grandest space within the facility, with the capacity to host more than 200 students for seminars and social and industry networking events.

The Faculty of Applied Science has a long and fruitful history with Fluor, one of the world's leading publicly traded engineering, procurement, construction and project-management companies. That history, dating back more than 30 years, includes partnership in the Chair in Hydrometallurgy, UBC's most successful industry-funded research program. The naming of the Fluor Atrium is the latest incarnation of the partnership, which will also include Fluor's participation in guest lectures, student mentorship and other educational projects that illustrate real-world engineering for students through examples taken from Fluor's work in Vancouver and around the world.

"I am delighted to be able to work with Fluor on the Engineering Student Centre," says Dean of Applied

## STUDENTS

### Fluor donates landmark gift for new Engineering Student Centre

Science Marc Parlange. Looking forward to additional opportunities to work with Fluor on educational programs, Parlange noted, "This is Applied Science's top-priority project, and I am pleased to have such a renowned industry partner support the engineers of tomorrow."

"We are excited to be a part of this significant UBC capital project which will provide an unparalleled environment for learning and collaboration for Canada's next generation of engineers," said Torrence Robinson, president, Fluor Foundation. "We look forward to continuing our partnership with UBC."

Dean Parlange adds, "By showcasing the award-winning work that Fluor has created in displays in the new Fluor Atrium, we will help students realize the application of their classroom work through real-world examples."

On behalf of today's students and the engineers of tomorrow, the Faculty of Applied Science thanks Fluor for its leading support of the new UBC Engineering Student Centre. ■

## RESEARCH

### The optimal clean-energy alternative is blowing in the wind



Professor Nagamune investigates the optimum blade pitch angle that will yield more efficient, long-lasting wind turbines.

As Canada Research Chair in Control Engineering, Associate Professor of Mechanical Engineering Ryoza Nagamune, P.Eng., studies the theory and application behind automated systems that run machinery and appliances. With the goal of increasing the economic feasibility of wind energy, his research focuses on devising a control algorithm that optimizes floating offshore wind turbines.

The platform and tower of a floating turbine are affected by the impact of wind and the ocean's waves. When the tower vibrates, force is applied to the structure's base. This creates a fatigue load, and if the oscillation is prolonged enough, the tower will break off. Adjusting the angle of the blade on the turbine could prevent breakage, but this change could possibly decrease energy capture.

Nagamune's research seeks a balanced outcome to this trade-off. He hopes to mathematically determine the optimum blade pitch angle for the turbine to face the wind. The platform's oscillation parameters — detected by an array of sensors — along with the error between the desired and current rotor speed would be simultaneously plugged into feedback systems. The information would then be inserted into his novel control algorithm, which automatically determines the adjustment of the turbine's blade pitch.

"There are many control algorithms in the industry, but we are hoping to reach a peak point by arriving at the optimal numerical solution," says Nagamune.

Decreasing fatigue load, a by-product of blade pitch adjustment, reduces maintenance costs and increases the lifespan of a floating turbine.

Nagamune's research advances the feasibility of wind energy, a clean-energy alternative relatively insulated from market fluctuations, unlike natural gas and oil.

His Tier 2 Canada Research Chair appointment, renewable once, will provide \$100,000 in funding annually over five years. ■

## RESEARCH

### Canada Research Chair protects human health with microfluidics



Professor Stoeber studies air particulates using microfluidics.

As Canada Research Chair in Microfluidics and Sensing Technology, Associate Professor Boris Stoeber, P.Eng., studies the behaviour of fluids inside minuscule channels, potentially helping to prevent lung cancer and lowering the fabrication costs of microneedles for pain-free drug delivery.

With a joint appointment in the Departments of Mechanical Engineering and Electrical and Computer Engineering, Stoeber measures the size and concentration of airborne fine particulates, which may settle as solids within the lungs and have been linked to cardiovascular complications and lung cancer.

Using a microfluidics-based system, Stoeber separates the particulates by size through microchannels, utilizing the centrifugal force exerted on each particle as it travels around a curve.

The miniature scale of microchannels makes them ideal for integration with small sensing technology.

Environmental particle monitors are currently used in Canada, but "these measure accumulated particulate levels over weeks," he says.

He notes that the UBC sensing technology works in real time, more accurately detecting particulate exposure within minutes.

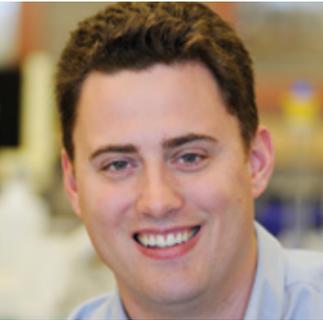
Stoeber's research also helps fabricate hollow microneedles that could painlessly inject drugs to human patients. He examines the behaviour of polymer solutions inside small cavities, which serve as the needles' casts, and then fine-tunes the evaporation process of the solution, "moulding" the settling of the polymer as a solid.

This solvent casting process creates arrays of hollow needles that are used to deliver compounds to the appropriate layer of the skin, proving a less expensive alternative to current microneedle fabrication methods.

Stoeber was granted a Tier 2 Canada Research Chair for five years, renewable once and with funding of \$100,000 per year. ■

## RESEARCH

## Canada Research Chair's quest to ensure resource supply



Professor Asselin researches extracting metals from ores by using aqueous processes.

As the new Canada Research Chair in Aqueous Processing of Metals, Associate Professor of Materials Engineering Edouard Asselin, P.Eng. (PhD '07 MMAT), studies the extraction of metals from ores by using water-based solutions. In this field, known as hydro-metallurgy, Asselin's research focuses on the extraction of copper and other base metals into solutions and their subsequent recovery in their pure, metallic form.

The mining world finds itself at a turning point because new ore bodies are smaller, contain less valuable metal, are located in more remote areas and contain increasing amounts of impurities like arsenic and antimony. Current standard practices for the extraction of metals from such ore bodies, which often include smelting, are increasingly unsuitable due to cost and environmental concerns.

