

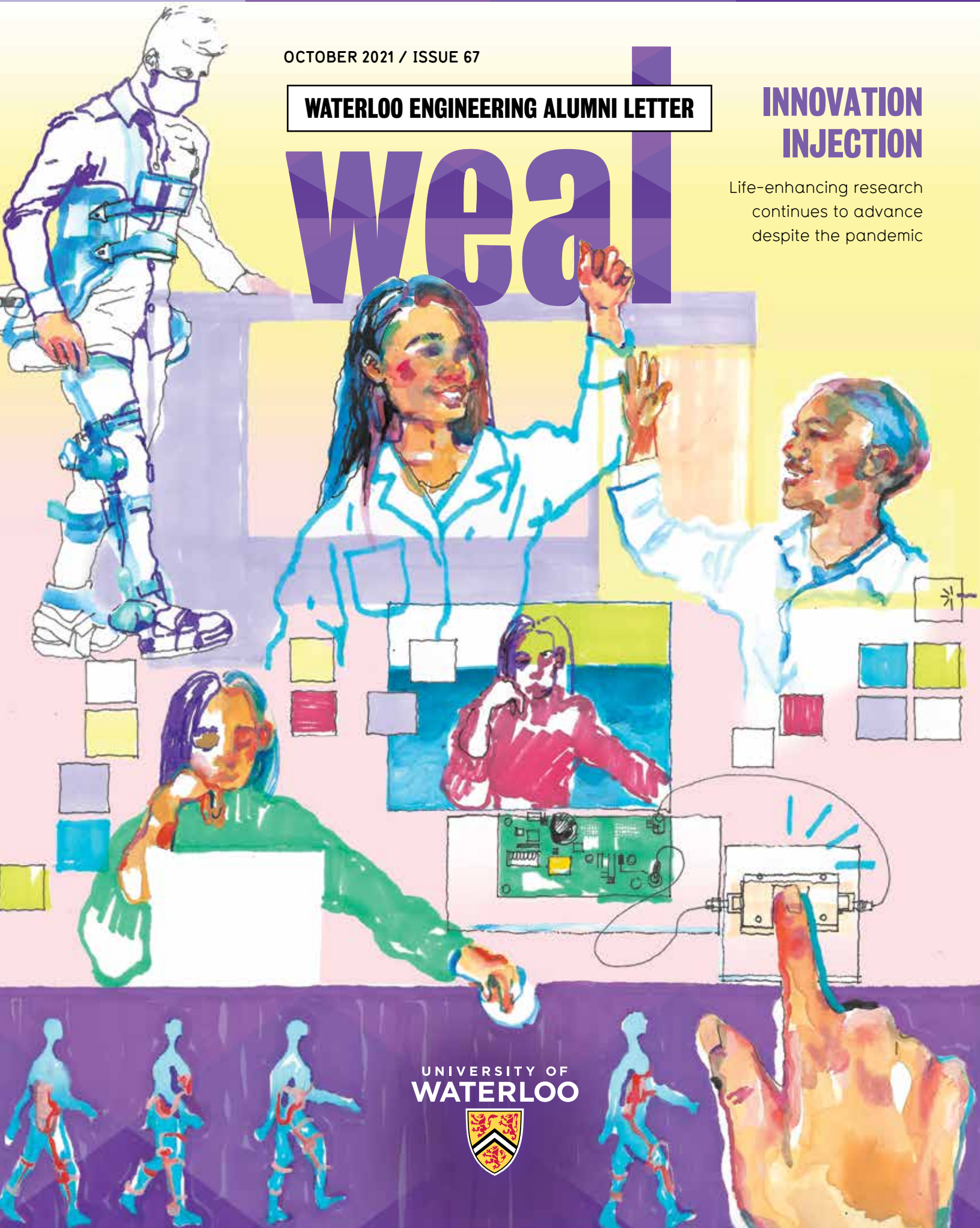
OCTOBER 2021 / ISSUE 67

WATERLOO ENGINEERING ALUMNI LETTER

weat

INNOVATION INJECTION

Life-enhancing research
continues to advance
despite the pandemic



UNIVERSITY OF
WATERLOO



weal

OCTOBER 2021 / ISSUE 67

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FROM THE DEAN

INVENTIVE RESEARCH CARRIES ON THROUGH PANDEMIC

One of my favourite September rituals took on a whole new meaning last month – welcoming students to the fall semester on campus.

After a long year and a half during which learning mainly took place remotely, it was a pleasure to see students once again in Waterloo Engineering classrooms, labs and other spaces where they are meant to be.

Of course, all our buildings look a little different now with additional signage and protective equipment and supplies to give our students the opportunity to discover and innovate in the safest possible environment.

Along with a physically safe environment, we are also working towards having one that is inclusive and free of barriers to allow everyone to reach their full potential.

To ensure all students, faculty and staff are respected, supported and empowered to pursue their aspirations, I have added equity and diversity to the portfolio of associate dean of outreach.

Earlier this year, I was pleased to appoint Mary Robinson to the new position of associate dean of outreach, equity and diversity.

Mary, a chemical engineering alumnus who was the associate director of Waterloo's First-Year Engineering office for many years, is off to a great start to fulfilling our commitment to equity and diversity through all programs, policies

and processes, with emphasis on underrepresented communities. You can read more about Mary's role in this issue's Faculty News.

For more than half of 2021, our faculty members continued to offer an exceptional remote educational experience despite the challenges COVID-19 presented along the way.

The virus also didn't prevent our professors, students and alumni from beginning or continuing their research, some of which addresses coronavirus-related medical issues.

In this issue's cover story, Innovation Injection, seven researchers and alumni share valuable insights into technology or projects many worked on at home instead of in a high-tech facility on campus.

For most, COVID-19 restrictions made them even more determined to tackle problems head-on and come up with innovative and life-enhancing solutions.

Throughout the pandemic, I've enjoyed meeting many of you over Zoom calls, during remote alumni lectures and at other online events. Although we've done our best to connect virtually, I look forward to when we can gather again in person whenever public health guidelines allow.

Until then, take care and stay well.

Sincerely,

Mary Wells

MARY WELLS

Dean, Faculty of Engineering



FACULTY NEWS

Advancing diversity and equity

As the Faculty's first associate dean of outreach, equity and diversity, Mary Robinson wants to make sure Waterloo Engineering "is a place where people don't feel they have to check a part of who they are at the door."

Since Robinson started her new position in May of this year, she has been spending time looking at some of the "grassroot" activities and organizations undergraduate students already have in place.

"My goal is to bring together the pockets of diversity, equity, inclusion and Indigenization activity happening around the Faculty to create an environment where everyone – that's faculty, staff and students – can be their full authentic selves," says Robinson, a chemical engineering alumnus who was recently Waterloo Engineering's associate director of first-year engineering.

Groups like the National Society of Black Engineers, EngiQueers and the recently launched campus chapter of American Indian Science and Engineering Society are already making an inclusive difference, says Robinson.

BUILDING A CULTURE OF KNOWLEDGE AND AWARENESS

Over the past summer, Robinson was part of a team of STEM faculty offering a workshop on territorial acknowledgements.

Run by a Waterloo alumnus who is Anishnabe Kwe of the Kitigan Zibi Algonquin First Nation, the session highlighted the importance of land acknowledgements and how to offer one in the classroom or at events.

"There are many faculty and staff members who don't know how to give one and the fear of making a mistake is holding them back," she says. "So, we're starting to build a culture of knowledge and awareness."

Introducing Canada's first driverless 5G shuttle

In June, the University showcased the operation of a driverless, autonomous shuttle bus that will transport students and staff around campus as part of a research program.

The demonstration of the shuttle, dubbed "WATonoBus" by the research team, was the first of its kind at a Canadian academic institution and marked a significant milestone in a multi-year initiative to demonstrate and integrate autonomous transportation onto the campus.

The driverless shuttle with remote takeover capability was developed entirely at the University of Waterloo by a team of over 20 researchers in the Mechatronic Vehicle Systems Laboratory led by Amir Khajepour, a professor of mechanical and mechatronics engineering.

It became the first in the country to operate remotely over Rogers 5G network, thanks to a Rogers partnership agreement with the University to advance 5G research in the Toronto-Waterloo tech corridor.

The shuttle's five-stop, 2.7-kilometre journey around the Waterloo main campus, intersecting with the campus light rail transit stop, holds the potential to help reshape how entire communities move around their urban spaces.

Accelerating additive manufacturing expertise

Federal funding of \$8.2 million is advancing Waterloo's leadership role at the Multi-Scale Additive Manufacturing (MSAM) lab and is establishing a consortium with post-secondary institutions and industry partners.

The Additive Manufacturing Alliance is intended to help businesses throughout southern Ontario overcome barriers to adopting advanced manufacturing technologies by providing access to the University's specialized 3D printing experts and equipment.

The new alliance is supporting more than 90 businesses to commercialize approximately 30 advanced manufacturing technologies, create and maintain over 275 jobs, and provide training and outreach opportunities for about 1,500 students, research associates and industry personnel.

The collaborative group's goal is to expand MSAM's geographical reach beyond Kitchener-Waterloo and the Greater Toronto Area with new participating companies from across southwestern Ontario.

Launched in 2017, Waterloo's MSAM Lab is Canada's most comprehensive academic research and development facility for next-generation metal additive manufacturing.

With applications across sectors including aerospace, healthcare and automotive, additive manufacturing provides a quicker, more efficient and sustainable way to prototype and manufacture a range of products.

Detecting blinding diseases earlier

A non-contact laser imaging system developed by Waterloo Engineering researchers could help doctors diagnose and treat eye diseases that cause blindness much earlier than is now possible.

The new technology is designed to detect telltale signs of major blinding diseases in retinal blood and tissue that typically go unseen until it is too late.

