

# WEAL

**WATERLOO** | **ENGINEERING** alumni letter

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## Waterloo Engineering Alumni Letter

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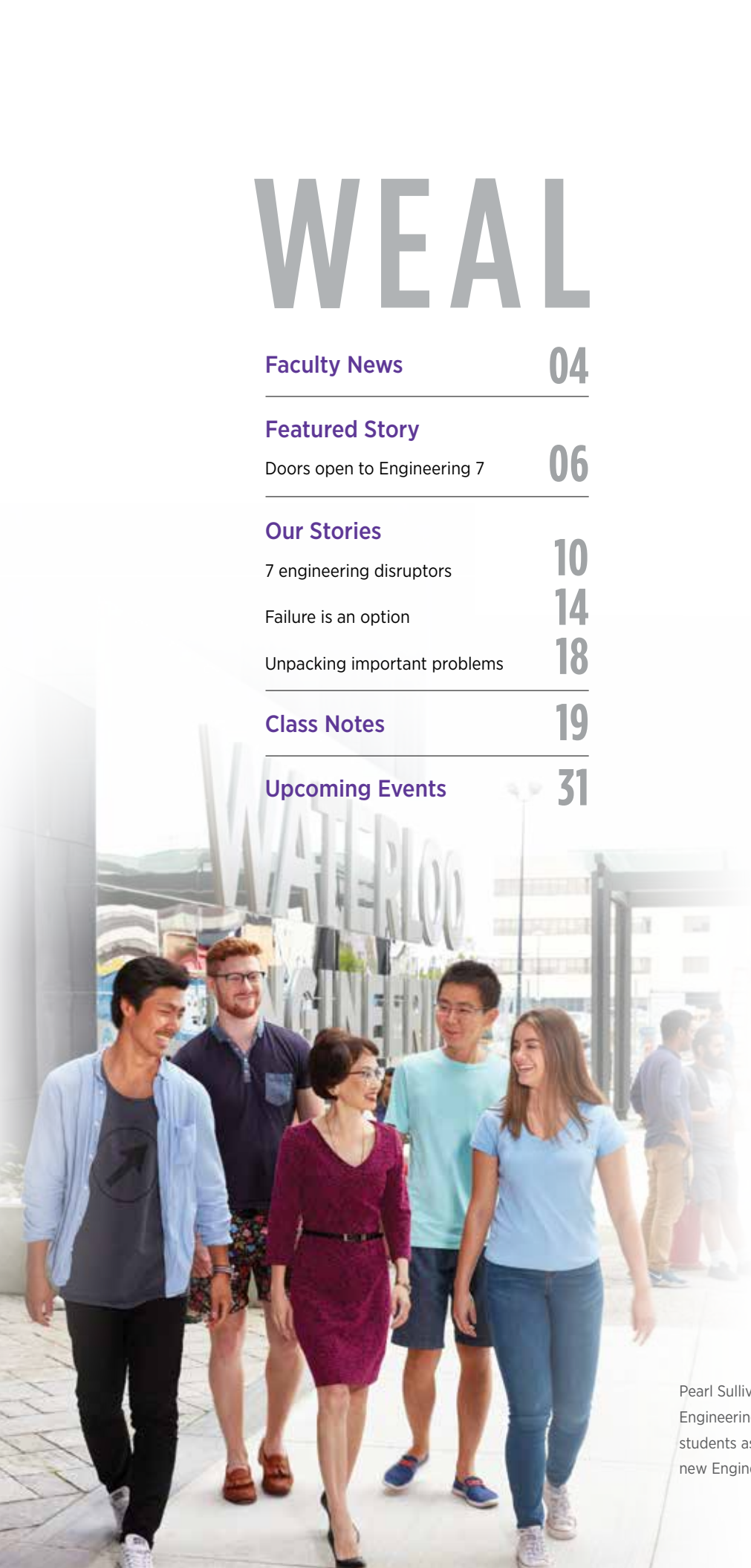
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Pearl Sullivan, dean of Waterloo Engineering, joins engineering students as they walk into the new Engineering 7 building.



**The wait is over. Almost four years after breaking ground for Engineering 7, our amazing new building is now in full use by students, researchers, faculty and staff.**

With Engineering 7, we've once again raised the bar by providing even earlier opportunities to experience what it is to be an engineer, while nurturing those with entrepreneurial aspirations and supporting research at the highest levels.

Our cover story provides a sneak peek at seven of the many dynamic features of Engineering 7 that you'll be able to see for yourself at the building's grand opening on Monday, October 29.

Be sure to mark your calendar and come ready to celebrate.

As Canada's largest engineering school, we are constantly aware of the need for new programming and facilities to advance engineering education — and we're doing just that. For the past 61 years, we've been preparing the next generations of engineers with the deep knowledge, problem solving skills, and work experience required to succeed in even the most challenging situations. Featured in this issue are seven of the thousands of Waterloo Engineering alumni, researchers and students who are transforming life, business and the global economy.

Earlier this year, the Waterloo Artificial Intelligence Institute was launched at the University. A joint venture of the engineering and mathematics faculties, the institute focuses on fostering campus-wide research into artificial intelligence (AI).

To address the high demand for AI talent, we recently introduced an AI option for all engineering students. Through learning about the newest applications and opportunities, students will gain the knowledge and hands-on skills that will enhance their careers as industry leaders in the field of AI.

This semester also marks the start of our 15th undergraduate program: architectural engineering. Our latest offering is designed to produce engineers technically advanced in the whole gamut of building design, construction, assessment, repair and refurbishment.

One of our greatest successes over the past five years has been our Educating the Engineer of the Future campaign. With your help, we have almost reached our overall fundraising goals. They include partial support for Engineering 7 construction, facilities and activities to enhance student experience. Other goals include support of graduate scholarships and establishing a series of chairs in emerging technologies. On behalf of the Faculty, thank you! I look forward to personally expressing my appreciation for your generosity on October 29 or at one of the many other events we have planned throughout the next year.

Sincerely,

**PEARL SULLIVAN**  
Dean, Faculty of Engineering

## Launch of Canada's first architectural engineering program

The inaugural class of the country's only architectural engineering program is now in session.

The program, which combines architectural design with building engineering, provides students with the technical knowledge and skills to design energy and structurally efficient buildings.

Scott Walbridge, the director of the program, says graduates will have the expertise required to respond to the unique challenges currently facing the building industry. Those challenges include determining how to repurpose older buildings that are becoming functionally obsolete and reducing the impact humans are having on climate change.

"People have done studies that show roughly a third of the impact on greenhouse gases can be attributed to buildings," notes Walbridge, a civil and environmental engineering professor. "So if we want to effectively change that, it's essential to make buildings more energy efficient."

## Institute accelerates AI innovation

A new institute at the University of Waterloo is focused on fostering campus-wide research into artificial intelligence (AI) and providing a portal for organizations to access its extensive expertise in the rapidly growing field.

Launched last spring, the Waterloo Artificial Intelligence Institute tackles practical and fundamental problems brought to it by partners in business, government and the non-profit sector.

"Industry collaboration has long been one of the major strengths of the University of Waterloo, and we continue in that tradition through the institute's many planned activities," says Fakhri Karray, an electrical and computer engineering professor who is co-director of the AI institute. "We want to make sure that the efforts and work being done by our professors, researchers and students shine to the outside world and benefit society."

A joint venture of Waterloo's engineering and mathematics faculties, the institute includes almost 100 researchers from across campus.

## Top UK robotics researcher joins Waterloo

Kerstin Dautenhahn, a leading international researcher in social robotics from the University of Hertfordshire in the United Kingdom, has joined Waterloo Engineering as a Canada 150 Research Chair for the next seven years.

The cross-appointed professor of electrical and computer engineering, and systems design engineering leads a large, multidisciplinary research program integrating artificial intelligence and collaborating with other experts across campus.

Dautenhahn is one of 24 international scientists and scholars named chairs at universities across Canada under a \$117.6-million program to enhance the country's research and innovation excellence.

A | Canada's first architectural engineering program launched this term. **Scott Walbridge**, left, is director of the new architectural engineering program and **Anne Bordeleau** is director of Waterloo's School of Architecture.



## Associate director receives inaugural education award

Mary Robinson, Waterloo's associate director of first-year engineering, is the first recipient of a new Canadian Engineering Education Association award.

The Ron Britton Engineering Education Vanguard Award recognizes someone in the early stages of his/her career who is making significant contributions to engineering education.

"It is truly fitting that Mary has been selected to help define the standard for this award," says Gordon Stuble, Waterloo Engineering's associate dean, teaching. "We and our students are fortunate to enjoy the benefits of Mary's efforts and excellence."

## Researcher recognized for wireless work

Slim Boumaiza was honoured at Rideau Hall in Ottawa for his research on wireless communications networks with two industry partners.

The electrical and computer engineering professor, who heads the Emerging Radio Systems Group, was one of 20 scientists and engineers to be recognized in May at a ceremony attended by Governor General Julie Payette and other dignitaries.

He received a \$200,000 research grant as the recipient of one of four Synergy Awards for Innovation categories sponsored by the Natural Sciences and Engineering Research Council of

Canada (NSERC). The award recognizes Boumaiza's work with Ericsson Canada Inc. and Keysight Technologies Canada Inc. to find ways to build energy-efficient radio-communications systems that minimize the environmental impacts and operational costs of 4G infrastructure.

## Order of Canada honour

Keith Hipel, a systems design engineering professor who also earned three degrees at Waterloo as a student, has added the prestigious appointment of Officer of the Order of Canada to his distinguished list of awards and accomplishments.

During a career spanning decades, Hipel has taught thousands of students and supervised dozens of candidates for graduate degrees.

## Educating the Engineer of the Future update

It's hard to believe it was five years ago that we embarked on our Educating the Engineer of the Future campaign. We are close to achieving our overall fundraising goals to build Engineering 7, enhance student experience, support graduate scholarships and establish chairs in emerging technologies.

Fundraising is, and always will be, essential to providing education excellence throughout Waterloo Engineering. We are grateful to the thousands of donors who understand that even the smallest donations add up to make a significant impact. Along with those contributions, we received remarkable transformational gifts and solid public-sector support.

With Engineering 7 completed and open to students this term, we'd like to thank everyone who has taken part in this important campaign. It truly was a team effort, with generous support from alumni, staff, faculty, industry, government and friends of Waterloo Engineering. If you haven't yet contributed, there is still time — look for the self-mailer in the centre of this WEAL or visit [engineerthefuture.ca](http://engineerthefuture.ca).

**B | Slim Boumaiza**, right, head of the Emerging Radio Systems Group in Waterloo Engineering, received a prestigious NSERC award for his work on wireless networks.

