

Alumni Gazette

WESTERN'S ALUMNI MAGAZINE SINCE 1939

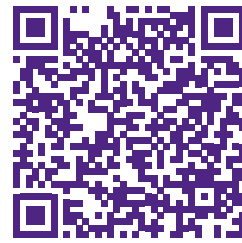


STORM TROOPERS

The Northern Tornadoes Project is chasing the data
and uncovering new climate insights

Nominate an outstanding Western graduate for a prestigious Alumni Award of Merit

The nomination deadline is March 1, 2023.



Scan for full details

2022 Alumni Award of Merit Recipients



David Simmonds, BA'07

Dr. Ivan Smith Award

David has served Western well with his strategic mind and passion to serve. Involved in many Western initiatives and groups this President of the Canadian Club - Toronto and a Stratford Festival board member also serves the community in equal measure.



Raywat Deonandan, PHD'01

Professional Achievement Award

A decorated novelist, scientist and educator who inspires through the effortless merging of science, journalism and arts. Raywat has achieved global fame during the COVID-19 pandemic thanks to his expertise in epidemiology.



Manisha Braithwaite, BA'97

Community Service Award

Since graduation, Manisha has unselfishly devoted countless hours to support civic, charitable, and social causes, always working to make the people around her feel valued, loved and supported.



Leigh Vanderloo, BHSc'10, MSc'12, PhD'17

Young Alumni Award

Leigh's research assessing physical activity patterns in young children has resulted in outstanding potential to improve the health of children. Her work has brought awareness to the issue of physical inactivity around the world.

Western  Alumni

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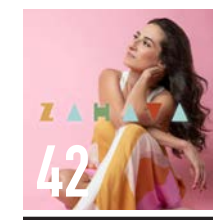
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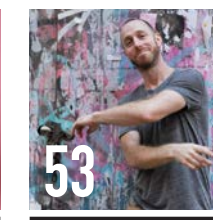
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ON THE COVER: Gregg Kopp, lead researcher, and David Sills, executive director, are at the helm of Western's Northern Tornadoes Project, investigating severe weather systems occurring across Canada. (Photo by Tyler Gray)

The Alumni Gazette is published once a year and is mailed to more than 200,000 alumni around the world. Following sustainable best practices, the magazine is printed on materials approved by the Forest Stewardship Council (FSC): the wood used to make the paper is sourced from FSC-certified material, recycled materials and other controlled sources. As we continue our sustainability efforts, we encourage readers to consider opting for a digital issue instead of print. To request a digital version, please visit alumni.westernu.ca/gazette or contact us at 519-661-4176, 1-800-420-7519 or advser@uwo.ca.

Message from the President

Inspiration and optimism

It feels like mere days ago we were celebrating our first in-person convocation in almost three years, and now we're eagerly preparing to welcome the class of 2026 to campus for the first time.

There is something inherently optimistic and life-affirming about the start of a new school year. Though we continue to face challenging times here in Canada and around the world, there's reason to feel both inspired by the enthusiasm and resilience of our students, faculty, staff and alumni, and heartened by our community's ongoing efforts to tackle the most important and pressing issues of our time.

Alumni can take great pride in the fact that Western is continuing to do our part to promote sustainability and reduce our carbon footprint. This past April, *Times Higher Education* named Western first in Canada and third in the world – up from 52nd place in 2021 – in their Impact Rankings. We also ranked among the world's top five schools in four categories related to the UN's Sustainable Development Goals: poverty; zero hunger; life below water; and peace, justice and strong institutions.

This past spring, we rolled out our first *Responsible Investing Annual Report*, an essential step towards achieving our sustainability goals for campus operations and building our global leadership in interdisciplinary sustainability research. Along those lines, I'm happy to report the Ivey Centre for Building Sustainable Value – one of the first sustainability centres in a business school globally – was recognized with the 2022 Global Reporting Award for its progress report related to the UN's Principles for Responsible Management Education. And we continue to work closely with groups across the university to accelerate existing measures and introduce innovative and inclusive new ways to achieve our goal of being a carbon-neutral campus by 2050.