With current testing methods, diseases such as age-related macular degeneration, diabetic retinopathy and glaucoma – which have no symptoms in their early stages – are usually diagnosed only after vision is irreversibly affected.

“We're optimistic that our technology, by providing functional details of the eye such as oxygen saturation and oxygen metabolism, may be able to play a critical role in early diagnosis and management of these blinding diseases,” says Parsin Haji Reza, a systems design engineering professor and director of the PhotoMedicine Labs at Waterloo.

Improving energy storage

Funding from a prestigious Canadian scholarship is helping a new chemical engineering doctoral student improve the performance and lifespan of lithium-ion batteries.

Manh-Kien Tran is receiving \$50,000 annually for the next three years from the Vanier Canada Graduate Scholarship to further develop his research focused on building a smart cloud-based battery management system.

“I believe that advancements in energy storage systems will pave the way to a safer, cleaner, and more energy-efficient society,” says Tran.

Tran, who earned both his undergraduate and master's degrees in chemical engineering at Waterloo, served as the controls and system modeling and simulation team lead for the University of Waterloo Alternative Fuels Team (UWAFT) for over a year.



TOP PHOTO: WATonoBus was developed by a team of over 20 researchers in Waterloo's Mechatronic Vehicle Systems Laboratory.

BOTTOM LEFT PHOTO: Manh-Kien Tran is a new Vanier scholar working on improving the performance and lifespan of lithium-ion batteries.

BOTTOM RIGHT PHOTO: Mary Robinson is the Faculty's first associate dean of outreach, equity and diversity.

INNOVATION INJECTION

LIFE-ENHANCING RESEARCH CONTINUES TO ADVANCE DESPITE THE PANDEMIC

As the COVID-19 case count swelled and subsided in successive waves, triggering restrictions on normal life with corresponding degrees of severity, it was clear there would be no quick fix to our once-in-a-century health crisis.

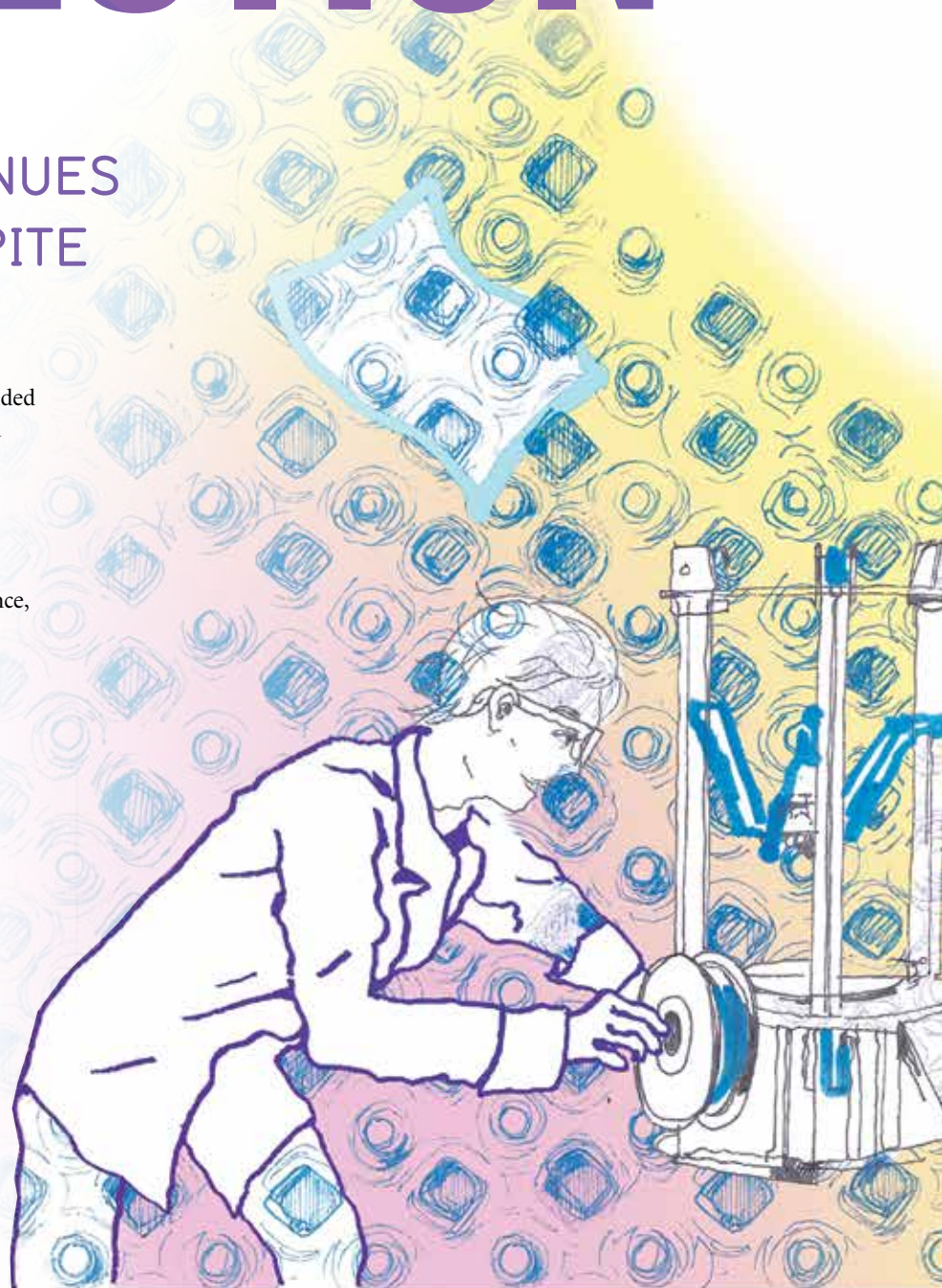
For professors, alumni and students at Waterloo Engineering, that meant a stiff test of the resilience, determination and innovation that have long been hallmarks of its commitment to making the world a better place.

More than 18 months into the pandemic, it is safe to say many, many of them are passing that test with flying colours.

In some cases, the crisis itself has inspired new lines of research or twists on old ones to help give doctors and ordinary citizens better tools to help fight back against the virus.

In others, researchers, students and aspiring entrepreneurs have found innovative ways – often working remotely from home instead of in the lab – of pressing on with promising projects that were launched pre-pandemic.

Here are seven examples, with insights and observations from the innovators themselves, of initiatives inspired by, or advanced despite, the enormous challenges of COVID-19.



IDENTIFYING INFECTIONS THROUGH X-RAYS AND AI

While others reeled during the pandemic's unsettling early days, **ALEXANDER WONG** (BASc '05, computer engineering, MASc '07, electrical and computer engineering, PhD '10, systems design engineering) rolled up his sleeves and got to work.

A systems design engineering professor and director of the Vision and Image Processing (VIP) Lab at Waterloo, Wong and colleagues launched an ambitious project to detect infections using chest x-rays and artificial intelligence (AI) software.



The open-source COVID-Net initiative, which also involves spin-off startup DarwinAI, has since yielded technology with promising ability to both identify COVID infection and determine its severity, a key to formulating treatment plans.

Q. WHAT MOTIVATED YOU TO TAKE ON SUCH A BIG PROBLEM?

A. We're used to tackling complex, real-world problems at Waterloo, so for me it wasn't daunting. I saw it as a great challenge, both from an academic perspective and in terms of potential impact. Engineering is all about turning fundamental knowledge, science and technology into something tangible to help the global community. To be able to do that, even in a small way, is very gratifying.

Q. AREN'T MEDICAL EXPERTS AFRAID YOU WANT TO DISPLACE THEM?

A. It's not about replacing clinicians, but giving them tools and information to make faster, more consistent decisions. There is perfect synergy between AI and medicine. A lot of clinicians I talk to welcome AI now because they have a new appreciation that it is going to help them deliver better care to more people.

Q. HOW DO YOU SEE THE TECHNOLOGY PROGRESSING?

A. What really hits home from our COVID experience is the growing need for computer-aided clinical decision support in other areas of medicine, including oncology and infectious diseases like tuberculosis, especially with the hybrid health-care system – in-person and remote – that is emerging. We're convinced this technology has tremendous potential beyond COVID.



REVOLUTIONIZING COMPACT CAMERAS

With a resume that includes co-op terms at Harvard University, the Massachusetts Institute of Technology, NASA and Apple, plus a runner-up finish in the global James Dyson Award competition for student inventors, **ALISHA BHANJI** (BASc '20, nanotechnology engineering) could probably have her pick of great jobs at established companies.

But after getting bitten by the entrepreneurship bug during her undergraduate years at Waterloo, she is busy instead as the CEO of a startup that is working

“

Frugal innovation empowers people to take control of their own health.”

SUSHANTA MITRA

Professor of mechanical and mechatronics engineering

to develop and commercialize the concept at the core of her fourth-year design project with four classmates.

Scope Photonics, which was co-founded by CTO and fellow alumnus Fernando J. Peña Cantú, aims to revolutionize compact cameras for everything from smartphones to autonomous vehicles with a tiny, high-quality zoom function using lenses comprised of electronically tuned liquid crystals.

Q. HOW HARD IS IT TO BUILD A TECHNOLOGY COMPANY FROM THE GROUND UP?

A. It's incredibly difficult and nobody realizes the magnitude of difficulty going in, which is probably a good thing. If you knew at the beginning, maybe you wouldn't do it. You have to do a lot of balancing because you're working with limited funding and a small team. The benefit of that is you're more nimble and agile, so you can quickly adapt to challenges and hurdles, but you have to be really careful about how you spend your time and resources.