Asselin's research on aqueous-processing alternatives presents a range of desirable solutions that handle the impurities of low-grade materials with more care for the environment than traditional methods, while treating smaller, more marginal mineral deposits.

Aqueous processing also enables treatment at the mine site, as opposed to shipping the ore to distant facilities, thereby reducing cost and CO<sub>2</sub> emissions.

Using sophisticated electrochemical methods, Asselin examines the dissolution rate of minerals under different conditions of aqueous processing. This yields insight on the phenomena occurring at the mineral/solution interface, such as the formation of passive layers that interact with the leach environment. Insights like these allow for the discovery of optimal chemical conditions to design better processes.

"These processes are vital to ensure the continued supply of much-needed metals in the face of rising demand," says Asselin.

Asselin's Tier 2 Canada Research Chair grants \$100,000 of annual funding over five years and is renewable once. ■

## LEARNING

## Life Cycle Management Laboratory and project impact

*Environmental, economic and social impacts of building examined by students*

When it comes to construction, are terms like recyclable and sustainability applicable? Is there such thing as an environmentally friendly highway project or a recyclable building?

Engineers at UBC's Okanagan campus think so, and students in the university's Life Cycle Management Laboratory are being encouraged to think so too. Associate Professor Kasun Hewage, P.Eng., says environmental concerns, including climate change and the decrease in natural resources, mean tomorrow's engineers need to rethink everyday building projects.

"We're asking our students to look at the entire life-cycle production process," says Hewage. "We want them to look at the starting point and end point of each piece of material. We need to look at the environmental, economic and even social impacts of every bit of material used in a building."

Plans and grant applications for the Life Cycle Management Laboratory began in 2009; to date more than \$500,000 has been raised, primarily through grant applications. Currently 16 postgraduate students are working on research in the facility.

"We also want to take this outside the campus," says Rehan Sadiq, P.Eng., professor and acting director of UBC's School of Engineering at the Okanagan campus. "We are thinking about professional development opportunities for engineers in our community and hope to eventually develop a graduate course in life-cycle thinking."

The next big step for UBC's engineers is a Canadian industry standard by which building materials can officially be labeled earth-friendly. Sadiq says although its early, life-cycle thinking is a natural progression for all types of construction and development.

Hewage adds that colleagues are also looking at systematic processes that can help asset managers and urban planners make informed decisions.

"We're suggesting now is the time to think about building materials," he says. ■

## RESEARCH

## UBC partners with Saudi Arabia to solve water-quality woes



Professor Sadiq channels water expertise to the Kingdom of Saudi Arabia for a partnership that will facilitate the evaluation of water quality.

*Partnership will allow exchanges of students between the two countries*

Saudi Arabia may be rich in oil, but it lacks a substance most Canadians take for granted — a plentiful supply of clean, safe drinking water.

Professor Rehan Sadiq, P.Eng., acting director of the School of Engineering at UBC's Okanagan campus, is taking water-distribution research to the Kingdom of Saudi Arabia. Sadiq is currently working with researchers from the King Fahd University of Petroleum and Minerals (KFUPM) on plans to evaluate potential water-quality failures in distribution networks and track potential human health risks in their country.

"The study is very specific to their conditions in Saudi Arabia," Sadiq says. "And when you recognize that about 90 per cent of their drinking water has to

be desalinated, that adds a lot more dimension to the research."

Sadiq, KFUPM researchers Ashraf Farahat and Abdullah Al-Zahrani, and Professor Manuel Rodriguez from Laval University have been awarded a two-year \$450,000 grant by Saudi Arabia's National Science and Technology Plan for their collaboration.

"Water is a precious resource in Saudi Arabia," Farahat says. "Strict regulations have been implemented by local authorities to maintain water quality. But distribution systems are complex, and water can be contaminated through many pathways between the point of entry and the points of consumption."

While the hands-on research will be conducted in Saudi Arabia, Sadiq is bringing UBC's water-quality modeling expertise to the desert state, as the research funds allow for UBC students to travel to Saudi Arabia to assist with the study.

Sadiq says the collaboration between the two universities is a first and puts UBC on a new international playing field.

"We are tying our research ideas into their everyday need for clean and safe drinking water," says Sadiq. ■

## FACULTY

## UBC now part of emSYSCAN project



From left: UBC's Associate VP Research Helen Burt; Professors of Electrical and Computer Engineering John Madden and Edmond Cretu; Dr. Ian McWalter, president and CEO, CMC Microsystems; Drs. Bozena Kaminska, chair of the board of directors, and Richard Oleschuk, board member, CMC Microsystems at the lab's opening.

On June 13, CMC Microsystems and UBC celebrated the opening of the Adaptive Microsystems Laboratory (AdaMist), part of the nationwide Embedded Systems Canada (emSYSCAN) initiative.

emSYSCAN, a five-year project worth over \$50 million, and involves more than 350 researchers in 37 institutions in Canada's National Design Network. The laboratory infrastructure provided through emSYSCAN helps to shorten the microsystem development cycle within a national and international multidisciplinary research environment.

Associate Professor Edmond Cretu is the principal investigator for the new lab. "Our vision in the AdaMist Lab is to utilize a flexible infrastructure to create alternative, complementary routes for rapid microfabrication and characterization of microsystems," he says. "In AdaMist, as part of the national emSYSCAN network, theory and experimentation will continuously interact to create innovative new technologies for microtransducer systems, printed electronics and sensor

networks, with applications in biomedical, automotive and communication fields. We want to drive a synergic integration between the more conventional technologies already existing in AMPEL [Advanced Materials and Process Engineering Laboratory] and the new AdaMist infrastructure."

The AdaMist Lab also provides undergraduate and graduate students with opportunities to pursue research and experimental projects, something previously rare in microsystems and technology due to the high cost of the classic silicon-based clean-room environment.

Simon Fraser University Professor and CMC Board Chair Bozena Kaminska states, "I strongly believe that our national joint effort will create extraordinary value for Canada, with organizations sharing ideas and information and working together to build both a global vision and the infrastructure necessary to realize it."