Our community continues to provide outstanding leadership on the pandemic management and recovery front. Through wave after wave of the pandemic we have come together to keep one another safe, as we use our collective talent and resources to advance education and research efforts related to COVID-19. In this issue of the *Alumni Gazette*, you'll hear from



researchers at Western's Imaging Pathogens for Knowledge Translation Facility, as well as from some of our leading experts in the fields of epidemiology, virology, bioethics and global public health, as they weigh in on the measures and policies needed to help end the global pandemic.

We also profile some of the many other exciting research projects happening across campus, including the ground-breaking work of the Northern Tornadoes Project, the Bell-Western 5G partnership, and Bipasha Baruah's important research that's shining a light on social justice and equity in the pursuit of a low-carbon economy. Plus, we look at the life and career of trailblazer Roberta Bondar, as we commemorate the 30th anniversary of her history-making spaceflight.

Thank you for your continued support and engagement with your *alma mater* and I look forward to welcoming you all back to campus for the many wonderful events taking place this upcoming year – including Western's first-ever hosting of the Vanier Cup. Go Mustangs!

Alan Shepard

Celebrating the Class of 2022

For the first time since the onset of the global pandemic, Alumni Hall opened its doors once again as the spring Class of 2022 crossed the stage to receive their degrees and diplomas during Western's first in-person convocation since 2019.

Twenty ceremonies were held in June, with 8,000 students joining approximately 330,000 Western alumni in 160 countries around the world.

Graduates from the Class of 2020 and 2021 were also back on campus in July to celebrate their long-awaited, in-person convocation.



Florentine Strzelczyk



WESTERN APPOINTS NEW PROVOST, VP ACADEMIC

International scholar and accomplished academic administrator Florentine Strzelczyk joined Western as its new provost and vice-president (academic) on May 1. Before joining Western, Strzelczyk was provost and vice-president, academic, at Memorial University of Newfoundland. A scholar of European history and German language, literature, culture and film, Strzelczyk earned her MA from Georg August Universität Göttingen (Germany). She first came to Canada as an international student, earning her PhD from the University of British Columbia. "Great universities are a magnet for international talent," Strzelczyk said. "The role post-secondary institutions play in internationalization matters to me. We have an obligation to help solve humanity's most pressing problems. And that is typically and increasingly done in international teams and through international research partnerships."

(PHOTO BY NICOLE OSBORNE/NEO IMAGE CREATIONS)

MELANIE PEACOCK NAMED ALUMNI ASSOCIATION PRESIDENT

Calgary-based human resources professional Melanie Peacock, MBA'90, is the new president of the Western Alumni Association. A graduate of Ivey Business School, Peacock is the first Alumni Association president with a home base outside of Ontario. "I don't think I can find the words to adequately describe what an honour and a privilege it is to have this role," she said. Peacock has taught courses to more than 1,000 people seeking the Chartered Professional in Human Resources designation; is a professor of human resources at the Bissett School of Business at Mount Royal University in Calgary, where she won the school's inaugural teaching excellence award in 2014; has written several textbooks and articles to improve the profession; is founder of Double M Training and Consulting; and is a local, national and international media commentator. She was designated a fellow of the Chartered Professionals in Human Resources in Alberta in 2021 – only the third woman, and the first woman of colour, to have this designation.