Q. WHAT KEEPS YOU GOING, ESPECIALLY WITH COVID MAKING IT PARTICULARLY DIFFICULT TO WORK ON NEW HARDWARE?

A. It's all part of the Waterloo mentality. You learn to be resilient in the face of adversity because of everything you deal with as a student. You're also surrounded by entrepreneurship – everything from Velocity Science to Capstone Design, where the goal is to create something new with your education, this knowledge you have access to, that can really help other people.

DETECTING COVID-19 THROUGH SPIT TEST



Years of prior research allowed

SUSHANTA MITRA (PhD '01, mechanical engineering) to hit the ground running when he set his sights on development of a fast, easy, accurate, inexpensive, at-home test to detect the COVID-19 virus in saliva.

The basic concept – environmentally friendly paper strips that change colour when nanoparticles of various chemicals react to virus spike proteins – is at the heart of work the mechanical and mechatronics engineering professor previously did to invent a test for E. coli bacteria in drinking water.

Pivoting to the pandemic battle meant building on lessons already learned by teaming up with Waterloo chemistry professor Juewen Liu and industry partner ChitoLytic Inc. Together they're aiming to bring simple spit tests to market that cost less than \$2 and yield results in under 20 minutes.

Q. HOW IMPORTANT IS MAKING YOUR TEST SO INEXPENSIVE?

A. Sustainability, affordability and technology for the masses – these three factors are critical to our mission. Frugal innovation empowers people to take control of their own health. We believe this technology could have the biggest impact in the developing world, where the cost of testing is often an impediment. It will also be valuable in settings such as long-term care facilities, where residents can't easily go to testing centres, and Indigenous communities where access to health care is questionable. An easier, cheaper test should increase COVID detection, slow transmission of the virus and therefore help reduce the death and suffering it causes.

Q. DO YOU FORESEE ANY SECONDARY BENEFITS?

A. We hope our test will also help with planning and the activation of health-care measures. When you know where hotspots are because you are doing more testing, you can target vaccine booster doses, for example. Who knows what is still in store for us? Reliable information and insights that help inform health-care strategies will be crucial.

CREATING SELF-WALKING EXOSKELETONS



More than five years into research to make robotic exoskeletons autonomous by giving them eyes, **BROKOSLAW LASCHOWSKI** (MAsc '16, mechanical engineering, PhD '21, systems design engineering) may just be getting started on his life's work.

The challenge of combining computer vision and deep-learning artificial intelligence (AI) in wearable robots is so complex, he is fully prepared to spend a career creating and refining the technology to help people with mobility issues.

His basic concept, developed in the Motion Research Group lab under the supervision of Professor John McPhee, is to fit exoskeletons with vision via cameras so they can mimic the way able-bodied people walk by seeing their surroundings and adjusting their movements accordingly.

Q. YOU'VE PUBLICLY RELEASED YOUR WORK SO OTHER RESEARCHERS CAN USE IT. WHY?

A. I'm proud to have made my PhD research open-source. The hope is that researchers around the world will overtake the performance of my results and it will start an informal, friendly competition. This is an extremely challenging problem and we all need to work together in some collaborative way, even though we're friendly competitors. Allowing people with spinal cord injuries and strokes to walk again is a long-term objective that is too big for one person, or one research lab, to achieve alone.

Q. WHY ARE YOU SO COMMITTED TO THIS RESEARCH?

A. I believe I had the right idea at the right time. Had I come up with this concept of adding wearable cameras to robotic exoskeletons even 10 years ago, the technology wouldn't have existed. Cameras were too large and computing algorithms weren't accurate enough. Now the technology is here, I probably would have regretted it years from now if I hadn't pursued this innovative research project and somebody else did – and they got to go on this amazing journey instead of me.



DESIGNING EFFICIENT HOUSING

Finishing second in a prestigious international design-build competition this spring was icing on the cake for senior design lead **GABRIELLE TUCK** (BAsc '21, civil engineering) and more than 200 other contributors to Warrior Home.

By the time the student team impressed judges at the Solar Decathlon, an event sponsored by the U.S. Department of Energy, with the net-zero bungalow it designed and built, an Indigenous family was already living in it about two hours north of campus.

The team's double-pronged approach – community project combined with theoretical challenge – added a rich layer to the experience as an event featuring universities from as far afield as Chile was delayed, but not derailed, by COVID-19.

Q. WHAT DID IT MEAN TO BUILD A HOUSE FOR PEOPLE WHO YOU ACTUALLY MET AND CONSULTED WITH?

A. That had a huge impact because we weren't just increasing our own knowledge and learning new skills for a competition. There was a real goal and this house was for a real family who needed it. That made everyone all the more passionate and super-attentive to detail. We double-checked everything. It wasn't just theoretical. It actually needed to work and work well, so that put the pressure on and motivated us all.

Q. WHAT WAS THE MOST VALUABLE LESSON YOU LEARNED IN YOUR 3 ½ YEARS ON THE PROJECT?

A. The greatest take-away for me was the importance of communication and co-ordination. Especially in civil engineering,



there are so many systems that need to be integrated, whether it's on the technical side or systems of people. The mechanical system has to be checking in with architecture and checking in with structure, and vice-versa, because everything can be influenced by everything else. We learned that in class, of course, but really doing it reinforced those lessons in a powerful way.

DEVELOPING A PRICK-FREE GLUCOSE MONITOR

It was much more than an academic exercise or a technical challenge when **ALA ELDIN OMER** set out to develop a painless way for people with diabetes to monitor their blood glucose levels about four years ago.



His own father has type 2 diabetes, so the doctoral candidate in electrical and computer engineering has seen first-hand how painful, costly and inconvenient testing is with existing technology requiring users to prick their fingers and draw blood.

The extra motivation of a personal connection helped Omer and his collaborators invent a prototype, palm-sized device that uses radar and artificial intelligence (AI) to non-invasively read glucose levels through the skin when users place their finger on a touchpad.

Q. WAS THERE A MOTIVATOR, IN ADDITION TO YOUR FATHER, TO TAKE ON SUCH A BIG CHALLENGE?

A. After I built an academic foundation with my first two degrees, I really wanted to pursue research that could impact lives, not just remain in published papers. Many PhD candidates these days prefer to focus on one particular part of a problem within their comfort zone. I decided to be different by not being afraid to attack multi-faceted, complex research.

Q. WHAT IS AT THE CORE OF THE PROBLEM YOU IDENTIFIED?

A. We found that frequent self-monitoring is crucial to controlling the disease and averting disastrous complications, but issues related to available finger-pricking technology – pain, risk of infection, cost, inconvenience – can lead to non-compliance and insufficient daily measurements. Our ultimate goal is pain-free, continuous monitoring to reflect long-term patterns and trends in glucose fluctuations.

Q. HOW DO YOU SEE YOUR TECHNOLOGY EVOLVING AS RESEARCH AND REFINEMENT CONTINUE?

A. The target is a wearable device similar to a smartwatch. If we reached that point, it would be awesome and we could then initiate the stages of commercialization needed to bring it to market.

INCORPORATING FLEXIBLE SENSORS IN WEARABLE DEVICES

Lessons learned as a graduate student in the Multi-Scale Additive Manufacturing (MSAM) Lab at Waterloo are now guiding **ELHAM DAVOODI** (PhD '21, mechanical engineering) in a related line of health research in California.



Davoodi earned her doctorate by developing a durable, flexible sensor that features ultra-thin layers of graphene embedded in silicone rubber. Made possible by 3D printing and nanotechnology, the new material is ideal for wearable devices such as wristbands and shoe insoles to monitor vital signs or athletic performance because the graphene creates electrical signals when it moves or bends.

Since starting work this past summer as a postdoctoral fellow at the California Institute of Technology, she has been focused on the creation of conductive gels that could be applied to internal organs for monitoring or to improve the function of damaged tissue.

Q. WHAT IS THE BASIC IDEA BEHIND YOUR NEW AREA OF RESEARCH?

A. Instead of sensors for external applications, we are trying to make hydrogel sensors that mimic human tissue and are compatible, sensitive and conductive enough for internal applications. One example could be applying a gel to the heart to directly sense and monitor its signals. This kind of tissue engineering requires a soft gel that is conductive and still conforms well to very soft organs.

Q. WHAT IS THE COMMON THREAD RUNNING THROUGH YOUR RECENT RESEARCH WORK?

A. I'm concerned with the development of conductive materials for health monitoring using both external and internal devices. When I reviewed the literature, it struck me that most health monitoring devices right now are rigid and I wondered how I could make sensors that are most compatible with the human body, which is soft, not rigid. Taking this approach has produced promising results and I am very pleased with the progress we have made so far.

CLASS NOTES

1962

CLASS REUNION – 60-YEAR ANNIVERSARY
JUNE 3-4, 2022

1964



DAVID CLARK (ELECT '64) owned a small internet installation company until 2018. He sold everything and retired to Maple Ridge, BC. He reports “all my grandchildren live in BC. Loving life.”

dave.riverlink@gmail.com

1965



MIKE JOHNSTON (ELECT '65) says “I have finished a manuscript discussing the possible extinction of Homo sapiens from planet Earth and the response of an ordered Universe losing the

historiographer of its 14-billion-year odyssey.”

johnston.mike38@gmail.com

TONY WEALL (Civil '65) reports “I’m still working and enjoying a good life.”

tony.weall@telus.net

1967

CLASS REUNION – 55-YEAR ANNIVERSARY
JUNE 3-4, 2022

1969



KING Y HORIGUCHI (CHEM '69) reports “the 12-foot-high Budha Stupa was built by our ancestors in 1750. We repaired it last year. To our surprise, two paper scrolls of great stupa have been preserved

for the last three centuries.”

kyhori@kansan.co.jp



DENNIS RITTENHOUSE (ELECT '69) says “I’m enjoying life in BC. When this pandemic is over, we will resume travelling. Looking forward to salmon fishing again. This picture was taken in Campbell River after a day fishing with my son, Steven, and his two sons.”

drittenhouse@shaw.ca

1970

JOHN BOETTGER (MECH '70) says “I retired to Vancouver Island with my wife. We enjoy our yacht and the natural environment of the Cowichan Valley. Our daughter is an archaeologist with major expertise in BC First Nations. Still motorcycling on the latest bikes.”

boettjck@gmail.com



BRUCE MORGAN (CIVIL '70) and **BOB CONNELLY** (CIVIL '70) have been communicating with classmates to set up a delayed 50th reunion after the cancellation of previous arrangements. “Hope remains for a face-to-face reunion this Fall or in 2022,” they say.