The Faculty of Applied Science thanks CMC Microsystems and Professor Cretu for their efforts in bringing emSYSCAN and the new AdaMist lab to UBC, as well as the Canadian Foundation for Innovation and the BC Knowledge Development Fund for their support. ■

## Awards &amp; Achievements

Applied Science staff **Rebecca Armstrong** (Nursing), **Thomas Chelliah** (Electrical and Computer Engineering) and **ErinRose Handy** (Dean's Office) received the 2013 Applied Science Dean's Award for Excellence in Service.

Chemical and Biological Engineering Professor **James Feng** was elected fellow of the American Physical Society.

Chemical and Biological Engineering Professor **Savvas Hatzikiriakos**, P.Eng., was named a fellow of the Canadian Academy of Engineering.

Civil Engineering MSc student **Ryan I. Thoren** (BSc '07 Environmental Sciences, MSc '11 CIVL) and Professors **James Atwater**, P.Eng. (BSc '69 GEOE, MSc '73), and **Pierre Bérubé**, P.Eng. (PhD '00 CIVL), received the Donald R. Stanley Award from the Canadian Society for Civil Engineering for the best paper published in 2012 on a civil engineering subject in the area of environmental engineering.

Civil Engineering Professor **Nemkumar Banthia**, P.Eng. (PhD '87 CIVL), has been appointed editor of the journal *Cement and Concrete Composites*.

Civil Engineering Professor **Greg Lawrence**, P.Eng., was inducted as a fellow of the Canadian Society for Civil Engineering.

Civil Engineering Professor **Tarek Sayed**, P.Eng. (MSc '92, PhD '95 CIVL) was named a fellow of the Canadian Academy of Engineering and of the Canadian Society for Civil Engineering.

Civil Engineering Professor **Dharma Wijewickreme**, P.Eng., was awarded the Horst Leipholtz Medal from the Canadian Society for Civil Engineering and was inducted as a fellow of the society. He was also named a fellow of the Canadian Academy of Engineering.

Electrical and Computer Engineering Professor and Department Head **André Ivanov**, P.Eng., was reappointed head of the department for a second five-year term, effective July 1, 2013.

Electrical and Computer Engineering Associate Professor **Purang Abolmaesumi**, P.Eng., and Professor **Robert Rohling**, P.Eng., were awarded first place at the International Conference on Information Processing in Computer-Assisted Interventions (IPCAI) for their paper, "Augmentation of Paramedian 3D Ultrasound Images of the Spine."

Electrical and Computer Engineering Professor **Vikram Krishnamurthy**, P.Eng., was awarded an honorary degree from KTH (the Royal Institute of Technology, Sweden).

Electrical and Computer Engineering Professor **Victor Leung**, P.Eng., has been inducted as a fellow of the Royal Society of Canada.

Electrical and Computer Engineering Assistant Professor **Ali Mesbah**, P.Eng., received the Best Paper Award at the 13th International Conference on Web Engineering for his paper, "Hidden-Web Induced by Client-Side Scripting: An Empirical Study."

Electrical and Computer Engineering Professor and ICICS Director **Panos Nasiopoulos**, P.Eng., received a renewal for his Canada Research Chair in Advanced Micro/Nanofabrication and MEMS.

Electrical and Computer Engineering Professor **Tim Salcudean**, P.Eng., and coauthors were awarded second place at the International Conference on Information Processing in Computer-Assisted Interventions for their paper "Ultrasound-Based Image Guidance for Robot-Assisted Laparoscopic Radical Prostatectomy: Initial in-vivo Results."

Materials Engineering Associate Professor **Edouard Asselin**, P.Eng., has been appointed a Tier 2 Canada Research Chair in Aqueous Processing of Metals.

Materials Engineering Professor and Department Head **Warren Poole**, P.Eng., was reappointed head of the department for a second five-year term, effective July 1, 2013.

Mechanical Engineering Professor **Yusuf Altintas**, P.Eng., received a doctorate, honoris causa, from the Budapest University of Technology and Economics, and the Blackall Machine Tool and Gage Award from the American Society of Mechanical Engineers for his 2012 paper, "Discrete-Time Prediction of Chatter Stability, Cutting Forces, and Surface Location Errors in Flexible Milling Systems," published in the *Journal of Manufacturing Science and Engineering*.

Mechanical Engineering Professor Emeritus **Muhammad Iqbal**, P.Eng., received the Faculty Community Service Award from *alumni UBC* for his outstanding philanthropy.

Mechanical Engineering Associate Professor **Walter Mérida**, P.Eng., was appointed director of the UBC Clean Energy Research Centre for a one-year term, effective July 1, 2013.

Mechanical Engineering Associate Professor **Ryozo Nagamune**, P.Eng., has been appointed a Tier 2 Canada Research Chair in Control Engineering.

Mechanical Engineering Associate Professor **Boris Stoeber**, P.Eng., has been appointed a Tier 2 Canada Research Chair in Microfluidics and Sensing Technology.

NBK Mining Engineering Professor and Department Head **Bern Klein**, P.Eng., was reappointed head of the department for one year, effective July 1, 2013. He and his co-authors were also recognized as having 2013's most outstanding paper profiling beneficial strategies for eco-efficient comminution from the Coalition for Eco-Efficient Comminution for their paper, "Energy and Cost Comparisons of HPGR Based Circuits with the SABC Circuit Installed at the Huckleberry Mine."

NBK Mining Engineering Professor Emeritus **Janusz Laskowski** was honoured at the 50th Symposium of Physicochemical Problems of Mineral Processing.

School of Engineering Associate Professor **Kasun Hewage**, P.Eng., has been recognized as having authored one of the top 25 published papers in the journal *Building and Environment* in 2012.

School of Engineering Professor **Rehan Sadiq**, P.Eng., has been appointed acting director of the school for a one-year term, effective July 1, 2013. He was also recognized by Science-Direct as having authored one of the Top 25 papers of 2012 published in the *Journal of Loss Prevention in the Process Industries* for the article "Risk Analysis for Oil and Gas Pipelines: A Sustainability Assessment Approach Using Fuzzy Based Bow-Tie Analysis."