Melanie Peacock

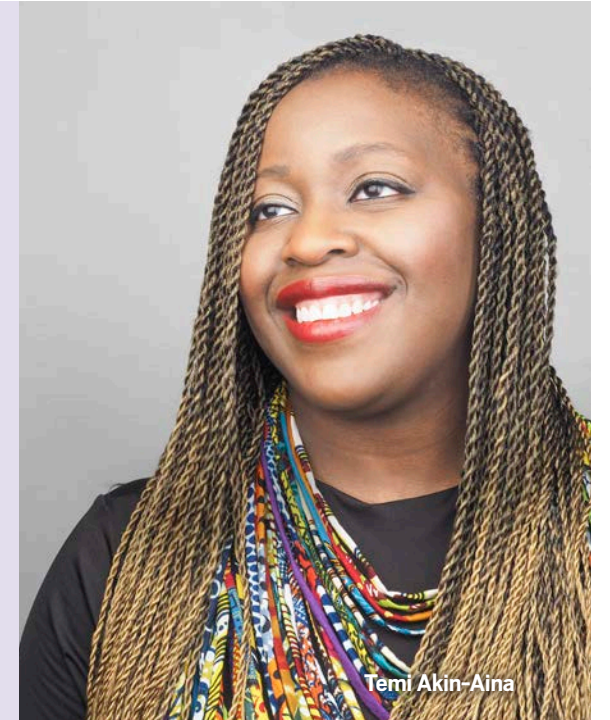
NEW STEPS TO ADDRESS, PREVENT GENDER-BASED AND SEXUAL VIOLENCE

Western has introduced new measures and strengthened existing resources to address gender-based and sexual violence (GBSV) on campus. "We listened to our community and our expert partners. Together, we want to be leaders in the work to prevent gender-based violence from happening on university campuses and throughout society," said President Alan Shepard. The new measures include: re-evaluating Orientation Week (OWeek) activities; appointing a special advisor to lead a new GBSV advisory committee and address campus culture and safety; and requiring all incoming students to complete GBSV prevention and awareness training before arriving on campus.

- In addition, Western:
- hired an additional GBSV support case manager and a prevention and education co-ordinator;
 - launched a new training program for all OWeek student leaders;
 - is creating GBSV prevention training for Western special constables and other security personnel;
 - is supporting autonomous student organizations in their effort to address GBSV; and
 - is applying to the Canada Research Chair program and Canada First Research Excellence Fund to support new academic positions focused on GBSV-related research.

NEW AVP TEMI AKIN-AINA TO SUPPORT WESTERN ALUMNI ACROSS THE GLOBE

Temi Akin-Aina joins Western in the newly focused role of Associate Vice-President, Alumni Relations. Akin-Aina's career in university advancement began at McGill and then took her to Concordia University, where she oversaw the direction of Concordia's alumni relations program. A strategic leader with broad experience in all aspects of alumni engagement, Akin-Aina defined her time at Concordia by forging relationships with key alumni groups including women, Queer alumni, Black alumni and Asian alumni. Recognizing Akin-Aina's work in establishing the Concordia Black Alumni Network, CBC featured her in its 2022 Black Changemakers series.



Temi Akin-Aina

"I'm so excited and honoured to take on this critical role in alumni relations at Western," said Akin-Aina. "Western's student experience and impressive alumni community are locally and internationally recognized. I can't wait to join the talented team and support Western's ambitions to have a transformative impact on the community, society and the world."

NEW CHAIR, VICE-CHAIR FOR WESTERN'S BOARD

Western's board of governors has selected alumni Keith Gibbons as its new chair, and Sarah Shortreed as vice-chair. They officially assumed their two-year terms July 1. First appointed to the board in 2016, Gibbons, BA'76, has served as vice-chair since 2020. A chartered accountant, he has held several senior leadership roles, including vice-president of London Life Insurance Company, and president and CEO of McCormick Canada and McCormick Asia Pacific. Appointed to the board in 2018, Shortreed, BESC'89, is executive vice-president and chief technology officer at ATCO, an engineering, logistics and energy holding firm in Calgary. She previously held roles at Bruce Power, BlackBerry, IBM Canada and Union Gas, with expertise in cybersecurity, technology strategy, and complex program management and operations. She is a fellow in the Canadian Academy of Engineering, and former member of the board of the Natural Sciences and Engineering Research Council.

In Brief

\$10M GIFT GIVES RISE TO RONALD D. SCHMEICHEL BUILDING FOR ENTREPRENEURSHIP AND INNOVATION

Canadian entrepreneur and financier Ronald D. Schmeichel is lending his name to Western's new entrepreneurship and innovation building, with a \$10-million donation and a shared commitment with Western to cultivate Canada's future entrepreneurs.

"This space will help students from all academic disciplines come together around a common belief: when you invite ideas, enthusiasm and skills to come together you create and build innovation," said Schmeichel, JD'95. "This is more than a building. This is a place where tomorrow's entrepreneurs will cultivate their entrepreneurial spirit, whether they're in engineering, music, journalism, law, medicine, science, business or the arts."

The 100,000-square-foot building, located in the heart of campus, will be named the Ronald D. Schmeichel Building for Entrepreneurship and Innovation.

When completed in the fall of 2023, Western's first net-zero-energy building will be a gathering place that houses a state-of-the-art, active learning



Conceptual drawing

classroom; a maker space equipped with 3D printers, metalworking, machinery and woodworking tools; and a digital lab.