BRUCE.MORGAN1946@gmail.com

TIMO (VINOD) WADHAWAN (SD '70) reports “Heartwood Inc., where I am the CFO, is providing simulation training to help railroads create exceptional learning experiences while reducing the potential for regulatory fines. Recently, we signed on CN Railway to provide training simulations. It’s like coming home!”

timowadhawan@gmail.com

1971



DOUGLAS MCCRACKEN (CIVIL '71) has been working since 1971 as a civil engineer for UMA and then Aecom in Canada, East Africa, Bahrain, North Africa, United Arab Emirates, Saudi Arabia and Mauritius. He retired in 2017.

2dougsmai@gmail.com

GRANT MCDONALD (ELECT '71) reports “I retired in 2017 after 30 years at BFGoodrich/Michelin followed by 15 years at Mighton Engineering.”

grantmcdonald@live.com



BAILY SESHAGIRI (MECH '71) says “I retired in 2002. I had stints at U of T Institute for Aerospace Studies, ON; Ministries Environment, Labour; Fed Dept. Labour.

I loved my jobs. I volunteer at St. Patrick’s Nursing Home and CNIB. I’m one lucky dude.”

bseshagi@kingston.net

1972

CLASS REUNION – 50-YEAR ANNIVERSARY
JUNE 3-4, 2022



ROBERT J.P. FORTIER (MECH '72) reports “I retired in 2019 after riding the downside of the industrial wave over 52 years - 21 ‘old school’ pulp and paper, chemical,

manufacturing, mining/metallurgical and food jobs at 18 sites in three provinces. Many challenges, lots learned, seldom boring.”

mega_kmrobert@hotmail.com

1973

TONY EDWARDS (CIVIL '73) says “greetings and salutations from Surrey, BC. I’m still working and keeping amused in the trenchless technology business as I have for the past six years. Of course, I’m wearing a trench(less) coat to work.”



DERK MAAT (CIVIL '73) reports that after graduating from Waterloo as a civil engineer with a major focus in sanitary engineering, he graduated in 1979 from the

University of Western Ontario with a master’s degree in environmental engineering (first class). He went on to work for Canada’s largest consulting company for over 20 years before starting Maat Environmental Engineering in 1995. Currently, Derk is the CEO of both Maat Environmental Engineering Consultants and also SciCorp International Corp. SciCorp International Corp. is a global leader in innovative technology for odour control and wastewater treatment optimization in both the municipal and industrial markets. Derk has lived in Oakville, ON for the past 30 years.

derk@scicorp.net

1974

RAMAPRASAD BHAR (ELECT '74) worked in systems software support in different countries before settling in Australia. He completed a PhD in quantitative finance in 1996 and retired as an associate professor in actuarial studies at UNSW, Sydney.

ramaprasad.bhar@gmail.com



(LA)VERNE MILOT (MECH '74) says “I’m still into a second career as a business coach. Very rewarding work utilizing a manufacturing and executive management

background to support CEOs in related fields of technologies at Growth-Associates.com.”

verne@growth-associates.com

GOLDEN VICTORY

PHIL WOOD

BASC '73, CHEMICAL

Wood doesn't remember the score of the winning softball game but he does recall the prize – a case of beer placed in Laurel Creek first thing in the morning but no longer cold when his victorious team drank it later that afternoon.

Fifty years after he and his classmates captured first place in the Waterloo Engineering Society tournament, Wood says the star on that sweltering July 1971 day was pitcher Jim Cockburn (BASC '73, chemical engineering).

"I think we were all about equally athletic except for Jim," explains Wood, who was the team's catcher. "Having a good pitcher really made a difference."

Playing four games almost continuously in a treeless area beside the University's Village One residence and Laurel Creek, the 3A chemical engineering students clinched the tournament about 5 p.m.

The hot and exhausted team members celebrated by somewhat quenching their thirst with 24 warm Labatt 50s, brewed a few blocks away in Waterloo at the time.

"There was no such thing as water bottles to keep hydrated in those days," says Wood, a now-retired McMaster University chemical engineering professor.

Still savoring their victory, the classmates ended up at a friend's house after the tournament.

"So, the celebration continued with more than one case of beer that day," Wood laughs.

Photo of Phil Wood taken in July 1971.



WAYNE SCHLOTE (CHEM '74) says "I plan to be the first-ever person to be cured of multiple myeloma. After my diagnosis in January 2020, I am in complete remission as of March 2021. The goal is getting nearer! Geocaching is too much fun to be weighed down by illness."

halfwaynorth55@bell.net

1976



KENNETH HUBLEY (MECH '76)

has been retired since August 2014. He last worked at SNC-Lavalin for eight years as a project manager on thermal power plants. Hubley's last client was

Chevron in Houston that built an 800MW combined cycle power plant in Nigeria on land adjacent to the 3200MW oil and gas fired power plant that he worked on in 1982. Sometimes working lives come full circle. By the way, he recommends retirement!

khubley@bell.net



BRUCE PALEY (MECH '76) reports "I had a company transfer from Babcock & Wilcox Canada in Cambridge, ON 18 years ago and now live in Medina, Ohio. I continue with my private engineering consulting

work in the fossil power industry with clients such as The World Bank and Sargent & Lundy and other international projects. I plan to retire later this year. It was a good run!"

bkpaley@gmail.com

BERNIE SANDER (MSGH '76) has recently written the histories for all his 16 great-great grandparental families. His other major pursuit is being APO (instead of Opa) to his two granddaughters.

bsander@innovationtransfer.com

1977

CLASS REUNION – 45-YEAR ANNIVERSARY JUNE 3-4, 2022

DAVID CLINCKETT (CIVIL '77) retired in Calgary.

davidclinckett@gmail.com

MIKE DORSEY (MECH '77) reports "I'm now retired but working part time house flipping in Madison, Indiana."

mldorsey3@gmail.com

MICHAEL ELDER (MECH '77) says "I closed my recruiting business in September 2020 and retired. I'm thoroughly enjoying retirement, especially the opportunity to spend two days a week with my 11-year-old granddaughter helping her with online schooling."

mikeelder11@gmail.com

SAMUEL LAM (MECH '77) says "I'm happily retired for five years now after 35 years with the BC government. I'm interested in sailing, finance, offshore business and AI. Best wishes to all my old classmates."

sflam168@gmail.com



RON RISTICH (CHEM '77) reports “after 34 years with Dow Chemical, I retired in 2011 to teach Lean Six Sigma and apply process automation skills. In 2015, I was contracted by Dow for PA work.

In August, I will retire again and relocate to Ft. Myers, FL.”
ronristich@outlook.com

1978



RORRY HARDING (MECH '78) reports “I’m semi-retired in the Ottawa area. Enjoying biking, running, orienteering, car restoration projects and lean consulting. Would be great to hear from classmates not on the current email list.”

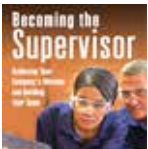
Rorry.Harding@gmail.com



JOHN F. THOMPSON (CIVIL '78) is enjoying retirement from the City of Barrie having served as its director of environmental services for 10 years. He was honoured with the Geoffrey

T.G. Scott Memorial Award (2020) by the WEAO (Water Environment Association of Ontario) for outstanding leadership and inspiration in the water environment industry.
johnfthompsonpeng@gmail.com

1979



HUGH ALLEY'S (SD '79) book “Becoming the Supervisor: Achieving Your Company’s Mission and Building Your Team” addresses the core skills front-line leaders need through

an engaging story about a general manager who coaches her young supervisor:
becomingthesupervisor.com.

halley@becomingthesupervisor.com

WARREN BROWNE (SD '79) retired in March 2021 from Teknion. He says “now it is time to focus on Barbara, grandkids, cottage, volunteering and beer (not necessarily in that order).”
warrenbrowne5@gmail.com



GERARD ROOD (CIVIL '79) just celebrated the 10th anniversary of Rood Engineering Inc. located in Leamington, ON. The company’s primary focus is municipal drainage engineering pursuant to

the Drainage Act. Other work includes storm water management and some residential development projects. Drainage has been Gerard’s focus since he was a co-op student in 1976 with McGeorge & Barry in Chatham and then with N.J. Peralta Engineering in Kingsville starting in 1990. He’s currently volunteering with the Land Drainage Committee and Leamington BIA.
gerard.reinc@gmail.com

JIM STOTHERS (MECH '79) says “I retired from Pratt & Whitney Canada after 35+ years. I’m keeping busy with outdoor activities at our cottage in the Laurentians plus building and maintaining some old motorcycles.”
jim.stothers@bell.net

1980



STEVE HUMMEL (ELECT '80) retired this year after a fulfilling academic and corporate leadership career. He exited his venture capital partnership and is now back

to building/racing road race vintage cars.
stevehummel@gmail.com



TIBOR SCHIMEK (ELECT '80) says “I had a great variety career in power generation, distribution, controls, contracting, commissioning, consulting,

certification, testing, project and engineering management, automotive, steel, lasers, oil refining and aerospace. I happily retired last spring.”