School of Engineering Professor **Spiro Yannacopoulos**, P.Eng., has been appointed associate dean of the School of Engineering for a five-year term, effective July 1, 2013.

## Our People



Professor Croft has seen the Engineering Mentoring Program (formerly the Tri-Mentoring Program) grow to serve 250 participants annually, in just 10 years.

## FACULTY

## Engineering mentorship program celebrates a decade of student support

In October 2003, graduate students Donna Dykeman (PhD '08 MTRL) and Erin Young (MSc '02, PhD '07 MTRL) approached Professor Elizabeth Croft, P.Eng. (BSc '88 MECH), and now associate dean, Education and Professional Development, and asked to start a mentoring program within UBC Engineering.

"I had been looking for an opportunity to develop more support for women students," remembers Croft.

It was an opportune time — just months before, UBC had received funding from the Counselling Foundation of Canada to start an engineering mentoring program, and with support from the UBC program, Croft, Dykeman and Young started a pilot project in January 2004, which included 15 alumni and faculty mentors and 30 students.

"The pilot program was so successful that pretty quickly I had a number of male students at my office door asking whether they could participate in the mentoring program," says Croft. "So the following year, we expanded the mentoring program to 120 participants, with 50 per cent of the participants being women. The response to the mentoring program was overwhelmingly positive. In our first full year of the

program, we had twice the number of applicants than we could accommodate."

Ten years and hundreds of students later, the program now serves more than 250 participants — six times the size it was a decade ago.

At UBC, senior students (generally third- or fourth-year students) in the Engineering Mentoring Program are matched with industry and/or UBC faculty mentors. Senior students then mentor more junior students (generally first- or second-year students). The program incorporates face-to-face mentoring with online contact, networking events and connections to career-development resources.

Henga Hoseini (BSc '11 MECH) got involved with the program as a junior student in 2006. "In my junior years, I learned to set priorities with measurable goals, and in my senior years I learned more about possible career options. The whole experience taught me to be more self-reflective, and it was especially rewarding when I mentored a younger student." Hoseini continued as a mentor after graduating from UBC.

The program also benefits mentors, enabling them to promote their industries, network with other mentors, develop new skills and maintain a connection with the UBC community. Pirooz Darabi (MSc '07, PhD '11 MECH) now works at Fluor Canada. He notes, "I have been involved as a senior mentee, a member of the advisory committee and as a mentor. The program was beneficial for everyone involved, and I would definitely recommend it to anybody who wants to get in touch with enthusiastic students and dedicated professionals at all levels."

At the 10-year mark, the program sees many alumni returning to pay forward their experiences as mentees in the program — and so it continues to engage, support and inform.

Croft continues to champion the program, noting its value for everyone. "It started out as helping female students specifically, but it ended up being good for everyone," says Croft. "By supporting the minority in a community, you end up benefitting the majority." ■

For more information about mentoring best practices, visit [www.engineering.ubc.ca/mentoring](http://www.engineering.ubc.ca/mentoring).



From left: Richard, Ross, Lynn, Bill and Ryan Weymark in Antarctica.

## ALUMNI

## Mining engineering — a family tradition

Bill Weymark, P.Eng. (BASc '77 MINL), is not surprised his three sons chose to pursue degrees in engineering. However, he certainly didn't expect that they would all enroll in mining engineering at UBC.

"My wife, Lynn, and I simply encouraged our sons to pursue a post secondary education," says Bill, president of Weymark Engineering Ltd. "We did not insist that they attend UBC or that they take engineering, let alone mining engineering."

Regardless, all three sons followed in his footsteps and enrolled in UBC Mining. Richard graduated in 2008, followed by Ryan in 2010. The youngest, Ross, plans to graduate in 2014.

Each has his own reasons for pursuing mining. Bill saw how his own father's early experience as a mining engineer led to an exciting and diverse career working on the Panama Canal, developing the St. Lawrence Seaway as the chief hydraulic engineer, finding dam sites for BC Electric and running his own business.

His father's example helped convince Bill to enroll in UBC Mining. Bill also began his career in mining, as an engineer-in-training, and worked his way up to vice president before branching out as president and CEO of Vancouver Wharves and BCR Marine, and later moving into consulting.

Bill's eldest son, Richard, was interested in his father's career, but, "Going into first-year engineering, I wasn't sure which direction I would take," he admits. "I eventually chose mining because I was excited by the potential of travelling and working internationally and because UBC Mining has a strong reputation."

Richard did travel soon after he graduated, landing a job in Australia on the Lennard Shelf lead and zinc project. Now back in Canada, he is general foreman, Mine Operations, at Teck's Highland Valley Copper mine.

Ryan, P.Eng., who currently works for Teck on the Line Creek Phase II Expansion Project, always knew he was going to choose mining. "In my Grade 6 yearbook, when everyone else said they wanted to be a police officer or a professional athlete, I said I wanted to be a mining engineer," he says. "My parents instilled in my brothers and me a sense of the value of education and of working hard to achieve our goals, and UBC Mining and the mining industry have enabled me to leverage my strengths in pursuit of a fulfilling career."

Ross watched and learned from his father and older brothers. "We talked about engineering at the dinner table a lot, and those conversations sparked my interest," he remembers. "I saw what my dad and brothers had done, and where their choices took them, and mining just sort of fell into place naturally for me — I guess that's the benefit of being the youngest."

All four Weymarks have fond memories of UBC Mining, as well as a unanimous desire to remain connected to UBC after graduation. Bill currently sits on Mining's industry advisory committee and acts as his class's alumni representative for reunions. He also continues to spearhead fundraising initiatives for the department, helping to establish the Mining Engineering Alumni Student Development Fund in 2006, the John "Blue" Evans Student Enrichment Fund in 2010 and, currently, the Blue Evans Student Support Endowment.

"I have been very blessed to have received an education that provided me with so many opportunities, not to mention lifelong friends," says Bill. "Now, I feel it's important to give back and create a legacy of opportunity for future generations."