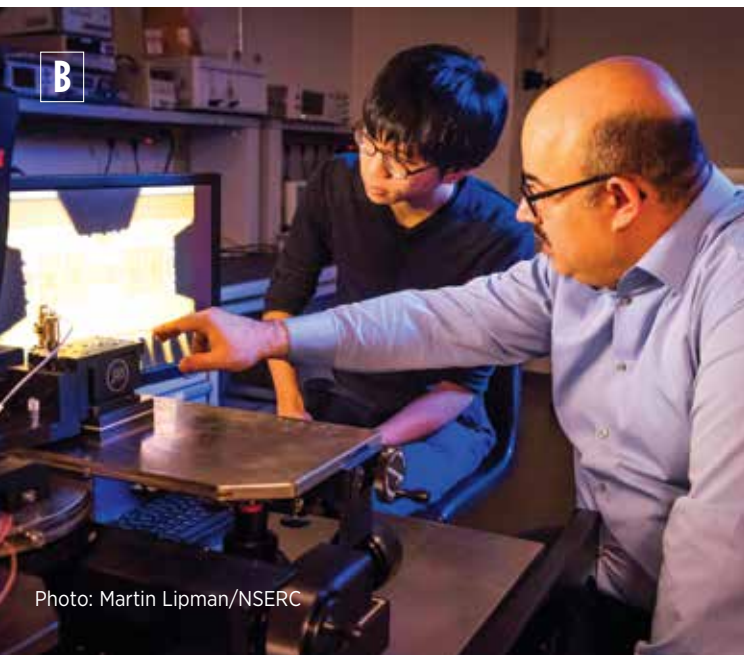


Photo: Martin Lipman/NSERC

# Doors open to Engineering 7

## A new world of endless possibilities

Students walking into Engineering 7 this term are entering a building like no other.

Since the first shovel went in the ground in November 2015, excitement has grown for our seven-storey, 242,000-square-foot building, which officially opens its doors on October 29. With its extraordinary facilities, we are ensuring our continued educational leadership while equipping students to tackle the truly difficult problems facing our society.

Here's a sneak peek at seven of the many ways Engineering 7 provides a dynamic gateway to educating the engineer of the future.



Engineering students Valerie Norman-Gerum, left, and Haobei Song take a selfie near the spectacular Waterloo Engineering sign outside of Engineering 7.



## 1 Enhanced educational experience

The student-centric design of Engineering 7 allows for the genesis of new ideas and engineering solutions to problems that have yet to be imagined.

There's a pitch area for students to present their design projects or venture

ideas and an atrium soaring between the Engineering 7 and the Engineering 5 buildings that provides an inspiring location for collaboration, studying and student gatherings.

Student experience is also enriched with a state-of-the-art student workshop, a machine shop and an electronic components shop. New student garages provide a dedicated spot for fourth-year teams to collaborate and build their Capstone Design projects.

The flagship teaching space is the two-storey Engineering Ideas Clinic®. Equipped with built-in water zones, sandpits and much more, the clinic provides all undergraduate engineering students with exposure to hands-on problem solving and realistic testing of projects.

Activities organized by the Engineering Ideas Clinic® range from in-class projects such as taking apart internal combustion engines to open-ended problems requiring students to work in teams and draw on all of their academic lessons to find solutions.

"We're connecting the digital and physical worlds, using the deep engineering knowledge for which our curriculum is known," says Sanjeev Bedi, a mechanical and mechatronics engineering professor and the Natural Sciences



## 2 Expanded home for six engineering programs

Welcome to much more — and much-needed — room for electrical engineering, computer engineering, mechanical engineering, mechatronics engineering, biomedical engineering and systems design engineering. With dedicated incubation space for each program, we are helping to ensure both the economic and innovation future of Canada.

Engineering 7 is allowing us to meet the demands of enrolment growth — both our mechatronics engineering and biomedical engineering programs are rapidly expanding, and we are increasing our undergraduate enrolment overall by an additional 1,500 students.

"I'm excited about the student space in Engineering 7," says Natisa Jeyakanthan, a fourth-year biomedical engineering student. "Specifically, the study and social areas and the lecture halls will be useful as the biomedical engineering program continues to grow."

## 3 More exceptional research space

From world-class additive manufacturing facilities to the one-of-a-kind RoboHub, we are strengthening our research capacities in emerging and disruptive technologies.

The third-floor Multi-Scale Additive Manufacturing Lab is one of Canada's largest 3D-printing facilities. From new design systems to



## » FEATURED STORY

multi-material processes, this lab will help ensure our nation's technological competitiveness in new design systems, multi-material processes and much more.

The RoboHub is the only experimental facility in the world with aerial, mobile, humanoid and levitated robots under one roof, opening new avenues of multidisciplinary research that combines the potential of these different robotic technologies.

The space has an advanced indoor motion-tracking system and movable features such as fans, stairs and doors, along with a unique fleet of autonomous robots and manipulator arms. A dedicated control centre attached to the RoboHub enables high-level coordination of robot motions as well as advanced 3D visualization.

"Nowhere else on the planet do you find the same advanced robotics technology under one roof," says William Melek, director of mechatronics engineering. "It places Canada at the forefront of this strategically important emerging field."

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### Permanent home for Outreach

Housed in a portable for seven years, Waterloo Engineering's Outreach is now located on Engineering 7's first floor, providing easy access to the headquarters of Engineering Science Quest and other acclaimed camps, high school leadership programs and Women in Engineering initiatives.

The new location not only provides a much larger, multi-functional space for Outreach, it also serves as a professional front door to its programming.



"When we book a meeting with someone, we no longer need to tell them to come to a portable," says Martin Scherer, manager of Outreach. "Having dedicated delivery space also means we can offer more programming year-round."

An added bonus?

"Staff won't need a jacket in the winter to go to the bathroom," Scherer says with a laugh.

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### New headquarters for the Conrad School of Entrepreneurship and Business

There is a new name as well as a new location for the Conrad School of Entrepreneurship and Business. Officially designated as a school this past spring, it was renamed from the Conrad Business, Entrepreneurship and Technology Centre.

For years, a visit to Conrad has meant a trip across campus and Columbia Street to the second floor of the Accelerator Centre. Now it's a quick elevator ride — or a set of stairs — to the school, which is located on the second floor in Engineering 7.

The centrally located space provides Master of Business, Entrepreneurship and Technology (MBET) students with entrepreneurship training and direct access to business mentors. It's also the main-campus home for our undergraduate entrepreneurship option launched in 2015.

"Conrad's move from North Campus to the heart of Engineering 7 and the physical heart of the Faculty of Engineering promises to profoundly enhance our students' experience at Waterloo and to leverage Conrad's potential impact on Engineering and the larger University," says Mark Weber, director of Conrad. "Exciting things are going to happen here."

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### Additional room to accommodate graduate student growth

Waterloo Engineering's enrolment growth continues beyond undergraduates to the graduate student level. Now with Engineering 7's cutting-edge facilities, we will attract more top students from Canada and around the world to our graduate programs, where they can develop and test their ideas and undertake discovery in emerging and disruptive technologies.







Fiona Khor, a mechanical engineering master's candidate, welcomes the additional space for graduate students.

"There has been a shortage of graduate student offices and labs with the increase in incoming graduate students," says Khor, whose research is in the area of injury biomechanics. "The additional graduate offices and facilities in Engineering 7 now allow students to work in a comfortable office environment in close proximity to their peers and supervisors."

## 7 Opening of a new C&D!

Much to the delight of students, faculty members, staff and others needing a java fix, Waterloo Engineering's second C&D (short for coffee and doughnuts) is conveniently located on the first floor. Much like the original C&D in Carl Pollock Hall (CPH), this one, also operated by the Engineering Society, is already a regular early-morning, mid-day and late-afternoon stop for many. Along with the numerous blends of coffee and different types of sweet treats, it carries everything from soup to nuts – with lots in between.



# 7 engineering disruptors

1

Transforming life, business and the global economy

From the design of the Waterloo Pump, which brought clean water to communities in developing countries, to the invention of the BlackBerry, which opened the floodgates for the ubiquitous smartphone, Waterloo Engineering students, graduates and researchers have made an indelible mark on the world.



And in a technological age that includes artificial intelligence, ever-faster wireless communications and soon-to-be-self-driving vehicles, that process of innovation and contribution is only accelerating.

To wit, here is a sampling of seven people with proud ties to Waterloo Engineering discussing how they have made, are making, or hope to make disruptive differences in endeavours ranging from building websites to excavating landmines.

It is by no means an exhaustive list — or the end of the story. Stay tuned into the future as many more do their part to improve lives the world over.



**60-80%**  
of interactive websites  
are fully or partially  
powered by PHP

Powering the web through PHP

**Rasmus Lerdorf** created the PHP scripting language to put dynamic content on websites soon after earning a degree in systems design engineering at Waterloo in 1993. Initially meant only to make his consulting job easier, PHP took on a life of its own when he released it as an open source toolkit. Today, the simple, elegant software language powers or partially powers an estimated 60 to 80 per cent of the interactive websites on the Internet, allowing users to do everything from renting cars to catching up with friends on Facebook.

Waterloo in 1993. Initially meant only to make his consulting job easier, PHP took on a life of its own when he released it as an open source toolkit. Today, the simple, elegant software language powers or partially powers an estimated 60 to 80 per cent of the interactive websites on the Internet, allowing users to do everything from renting cars to catching up with friends on Facebook.

**Q. Why has PHP been so successful?**

**A.** It was badly needed because the web was just exploding at that time, but it wasn't all about me. I just happened

to be the first person at the party. When open source hit and people started sending me fixes for it, the ongoing development of PHP became a worldwide effort. Hundreds and hundreds of developers gathered around this thing that I had started. Where we are today is way more about that group effort than it is about me.

**Q. How is PHP contributing to the world?**

**A.** I hope it has helped people put their dreams and ideas, their creativity and uniqueness, online. There is a lot of criticism of its technical aspects out there, but all that disappears when I see what people have done with it. After a tsunami hit Sri Lanka, for instance, I met with a group of young people there in 2005. PHP enabled them to create an incredible disaster management system that has since been used in about 75 major natural disasters around the world. That is just amazing to me. It has literally saved lives.



## Advancing next-generation wireless

**Catherine Rosenberg**, an electrical and computer engineering professor, Canada Research Chair in the Future Internet and Cisco Research Chair in 5G Systems, leads a new research partnership with Cisco Systems Canada on the future of wireless networks. She has established two research teams to tackle challenges in 5G enterprise networks — one in networking and communications, and the other in security, dependability and software.

### Q. What is at the heart of the coming 5G networks?

**A.** The next generation of wireless systems, 5G, is not a single technology but a collection of advanced technologies that need to be integrated. What they will enable falls into three main categories: 4G on steroids, or much, much faster data transmission; reliable, low-latency service for critical applications, including remote surgery and autonomous vehicles; and the Internet of Things, which has the potential to connect billions of things, large and small, together.

**5G**  
the next generation of wireless systems

### Q. How will these advances change the world?

**A.** To understand how 5G wireless networks will affect our lives, it is useful to consider the impact existing 4G technology has already had. Look at how much time we spend on our smartphones, doing everything from sending messages to our children to working on the go. Well, 5G is the next generation, the next step, and with much faster, much more consistent wireless service enabling us to do much more via the Internet, we will be even more glued to our phones and other devices.