Tibor.Schimek@gmail.com

PAUL VERHEYEN (MECH '80) is enjoying retirement on beautiful Lake Martin in Jackson’s Gap, Alabama. Paul says “all my Waterloo friends are welcome to stop in for a visit.”
ptverheyen2@gmail.com

1981



MARCUS CAIRNCROSS (MECH '81) has been working as a petroleum engineer at South Africa’s PetroSA since April 1997.

Previously, he was a project mechanical engineer at SANS Fibres, a nylon yarn spinning company.
mcairncross1@gmail.com

JOHN HOHOLUK (CIVIL '81) has been working as an operations manager for Ventana Construction in Vancouver for the past 10 years managing a team of project managers, coordinators, etc. on projects ranging in size from \$20M to \$100M. Previously, he was with Vanbots/Carillion Construction in a similar capacity completing projects including YVR upgrades for the 2010 Olympics.
jhoholuk@ventanaconstruction.com

DARIUS MISTRY (CHEM '81) is currently providing boutique Merger & Acquisition (M&A) advisory services and operational excellence consultancy since retiring from Dow Chemical in mid-2019 after 38 years. Darius serves on Petromont Board of Directors, is an angel investor and venture startup advisor.
DariusMistryTx@gmail.com

JIM SCRIMSHAW (CIVIL '81) has worked at Midwest Steel USA for 29 years. He was previously at Marshall Steel Ontario for 11 years.
jscrimshaw@bell.net

SID SQUIBB (SD '81) is now retired from a 23-year stint developing records management and GIS software for fire departments and emergency services. Sid says “I will keep playing ball hockey, tennis and travelling well into my eighth decade.”
sidsquibb@gmail.com

1982

CLASS REUNION – 40-YEAR ANNIVERSARY JUNE 3-4, 2022

BRIAN BUTTERS (MECH '82) has global experience in aerospace and defense. He started Purifics in 1993, a clean tech company that develops proprietary ceramic membrane technology, and holds 30+ patents to purify drinking water, wastewater and reuse applications.
bbutters@purifics.com

1983



EDWARD (TED) SHERIDAN (CIVIL '83) has been named 2021-2022 president of the International Institute of Building Enclosure Consultants (iibec.org), an organization with

approximately 3,500 members in Canada and the U.S. Ted is founder and president of Fishburn Sheridan, an engineering firm with five offices across Eastern Canada, which celebrates its 20th year in 2021.
ted@fsaeng.com

CHARLIE WATSON (CHEM '83) is still living in Florida enjoying the sunshine, boating, beaches and cycling while working from a home office for Air Products as a process controls engineer. He is now a grandpa to three grandsons who live locally.
watson4484@brighthouse.com

1984



JAMES BIRDELL (ARCH '84) became chair of the Built Environment Open Forum, publisher of the Right Angle Journal “a refreshing look at Architecture.”

therightanglejournal.com encourages and assists architects and designers to write their stories.
billbirdsellarch@gmail.com

WEATHERING THE CHALLENGES

FRANK SEGLENIEKS

BASC '91, GEOLOGICAL;
MASC '95, CIVIL; PHD '09, CIVIL

Of all the information yielded by the University of Waterloo Weather Station since its launch as an internet experiment 23 years ago, one non-technical fact is right up there in terms of interesting tidbits.

Seglenieks, the station's high-profile co-ordinator, hasn't actually worked for the University for 12 years. Since getting his PhD and landing a job with Environment Canada in 2009, he has continued producing monthly summaries and doing media interviews as a volunteer.



"There was nobody obvious to take it over and I wanted to make sure it kept going," he says.

Seglenieks was working for engineering professor Ric Soulis in 1997 when Environment Canada gave them some surplus equipment and asked if they could post weather data on the then-fledgling internet for public access.

Pulling it off meant using analog telephone lines and a modem, but in just over six months they had a website that displayed temperature, wind speed and other data points from a location on the north campus.

"It was quite the challenge," recalls Seglenieks, now a water resources engineer whose work involves monitoring water levels in the Great Lakes.

He is proud to note the original website is still in service and that, in addition to current conditions, users can download historical data, for free, stretching all the way back to Day One on February 28, 1998.

www.civil.uwaterloo.ca/weather/default.asp

JOHN KABEL (CHEM '84) has retired from R&D engineering in the food industry, managing facility improvements and as a food safety and technology transfer consultant. He now writes and teaches about navigation and weather and officiates sail racing as a volunteer.
jjkabel@rogers.com

1985



ROB PANKRATZ (CIVIL '85) retired in December 2019 from Manulife Financial. Previously a consulting engineer at UMA in Mississauga,

he completed an MBA in 2000 and left engineering for finance.

rhpankratz@outlook.com

JAMES TAIT (ELECT '85), founder of Tait Applied Intelligence Technologies, is developing a sentience by modelling the mind using language and the Harmonic Method of Reasoning.
james.tait333@gmail.com



TOM WOLFF (ELECT '85) is currently between jobs and not quite ready to retire. Tom had a 16-year stint with

Nortel Networks and a 16-year stint with DRS Technologies as a component engineer for both companies.

vax@magma.ca

1986



PATRICK DECRAEMER (CIVIL '86) says "I worked 17 years for Bird Construction, a large construction company. I left and started my

own construction company: Prime Design Build Corporation. I'm getting ready to build a 12-storey design-build supportive housing project with all building walls equipped to produce electricity."

pdecraemer@primedb.ca



RALPH HEMPEL (ELECT '86) has been working as a senior manager in product technology at LEGO in Denmark and is now senior

firmware architect. He has also become a first-time grandfather.

rhempel@hempeldesigngroup.com

JOE WIGGLESWORTH (ELECT '86) has been working at IBM as an engineer since May 1988. In January 2021, Joe moved to the IBM Systems Storage division as a senior technical staff member.
[Connect with Joe via LinkedIn](#)

1987

CLASS REUNION – 35-YEAR ANNIVERSARY JUNE 3-4, 2022

JOEL BISSON (ELECT '87) says “our startup is developing Canada’s first fully-regulated digital asset platform and launched in July! If the idea of holding cryptocurrencies in your investment portfolio is both intriguing yet terrifying, I think you’ll be pleasantly surprised - visit [stacker.io](#).”
[jbisson9@gmail.com](#)

DUNCAN GIBBONS (MECH '87) says “while I’m not affected by COVID, I experienced that other C word, in the form of prostate cancer. Currently, I am receiving chemo to suppress testosterone. I’m happily employed at CCI Antenna Inc. in Kanata.”
[djgibbons@rogers.com](#)



LAWRENCE WOOLNER (MECH '87) has started Diamond Waters Sailing, a recreational boating school in Parry Sound, ON - [diamondwaters.ca](#). He retired from Almex Group in 2020.

[larjo@cogeco.ca](#)

1988



TOM LEE (SD '88) made the jump to academia and is now the Walter G. Booth Chair for Engineering Entrepreneurship and Innovation at McMaster University. His daughter, Maddie, will complete

her Waterloo degree in mechatronics engineering in 2021, raising the family’s Waterloo degree count to seven. His wife, Sharon, works at D2L in Waterloo but she and Tom are also busy developing a parallel life off-grid in a sustainable home on the Bruce Peninsula.
[tleegm@gmail.com](#)



DON RICHARDSON (CIVIL '88) semi-retired after a career that included stints in aerospace engineering, industrial engineering, software solutions, swimming pools, and healthcare

solutions. He now enjoys tutoring high school maths and sciences and spending summers at the cottage.
[donb.richardson@gmail.com](#)

1989

SIDDHARTHA GOEL (MECH '89) reports she is living in Boston and both of her sons are in college.
[sgoel10@gmail.com](#)

MARK MCCUTCHEON (ELECT '89) co-founded CleanPowR and was recently granted a patent inspired by his published book *The Final Theory: Rethinking Our Scientific Legacy*. It was translated for the Chinese science collection as *Ultimate Theory*.
[mark@thefinaltheory.com](#)



MATT SNELL (SD '89), a former Engineering Society President, retired as the IBM Canada General Counsel and Secretary on December 31, 2020. Matt had been with IBM for over 21 years and had been practising law for close to 26 years. He’s now on to the next great adventure - whatever that might be. It will certainly include spending more time on his sailboat and with family and friends once COVID allows.

1990



JAMES DEAN (CIVIL '90) has started a new entrepreneurial venture - [oxygen8.ca](#) - developing ventilation systems that provide fresh filtered outside air to buildings in an energy efficient way. James’s previous company, dPoint Technologies, developed membranes and enthalpy exchangers for hydrogen fuel cells and energy recovery in buildings.
[james@oxygen8.ca](#)

1991

GERARD BRATHWAITE-STURGEON (MSCI '91) retired in 2017 from Global Affairs Canada. He is a part-time instructor at the University of Ottawa and Algonquin College and is working on his 10th master’s degree.