And, in keeping with family tradition once again, his sons are planning to do the same. ■

## STUDENTS

## Student discovers passions through Engineering Co-op

Jenn Bhatla had traveled with her family and, as a student, worked as a deckhand on a Tall Ship sailing the Atlantic. But it was on her own as an Engineering Co-op student in India that she saw first-hand challenging societal factors that engineers have the potential to improve. This opportunity provided her with an increased understanding of cultural differences, global economic challenges, the effect of engineering on health and the differences an engineer can make.

In Bhatla's initial work term, with the oil and gas sector at Devon Energy, her first field trip to a new world of rigs and mud pumps was inspiring. And as with any new venture, it was difficult in the beginning.

"At first I didn't understand a word of what was going on in meetings. In fact I understood more the following year when I was in India — and I didn't speak the language," she laughs.

But over time, and with the help of kind Devon Energy workers who would explain technicalities to her, Bhatla began to get a handle on the industry.

Bhatla's next work term — in India — was completely different, and captured her heart and imagination. Her family are longtime supporters of Child Haven International, a program based on Gandhian principles that operates in India, Nepal, Bangladesh and Tibet, and assists children and women in developing countries who are in need of support. She knew that Dr. S. V. Mapuskar, the "Latrine Doctor," a champion of sanitation in India's Pune district, had designed and implemented a biogas plant for water treatment at the original shelter home. Inspired by Mapuskar's work, Bhatla contacted him directly and, with the help of UBC's Engineering Co-op program, organized a work term with him.

The trip to India was her first solo foray abroad to a country where she knew no one and could not speak the language. Bhatla says support from the Co-op Program and Child Haven staff helped her to make the leap out of her comfort zone and not feel so isolated.



PHOTO CREDIT: MARTIN DUFF

Bhatla said she started to love working on her own, adding that it helped her connect with people more closely. "I was so nervous before I left and wondered how I would manage," she says. "I was always quiet, and still am, but now I know how to ask questions and I know that it's ok to get lost."

Back at UBC, Bhatla is involved with Engineers Without Borders (EWB) and was part of the global engineering team that was key in organizing presentations on the benefits of international work terms in coordination with the Engineering Co-op program.

"EWB wants to bridge the gap between the engineering community and the rest of society — to provide technical solutions while considering societal factors," says Bhatla.

Her work with Child Haven triggered an interest in medicine, and once again Bhatla is using Co-op as a tool to help her finesse her career decision-making process. Her winter-session position, at the McCaig Institute for Bone and Joint Health at the University of Calgary, will be her first time working in research and another step in her path to discovering the right fit for her talents and passions — which will ultimately lead her to fulfill Confucius' belief: "Choose a job you love and you will never have to work a day in your life." ■

Jennifer Bhatla, Geological Engineering student, found her passion with the help of UBC Engineering Co-op. She completed rewarding work terms with Devon Energy and with Child Haven International. She wears a ribbon on her wrist, given to her by children on Friendship Day in India.

# Alumni Updates Event Highlights



**CIVL '83 REUNION**  
SEPTEMBER 6, 2013

The '83 CIVLs gathered in Vancouver on the weekend of September 7 for their 30-year reunion with a theme of "After 30 Years — What's Next?" The event started off with a visit to the campus by 14 alumni, students and staff, a tour of the CIVL labs by Mark Rigolo, P.Eng., a quick visit to the old Cheeze Factory, and then a trip to Mahoney & Sons. On Saturday, 24 alumni gathered at Mayfair Lakes Golf Course for 18 holes. The reunion was capped off with a great meal there for 34 alumni plus significant others, and the main event featured MCs, Jack Gin, P.Eng., and Martin Gevers, BC Lion great Lui Passaglia and Brian McConaghy of Ratanak, to talk to us about their work in Cambodia. The event was a huge success by all accounts!

*Submitted by Bruce Miller, P.Eng. (BASC '83 CIVL)*



**BASC '58 - 55TH REUNION**  
SEPTEMBER 12-14, 2013

On Thursday, September 12, 24 graduates of the Engineering class of 1958 met for great fellowship and great food amid the spectacular setting of the West Vancouver Yacht Club. After lunch, Zelma Rebmann-Huber (née Moore, Eng Phys) gave an entertaining talk of her experiences in being the sole woman in UBC Engineering and in the early days of seeking employment after graduation. Bob Dolphin, P.Eng. (CIVL), described his experiences working for Dominion Bridge on the reconstruction of the new Second Narrows Bridge, after the collapse of temporary supports.

And after covering all expenses, a contribution was made to the UBC Engineering Student Centre Fund on behalf of the class of 1958. Thank you to the Organizing Committee for a great event!

*Submitted by Ed Frazer, P.Eng. (BASC '58 ELEC)*



**CHML '68 REUNION**  
SEPTEMBER 13-14, 2013

The UBC Chemical Engineering graduating class of 1968 celebrated its 45th reunion September 13-14, 2013, in Vancouver at the Granville Island Hotel. A total of 18 graduates (of a class of 29) attended, and we could have seen up to 24 attendees. A dinner cruise of the harbour on the Saturday evening included 15 wives. The Friday evening pub night was held at Bridges. Some played golf on both the Friday and Saturday at the Capilano Golf & Country Club, Langara & Fraserview courses. We had excellent weather, and it was considered a very successful reunion. We look forward to our 50th reunion in 2018.

*Submitted by Chris Goymour (BASC '68 CHML)*

**CEEN ALUMNI & FRIENDS**  
SEPTEMBER 17, 2013

The Clean Energy Engineering program held its second annual Alumni & Friends night in September. Building on the success of last year's inaugural event, alumni, industry guests and faculty joined current students of the CEEN program at Robson Square for an evening of presentations and networking. Featured speaker Paul Kariya (BA '75), executive director, Clean Energy of British Columbia, engaged the 75 in attendance and sparked great conversations after the formal program.



**CIVL '49 REUNION**  
SEPTEMBER 18, 2013

Year after year, the CIVL class of 1949 gathers to reconnect, tell stories and share a meal. This year the group celebrated their 64th reunion year at the Beach Grove Golf Club in Tsawwassen. Spearheaded by Knute Soros, P.Eng. (BASC '49 CIVL), the yearly reunion is always a lovely afternoon.