It will also be home to Western's signature entrepreneurship programs, including the Morrissette Institute for Entrepreneurship, Powered by Ivey, and its range of incubators, accelerator programs and networks.

Western will also establish the Ronald D. Schmeichel Founders Awards, providing financial support and mentorship for some of Western's most promising entrepreneurial students. In addition, a new bi-annual speaker series will feature high-profile entrepreneurs and alumni.

WESTERN EARNS TOP SPOT FOR SUSTAINABILITY

Western has placed first in Canada and third in the world in a global ranking of universities working toward the United Nation's Sustainable Development Goals.

The *Times Higher Education* 2022 Impact Rankings assess more than 1,500 post-secondary institutions from 110 countries based on goals set by the UN in 2015 to achieve sustainability by 2030.

Western is one of only two Canadian universities to place in the top 10 in this year's rankings. Globally, Western is in third place, behind Western Sydney University in Australia and Arizona State University in the U.S.

"The *Times Higher Education* Impact Rankings are unique in examining universities' contributions to building a better world," said the organization's chief knowledge officer, Phil Baty.

President Alan Shepard said the university is proud to be among the institutions making a difference in practicing and promoting sustainability for the good of society.

"Embedding sustainability across the university is a key part of Western's strategic plan and together, we're working hard to build sustainable practices in our operations, our research endeavours, and in our teaching," Shepard said.



Mustangs hoist 2021 Vanier Cup

(PHOTO BY BRANDON VANDECAVEYE)

2022 VANIER CUP COMING TO WESTERN

The Western Mustangs may get the chance to defend their Vanier Cup title on home turf when the 57th edition of the football championship game comes to London, Ont., for the first time on Nov. 26.

Western and the City of London have been awarded the right to host the game at Western Alumni Stadium.

"London and Western offer the participating teams and fans outstanding accommodations, restaurants and sports facilities. We know guests travelling to the 2022 Vanier Cup will have a memorable experience, and we can't wait for kickoff," said Lisette Johnson-Stapley, U Sports chief sport officer.

The Mustangs have participated in a record 15 Vanier Cup games, hoisting the chalice on eight occasions, most recently in 2021, when they defeated the Saskatchewan Huskies 27-21.

The stadium is well-equipped to host the championship game following a series of upgrades and improvements, including the installation of a world-class purple track, a state-of-the-art turf field, and new lights and bleachers.

WESTERN RANKS FIRST AMONG CANADIAN UNIVERSITIES FOR SCHOLAR-ATHLETE RECOGNITION



(PHOTO BY BRANDON VANDECAVEYE)

Avarie Thomas, scholar-athlete

Western has landed the top spot among Canadian universities with high-achieving student-athletes.

For the last five years, Western's scholar-athletes consistently performed well in the U Sports Academic All-Canadians, ranking number one in 2016-17, 2017-18 and 2018-19, and number two in 2019-20.

"Our student-athletes work hard, in sport and in the classroom. It is wonderful to see them recognized for this dedication," said Christine Stapleton, director of Western sport and recreation.

Western's scholar-athletes are Mustangs who achieve a minimum 80 per cent average in a given academic year while on a varsity team roster. For the 2020-21 academic year, 583 Mustangs were Western scholar-athletes, a record for the university.

NEW DOWNTOWN SPACE TO MAKE COMMUNITY CONNECTIONS

Western's new downtown space at 450 Talbot St. in London, Ont., will soon become a hub of activity, with community-focused programs and events ranging from Indigenous art exhibits to free legal aid to medical outreach and mental health counselling for children.

Currently a law office, the building will undergo major renovations, and is expected to re-open in the second half of 2023.

Ultimately, thirteen projects and services will call the three-storey building home, creating and strengthening diverse partnerships between Western and London residents off campus.

"London is home, and we're thrilled that Western will have a more integrated and visible presence in the downtown core," said President Alan Shepard. "The building offers exciting opportunities to work side-by-side with our community partners to build an even stronger, healthier and more vibrant city and region."

The new hub draws in partnerships with a spectrum of groups that work with marginalized Londoners; offer cultural expressions, including art and media studios; and spotlight a host of community-engaged learning opportunities for students.

Western's new downtown hub at 450 Talbot St.