1992

CLASS REUNION – 30-YEAR ANNIVERSARY JUNE 3-4, 2022



DEB ROY (COMP '92) joined the MIT faculty in 2000. He founded Bluefin Labs, Cortico, served as Twitter’s chief media scientist, was the director of the MIT Media Lab, and now directs the MIT Center for Constructive Communication.
[dkroy@mit.edu](#)

1993



JEFF DIBATTISTA (CIVIL '93) reports that after more than 25 years in Edmonton, he and his wife, Traci, are happy to be back in Ontario. Jeff recently took on the role of managing partner at DIALOG, a leading North American design practice.
[drjeffdi@gmail.com](#)



ALI KHAMSI (CIVIL '93) is the managing principal of KPFF Civil Engineering Division in Orange County, California. He has been with KPFF for over 23 years and has

completed projects in many market sectors including healthcare, education, commercial, hospitality, civic, retail, transportation, and the military.
[ali.khamsi@kpf.com](#)



MATT MANUEL (SD '93) changed roles at Microsoft last year. He is now a principal technical program manager in commercial software engineering, helping large customers leverage Azure cloud services.
[matt@mattmanuel.com](#)



SEAN MURPHY (MECH '93) recently took on the national digital lead role at MNP LLP, after merging his digital services firm, A Hundred Answers, four years ago. He’s looking forward to reconnecting with classmates.
[seamurphy@gmail.com](#)

1994



MARCELO ALENCAR (ELECT '94) retired from the Federal University of Campina Grande, spent two years as visiting professor at the Federal University of Bahia, and now works at the Senai Cimatec, Salvador, Bahia, Brazil. He works as a consultant for companies in tele-communications and has published 26 books and more than 500 papers on the subject.
[sampaio.alencar@gmail.com](#)

CORRIE MOONEY (MECH '94) has his own company, EnOran Engineering, which has been working on building energy efficiency since October 2015. Previously, he was a mechanical engineer at various HVAC consulting firms in Toronto and Dublin, Ireland.
(416) 389-1222

HOMETOWN HONOURS

TALY WILLIAMS

BASC '94, CIVIL

Twenty-five years after suiting up as a defensive back in the Canadian Football League, Williams is getting some overdue recognition for his athletic achievements in his Ontario hometown of Haliburton.

Williams and his sister, Lesley Tashlin, who competed for Canada as a sprinter at the 1996 Atlanta Olympics, are set to join five other local athletes who made good in murals on the side of an arena wall.

The honour was approved by local politicians – and backed by high-profile supporters including Mike ‘Pinball’ Clemens of the Toronto Argonauts – after a determined class of grades 7 and 8 students at J. Douglas Hodgson Elementary School lobbied for the inclusion of Williams and Tashlin on the wall of fame.

Williams grew up in Haliburton, excelled in high school sports and played football for the Waterloo Warriors before catching on as a pro with the Argonauts and the Hamilton Tiger Cats in the mid-1990s.

Now a co-founder and managing partner at AQORA Capital, a Los Angeles investment firm focused on water infrastructure, technology and services, Williams was touched by the grassroots effort to remember him back home.

“I would love to be on a mural to be a symbol to my kids and others regarding what you can achieve and who can achieve it,” he said of the campaign.



1995



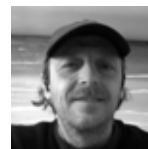
ANITA MOORTHY (COMP '95) is the founder and host of a podcast called The European Startup Show focused on showcasing the most innovative and

fast-growing companies in Europe. Previously, she led marketing functions at various tech companies including Wandera, Hearsay Systems and others.

1996

KARIM HIRJI (MSCI '96) has been working with IBM Cloud & Cognitive Expert Labs since the acquisition of DWL Inc in 2005. As an executive principal, he works with clients to solve, adopt and deploy IBM data platform, automation and AI application software.

karimhirji@alumni.uwaterloo.ca



SHAWN THOMSON'S (MECH '96) career has been passionately focused in the entertainment industry since day one with theme parks, theatre,

TV, outdoor events - always requiring unique and flexible design. He's currently working at Epiphany Engineering Inc.

shawn@epiphanyengineering.com

1997

CLASS REUNION – 25-YEAR ANNIVERSARY JUNE 3-4, 2022

TONY SAVOR (ELECT '97) recently left Facebook in California where he led its online data infrastructure to join Google Cloud in Kitchener leading Google Kubernetes Engine.

tony.savor@gmail.com

1998



DAVE CALDER (MECH '98) reports “I’m in my 24th year at Stantec where I lead the industrial buildings sector. My son, Will, is at Laurier

majoring in business and my daughter, Claire, is at Queen’s majoring in engineering. My wife, Jinda, and I split our time between Waterloo and San Diego.”

dave.calder@stantec.com

2001

JAMIE ALLY (MECH '01) moved back to Toronto a few years ago after a long time in Australia. He is working on hydrogen trucks, autonomous vehicles and other fun projects. Jamie says “three kids and zero free time. Living the dream, chasing the dream.”
jamieally@gmail.com

2002

CLASS REUNION – 20-YEAR ANNIVERSARY
JUNE 3-4, 2022

2003



ERIK WALLE (COMP '03) worked for various mobile games companies in the U.S. for the past decade. He says “I’m now in Victoria, BC to ride out the pandemic and start my own studio. First title

out soon!”
ewalle@gmail.com

2004

JUSTIN BISHOP (SD '04) has been working at Arup in London since January 2018. Previously, he was a research associate at the University of Cambridge’s Department of Engineering.
justin.bishop@gmail.com



HARRISON LUNG (COMP '04) has joined Siris Capital, a private equity firm in New York, as a partner leading value creation. Previously, he was a partner at McKinsey & Company in U.S. and Asia.

harrison.lung@gmail.com

2005

MAJOR TRAVIS KELLEY (SD '05) has been assigned the position of deputy commanding officer for the Mapping and Charting Establishment, the military unit responsible for supporting all geographic information and cartography needs for the Department of National Defence.

ALBERT MANSOUR (CIVIL '05) is the VP of business development at Planit Measuring, a world leader in providing digital CAD/BIM models of built spaces. He has held BD leadership roles throughout his career.

albert@planitmeasuring.com

2006

BENJAMIN BOLGER (GEO '06) has been working as a groundwater modeller at Canada’s Matrix Solutions since January 2012. He’s currently trying to sell his copy of the 2006 engineering graduation yearbook.
benbolgerjamen@hotmail.com

DAVE DEGRACE (MSCI '06) has been working as a family physician at the Lakeview Family Health Team in Quinte West, ON, since 2018, with a recent faculty appointment to Queen’s University. Previously, Dave was doing translational research on prostate cancer at Queen’s.
david.degrace@lakeviewfht.ca



WILLIAM LAW (ENVIRO '06) has worked on multiple railway projects worldwide. Currently, he is taking up the environmental manager role at the Broadway Subway Project in Vancouver, BC.
wlaw@bscgp.ca

2007

CLASS REUNION – 15-YEAR ANNIVERSARY
JUNE 3-4, 2022



BEN SANDERS (ELECT '07) just became a proud papa, is living off-grid in the Yukon, and after helping launch two tech startups in Silicon Valley with Waterloo engineers (Presto.com and Clearbanc.com), is now making government better (ProofGov.com).
ben@proofgov.com

2008



GABRIEL CHAN (SD '08) has been working with public and private sector entities (e.g. central bank, banks) since 2016 on deploying consent-based, self-certifying digital verifiable credentials, blockchain solutions with privacy-preserving cryptography – he’s open to collaboration and partnerships!
gabriel.chan@emali.io

2009



STEVE CYBULSKI (MTRON '09) has been working with Weir Canada since 2012 in different roles – currently he is a quality engineer. Steve says “I’ve been blessed with a wonderful wife and a very energetic two-year-old son.”
scybulsk@gmail.com



ALI HUSSAINI (MTRON '09) is a research fellow at the University of Portsmouth. His work involves translating the lived experience of local populations into design principles to develop functional and aesthetically acceptable assistive devices.



MAJID MIRZA (MBET '09) is CEO and founder of ESG Tree (ESGTree.com) and recently appeared as a guest in a Riddl podcast on private equity and impact investing. Majid is also working on his PhD in sustainability management.
majid@esgtree.com



ALI OMER (CHEM '09) is currently working as process engineer at Tidewater Midstream-Prince George Refinery.



VIVEK RAJ SHIVHARE (MBET '09) is the founder and president at VOOFA Inc. He was featured on SiriusXM Radio - CanadaTalks, Awarded No#1 Agency.

His company provides services in online marketing, branding, ecommerce fashion store, music publishing and motion pictures.
info@voofa.ca



SARAH VANDAIYAR (CHEM '09) has been working at TC Energy in Calgary for the last seven years and recently moved into a role in corporate strategy and competitive analysis. She currently serves on the boards of Contemporary Calgary, the International Pipeline Conference Foundation and the Society of Petroleum Engineers Canadian Education Foundation.
sarah_vandaiyar@tcenergy.com

2010



ELIZABETH FENUTA (ARCH '10) is a tenured professor at Humber College, an architect at IBI Group and co-founder of Hout Architecture Inc.

elizabeth.fenuta@gmail.com



HUSSIN HASSEN (ELECT '10) has been working as a professor in the School of Applied Technology at Humber College in Toronto since September 2013. He teaches

power electronics, ac/dc electric machines and variable frequency drives. Previously, he was an electrical engineer at ABB Canada, an international electrical engineering firm.
husalihak@yahoo.com



HERMANTO HIOE (MTRON '10) has been working as a program manager at Linamar Corporation since March 2003. Previously, he was a mechanical engineer at

Schlumberger Asia Pacific.

hermanto.hioe@linamar.com



JONATHAN (JOHNNY) LOH (MTRON '10) co-founded ICOSA Brewhouse, a coffee product startup with \$1.4M in successful product launches on Kickstarter.