### Q. What is your main area of interest within the huge 5G field?

**A.** Instead of focusing on one or two technologies, I am concerned with how all of these new technologies will be integrated into the most efficient and secure systems.



## Harnessing renewable energy

**Khaled Ibrahim**, a doctoral candidate in mechanical engineering at Waterloo, is developing novel materials — including graphene oxide gel and functionalized two-dimensional materials — to boost the efficiency of perovskite solar cells and gas sensors, among other applications. Fabricated in just eight minutes using a specific form of laser treatment to alter existing materials, the new materials are also less expensive and easier to work with than the originals.

### Q. What impact do you hope these new materials will have?

**A.** It is exciting because they have never been fabricated before, so there is an element of the unknown here. A key goal is improving solar cells to better harness our most important source of renewable energy — the sun. They could also be used in sensors to detect some greenhouse gas emissions that are currently going undetected at factories, for instance. We hope there are multiple applications to help the environment.

### Q. What motivates you to do this work?

**A.** Growing up in Egypt, where there is severe pollution and devastating storms, made me appreciate the urgency of addressing climate change. According to projections, just to limit the temperature increase to 2°C, we will have to reduce our global emissions in the next 30 years by as much as we have increased them in the last 30 years. That is not to be taken lightly. As engineers, as loving parents and grandparents, we have an obligation to leave a habitable world for our children. That is why I am motivated to make a difference — even if only by 0.01 per cent.

the urgency of addressing climate change



4



## Giving disabled kids a voice

**Tom Chau**, vice-president of research at the Holland Bloorview Kids Rehabilitation Hospital, has spent almost two decades creating communication tools and other technologies for

children with complex disabilities since earning his doctorate in systems design engineering at Waterloo in 1998. Included is the Hummer, an award-winning device that senses vocal cord vibrations and uses them as a switch, enabling non-verbal kids to operate computers and other communication aids via specialized software.

### Q. What inspired you to do this work?

**A.** I had a job at IBM after leaving Waterloo, but when my first son was born I realized I really wanted to do something related to children and have more immediate impact. With everything that had to come together for it to happen, holding a baby in my hands was amazing, nothing short of a miracle. I decided I would try to maximize the potential of all children, so I quit my job and approached Holland Bloorview with some ideas. Fortunately, I landed a post-doctoral fellowship, which gave me three years of salary, and I have never looked back.

### Q. What do you think the future holds in your field?



## brain-machine interfacing

**A.** It is extremely promising. We've given a great deal of attention in the last decade to brain-machine

interfacing and I think that is the next frontier, where we'll be able to bypass the motor system altogether and interact with our environment by mental activity alone. We have already created a system, for example, that makes it possible to type 50 characters a minute using only the mind. Such technology will be another level of game-changing for kids with disabilities, allowing them to lead healthy, meaningful lives.



## Improving physiotherapy treatment

5



**Agnes Lam**, who earned undergraduate and master's degrees in electrical and computer engineering at Waterloo, is working to commercialize a system using motion sensors and machine-learning software to help both patients and physiotherapists after hip and knee replacements. The project at Cardon Rehabilitation & Medical Equipment Ltd. of Burlington, ON., is a direct extension of her graduate research under the supervision of professor Dana Kulić.

### Q. What are the system's benefits?

**A.** On the patient side, our Automated Rehabilitation System provides immediate visual feedback via a virtual avatar on a monitor so they can see how they're performing exercises compared to the correct motion. That gives patients guidance and motivation to do their prescribed exercises well. For physiotherapists and doctors, the system provides highly accurate data, even when they're not present, so they can track progress and modify treatment if necessary.

### Q. How did you get into this field?

**A.** I worked in a hospital IT department during a high school co-op term and was then fortunate to do two co-op terms with Professor Kulić as an undergraduate. I needed physiotherapy myself for a basketball injury, and combining technology with medicine has always fascinated me. I see it as a direct way to help people and contribute to society.

### Q. What are your expectations for the system?

**A.** I'm hoping this tool helps to improve diagnosis and treatment for physiotherapy, first for hip and knee replacements and later for a host of other medical applications. If professionals are more informed and patients are more motivated, people should get better sooner.



# 6

## Ridding the world of landmines

**Richard Yim**, who graduated from Waterloo with a degree in mechanical engineering in 2016 and completed the Master of Business, Entrepreneurship and Technology program at the Conrad School the

following year, is on a mission to rid the world of landmines, a problem he has been acutely aware of since he was taught to be wary of them while growing up in his native Cambodia. A company he co-founded, Demine Robotics, hopes to have a small, lightweight robotic device on the market by the end of this year to safely dig live landmines out of the ground.



To excavate landmines deminers currently use **hand shovels**

### Q. Why is excavation of landmines the focus at Demine?

**A.** The more we learned by talking to experts, the more we realized that what the people doing the difficult job of

landmine clearance need help with the most is digging them out of the ground. Deminers currently use hand shovels to excavate landmines after locating them with metal detectors, a task that is time-consuming and labour-intensive in addition to being the most dangerous part of the process.

### Q. What have you learned during development of your device?

**A.** When we began work on this problem as a Capstone Design project, we concentrated on a robot that would deactivate landmines by cutting them open and melting the explosives inside. That concept is probably more exciting, but we soon saw it made more sense to pivot to excavating landmines instead. The lesson for young engineers, I think, is to build something practical and needed rather than trying to build something that is just really cool.



# 7

## Creating water sensors to save lives

**Simarjeet Saini**, an electrical and computer engineering professor at Waterloo, is chief scientist at a startup working to commercialize research on inexpensive water sensors. Nanolytix has developed a prototype that monitors water going through filters in treatment systems for potentially deadly E. coli bacteria and other pathogens. After partnering with a U.S. filter company, the initial goal is to introduce the sensors commercially in Asia and Southeast Asia.

### Q. How do your devices work?

**A.** We have combined optical sensors with artificial intelligence (AI) to detect E. coli by analyzing how light scatters off the bacteria and their swimming patterns. As filtered water goes through the sensor — essentially a small rectangular box — the system shines a light and takes video recordings. The recordings are wirelessly sent for analysis by AI algorithms. A positive result, possible within about a minute, triggers a warning that the filter has failed.

### Q. Are you developing any related technology?

**A.** We began with inexpensive sensors to enable individuals to test water with their smartphones, but we ran into several commercialization challenges. Our hope is that revenue from the sensors in filters in water treatment plants will allow us to keep working to bring down costs so similar devices are economically viable in individual Asian homes and continue to pursue an affordable system for people on their smartphones.

### Q. What is your ultimate objective?

**A.** I'm focused on saving lives. That's what drives me. Commercialization is always a challenge. There have been good days and there have been bad days, but this technology is going to work — and when it works, it will have an important impact.

# Failure is an option

## Providing a safe testing ground

It was an idea a Capstone Design team felt not only had merit but could potentially give barbershop owners a run for their money: a haircutting robot.

Two years ago, four mechatronics engineering students started working on a design for a robot that would primarily give men's haircuts. You'd put a toonie in a slot and walk away with a number two buzz cut or another style.

"A haircutting robot — it sounds insane, I know. But it was an idea I had nursed for a while," says team member Kathryn Lynch. "There are others out there, but it is something the technology industry really hasn't revolutionized."

Lynch and her fellow Capstone team members Eric Lin, Dongjae Lee, Ron Tsang (all BASC '17, Mechatronics) passed a couple of project checkpoints, including an initial design report, before realizing there was a critical part of their project they had neglected to consider — the approximately \$10K robotic arm needed to actually give the haircuts.

"As we got deeper and deeper into the project, we realized that no one would fund an expensive robot arm for us and we certainly couldn't ourselves," recalls Lynch. "So that was when the first flag started flying that maybe this was going to be really, really difficult."

In December 2016, the team members met with their project supervisor, Sanjeev Bedi, a Waterloo mechanical and mechatronics engineering professor. Bedi asked the group if they thought they could complete the robot. Lynch says it was at that point she and her teammates realized they likely couldn't finish what they had started.

"Professor Bedi sort of had that look that he'd known all along, but he let us work it out," she says. "We kind of felt a little silly, but at the same time what we were able to come up with was in the end impressive."

That impressive project was Grandmaster: a connected chessboard designed for users to play against online opponents on a realistic-looking board.

The team stands out to Bedi because the members took a risk with a project that didn't pan out and then pivoted to one that did.

"I knew right off the bat that was the wrong project for them, but I follow a certain process so I let them push along the path," he says. "They met all the deadlines, did all the steps of the design process and lo and behold at the end of the first term they came to the conclusion that this was not the right one for them."

Bedi notes that the team, which came up with an entirely different goal and project, was able to accomplish in less than four months what others did in eight. While there's always at least one project that fails, Bedi says Lynch's team ended up "smelling like roses" and came away from the mechatronics engineering Capstone Design dinner with the award for best website design.

Currently looking for a job as an engineer, Lynch has included her Capstone project on her résumé as an example of how she leveraged her findings from a project that didn't work out.

"I still strongly defend the premise of it. It just wasn't the right time, with the right amount of resources and maybe even the right team for the project," she says, adding with a smile, "But I still think someone out there should do it."

### From a "really big blow" to a winning project

This past spring, a chemical engineering Capstone Design project captured attention and awards both inside and outside of the University, including first place in the Ontario Engineering Competition and second place in the Canadian

Engineering Competition held at Ryerson University. The wins came as somewhat of a surprise to GreenSorbs team members, whose first prototype of a boom designed to absorb and contain oil in the event of spills to prevent pollution actually did just the opposite — it released waste.

Jack Anderson, Skylar Bone, Olsi Goxhaj and Kien Tran (all BAsc '18, Chemical), had come up with the idea for a product made from the polymer fibre in old tires, otherwise destined for the landfill, to provide a better and less expensive solution for oil spill protection.

“We went into the project thinking it would be amazing if we had a reusable sorbent boom,” says Bone.

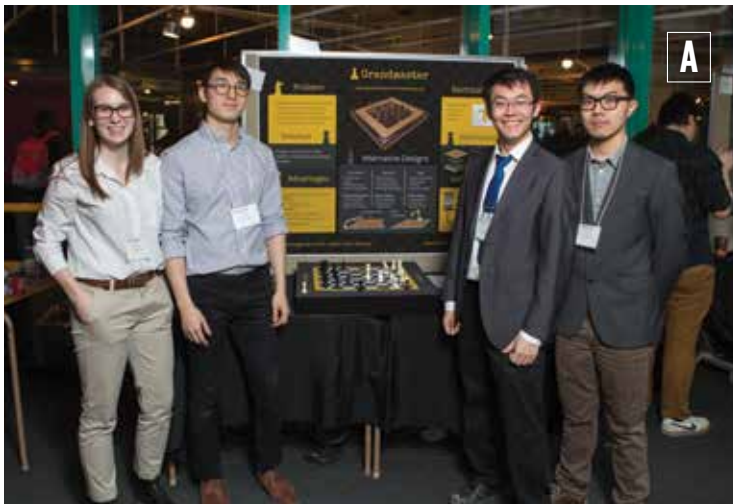
To make sure their product was marketable, the team sought input from the Eastern Canada Response Corporation (ECRC), the largest user of sorbent booms in Canada. Based on ECRC’s feedback, GreenSorbs members narrowed down the scope of their project when it was pointed out that it would be expensive and require significant energy to make the boom reusable.