**ALUMNEUS BEER GARDEN**  
SEPTEMBER 20, 2013

The UBC Engineering Undergraduate Society hosted the inaugural alumnEUS beer garden in an effort to encourage current students and alumni to mix and mingle at the Cheeze for one last hoorah! This event was the first of the EUS' new alumnEUS initiatives to help students connect with Engineering alumni. Many alumni joined for a festive and evening, and even the dean joined in the festivities for his first beer garden of the season. We hope you can make it out to other alumnEUS events in 2014!

**MECH ALUMNI & FRIENDS NIGHT**  
OCTOBER 2, 2013

In a first for Mechanical Engineering, over 70 alumni and students came together at the Coppertank Grill for a networking night. Throughout the evening, students rotated among tables to ensure they were meeting a good mix of alumni, all of whom had come out to offer their advice on everything from studying tips to career pathways. It was a successful event, and we're already looking forward to next year's.

**CHBE INDUSTRY NIGHT**  
OCTOBER 15, 2013

The Chemical and Biological Engineering Industry Night featured a panel session of industry members who presented to students about career pathways in the CHBE field. The event was moderated by alumnus Claudio Arato, P.Eng. (BSc '89 CHEM, BASc '91 CHML) (Sonoro Energy) and panelists included Dr. Eric Jervis (STEMCELL Technologies), Jane Nieuwenburg (Lorax Environmental Services Ltd), Warren MacPhail (Devon Energy) and Peter Wynne, P.Eng. (BASC '83 CHML) (Chevron).

**ENGINEERING MENTORING KICK-OFF**  
OCTOBER 16, 2013

Over 60 mentors and 90 students came together for one of the largest Engineering Mentoring kick-off events yet. Professor Elizabeth Croft, P.Eng., spoke to inform attendees of the storied history of the Engineering Mentoring Program, which will celebrate its 10th year in 2014. For more information on becoming a mentor, please contact Sarah Barclay in the Alumni Relations office.

**TORONTO ALUMNI RECEPTION**  
NOVEMBER 4, 2013

Dean Marc Parlange took his first trip to Toronto as the new dean of Applied Science in November. In honour of the trip, a reception was held at PJ O'Briens pub in downtown Toronto for all alumni and guests of the Faculty of Applied Science. It was wonderful to see a variety of alumni from different disciplines and programs come together to meet with the dean and catch up with each other. Dean Parlange enjoyed the visit and meeting with Toronto-area alumni.



**ECE ALUMNI & STUDENTS NETWORKING NIGHT**  
NOVEMBER 6, 2013

This November saw the Electrical and Computer Engineering Student Society and APSC Alumni Relations host their second ECE Alumni & Students Networking Night. Ceili's pub

in Kitsilano was the venue for over 80 alumni and students to network over some appetizers in a relaxed setting. As an added bonus, students were invited a half hour early for a seminar led by alumnus Brent Lyon (BASC '96 CHML) about networking tips, which they were then able to put to use that evening. With a 1:1 ratio of students to alumni, both groups enjoyed the opportunity to network with each other.



**MECH '83 REUNION**  
NOVEMBER 22, 2013

On Friday, November 22, 20 members of the Mechanical Engineering class of 1983 met on campus to catch up with old friends and share fond memories of time spent at UBC. The group was led on a tour of a variety of Mechanical Engineering labs, where they heard from students describing their current research. Department Head Dr. Sheldon Green, P.Eng., met with the group before the evening finished with a loud and enjoyable dinner at a restaurant on campus.

*Submitted by David Speed, P.Eng. (BASC '83 MECH)*

**CALGARY REGIONAL EVENT**  
DECEMBER 5, 2013

It has been a while since UBC Engineering has held an alumni event in Calgary, and the turnout exceeded our expectations. Temperatures hovering around -30C didn't deter over 80 alumni and guests to join Dean Parlange for a beer tasting at Craft Beer Market. The Calgary Alumni Reception gave an opportunity for our Calgary-based alumni to meet the new dean as well as other UBC alumni who are long-time residents of and new transplants to Calgary. We are looking forward to our plans to be in Calgary in 2014.

# Upcoming Events

Here's a snapshot of some upcoming events, but there will be more. Visit our web calendar or subscribe to our monthly e-newsletter at [www.apsc.ubc.ca/news-events/newsletters](http://www.apsc.ubc.ca/news-events/newsletters).

## UPCOMING EVENTS

### BIOMEDICAL ENGINEERING GRAND ROUNDS SEMINAR SERIES 2014

MONTHLY, JANUARY-MARCH

Distinguished industry and academic speakers from across Canada present and discuss current topics in biomedical engineering research, development and practice. [www.bme.ubc.ca/news-events](http://www.bme.ubc.ca/news-events)

### UBC IEEE STUDENT BRANCH "THINK ENGINEERING"

JANUARY 31, 2014 5:00-10:00 P.M.

Think Engineering is an annual networking event organized and hosted by the IEEE Student Branches at UBC, SFU and BCIT in conjunction with the UBC Electrical and Computer Engineering Student Society. The aim of the event is to connect and engage students in Greater Vancouver with industry representatives and will feature a cocktail reception, keynote speech and three-course dinner. For more information about sponsorship opportunities or tickets, please email [ieee@ece.ubc.ca](mailto:ieee@ece.ubc.ca).

### UBC APPLIED SCIENCE INNOVATE 2014

MARCH 12, 2014 9:30 A.M.-4:00 P.M.

UBC Applied Science Innovate 2014 is the largest facultywide industry and research networking event. It aims to promote research and industry collaboration and provide students with extensive networking opportunities with leading industries. [www.ubcinnovate2014.com](http://www.ubcinnovate2014.com)

### INTRODUCTION TO PULP AND PAPER TECHNOLOGY

APRIL 10-11, 2014

A two-day course for Co-op students and newly hired engineers working in BC pulp and paper mills and supporting industry. The course will be offered at the UBC Pulp and Paper Centre and is sponsored by the Advanced Papermaking Initiative (API). Check [ppc.ubc.ca](http://ppc.ubc.ca) for registration and other info.