His AVENSI Coffee Enhancing Glassware won 2021 Best New Product, the coffee industry's biggest award.

johnnyloh60@gmail.com

2011



LESLIE MERRITHEW (CIVIL '11) recently transferred to Boston, MA for a leadership role in Stantec's aviation infrastructure team. She continues to work on the

Bermuda Airport P3 project while expanding her aviation design portfolio.

leslie.merrithew@stantec.com



ASGHAR RIZVI (MSCI '11) is working as vice president of factory automation and motion control business units for Siemens Canada. Asghar says "I'm providing new solutions

to our new world of AI and digitalization. It feels great to be an alumnus of University of Waterloo. Onwards and upwards!"

rizviasghar@hotmail.com



FARID ZAKARIA (SWE '11) has been working as a software engineer in California since 2015. He's currently working for Google through an acquisition and works

out of Santa Cruz.

farid.m.zakaria@gmail.com

2012

CLASS REUNION – 10-YEAR ANNIVERSARY JUNE 3-4, 2022



NOLAN DYCK (MECH '12) says "I obtained my PhD with specialization in thermofluids from Western University in 2020 and have co-founded an engineering consulting firm,

Maple Key Labs, providing CFD and other numerical services to various industries."

nolan.dyck@maplekeylabs.com

MELANIE HAZLETT (CHEM '12) went on from Waterloo to earn her PhD at the University of Houston, and then completed postdoctoral work at the University of Calgary. She successfully attained her PEng in 2020 and then started working as an assistant professor at Concordia University in chemical and materials engineering. Her research program focuses on designing heterogeneous catalysts for sustainable processes including the production of green fuels.

melanie.hazlett@concordia.ca



DAVID MIKOLAJEWSKI (MTRON '12) has been working since 2018 to end slavery in textile manufacturing while shortening supply chains and reducing carbon footprints

by researching, engineering, managing, and vision casting automated equipment.

dmikolaj@uwaterloo.ca



SHAN TAO (MBET '12) says "becoming the CEO of Ecolo with over 40 years of history in the odour control industry was my new excitement in 2020. I believe new leaders

inspire people through authenticity, creativity, and community building."

spracaddy@gmail.com



YELDA TURKAN (CIVIL '12), an assistant professor at Oregon State University, was awarded along with her team a grant from the National Science

Foundation to automate the process of making three-dimensional building models from lidar point clouds using artificial intelligence algorithms.

yelda.turkan@oregonstate.edu

2013

JOHN LEE (MECH '13) says he is still wasting his life away at a corporate job.

jj23lee@gmail.com



ARSALAN SIDDIQUI (MECH '13) tried working as a mechanical engineer at Ford as a design engineer but then decided to

move into tech as a software engineer and, surprisingly, ended up liking it. He says "it's never too late to change careers!"

arsalan.siddiqui.13@gmail.com

2014

REZVAN AHMED (ELECT '14) is based in Nairobi, Kenya, developing renewable energy projects across Africa with CrossBoundary Energy.



CAITLYN BAKER (NEE HOWE) (ENVIRO '14) works for the City of Calgary's river engineering team.

She supports projects involving river and bank stabilization, dam safety, flood barrier construction, and flood monitoring and emergency response.

caithhowe@gmail.com



REHANA RAJWANI (MGMT '14) is an entrepreneur leading her leadership coaching business for engineering leaders. She is also the chair for a non-profit

organization, the Aga Khan Education Board for Ontario.

rehana.rajwani@gmail.com



ERIC ZILLINGER (ELECT '14) works as an independent cyber-security consultant.
ezillinger@gmail.com

2015



SEAN AUBIN (ELECT '15) says “I’m helping scientists smarter than me design proteins to cure diseases at ProteinQure.”
seanaubin@gmail.com



XUE HAI FANG (ELECT '15) is designing cybertruck electronic systems. He says “hit me up on LinkedIn if you want to make a cool truck.”



YOUSSEF HELWA (NANO '15) founded NERv, an award-winning clinical-stage MedTech company developing monitoring solutions for post-operative care. He says “our idea is to drive data-driven decision-making, changing ‘I think’ to ‘I am sure.’”
yhelwa@ne-rv.com



STEPHANE LEE (COMP '15) says “I’m working on phones now! Less on LEDs, although phones have LEDs too. Pixels pixels pixels!”
seflee@uwaterloo.ca



SANDY MAGUIRE (SWE '15) is working on automating away programmer jobs through his startup Wingman for Haskell. He has written two books and is happily living the retired life.
sandy@sandymaguire.me



MICHAEL THIESSEN (COMP '15) is working with **STEPHANE LEE** (COMP '15) on phones.

ANTHONY WANG (NANO '15) has been working on his PhD at the TU Berlin wrangling with neural nets and trying to make materials R&D better through the use of machine learning.
aytwang@uwaterloo.ca



ABDULLAH ZUBAIR (MSCI '15) has been working as a senior manager of digital transformation at Bell Canada since 2015.
abdullah.zub@gmail.com

THESIS INSPIRES ARTISTIC CAREER

BRENDA REID

BAS '19; MARCH '21



Reid laughs when she thinks about anticipating some downtime after finishing her architecture master’s degree.

Since graduating this past spring, she has served as an Artist in Residence for the Co-Crete Residency in Guelph, Ontario, joined the KW Artists Co-op where she has studio space, and led Kitchener-Waterloo Art Gallery architecture walking tours. Last month, she began teaching in Waterloo’s first-year architecture studio.

“Much of my thesis work resulted in thinking that offering public education around design and architecture is one of the most important things we can do,” says Reid, a nominee in the arts and culture category of the 2021 Oktoberfest Women of the Year awards.

Focusing on care in architecture for her thesis, Reid launched the From Behind the Mask community quilt project for people to artistically share their COVID-19 experiences.

Individuals from three to 89 years old submitted 568 blocks in four different languages using a variety of mediums.

Exhibited this past summer in Kitchener’s Homer Watson Gallery, the 25-foot-long quilt is now on display in the city’s Stanley Park Community Centre.

“The project was totally different from other types of work I’ve done,” Reid says. “I found it really fulfilling and really inspiring.”

2016



ABDUL AL-HAIMI (MSCI '16) works at NEOM as a senior manager of emerging technologies, where he leads the efforts on artificial intelligence and neurotechnology/brain-computer interfaces. In addition, he is pursuing a PhD in systems design engineering with Alexander Wong. abdul.alhaimi@neom.com



FRANCOIS-JOHAN ROY (MGMT '16) finished an MBA and started working as a pathways operations manager for Amazon in Ottawa. f2roy@uwaterloo.ca

2017

CLASS REUNION – 5-YEAR ANNIVERSARY JUNE 3-4, 2022



FATIMA AWAN (CHEM '17) is the CEO and founder of Finitiite, an image recognition platform that matches users to products on Amazon based on predictive AI models. Before launching Finitiite, Fatima was an early-stage operator who built tech businesses across IoT verticals/digital health in New York and most recently in AI to redefine mobile commerce. f.awan001@gmail.com

BRIAN DOHLER (MTRON '17) says “I’ve been living it up in California and I’m handling all the electronics for Tesla’s steering and brakes.”



DARIO PERALTA MOARRY (ELECT '17) has continued his studies as a PhD candidate at the University of Waterloo since September 2017, working on the optimal heating/cooling power dispatch for residential customers with ground source heat pump technologies. d2peralt@uwaterloo.ca



MAHDI SHARIF (CIVIL '17) says “I’m on to my next chapter! I am finishing my PhD program while growing my startup company.” m33shari@uwaterloo.ca

2018



JARED BARIBEAU (SD '18) has been in Cambodia as a co-founder and CTO at Demine Robotics since graduation. He is working to make landmine clearance faster and safer. jared.b@deminerobotics.com



CHENG GUO (COMP '18) says “I’m back in China working as senior associate at CITIC Securities (IBD) to help tech companies go public.” guocheng19921028@gmail.com



DAN LAHEY (CIVIL '18) says “completing my master’s degree made a bad year a lot better!” daniel.w.lahey@gmail.com



JOSHUA LO (NANO '18) has been working in the field of software operations since co-op. He is now approaching two years in operations with Toronto-based Index Exchange, a recognized digital ad exchange powering the free Internet. joshua.y.h.lo@outlook.com

2019



VYAS ANIRUDH AKUNDY (COMP '19) says “I have been working as a data scientist at Manulife since January 2020. In my spare time, I like to write articles on general topics and also provide guidance on subjects and jobs in the data science field. I also like playing the guitar.” vaakundy@uwaterloo.ca



EHSAN HAGHI (CHEM '19) has been working as an energy specialist focused on developing energy efficiency and renewable energy solutions for Indigenous communities. Currently, he is the community energy specialist at Musqueam Indian Band. ehaghi@musqueam.bc.ca

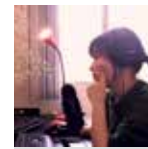
HASSAN (MOSES) MOUSSA (CHEM '19) says “I am currently working as an instructor at Conestoga College while continuing as a sustainability and R&D manager for a craft distillery in Mississauga.” h2moussa@uwaterloo.ca



NICHOLAS PELLEGRINO (MTRON '19) has been completing his MASC in systems design engineering at Waterloo in association with PhotoMedicine Labs. He is researching and studying digital signal processing and machine learning techniques for biomedical applications. npellegr@uwaterloo.ca



QIANSHU WANG (NANO '19) has been working as a microfabrication process specialist at Avalon Holographics in NL since September 2020. Previously, he was an applications engineering technician at P&P Optica, a Waterloo startup. qshu96@hotmail.com



CJ YANG (ARCH '19) says “I just finished my thesis defence and I’m now updating my portfolio. I’m currently based in Vancouver. My new hobbies include cinematography, video editing and uploading cover songs on YouTube.” ziquing_yang@hotmail.com

2020



AISHWARYA BANSAL (COMP '20) started working in the streaming world as an artificial intelligence engineer at CerebriAI. abansal@cerebriai.com



HOLDEN BEGGS (NANO '20) helped expand Scope Photonics – scopephotonics.com – an international award-winning company building dynamically adjustable lenses for sharply versatile imaging. The company is now signing beta-trial customers.