After spending 40 to 50 hours a week working on the first prototype of their project, the team received bad news from ECRC: the material within the boom was being released into the environment and into the water.

“You can imagine that these booms are supposed to take oil out of the environment and that the last thing we wanted to do was have a bunch of recycled tire fibre leak into the pond,” says Bone. “That was a really big blow.”

Members took consolation in knowing that because they had used a new material for the boom, no one could have predicted how it would react in water. But it was difficult for the members, who were also roommates, to come up with a fresh solution.

“At times, when things weren’t going well, it was really frustrating because we all lived in the same house, spent endless hours in the lab together and the rest of the time sitting at home together. There was definitely time for tension to build,” Bone says.



A | Halfway through their fourth year, the Grandmaster team quit one Capstone Design project and started a new one. From left: **Kathryn Lynch, Dongjae Lee, Eric Lin and Ron Tsang.**



B | The GreenSorbs prototype of a boom designed to absorb and contain oil in the event of spills.

C | From left: **Skylar Bone, Jack Anderson, Olsi Goxhaj and Kien Tran** visited Environment Canada this past winter for advice on their Capstone Design project.



The team eventually did move on from their failed first prototype, thanks in part to faculty member support, including that of Leonardo Simon, a chemical engineering professor and the team's Capstone Design supervisor, who suggested they contact ECRC for feedback.

Bone and the other members eventually found another material that allowed for the oil to be absorbed but prevented the tire fibre from being ejected. It turned out to be the right combination that not only impressed judges at the provincial and national engineering competitions, but won the team funding from both the University's Velocity program and the Faculty's Norman Esch Entrepreneurship Awards for Capstone Design competition.

While the GreenSorbs project is currently on hold, Bone hopes the team returns to it once an Environment Canada testing facility, currently being built in Ottawa, is completed.

### **Experimental, risk-taking environment**

Project testing and much more takes place in the Engineering Ideas Clinic®, a two-storey focal point of the new Engineering 7 building designed for professors from different engineering disciplines to collectively teach theoretical concepts to students through experimental, hands-on learning.

Bedi, director of the Engineering Ideas Clinic®, says the space provides a safe environment for risk taking, which is essential for all students but particularly those in first year. He points out that most first-year students graduate from high school with marks in the mid-to-high 90s and are accustomed to succeeding at almost everything. What they're not accustomed to is failure.

Learning from a project that doesn't work out is important for career growth since engineers are hired to deal with a wide variety of problems that no usual curriculum prepares them to successfully solve, Bedi explains.

"At the end of the program, we want students to reflect on what they did and what they would do differently next time around," he says.

### **Sinking, literally, before moving forward**

The Faculty's Sedra Student Design Centre also provides a safe environment to experiment and take risks. Waterloo's three-year-old Submarine Racing Team can attest to that.

It was in Maryland last year that members experienced the true meaning of the team's tagline: Everything is simple, until you go underwater.

After passing the design report and safety inspection stages of the International Submarine Race, Waterloo's team, known as WatSub, took to the water to compete in the race portion of the competition. That's when, in the words of team lead Sasha Hall, everything "kind of completely flopped."

WatSub's entry, known as Bolt, was given several opportunities to compete in the race but had difficulty just making it past the starting line in the U.S. Naval Surface Warfare Center's testing facility in Bethesda.

"The most promising attempt was when we had our pilot moving ahead, but then the air he was exhaling got trapped within the submarine," says Hall, a fourth-year mechatronics engineering student. "The nose then started pointing upwards, which shot the diver towards the surface instead of straight ahead."

During its final opportunity, the pedal-powered WatSub did make it past the starting line — albeit barely — but then sank to the bottom of the testing facility and stayed there.

It was the second year of discouraging race results for the WatSub team. In 2016, a combination of technical and logistical errors contributed to a dead-last finish at the race held in Gosport, England.

D | The WatSub team works with professional divers to get its submarine ready to race in Maryland last year.

E | Members of WatSub craft the submarine's new hull.



Despite the team's poor performance two years in a row, WatSub members returned to Waterloo last year eager to start working on a brand-new design for their next submarine. The students not only learned from the difficulties they encountered but also what worked for other teams in the competition.

### Back to the drawing board

Hall credits the supportive environment within Waterloo Engineering, in particular the Sedra Student Design Centre, where WatSub is based, for helping team members overcome their initial competition disappointment and focus on coming up with a new and improved design.

"As long as a team is continually building and continually trying, the centre will back you up," she says. "I think there's always a bit of pressure to perform for sponsors because we want to show them their contribution made a difference. But they know we're a student team and we're all learning. I think they just enjoy watching us continuously push the boundaries of what we know how to do."

Instead of competing this past spring, the WatSub team is taking a full two years to once again begin from scratch and design and build its third submarine.

This time around, members want to produce a submarine that makes it all the way to the finish line. And they're off to a promising start.

A 2018 Capstone Design team designed a new propulsion system that members are tweaking, and a hull is being produced out of carbon fibre that will have a smooth finish. Not only will the finish make the submarine look more esthetically pleasing than the last two, it will also help make the final product more hydrodynamic. The new version will also have electronic controls for the submarine's rudders and other parts.

"Putting electronics in subs is quite the feat. We're making it slightly more complicated mostly because we want the challenge," says Hall. "We want to build something we're all proud of and we want to get it right this time."



# Unpacking important problems

## New lab helps students delve deeper



Economics professor **Larry Smith** heads up the University's new problem lab.

Larry Smith loves a good problem — a fitting attitude for the director of the University of Waterloo's new Problem Lab.

The Waterloo economics professor, who has taught 20 per cent of all engineering alumni, believes in the “simple principle” that before you go to fix something, you need to fully understand the problem.

Officially launched in February of this year, the Problem Lab is one of a few university-based facilities in the world — and the only one in Canada — with the exclusive mandate to find and understand important problems.

Long before the Problem Lab was conceived, Smith began providing guidance and feedback to Waterloo students and alumni on entrepreneurial ventures and many other topics. One of the best known recipients of his sage advice is Mike Lazaridis, co-founder of Research In Motion (RIM), now BlackBerry. Smith mentored Lazaridis while he was a Waterloo electrical engineering student in the early 1980s.

Seed funding for the Problem Lab was provided by Lazaridis and Doug Fregin, the other co-founder of RIM. The lab offers a wide range of activities across campus, including a problem pitch competition organized with the University's Velocity program and designed to help students better understand an important commercial challenge.

Each year, Smith attends Waterloo Engineering's Capstone Design symposia that take place at the end of March. With over 750 fourth-year engineering students participating in the multi-day event, he reads up on all the projects in advance so that he can visit ones with potential to be the next big thing.

Smith, the author of the 2017 book *How to Have a Great Career: Find Your Passion, Achieve Your Goals and Love What You Do*, emphasizes that students who choose a “kick-ass problem” to solve as their Capstone Design project will significantly increase their odds of either founding a successful startup or landing a job in which they're likely to be promoted quickly.

By selecting a commercially attractive project, students are able to demonstrate to their employer that they're just as interested in the commercial usefulness of things as they are in how they work.

“It says I'm more than just technical applied knowledge. It says I am strategic, I have an understanding of society and its marketplaces, and I am an applied problem solver,” he says.

If a “worthy” real-life project doesn't work out, Smith wants it to fail fast so students can move on to one that is successful.

“You learn from failed experiments,” he says. “But we want to learn from *well-conceived* experiments.”

# Class Notes

1961



**BILL MILLER** (Elect '61) was the first student to graduate from Waterloo with a degree that had the term engineering on it: Master of Applied Science (Electrical Engineering) awarded May 27, 1961.  
[wmiller@uwindsor.ca](mailto:wmill@uwindsor.ca)

1963



**GEORGE S. MARKS** (Civil '63) reports he has received two awards for volunteer work. One was awarded by the Governor General of Canada and the other award is signed by the Premier of Quebec.

1964

## Class Reunion | 55 years

June 1, 2019

1965

**DAVE EDWARDS** (Mech '65) retired for the third and final time, latterly as CFO at GaN Systems Inc., a Gallium Nitride power semiconductor manufacturer based in Ottawa, which he joined in 2012.

[dedwards42@hotmail.com](mailto:dedwards42@hotmail.com)

**FRED FLEISCHER** (Civil '65) retired in 2006 from the Ontario Ministry of Environment (now Environment, Conservation and Parks) as Assistant Director of the Environmental Monitoring and Reporting Branch and Manager of the Water Monitoring Section. Since then, Fred has been providing environmental consulting services to conservation authorities and municipalities, mainly in the Grey-Bruce area.

[fleischer@brucetelecom.com](mailto:fleischer@brucetelecom.com)



**MIKE JOHNSTON** (Elect '65) reports that his new book entitled *The Vanishing Savant* is being edited. Mike, who is turning 80 this year, is into cosmology "with a fervour." He is running the Toronto 10K this year with his kids and grandkids.

1968



**JORMA G. BRAKS** (Chem '68, '69, '73) finally retired at age 75 after selling his Waterloo-based manufacturing company. He is now involved in angel investing to help startup ventures in the Kitchener-Waterloo area.

[jormabraks@gmail.com](mailto:jormabraks@gmail.com)



**MONTY MCDONALD** (Chem '68) heads Vimy Oaks Legacy, a volunteer group that is repatriating 100 oak trees (descendants of acorns gathered after the battle in April 1917) to a commemorative park beside the Vimy Memorial in France.

[monty.mcdonald@hotmail.com](mailto:monty.mcdonald@hotmail.com)

1969

## Class Reunion | 50 years

June 1, 2019

1970



**VEIKKO J. KURONEN** (Elect '70) says he's celebrating the 50th Anniversary of the Waterloo Engineering crest, which he designed in 1967-68. Almost retired, he still enjoys providing tutoring in math, physics and electrical for high school

students, free through his website.

[moz.execulink.net/~buddybutler.com/buddypage1.html](http://moz.execulink.net/~buddybutler.com/buddypage1.html)



**L. BRIAN ROSS** (Elect '70) is chairing two Professional Engineers Ontario professional standards guideline subcommittees — one for Structural Condition Assessments of Existing Buildings and Designated Structures and the other for Use of the Professional Engineer's Seal. He received the Ontario 25 Year Volunteer Service Pin for his PEO committee work.