## UPCOMING ALUMNI EVENTS

### GEOLOGICAL ENGINEERING INDUSTRY DINNER

JANUARY 18, 2014 6:00 P.M.

UBC Geological Engineering cordially invites alumni and friends to attend the 12th annual Geological Engineering Alumni/Industry Dinner, to be held at the UBC Golf Club. Please join us for an evening of networking with industry colleagues and the next generation of UBC Geological Engineers! This year we are organizing tables for the classes of 1954, 1964, 1974, 1984, 1994 and 2004 as part of reunions — please contact Sarah Barclay at [sarah.barclay@ubc.ca](mailto:sarah.barclay@ubc.ca) for more information.

### ENGINEERING STUDENT TEAM COUNCIL INDUSTRY NIGHT

JANUARY 28, 2014 5:30-8:00 P.M.

The Engineering Student Teams Council is hosting its second annual Student Teams' Showcase! Come support the amazing students in UBC Engineering who dedicate their time and effort to designing, fabricating and competing with their projects across the world. See teams such as UBC's SAE AeroDesign, Baja and Formula and artificially intelligent soccer-playing robots, microsattellites and fuel-efficient vehicles. Enjoy refreshments while connecting with some of UBC's finest Engineering students from various disciplines. Hear the amazing stories that they have to tell about their unique experiences working on these projects. For more information, visit [ubcestc.wordpress.com](http://ubcestc.wordpress.com).

### MATERIALS ENGINEERING INDUSTRY NIGHT

JANUARY 28, 2014 5:30-8:00 P.M.

The sixth annual Materials Engineering Industry Night will be held at UBC — all Materials alumni and industry partners are invited to attend and to meet and engage with current students. An interactive panel of four Materials industry representatives will precede a networking reception with all guests. Contact Sarah Barclay at [sarah.barclay@ubc.ca](mailto:sarah.barclay@ubc.ca) for more information.

### UBC ALUMNI RECEPTION AT ROUNDUP 2014!

JANUARY 28, 2014 5:30-8:00 P.M.

Join us for a drink and some appetizers before your evening engagements at RoundUp 2014! Reconnect, and mingle and meet with fellow

delegates from UBC's Engineering and Science Faculties. To RSVP, email [sarah.barclay@ubc.ca](mailto:sarah.barclay@ubc.ca).

### MINING ALUMNI DINNER

FEBRUARY 1, 2014

Join fellow Mining alumni at the 18th Annual Mining Alumni Dinner. This year's event, at the Four Seasons Hotel, will feature a keynote speaker to be announced in January. Tickets can be purchased online. For more information, email [mac@mining.ubc.ca](mailto:mac@mining.ubc.ca).

### OLD RED NEW RED

FEBRUARY 8, 2014 6:00-9:00 P.M.

One of the year's most anticipated events is back! Old Red New Red brings together alumni and students to share stories, hear from the dean of Applied Science and meet up with old and new friends. This year is themed 'Cheers to the Cheeze,' so please join us for the toast and don't forget your red. To RSVP email [sarah.barclay@ubc.ca](mailto:sarah.barclay@ubc.ca).

### UBC CSCE STUDENT CHAPTER CIVIL INDUSTRY NIGHT

FEBRUARY 12, 2014 6:00-8:00 P.M.

The UBC Canadian Society for Civil Engineering Student Chapter is holding its annual Civil Engineering Industry Night on February 12, 2014, from 6:00-8:30 p.m. at UBC. This event is a great opportunity for employers from various Engineering disciplines to meet and network with current UBC Civil Engineering students. Each attending company is welcome to bring a table display, and multiple sponsorship options are available. If your organization would be interested in having representatives attend the event, please contact the UBC CSCE Student Chapter at [ubc.csce@gmail.com](mailto:ubc.csce@gmail.com) to request an information package and a formal invitation.

### UBC ENGINEERING ALUMNI RECEPTION AT PDAC 2014

MARCH 3, 2014 5:30-8:00 P.M.

UBC Engineering and the Faculty of Science will be hosting a reception for UBC Alumni attending the PDAC (Prospectors & Developers Association of Canada) conference in Toronto this March. To register for the reception, please email [sarah.barclay@ubc.ca](mailto:sarah.barclay@ubc.ca).

### UBC DESERT DAYS

MARCH 9-11, 2014

Whether you're a snowbird or a local, you're welcome to join UBC Alumni Affairs for this exciting week of UBC activity in the warm, sunny desert. This is a time for UBC alumni and supporters to gather and celebrate their shared UBC connections. For more information, please contact [berkley.weiler@ubc.ca](mailto:berkley.weiler@ubc.ca).

### 3CC - THREE COURSE CONNECTION MENTORING DINNER

MARCH 13, 2014

Applied Science is once again excited to be a part of the Three Course Connection dinner. Organized by students, this mentoring dinner is designed to bring together students and alumni from Applied Science, Arts and Commerce. The 3CC dinner is a fantastic way for alumni to provide mentorship to students from different disciplines and facilitate relationship building over a three-course meal. If you are interested in becoming a mentor for this one-night event, please email Courtney Smith in the alumni office at [courtney.smith@ubc.ca](mailto:courtney.smith@ubc.ca).

### INTEGRATED ENGINEERING INDUSTRY NIGHT

APRIL 3, 2014 5:30-8:00 P.M.

Integrated Engineering Industry Night showcases projects and offers networking opportunities with industry professionals for students, alumni and faculty members. Students will present the results of their hard work and efforts in designing and manufacturing an innovative product or solution. Contact [sarah.barclay@ubc.ca](mailto:sarah.barclay@ubc.ca) for more information or to RSVP.

### ENG PHYS SOCIAL NIGHT

APRIL 2014

Engineering Physics will once again convene to celebrate student achievement, new graduates and their alumni community. Please stay tuned and check your email for the invitation.