MOHAMAD EL CHAYAH (MBET '20) was appointed COO at Smart Employee Benefits Inc.

to oversee strategic operations of its technology division, in addition to his responsibilities as president and CEO of the Benefits Division of the Company, SEB Administrative Services Inc.

mohamad.elchayah@gmail.com



JAI JAIN (MSCI '20) has been working as global IT manager at Procter &

Gamble. Currently, he is managing multiple cloud-based automation projects that help to derive better business decisions across 104 countries.

jjain237@gmail.com

SAEED NEJATI (ELECT '20) has been working as an applied scientist at Amazon Web Services (AWS) since December 2020. Previously, he was a postdoctoral researcher at University of Waterloo.

nejati@gmail.com



VIVEK UNNITHAN (MECH '20) reports "following the completion of my MEng in mechanical

engineering graduate studies in 2020 at UWaterloo, I began my role as an energy efficiency analyst at Nexant Inc. in Toronto. I aid with the impact evaluation of demand side management (DSM) programs in Canada and U.S. At present, I'm striving to make the most of work-from-home arrangements."

v2unnithan@uwaterloo.ca

IN MEMORIAM

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

- | | |
|------------------------------------|------------------------------------|
| Alan Armstrong (SD '94) | Victor Lenius (Civil '69) |
| Raimo Ayranto (Mech '65) | Kelvyn Lo (Elect '94) |
| David Babensee (Chem '91) | Mickey Lowy (Elect '76) |
| Gary Barbour (SD '78) | Mervin Lumley (Mech '62) |
| Donald Brooks (Elect '66) | Harold McCausland (Mech '62) |
| William Campbell (Mech '70) | Larry Moss (Mech '62) |
| Peter Catania (Chem '67) | Andrea Myles (Elect '08) |
| Garth Chambers (Elect '71) | Donald Noakes (SD '79, '85) |
| John Cofell (Mech '66) | Bartley Oegema (Civil '85) |
| Ralph Curtis (Elect '78) | Jeffrey Plener (Chem '71) |
| Stephen Daum (Elect '73) | Vijay Raina (Elect '74) |
| Robert Duffy (Elect '65) | Kenneth Riepert (Mech '62) |
| William Dunlop (Elect '72) | William Robinson (Civil '73) |
| Kent Edwards (Elect '66) | Rodney Rourke (Chem '65) |
| Kamal Elguindi (Chem '77) | Roy Rutka (Civil '71, '75) |
| Jeffrey Farrington (Mech '84) | Bruce Sharp (Mech '87) |
| Roger Farwell (Arch '77) | Yu Shen (Mech '05) |
| Sina Ghanbarzadeh (Elect '14, '21) | Douglas Smail (Mech '66) |
| Robert Gibson (Mech '79) | Harry Sochan (MSci '74) |
| Conrad Gierer (Chem '98) | Cornelius Stoffer (Elect '66, '68) |
| Douglas Goodchild (Civil '72) | Teddy Takahashi (Civil '66) |
| Michael Gray (Mech '74, '76) | Ronald Taticek (Chem '88) |
| Sherri Gray (Chem '90) | Anthony Tkachenko (Mech '21) |
| Jaya Gupta (Nano '20) | David Thomson (Mech '96) |
| Harold Harju (Elect '76) | Paul Wang (Chem '81) |
| Stephen Harris (Mech '70) | John Westlake (Chem '67, '69, '71) |
| Richard Hatala (Mech '77) | Brian White (Elect '87) |
| Mark Jenkins (Mech '84) | Nabil Zakhary (Elect '79) |
| Harry Lafferty (Chem '66) | Arvy Znotinas (SD '76) |



GREETINGS ALUMNI

I hope you are keeping well as we cautiously emerge on the other side of the COVID-19 virus.

As I write this column, I'm excited about the prospect of seeing more activity at Waterloo in the upcoming months.

The University is focusing on reopening the campus to students during the Fall 2021 term. If all goes according to our current plans, we hope to welcome alumni back to campus for events starting in 2022.

While virtual events and activities are not quite the same as in-person ones, we certainly had fun trying to connect remotely since March 2020 with online lectures, panel discussions, reunions, roundtable discussions, happy hours, trivia, blogs and more!

As you may have read in last June's eWEAL, this year the Waterloo Engineering Endowment Foundation (WEEF) reached a significant milestone of \$20 million. It was a forward-thinking idea that came out of a discussion by then-students John Vellinga (BASC '91, systems design engineering) and Avi Belinsky (BASC '90, electrical engineering) one evening in 1989 over \$2 beers in POETS.

Alumni are welcome to donate to WEEF to keep growing the endowment that supports current and future students for generations to come.

If you find yourself on campus after we reopen to visitors, please let me know. I'd be happy to buy you a cup of coffee at the C&D in Engineering 7 and give you a tour of the newest buildings on campus. In the meantime, you can follow us on LinkedIn, YouTube, Facebook and Twitter.

Sincerely,

GOSIA BRESTOVACKI
gosia.brestovacki@uwaterloo.ca
Senior Alumni Officer, Faculty of Engineering

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

P.S. If you have a story suggestion for a future issue of WEAL or eWEAL, please send me an email with your idea. Some of our best stories come from your suggestions.

JOIN THE GLOBAL NETWORK

We've made networking and connecting with Waterloo Engineering alumni and students easy on the Ten Thousand Coffees platform. This online networking service (free to users) is a University of Waterloo alumni-founded company and offers a personal approach to alumni networking. Only Waterloo Engineering alumni and students can join the **Waterloo Engineering Hub**, ensuring exclusivity and reliability. The concept is that once a month you are introduced to other engineering alumni or current engineering students (no matter the year of graduation) for a virtual coffee meeting, or real-life coffee in the future, and see where that conversation takes you. It might be a new career opportunity, a new idea, a new employee or finding old friends.

Join for free at: uwaterloo.ca/engineering/waterloo-engineering-global-alumni-network

UPCOMING EVENTS

FOR THE LATEST
WATERLOO ENGINEERING
ALUMNI EVENTS AND
REGISTRATION DETAILS VISIT:

uwaterloo.ca/engineering/alumni

OCTOBER 2021 TO JUNE 2022

Waterloo Engineering Virtual Speaker Series

VARIOUS TIMES / ONLINE

Every month or two, join us online for a lecture on a timely topic such as urban engineering, the future of autonomous vehicles, robotics and more. Alumni, professors and industry experts will share their views, outlooks and expertise, and answer questions from the audience.

JANUARY 21, 2022

Waterloo Engineering Alumni Ski Day

8:30 A.M. – 5:30 P.M.

OSLER BLUFF SKI CLUB, TOWN OF THE BLUE MOUNTAINS
(NEAR COLLINGWOOD), ON

Join your University of Waterloo classmates at this breathtaking private resort to ski and snowboard for the day. Snowshoeing trails are also available.

MARCH 2022

Waterloo Engineering Capstone Design Symposia

ALL DAY, VARIOUS TIMES

UNIVERSITY OF WATERLOO, WATERLOO, ON

You're invited back to campus to check out a showcase of Waterloo Engineering student innovation. The Capstone Design Symposia 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 3 AND 4, 2022

Waterloo Engineering Class Reunions in 2022

ALL DAY, UNIVERSITY OF WATERLOO, WATERLOO, ON

Feel like you're a student all over again (without the stress of exams!) by attending a lecture from the Back-to-the-Classroom lecture series or the Dean's Reunion Lecture. Explore campus by attending the Open House in Engineering 7 and take a student-led tour featuring cutting-edge labs. Then, celebrate the anniversary of your graduation from Waterloo Engineering in style with a special Reunion Marché-style Dinner Party taking place in the evening.

THE JUNE 2022 REUNIONS INCLUDE:

- 60-Year Reunion for the Class of 1962
- 55-Year Reunion for the Class of 1967
- 50-Year Reunion for the Class of 1972
- 45-Year Reunion for the Class of 1977
- 40-Year Reunion for the Class of 1982
- 35-Year Reunion for the Class of 1987
- 30-Year Reunion for the Class of 1992
- 25-Year Reunion for the Class of 1997
- 20-Year Reunion for the Class of 2002
- 15-Year Reunion for the Class of 2007
- 10-Year Reunion for the Class of 2012
- 5-Year Reunion for the Class of 2017

More Reunion
information at:
[uwaterloo.ca/
engineering/
alumni/reunions](http://uwaterloo.ca/engineering/alumni/reunions)

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 or calling Gosia Brestovacki, senior alumni officer, at 519-888-4567, ext. 46838.

A FRIENDLIER WAY OF DOING BUSINESS

Seeing recycling boxes and garbage cans overflowing with restaurant and fast-food containers while walking to and from Waterloo's campus motivated two alumni to launch a zero-waste business.

Kayli Dale, left in photo, and Jacquie Hutchings, who both graduated from chemical engineering in 2020, co-founded A Friendlier Company last year to help keep food packaging from ending up in landfill.

Based in Guelph, Ontario, the company sells reusable takeout containers to restaurants and prepared meal suppliers.

When food is purchased, customers are charged a nominal deposit for the containers. The deposit is automatically refunded when the packaging's QR code is scanned using the company's app and the containers are returned to the participating restaurant's collection bin.

A Friendlier Company sterilizes the returned containers, which are produced in Ontario and can be reused over 100 times.



Demonstrating sustainability can be profitable

With only a few local restaurants on board when the company began operating in October 2020, there are now over 55 throughout the province offering A Friendlier Company's containers.

As COVID-19 restrictions ease and larger gatherings start up again, Dale and Hutchings plan to expand their business by offering reusable drink cups using a similar refundable deposit system at public events.

"I'm thrilled to watch the company's impact grow and see people excited about reducing waste," says Dale. "Being able to demonstrate that sustainability can be profitable is also important."

After finding out it would cost at least \$30,000 to have a professional build the company's app, Dale used the skills and knowledge she gained at Waterloo to develop it herself.

"I spent last summer learning to code and created the app," she says. "What engineering gave us was the confidence to be able to tackle a problem like that and come up with a solution."

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