[l.b.ross@sympatico.ca](mailto:l.b.ross@sympatico.ca)

1971



**ASHWINI KUMAR** (Civil '71, '74) retired as a professor from the Indian Institute of Technology Kanpur in 2012. Since then, he's served as a visiting professor at IIT Gandhingar, India. He was inducted as the Institute Fellow for the year 2016 by IIT Kanpur

for outstanding contributions towards the growth of the institute.



**EARLE ROBINSON** (Elect '71, '77) retired and is living in Bracebridge, ON. He reports that he and his wife are enjoying flying around in his Lake Buccaneer.



**BOB WHEATLEY** (Mech '71, '73) retired from a career in engineering, management and coaching. His current interest is the softer side of technology such as ethics, psychology and perspectives of progress.

[bob@robertwheatley.com](mailto:bob@robertwheatley.com)

1972

**DANIEL ANDERSON** (Civil '72) has been teaching at Algonquin College since 1990, first in the fire engineering program, then in the photonics engineering technology program and currently in the electrical engineering technology program.

[andersd@algonquincollege.com](mailto:andersd@algonquincollege.com)



**RAYMOND QUAN** (Chem '72), retired now for nine years, will be bicycling the Silk Road from Beijing to Istanbul, 13,000 km in 10 countries over a duration of 144 days this summer. Two years ago, he biked the Southern Tier from San Diego, CA to

St. Augustine, FL.

[xenon@nb.sympatico.ca](mailto:xenon@nb.sympatico.ca)

1973



**KEN SHUMAN** (Mech '73) reports that he retired in 2011 as a project manager at a material recycling facility and is now living the life of leisure with winters in Bradenton, FL and summers in Orillia, ON. He spends his time kayaking, bicycling and riding his Harley with

the local HOG chapter.

[kenjshuman@yahoo.com](mailto:kenjshuman@yahoo.com)

**CARL WEAVER** (Elect '73) retired in April 2018 from Nokia as a system architect in wireless infrastructure business.

[cweaver@ieee.org](mailto:cweaver@ieee.org)



**PHIL WOOD** (Chem '73) retired in June. After earning his PhD from Caltech in 1978, he was a professor for 40 years — the last 35 at McMaster University, where he held several administrative positions.

1974

## Class Reunion | 45 years

June 1, 2019

**SANTOSH K. GUPTA** (Civil '74) was recently honoured with three Water Resources Engineering awards: the Volunteer Services Award from the Ministry of Citizenship and Immigration, an Award of Honour (officer category) from Professional Engineers Ontario, and a Commemoration Pin and Certificate of Recognition from Professional Engineers Ontario for 22 years of voluntary service to the engineering profession.

**WERNER PAETZOLD** (Elect '74) retired in 2016 after working for 40 years for GE Hitachi Nuclear Energy Canada Inc. on fuel-handling systems software for Bruce A and B nuclear stations and Darlington nuclear station.



**W. WAYNE SCHLOTE** (Chem '74) has been using multi-million-dollar satellites since 2010 to locate hidden treasures (geocaches) in the outdoors. Close to 10,000 caches have been found and reported by 690 (his codename) as of March 2018. Pictured is his milestone find number 9,000 near Winchester, ON, logged on Canada's 150th birthday.

1975

**RON MITCHELL** (Civil '75) moved to western Canada right after graduation. He then had three careers of 20/15/10: 20 years with Canadian Pacific Railway (started with CP as a co-op student), then 15 years as a rail regulator at Transport Canada, and now 10 years as a consultant. The last two years he's worked with AECOM, a worldwide engineering company.

[ron.mitchell@aecom.com](mailto:ron.mitchell@aecom.com)



**KEN OGILVIE** (Civil '75) is the author of *Her Dark Path*, a murder mystery published in September 2017 by Joffe Books, London, England.

[kenogilvie.com](http://kenogilvie.com)

1976

**TOM CULHAM** (Civil '76) joined City University in Vancouver as a professor and program director of the School of Management in May 2017. The undergraduate business program is focused on sustainability. Tom also teaches business ethics as a visiting lecturer at the Beedie School of Business at Simon Fraser University.



**WALTER DICK** (Mech '76) retired following "interesting times" in petroleum refining and standards development, most recently at the Suncor Oil Sands in Fort McMurray.

[wadick5256@gmail.com](mailto:wadick5256@gmail.com)

**WARREN MCCORMICK** (Mech '76, '79) recently retired from the Ministry of Environment in BC after 28 years working in the field of air quality assessment, monitoring, regulation and policy. He is looking forward to doing more volunteering with professional associations, search and rescue and church groups.

[warrenmcc@shaw.ca](mailto:warrenmcc@shaw.ca)



**BERNIE SANDER** (MSci '76) has recently transitioned from his international consulting practice Innovation Transfer.

[bsander@innovationtransfer.com](mailto:bsander@innovationtransfer.com)



**OMAR WASSEF** (Chem '76) has been in the LNG business with Cheniere Energy since 2012, shipping liquefied gas overseas. Previously, he was with Bechtel, Amec, KBR, Stone&Webster, Shell and Gulf Oil. He still lives in Houston, TX.

[omar\\_wassef@hotmail.com](mailto:omar_wassef@hotmail.com)

## 1977

**ASHOK KUMAR** (Mech '77), chairman of the department of civil and environmental engineering at the University of Toledo, has been appointed as a member of the Editorial Review Board for a three-year term by the Publication Committee of the Air and Waste Management Association.

[akumar@utoledo.edu](mailto:akumar@utoledo.edu)



[don@nutrilawn.com](mailto:don@nutrilawn.com)

**DON MCQUEEN** (Civil '77), owner of Nite Time Décor Landscape & Architectural Lighting, recently won a provincial Award of Excellence from Landscape Ontario for his residential lighting design and installation.



**DAVID RUPAY** (Civil '77, '78) was recently appointed to the role of business centre managing lead, Water Power and Dams Canada at Stantec, based in Vancouver.



**LEN TREMBLEY** (Elect '77) retired last year and is enjoying his granddaughter, woodworking, theatre and charitable activities.

## 1978



**RAYMOND S. FONG** (Elect '78) has been working with the Saudi Electricity Company since 1993 as the generation planning manager. Previously, he worked with Markham Hydro as its operations manager. He is planning

to retire next year and move back to Markham.

[rayfong6@yahoo.com](mailto:rayfong6@yahoo.com)



**SCOTT C. LEWIS** (Elect '78) spent 12 years in Vancouver before moving in 1992 to the Boston area to be CEO of Northstar Technologies. He then proceeded to form Tower Stone Group, a management consulting partnership,

co-found Wireless Sensors, an IoT products business, invest in a number of other technology companies and become CEO of AliMed, a medical supply business, to engineer its return to growth. He recently bought the CEO Roundtable to bring the Power of Peers to both new and experienced business leaders.

[scott@ceo-roundtable.com](mailto:scott@ceo-roundtable.com)



**JOHN MURRAY** (Civil '78) is working part time with Urban Systems in Kelowna, BC, on interesting local engineering projects. After many years of being employed across Canada and internationally, he is working closer to home and on his own projects around his orchard and farm.

[jjrproj@telus.net](mailto:jjrproj@telus.net)

## 1979

### Class Reunion | 40 years

June 1, 2019

**SUSAN LINDSAY-KLEIN** (Arch '79) was certified as a Passive House Designer in 2017 and is working in her first Passive House single-family home in the Bronx, New York.

[lk@lindsayarchitecture.com](mailto:lk@lindsayarchitecture.com)



**JACK MICHELS** (Civil '79) retired in May 2016 after enjoying a very successful 30+ year career with Conestoga-Rovers & Associates/GHD.

[jack.michels@ghd.com](mailto:jack.michels@ghd.com)



**BRUCE PALEY** (Mech '79) retired from B&W in Cambridge and the U.S. in 2003. Since then, he has continued his engineering consulting work, specializing in fossil-fired power plants and boilers. He currently supports a variety of

industrial and utility customers in Canada and internationally.

[bkpaley@roadrunner.com](mailto:bkpaley@roadrunner.com)

**JACQUES RIBOUT** (Mech '79) has retired from Elliot Lake Hospital after a career with Denison Mines, Cameco's Blind River Uranium Refinery and Denison Environmental Services. He continues to live in Elliot Lake.

## 1980



**P. GORDON BRITTON** (Mech '80) is president and CEO of INTEGRA Technologies. With over three decades of experience within the energy industry, he recognizes the responsibility to ensure the safety and reliability of the energy infrastructure that serves our society.



**GARTH COMPTON** (Arch '80) retired in 2016 after working in the Middle East for over 25 years. Now living in Ottawa, Garth spends his time at his cottage and on the ski slopes.

[comptogf@yahoo.com](mailto:comptogf@yahoo.com)

**KEN MITCHELL** (Mech '80, '86) retired from Shell after a 38-year career and plans to eventually move to his cottage on one of the Gulf Islands off Canada's west coast.

[dkmitchell@shaw.ca](mailto:dkmitchell@shaw.ca)

**CHARLES K. POPE** (Elect '80) is currently a lab instructor for Waterloo electrical and computer engineering's digital labs after spending over 30 years in industry as a digital design engineer. He says his new job "brings back fond memories."

**WAYNE SHAW** (Mech '80) has re-retired after a seven-year stint as an SR&ED engineer for Deloitte & Touche and is now enjoying retired life on Lake Muskoka. He previously retired from a 25-year career as an automotive executive with Honda Canada Manufacturing. He was part of the first group hired by Honda in Canada.

**PAUL VERHEYEN** (Mech '80) retired in 2015 after spending 35 years in the auto industry. Instead of traveling the world pursuing business ventures, Paul says he now spends his days lounging on a cruise ship with his wife soaking up the Caribbean sun.

[256-525-1743](tel:256-525-1743)

1981

**ROB SHAVE** (SD '81) retired from a global career with Thales Canada, Transportation in 2014. He now uses the systems design engineering approach to promote eco-remediation projects in the Saugeen Valley watershed.

[southamptongreenworks@gmail.com](mailto:southamptongreenworks@gmail.com)

1982



**GEOFF CLARKSON** (SD '82) is the CEO and founder of UTComp, Inc. The company works globally to provide customers with reliability solutions and non-destructive testing tools that create valuable repeatable and reproducible suitability-for-service information for FRP assets.

1983



**AGATHA LAU** (MSci '83) retired from the financial industry in 2017 after 30 years of providing services and advice to major banks in Canada, the U.S. and China. Since retirement, she's been spending time in Hong Kong, England, the U.S. and across Canada to trace the memories of her education path on the different continents.



**STEVE MCINNIS** (Chem '83, '85) worked at various places, including as a volunteer development worker in Bangladesh in the early 1990s. He retired in 2013 and is now volunteering for a few worthy causes.