### ENGINEERING EXCELLENCE

APRIL 10, 2014

Help us celebrate the best in UBC Engineering by joining the fifth Engineering Excellence celebration. Awards are presented for community service, lifetime achievement, young alumnus, future alumnus and professor emeritus. [engineering.ubc.ca/engineeringexcellence](http://engineering.ubc.ca/engineeringexcellence)

### ALUMNI WEEKEND

MAY 24, 2014

Save the date! This year's UBC-wide Alumni Weekend date is set! Events will be taking place campuswide, and UBC Engineering will be hosting their annual Engineering Reception — all alumni and guests are welcome! To commemorate important anniversaries, we will be taking class photos of milestone reunion years — calling all grads of 1954, 1964, 1974, 1984, 1989, 1994 and 2004. This year promises to be a great event, as the CHML and MECH classes of 1964 have already started their planning for a big 50th reunion blowout! For more information, visit [www.engineering.ubc.ca/alumni](http://www.engineering.ubc.ca/alumni).

### ALUMNI ENGAGEMENT

The Faculty of Applied Science is committed to keeping in touch with our alumni. Whether helping you organize a class reunion, connecting you with long-lost classmates, engaging you in faculty and student activities or keeping you abreast of your alma mater through the Web, newsletters or regional events, we are pleased to help. Please contact Sarah Barclay in the Alumni Relations office at [sarah.barclay@ubc.ca](mailto:sarah.barclay@ubc.ca) for more information.

### REUNIONS

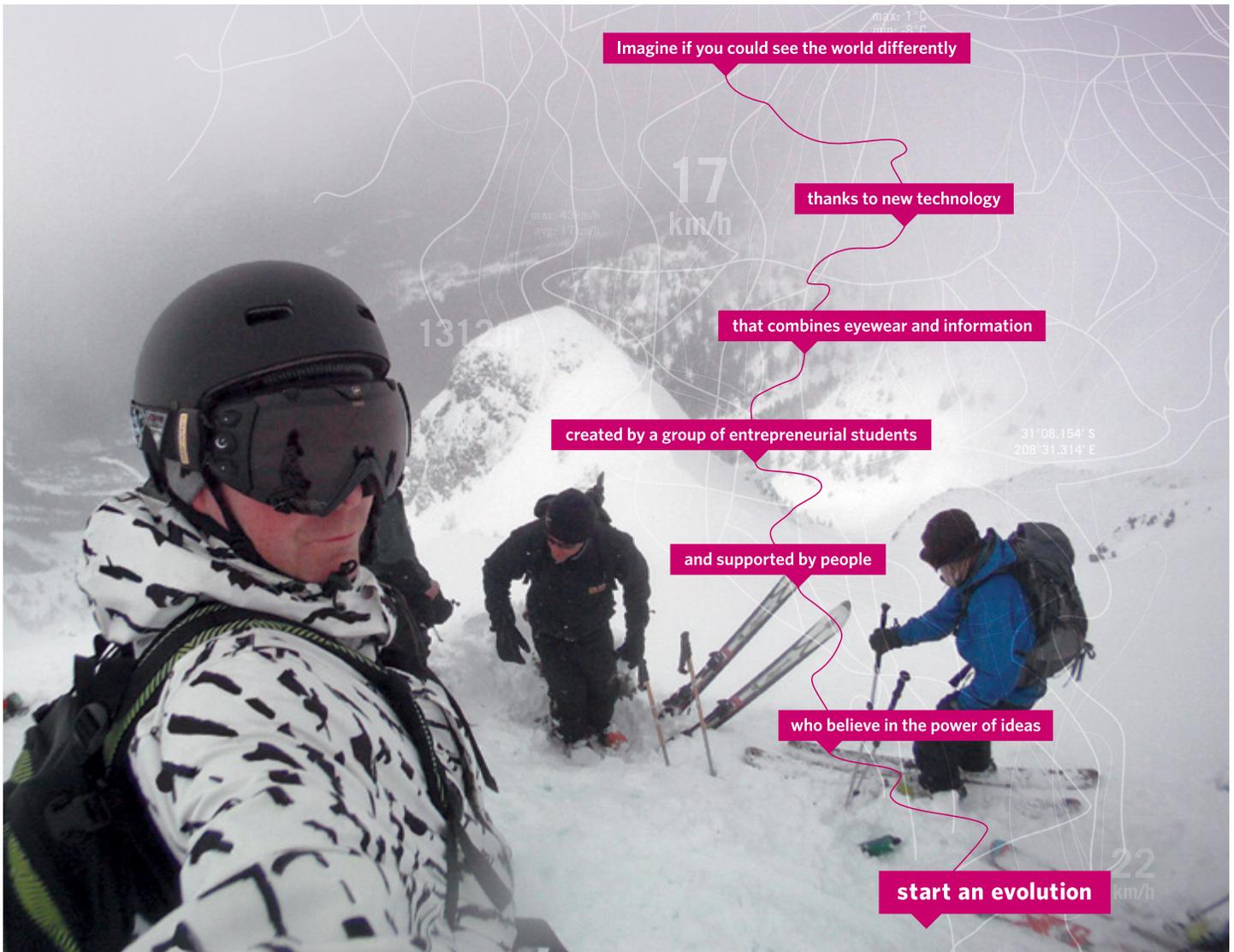
If you would like more information on upcoming reunions or are interested in organizing one, please email [courtney.smith@ubc.ca](mailto:courtney.smith@ubc.ca) in the Alumni Relations office for more information.

## UBC Innovate 2014

Join us for UBC Applied Science Innovate 2014, the largest UBC faculty wide industry and research networking event.

Connect with UBC Engineering researchers across disciplines to network and collaborate.

For more information, visit <http://ubcinnovate2014.com>.



Recon Instruments, a company building innovative eyewear, grew out of an entrepreneurial program at UBC. There are many opportunities at the University of British Columbia to donate, connect or get involved with almost any issue. To support thinking that can change the world, visit [startanevolution.ca](http://startanevolution.ca).



a place of mind