[stevenora@sympatico.ca](mailto:stevenora@sympatico.ca)

1984

Class Reunion | 35 years

June 1, 2019



**FRANK GERENCSE** (SD '84), CEO of triOS and Eastern Colleges, is a serial entrepreneur building great technology and education companies. He has won awards from Canada's Fastest-Growing Companies (third) and Canada's Best Managed Companies (Platinum Member).

**HOOAN DARABIAN** (Elect '84) is a management consultant in Paris, France. He has also been involved in bio-medical startups that were developed and sold over the past 10 years.

[hdarabian@arestan.com](mailto:hdarabian@arestan.com)



**BRIAN HOWE** (Mech '84) still enjoys solving noise and vibration problems working for almost 25 years with HGC Engineering. He returned to school last year and completed a Master of Laws degree at University of Toronto.

[bhowe@hgcengineering.com](mailto:bhowe@hgcengineering.com)

1985

**ROB LANGILLE** (Elect '85) has been working as the IT manager at the GM Corvette Assembly site in Bowling Green, KY since September 2017. He previously managed global IT applications support for GM manufacturing.

[rob.langille@gm.com](mailto:rob.langille@gm.com)



**RICHARD LAY** (Mech '85) provides consulting for sustainable buildings with Building & Environment Engineering Ltd. He led the Mission Net Zero mechanical design group at Emermodal Engineering until 2010.

[rlay@xplornet.com](mailto:rlay@xplornet.com)



**SERGIO E. SERRANO** (Civil '85) has just published a new book about a quantitative analysis of the last 117 years of ups and downs in the solar system entitled *Riding the Waves of the Stock Market: Applications of Environmental*

*Astronomical Cycles to Market Prediction and Portfolio Management*. He is a professor of engineering science and applied mathematics at Temple University in Philadelphia.

[sserrano@temple.edu](mailto:sserrano@temple.edu)



**GERASIMOS (MIKE) STANITSAS** (Chem '85) is a senior director for internal audit at Hellenic Petroleum SA (Greece), having served in many different positions during the past 30 years.

[gstanitsas@helpe.gr](mailto:gstanitsas@helpe.gr)

## 1986



**JOHN A. GUDERIAN** (Mech '86) is taking a five-month leave of absence from his position as vice president of manufacturing at Delta Elevator. During this time, he will visit 48 states, promoting his latest book titled *The Proverbs*

*Management Handbook.*  
[johnaguderian@gmail.com](mailto:johnaguderian@gmail.com)



**MICHAEL HAGLEY** (Chem '86) is building a practice that specializes in helping people make transitions into higher leadership roles, like successfully becoming a first-time manager. He also helps people make transformations that create step changes in leadership capabilities and results.

[michael@bearingcoach.ca](mailto:michael@bearingcoach.ca)



**MARTIN STREICH** (Chem '86) recently retired after 31 years in various manufacturing leadership roles. He lives with his wife, Priti, in Yakima, WA, where travel, community service and outdoor recreation awaits — Freedom 55!

## 1987

**DAVID HOBDEN** (Civil '87) started Hobden Construction in January of 1994, performing varied civil works in the GTA from Milton, ON.

[david@hobden.ca](mailto:david@hobden.ca)



**DAVE MACKENZIE** (Mech '87) is the COO for Accenture Security, providing cybersecurity technology consulting and managed services. He has been with Accenture for the past 14 years and lives in Annapolis, MD.

[davidwmackenzie@me.com](mailto:davidwmackenzie@me.com)

## 1988



**MARK OLESEN** (Mech '88, '90) shifted from automotive to open-source CFD software development in 2016. He has been a resident in Augsburg, Germany for the past 20 years and welcomes contact from former classmates.

[mark.olesen@gmx.com](mailto:mark.olesen@gmx.com)

## 1989

Class Reunion | 30 years  
June 1, 2019

## 1990

**GLEN BANDIERA** (SD '90) finished his 10-year term as chief of emergency medicine at St. Michael's Hospital in Toronto. He continues as corporate medical advisory committee chair for one more year and remains associate dean of the University of Toronto Faculty of Medicine.

## 1992



**DIANE FREEMAN** (Civil '92) has been working as a senior project manager for Masri O Architects since 2016. She also works as an elected councillor for the City of Waterloo. In 2018, Diane will be seeking to continue to serve the citizens of

Waterloo as she campaigns for a fourth term on council.

[diane.freeman@waterloo.ca](mailto:diane.freeman@waterloo.ca)



**TONY PRINGLE** (Mech '92) is an Airbus A330 captain at Cathay Pacific Airways, based in Hong Kong. He also owns a bike shop and bike-fitting studio, giving him a good excuse to stay on top of the latest technology in engineering

materials and aerodynamics. One of the services offered is virtual wind-tunnel bike-position analysis using Waterloo's STAC Performance computational fluid dynamics analysis for cyclists and triathletes.

[bike-energy-lab.com](http://bike-energy-lab.com)

## 1993

**SEAN MURPHY** (Mech '93) founded A Hundred Answers, a business advisory and digital solutions firm, in 2002 and merged with MNP LLP in October 2016. He is now the MNP Regional Managing Partner, Consulting for Ontario and Quebec. He is hoping to catch up with past classmates and friends at Reunion 2018.

[seamurphy@gmail.com](mailto:seamurphy@gmail.com)



**ANANT NAMBIAR** (SD '93) is the SVP of global strategy for Synchrony Financial. He lives in Larchmont, NY with his wife Hema, sons Kumar and Sachin and daughter Simran. Kumar is a junior pitcher at Yale, Sachin is a senior in high school

and will play baseball at Amherst College next year, and Simran is being recruited to play soccer in college. Anant would love to hear from any classmates who are in the NYC area.



## A career in the fast lane

**Todd Malloy (BASC '96, Mechanical)** has never forgotten a mistake he made while racing a car designed and built by the Formula SAE student team at the University of Waterloo more than two decades ago.

The project leader, Malloy neglected to turn on a fan during an endurance event at the former Pontiac Silverdome in Michigan.

The car was quick — recording the fastest lap time — but soon overheated and failed to finish.

“It was a very simple mistake on my part and a valuable lesson going forward — you can’t miss any little detail,” he recalls.

With that lesson tucked away, Malloy went on to a stellar career in professional racing, climbing the ranks from mechanic to the current technical director of Schmidt Peterson Motorsports on the IndyCar circuit. The highlight to date, a real-life “dream come true,” was winning the iconic Indianapolis 500 in 2011 as race engineer for driver Dan Wheldon.

Looking back, Malloy credits his hands-on experience with Waterloo’s racing team and during a variety of co-op work terms with helping prepare him for success.

“Theory is one thing,” he says. “Actually going out and doing it is another thing.”

## 1994

### Class Reunion | 25 years

June 1, 2019



**MARCELO S. ALENCAR** (Elect '94) recently received the prestigious Professor Attilio Giarola Medal, awarded by the Brazilian Micro-wave and Opto-electronics Society. He also published his 22nd book, *Cellular Network Planning*, by Momentum Press, U.S., and his 23rd book, *Scientific Style in English*, by River Publishers, Netherlands. He retired from

the Federal University of Campina Grande in Brazil and is now with the Department of Electrical Engineering, Federal University of Bahia, Salvador, Brazil.



**CHRIS DEBRUSK** (SD '94) is a partner with Oliver Wyman, a global management consultancy, and has been with the firm since 2016.

[chris.debrusk@oliverwyman.com](mailto:chris.debrusk@oliverwyman.com)



**ROBERT MCGEACHY** (SD '94) is an independent management and IT consultant and has held delivery leadership positions in top consulting firms and agencies. He is currently helping a nearshore agile technology startup, Big River Technologies, as its COO.

[robert@kintyre.ca](mailto:robert@kintyre.ca)



**DEREK W. TOMLINSON** (Civil '94, '99) reports that he moved to a new firm in February 2017. He is now with GEI Consultants, Inc. (GEI), based in its Philadelphia-area office as a principal and a science, engineering and technology leader. Founded in 1970, GEI brings a blend of technical expertise, collaborative spirit and innovation

to clients that Derek says is rare in the profession.

[geiconsultants.com/people/derek-tomlinson](http://geiconsultants.com/people/derek-tomlinson)



**LYNN (SCHENK) TREVISAN** (Chem '94) recently became a private wealth advisor with Raintree Solutions after 15 years in pharmaceutical management consulting.

[ltrevisan@raintreefs.com](mailto:ltrevisan@raintreefs.com)

## 1995



**INGO LEUNG** (Elect '95) co-founded ARBA, a digital consultancy based in Hong Kong. In 2017, WPP Group acquired a majority stake in ARBA to advance Ogilvy’s capabilities in digital UX design and software engineering.

[ingo.leung@gmail.com](mailto:ingo.leung@gmail.com)

**JOY WILLIAMS** (Mech '95) is now an independent climate change risk analyst partnering with Zizzo Strategy and serving the financial sector. Previously, she was a principal at the Ontario Teachers’ Pension Plan. She was recently named chair of the New York State climate change advisory panel.

[joy@zizzostrategy.com](mailto:joy@zizzostrategy.com)



1996



**VLAD PASERIN** (MSci '96 and three degrees from Physics) rejoined the University of Waterloo in March 2018 to take on the role of managing director of the Multi-Scale Additive Manufacturing Laboratory — [msam-uwaterloo.ca](http://msam-uwaterloo.ca).

Previously, Vlad spent over three years as a scientific director at Rio Tinto Metal Powders in Sorel-Tracy, Quebec, and 26 years working at the Vale Canada (previously Inco Limited) J. Roy Gordon Research Laboratory in Sheridan Park, Mississauga, ON as a section head/research scientist in the vapometallurgy (carbonyl refining) R and D group.

1997

**NEIL KELEHER** (SD '97) has been working on an Easy Lookup System for both simplified and traditional Chinese characters. He's also been applying a systems approach to teaching yoga for the last 18 years.

[kneelkeleher@yahoo.com](mailto:kneelkeleher@yahoo.com)

**STEVE PEPLINSKI** (Mech '97) has been working as a project manager at Shell Canada since April 2006, supporting Athabasca Oil Sands Project assets, global Projects and Technology and the Scotford complex. Previously, he was a materials engineer at Fluor Canada.

[steve.peplinski@shell.com](mailto:steve.peplinski@shell.com)

**LUCAS SKOCZKOWSKI** (Elect '97) has been leading Sakura Capital Inc. to fund, advise and actively manage B2B software companies to scale globally. Previously, he was CEO of Redknee Solutions Inc. (TSX:RKN), a global software provider that he co-founded with **Vishal Kothari** (Elect '97), **Rubens Rahim** (Comp '97) and **Dan Macdonald** (Elect '97).

[lucas@sakuracapital.ca](mailto:lucas@sakuracapital.ca)



**JANIS SWAN** (Chem '97) was made a Distinguished Fellow of Engineering New Zealand and Professor Emeritus of the University of Waikato, Hamilton, New Zealand. She helped establish the BE (Hons) program at Waikato.

[jswan@waikato.ac.nz](mailto:jswan@waikato.ac.nz)

1999

## Class Reunion | 20 years

June 1, 2019

**MARK GRIFFIOEN** (Mech '99) was promoted to vice president, operations for Bailey Metal Products. Mark began at Bailey as plant manager for its Concord, ON facility in 2010.

[mgriffioen@bmp-group.com](mailto:mgriffioen@bmp-group.com)



**BRYAN HELFENBAUM** (Enviro '99) started a new job as executive director in the Clean Energy division of Alberta Innovates, accelerating technology development and innovation for economic diversification and environmental performance.

2001



**JOHN BRODIE** (Mech '01) is now working at Amazon.com for the PrimeAir drone delivery team in Seattle after having bounced around from California to BC and then Colorado.

[john.brodie@gmail.com](mailto:john.brodie@gmail.com)

**ANTHONY KHORAYCH** (Mech '01) is CEO of ATA Inc. — [advancedta.com](http://advancedta.com) — a scaling hardware and software company focused on the proper testing of electrification components for vehicles.

[anthony.khoraych@advancedta.com](mailto:anthony.khoraych@advancedta.com)



**RICHARD ZHENG WANG** (Mech '01) worked as a nuclear project engineer before a big transition into the film industry. He now works as assistant art director on film and TV projects in Toronto.

As a member of the Directors Guild of Canada, his most recent projects include *Shadow Hunters*, *Designated Survivor* and *Wish Upon*. He has made three documentaries and is editing his fourth, which will be coming out later this year. Feel free to contact him if you would like to catch up or have a brilliant idea for a film.

[zhengnanforever@hotmail.com](mailto:zhengnanforever@hotmail.com)

2004

## Class Reunion | 15 years

June 1, 2019

**VINCENT CHENG** (Elect '04) switched careers and is now a psychotherapist in training with Ontario Psychotherapy and Counselling, class of 2019, as well as continuing as a conductor and music director for choirs.

[vcheng@vocalhorizons.com](mailto:vcheng@vocalhorizons.com)



**KELA WEBER** (Enviro '04 and Chem '06, '09) is a professor in chemical engineering and director of the Environment Sciences Group at the Royal Military College of Canada in Kingston, ON. He focuses on the cleanup of contaminated sites in remote areas of Canada.



## Entrepreneur delivers the (baby) goods

A bad experience selling things on Craigslist, plus a challenge from her sister-in-law to help do something with the clothes and equipment her kids no longer needed, led **Kristin McClement (BASC '04, Electrical)** to co-found Good Buy Gear Inc. two years ago. The Denver-based company provides an online marketplace to help parents buy and sell gently used baby and kids' gear.

"We do all the work, including delivering the goods," she says.

McClement originally came to Waterloo with the intention of taking over her parents' electrical company in Kingston, ON. Deciding against that career path, she moved to the U.S., where she was a VP for a digital identity authentication company before starting her own business.

"Being an entrepreneur suits me," she says. "And I like ensuring that things are reused, often multiple times, instead of going to landfill."

She and her business partner are considering opening a second location in either southern California or Toronto, where she has family and a client base. Currently, her best customers are right at home — McClement and her husband Craig, who have first dibs on items for their own baby and toddler.

## 2006

**KAREN E. DUDZINSKI** (MSci '06) began a new job in January as regulatory specialist with DNA Genotek Inc. in Ottawa, ON. A subsidiary of Orasure Technologies, Inc. out of Bethlehem, PA, it is a medical device company with some really great projects and programs on the go.

[dnagenotek.com](mailto:dnagenotek.com)

## 2007



**PAUL BISANTI** (Mech '07) is working as a construction and real estate development manager at Lanca Contracting Limited, where he has been since March 2014. Lanca is a mid-level general contractor, design builder and development company with over 45 years of experience across the ICI and residential sectors.

[pbisanti@lanca.com](mailto:pbisanti@lanca.com)

**ALEX CICUTTINI** (Geo '07) just celebrated 10 years with Shell. He is currently working with Oman LNG as a construction engineer. He's enjoying expat life with his wife, Catherine, and their pup, Bennie the Beagle.

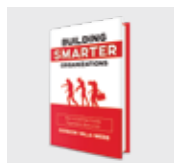


**EDWARD HO** (Mech '07) was promoted to senior manager, data science at eBay. After graduating from Waterloo, he earned his MSc in robotics and PhD in customer insights at ETH Zürich and now lives in Switzerland.



**NATHAN STRETCH** (Elect '07) started SearchTempest.com while at Waterloo. After working for a year in electronics, he turned SearchTempest (now [AutoTempest.com](http://AutoTempest.com)) into a business and has been working there ever since.

[nathan@searchtempest.com](mailto:nathan@searchtempest.com)



**GORDON VALA-WEBB** (MSci '07) asks if your organization is a zombie — slow to change and not innovative. He wrote *Building Smarter Organizations*, an actionable survival guide for our volatile world that is on sale at bookstores and on Amazon.

[gordon@buildingsmarterorganizations.com](mailto:gordon@buildingsmarterorganizations.com)

## 2008

**ANDREW RIZKALLA** (Mtron '08) reports that he is doing work on the financial side of bitcoin/blockchain. He is always happy to chat about the space and catch up with classmates.

2009

## Class Reunion | 10 years

June 1, 2019

**JENNIFER CUA** (Comp '09) has been working as a senior technical program manager for Amazon in Seattle since January 2017. Previously, she was a senior consultant for banking services at CGI in Toronto.

[jenn.cua@gmail.com](mailto:jenn.cua@gmail.com)



**VIVEK RAJ SHIVHARE** (BET '09) is the founder and president of an award-winning startup, VOOFA Inc., a multinational mass media corporation that is known to generate higher returns by improving business performance and

enhancing digital marketing experience.

[info@voofa.ca](mailto:info@voofa.ca)

2010



**ALIM KHAMISA** (BET '10) played a key role in taking cryptomining company CryptoGlobal public in January (TSX.V: CPTO). He focuses on research and identifying acquisition/partnership opportunities that can add accretive

value to the business.



**SHAHARYAR KHAN** (Mech '10) has been pursuing a master's degree at MIT in system design and management. He is researching cybersafety of critical infrastructure industrial control systems (ICS) using the System-Theoretic Process

Analysis (STPA) method. Previously, he worked as a project engineer at BWX Technologies Canada Ltd. deploying reactor inspection tools at the Bruce Power Nuclear Generating Station.

[s23khan@uwaterloo.ca](mailto:s23khan@uwaterloo.ca)



**EDWIN LIOU** (Mech '10) is working in the oil and gas industry in Calgary and has started a website — [solarconsultant.ca](http://solarconsultant.ca) — to help educate the public on renewable energy and how conventional fossil fuels fit into our energy future.

2011



**ALEXANDER IP** (Nano '11) has been a senior scientist at Fortune Phamacal in Hong Kong since 2016. Previously, he was a research engineer at the Nano and Advanced Materials Institute in Hong Kong.

[alexander.cf.ip@gmail.com](mailto:alexander.cf.ip@gmail.com)

2012



**ABDULLATIF ALWASEEL** (SD '12, '17) started a new position as an assistant professor at the Department of Biomedical Technology, King Saud University, in Riyadh, Saudi Arabia.  
[alwaseel@ksu.edu.sa](mailto:alwaseel@ksu.edu.sa)



**KIARA BRUGGEMAN** (Nano '12) just started a lecturer position at Australia's leading university, the Australian National University, after completing her PhD there in biomedical engineering. She is currently lecturing on materials and

biomaterials engineering, while researching tissue engineering materials and drug delivery systems for regenerative medicine, with a focus on restoring damaged brain tissue.



**TIMO NIELSEN** (SD '12) is now a principal base engine controls engineer at McLaren Automotive and is responsible for the performance and engine control of the McLaren Senna.

[timonielsen@gmail.com](mailto:timonielsen@gmail.com)



**MATT PILLAR** (Elect '12) has been the CTO of Redbooth, a project management software company, since September 2017. Prior to that, Matt worked as VP engineering at AeroFS (YCombinator S10).

[mpillar@uwaterloo.casa](mailto:mpillar@uwaterloo.casa)



**ALEXANDER HOGEVEEN RUTTER** (Elect '12) is doing his MBA at ISB Hyderabad. He has been living in India and working in the power sector. He is a proud husband and father.

[alex.whr@gmail.com](mailto:alex.whr@gmail.com)



**MOHIT VERMA** (Nano '12, '15) recently completed his postdoctoral fellowship as a Banting fellow at Harvard University in the Whitesides Laboratory. In January 2018, he started working as an assistant professor at the Birk Nanotechnology Center in Purdue University. His research focuses on developing biosensors, engineering the microbiome and building soft robots — all for improving health.

[mhverma@purdue.edu](mailto:mhverma@purdue.edu)



## 3MT fan favourite thanks beer drinkers

**Gregory Lui's (BASC '12, Nanotechnology; MASc '14, PhD '18, Chemical)** explanation of how beer and other wastewater can be turned into clean water and also produce electricity captured the People's Choice Award and a second-place finish overall in the Canadian Three Minute Thesis (3MT) competition.

The annual challenge invites graduate students to articulate the impact of their research in three minutes using just one slide.

Lui, who recently graduated with his doctorate in chemical engineering, earned a ticket to the provincial finals and then the national finals by taking top honours in the University of Waterloo 3MT event held in March. He was the first Waterloo Engineering student to win the competition in the six years it has been hosted at the University.

In his winning presentation, Lui described his research on using photocatalysts to convert pollutants in wastewater from local breweries into electricity.

"Therefore, I'd like to thank all you drinkers out there for making this possible for me," he told the 3MT audience with a smile.

### 2013



**JACOB ALEXANDER** (Comp '13) has been a software engineer for Datrium since 2016 while also working on Input Club, a mechanical keyboard startup that he founded. Input Club launched its second successful Kickstarter (Kira) in March.

[jacob@inputclub.com](mailto:jacob@inputclub.com)

**MATTHEW CHAN** (Mtron '13) has been working as a test engineer at Argo AI in Pittsburgh, PA since January 2018. Previously, he was a software engineer at Microsoft in Redmond, WA.

[matthew.tk.chan@gmail.com](mailto:matthew.tk.chan@gmail.com)

**ANDI KARARAJ** (Elect '13) has been working as an integrity engineer at Stantec Consulting Ltd., a top-10 global design firm, since October 2014. Previously, he was a system specialist at Corrosion Services Company Ltd.

[akararaj@gmail.com](mailto:akararaj@gmail.com)

**IVAN SURNIN** (Mech '13) has been working as validation project manager at Litens Automotive Group, part of Magna International, since March 2018. Previously, he was a test and validation engineer with Skyjack, part of Linamar Corporation, a market leader in access equipment.

[ivansurnin.com](mailto:ivansurnin.com)



**BRANDON VAN ASSELDONK** (Mech '13) is set to graduate from medical school this year and begin a vascular surgery residency program at the University of Toronto. Previously, he worked at Apple Inc. as a manufacturing process engineer.

[bvanasseldonk@gmail.com](mailto:bvanasseldonk@gmail.com)



**MEGAN WALKER** (Mgmt '13) is a product manager at D2L. She is working on providing data analytics and visualizations to enable educational institutions to make data-driven decisions.

### 2014

## Class Reunion | 5 years

June 1, 2019



**REHANA RAJWANI** (Mgmt '14) is a director for software delivery at Rangle.io and has been able to help the company grow from 30 to over 200 people in under three years. She has worked on multi-million-dollar projects in a short time post-graduation and is currently pursuing her MEng part time.

[rehana.rajwani@gmail.com](mailto:rehana.rajwani@gmail.com)

## 2015

**JOHN CATTON** (Chem '15, '17) says that in the past three years, he has finished his master's degree and landed a new job in his field.  
[jwacatto@gmail.com](mailto:jwacatto@gmail.com)

**ROBERT CHLUMSKY** (Enviro '15) completed his master of applied science degree with James Craig, a civil and environmental engineering professor, and has been employed as a junior water resources engineer at Ecosystem Recovery Inc. since September 2017.  
[rchlumsk@uwaterloo.ca](mailto:rchlumsk@uwaterloo.ca)

**SHIVAM DEMBLA** (SD '15) has been working as a full stack software engineer at TD Bank in Toronto since 2017. Previously, he was a co-founder at SightQuest Technologies, a health science startup based in Toronto.  
[demblashivam@gmail.com](mailto:demblashivam@gmail.com)



**STEPHANE LEE** (Comp '15) reports that he's "keeping the swag on with motors and LEDs in the Bay Area."



**SHAISHAV SIDDHPURIA** (SWE '15) has been working at Apple as a software engineer since November 2017. Prior to that, he completed his master's in computer science with a focus on mobile devices and gestural interaction.

## 2016



**JACK FORBES** (Mgmt '16) has been connecting students with housing and roommates during co-op. PadPiper began as his Capstone Design project.  
[padpiper.com](http://padpiper.com)

## 2017



**SHEHROZ I. HUSSAIN** (Mech '17) is working as a manufacturing engineer at SpaceX to make humankind an interplanetary civilization, pushing the needle of what is possible and instilling hope for the future.  
[shehroz.i.hussain@gmail.com](mailto:shehroz.i.hussain@gmail.com)



## Using AI to produce a better vehicle

Two years after co-founding a startup that uses artificial intelligence (AI) to detect, predict and prevent flaws in automotive manufacturing, **Greta Cutulenco (BSE '14, Software)** marvels at how far it has already come.

Acerta Analytics Solutions moved into its own offices in downtown Kitchener this spring, backed by U.S. \$2 million in financing, and employs 20 people serving clients in North America, Germany and Japan.

"It's a business now that everybody expects to scale and grow fast," says Cutulenco, who put her master's degree on hold to start the company. "It's definitely real — and every step, every success we have, I am surprised but also extremely delighted."

Cutulenco, who caught the business bug at Waterloo Engineering, began doing research with professor Sebastian Fischmeister as an undergrad and took the leap as CEO of Acerta in 2016 to apply AI to data analysis.

Cloud-based algorithms developed by the company — co-founded by Fischmeister and Jean-Christophe Petkovich — take just minutes to identify anomalies in mountains of data from sensors embedded in auto parts, heading off costly recalls and warranty claims.

"Quality and reliability have had less innovation than other areas, and we're starting to fill that gap," says Cutulenco, noting 90 million vehicles a year are produced worldwide. "The potential is huge."

# In Memoriam

The Faculty of Engineering expresses deepest sympathy to the family and friends of the following graduates who have passed away:

Scott M. Beauchamp (Comp '90)  
Paul D. Brophy (Mech '74)  
Murray J. Burke (Civil '78)  
Wah-Kin K. Chan (MSci '85)  
Paul H. Critchley (Arch '73)  
John H. Dueckman (SD '80, '82)  
James W. Duxbury (Mech '75)  
David E. Gilroy (Elect '71)  
Donald N. Gray (MSci '75)  
Andrew W. Hunt (Elect '93)  
Hing T. Kung (Chem '79)  
Danny K. Lam (Civil '14)  
Kenneth W. Loach (Chem '71)  
James A. Main (Mech '73)  
Melvin S. Morphet (Civil '67)  
Robert L. Myers (Elect '86)  
Simon S. Naipaul (Elect '75)  
Robert W. Oddson (Civil '63)  
Gary D. Oulton (Elect '78)  
Frank A. Rovers (Civil '70, '72)  
Walter W. Smith (Chem '76)  
Eric (Ric) Soulis (Civil '72, '88)  
Harold M. Surminski (Civil '71)  
Srinivasan Venkatesh (Mech '74)  
John F. Wastle (Civil '73)  
Gary B. Watson (Civil '79)  
David H. Wilson (Mech '66)  
Margaret Wojtarowicz (Civil '97)  
James S. Woodhouse (Elect '71)



## Greetings Alumni

The long-awaited Engineering 7 building is opening at the end of this month and you're invited to join the festivities. Mark your calendar for October 29 to celebrate with the Waterloo Engineering community — professors, students and alumni — and explore the newest (and quite possibly the most awesome) building

on campus! There's a lot to see in Engineering 7, including the RoboHub, the Engineering Ideas Clinic®, new classrooms, cutting-edge research labs, maker spaces, a new machine shop, an expanded 3D Printing Centre, and much more.

### Join the Global Network

In addition to organizing reunions, alumni events and special campus events, we've made networking and connecting with the Waterloo Engineering community even easier for you. Our global network of engineering alumni is continuing to grow in the Waterloo Engineering Hub powered by Ten Thousand Coffees. This online networking service (free to users) is a University of Waterloo alumni-founded company that offers a personal approach to alumni networking.

Within the platform, only our alumni and students are part of the Waterloo Engineering Hub, so you know it's exclusive and highly relatable. The idea is to sign up and then reach out to your classmates (no matter the year of graduation) for a virtual or real-life coffee and see where that conversation takes you. It might be a new career opportunity, a new idea, a new employee or connecting with old friends. Join today for free at [uwaterloo.tenthousandcoffees.com/hub/waterlooengineering](http://uwaterloo.tenthousandcoffees.com/hub/waterlooengineering).

If you plan to visit the University of Waterloo, let me know in advance. I'd be pleased to buy you a cup of coffee at the new C&D in E7 or lunch at the Bomber and give you a tour of the newest buildings on campus.

Sincerely,

A handwritten signature in black ink that reads "G Brestovacki". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

### Gosia Brestovacki

[gosia.brestovacki@uwaterloo.ca](mailto:gosia.brestovacki@uwaterloo.ca)

Senior Alumni Officer, Faculty of Engineering

**LinkedIn:** [linkedin.com/in/gosiabrestovacki](https://www.linkedin.com/in/gosiabrestovacki)

**Ten Thousand Coffees:** [uwaterloo.tenthousandcoffees.com/hub/waterlooengineering](http://uwaterloo.tenthousandcoffees.com/hub/waterlooengineering)

P.S. If you have any story suggestions for future issues of WEAL or eWEAL, please send them to me. Some of our best stories come from your suggestions!

# Upcoming Events

OCTOBER  
**29**  
2018

## Engineering 7 Building Grand Opening

**Times:**

1 to 3 p.m. Open House;  
3 p.m. Opening Ceremony

**Location:** University of Waterloo

Come celebrate the grand opening of Engineering 7. Attached to both E5 and E6, this seven-storey, 242,000-square-foot building is a new vibrant home for students, faculty members, researchers and staff.

NOVEMBER  
**22**  
2018

## Waterloo Engineering Alumni-Brewed Beer Tasting in Ottawa

**Time:** 6 to 9 p.m.

**Location:** 3 Brewers Sparks St., Ottawa, ON

Join your Waterloo Engineering classmates in tapping casks of beer crafted by our very own graduates at a special alumni-brewed beer tasting and networking reception. Cost is \$15 per person (must be of legal drinking age).

JANUARY  
**18**  
2019

## Waterloo Engineering Alumni Ski Day

**Time:** 8:30 a.m. to 5:30 p.m.

**Location:** Osler Bluff Ski Club, Town of the Blue Mountains (near Collingwood), ON

Meet up with your University of Waterloo classmates at this breathtaking private ski resort to ski and snowboard for the day, followed by an après ski.

MARCH  
**16-27**  
2019

## Waterloo Engineering Capstone Design Symposiums

**Time:** Various times

**Location:** University of Waterloo

You're invited back to campus to check out a showcase of Waterloo Engineering student innovation. The Capstone Design Symposiums are the culmination of the undergraduate student experience, creating a blueprint for innovation in engineering design. Each undergraduate program presents its capstone projects on a different day.

JUNE  
**1**  
2019

## Waterloo Engineering Class Reunions in 2019

**Time:** Various, all day

**Locations:** University of Waterloo

The Classes of 1964, 1969, 1974, 1979, 1984, 1989, 1994, 1999, 2004, 2009 and 2014 are invited back to campus to celebrate the milestone anniversary since your graduation. Mark your calendar!

For the latest Waterloo Engineering alumni events, visit [uwaterloo.ca/engineering/alumni](http://uwaterloo.ca/engineering/alumni)

## Reunion Class Reps Wanted!

Volunteer to be a Reunion Class Rep for your upcoming class reunion and be part of the action! Register today by emailing [engineering.alumni@uwaterloo.ca](mailto:engineering.alumni@uwaterloo.ca) or calling the Alumni Officer at 519-888-4567, ext. 46838.



# Upping the ante

## Matching startups with angel investors

Playing competitive online poker was so lucrative for Prem Kalevar (BASc '12, Mechatronics) — earning him more than \$400,000 in his last year of university alone — he considered turning his serious sideline into a full-time career.

But after watching classmates succeed as entrepreneurs and pursuing several business interests himself, including a student rental property and two technology startups, he opted to aim higher instead.

“I didn’t want to make my life about a card game,” he says.

### Helping companies compete globally

Six years later, Kalevar is working to help turn the Toronto-Waterloo technology corridor into a world powerhouse as co-founder of an organization that brings together early-stage startups and angel investors with ties to the University of Waterloo.

Waterloo Alumni Angels held its first pitch event about 18 months ago and has already facilitated seed funding for several fledgling companies by successful graduates.

“They’re essentially marketplaces where we connect the right kinds of startups with the right kinds of investors,” says Kalevar, who spent about four years at startup Whirlscape. “It’s all about matching supply and demand.”

He only plays poker for fun now while investing in the stock market and doing his part through the volunteer angel group to prepare Canada for the future by diversifying its traditional, resource-based economy.

“This is how I can make my dent — by accelerating this transition so more tech companies and more players in this ecosystem can compete on the world stage,” Kalevar says.

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