A 'living lab' of sustainability



(PHOTO: WESTERN COMMUNICATIONS)



(PHOTO BY DEB VAN BRENK)

GREENER CAMPUS, GREENER PLANS

Sustainability efforts at Western extend to the grassroots level, with hundreds of individuals and groups working together for change.

“There are champions everywhere, and our staff is continuously thinking on how we can articulate and tap into that. It’s about harnessing the collective enthusiasm,” said Western sustainability director Heather Hyde.

Homegrown activities range from advocacy for flying insects and birds to forging deeper connections with the land and water:

- In June, Western Friends of the Gardens planted a **pollinator garden** behind Middlesex College and then had a native-plant giveaway, in addition to its regular plant sales.
- Members of EnviroWestern planted, maintained and harvested a **community garden**, in tandem with 100 community members of University Students’ Council, the Society of Graduate Students, Office of Indigenous Initiatives, Hospitality Services and Facilities Management.
- A community of volunteers in the Faculty of Science is conducting and crowdsourcing a **biodiversity inventory** on Western’s campus and at affiliated university colleges Brescia, Huron and King’s.
- The installment of **bird-friendly window treatments** on several buildings and is designing these treatments into new construction.
- Students of a jointly offered fourth-year Indigenous studies and third-year geography and environment class will leave a legacy on campus, thanks to a **new land-use agreement** that will provide students with learning opportunities on environmental stewardship. Instructors Desmond Moser and Clint Jacobs and their students will conduct fieldwork that will help them develop deeper relationships with, and responsibility to, the land.
- In its third year, the **Western sustainable leaders program** is an initiative in which students celebrate and promote sustainability to their peers.



RESPONSIBLE INVESTING

Western’s efforts to decarbonize and reduce its environmental impact are extending to its Operating & Endowment Fund (the Fund), with a commitment towards responsible investing.

Decarbonization is a key measure in Western’s inaugural Responsible Investing Annual Report, which outlines principles, beliefs and commitments under the university’s Responsible Investing Strategy & Pathway. Western has committed the Fund to be net-zero carbon emissions by 2050, or sooner.

“Divestment alone does not make a truly meaningful impact when other investors can simply acquire those high-carbon investments,” said Logan.

Western joined the University Network for Investor Engagement (UNIE) in February 2022, which engages com-

By **Debora Van Brenk, BA’86, MA’87**

Heather Hyde nods towards the greenery of the rain garden in front of the Physics & Astronomy Building and then makes a more expansive gesture across campus to where Western’s new Ronald D. Schmeichel Building for Entrepreneurship and Innovation is taking shape.

“This is campus as a living lab – a dynamic and, we hope, ever-improving example of responsible energy use and sustainability,” said Hyde, Western’s sustainability director.

The rain garden has become a miniature ecosystem as it sprouts native plants and attracts insects while collecting runoff during thaws and heavy downpours, instead of sending water to hard-surface storm drains.

The entrepreneurship building, meanwhile, will become Western’s first net-zero building, with geothermal heating and cooling, a green roof and triple-glazed windows.

This year, Western was named the top university in Canada, and third in the world, in the *Times Higher Education* global ranking of campuses working towards the United Nations’ Sustainability Development Goals.



Heather Hyde, Western sustainability director





(PHOTO BY DEBORA VAN BRENK)

The power plant is at the core of ongoing upgrades and innovations designed to make the university more energy-efficient. Pictured: power plant operator Travis Mellor

panies in the investment portfolios of participating universities, focusing on accelerating the transition to a low-carbon economy in key sectors where advocacy can make the biggest difference, including energy, utilities, finance, transportation and manufacturing.

A recent analysis of Western's long-term public equity investments shows the university's carbon footprint is now 65 per cent less than it was in 2015. Between 2019 and 2020, that carbon footprint dropped by 31 per cent.

Western intends to divest from any fossil fuel company that fails to demonstrate tangible progress toward realistic decarbonization pathways by 2030.

In the near-term, Western has committed to invest 10 per cent of the Fund in sustainable investment strategies by

2025. To date, the university has made investments in a renewable-energy infrastructure fund and an energy transition fund, representing 5.2 per cent of the Fund once fully invested. Total investment value of these commitments is estimated at US\$70 million.

CAMPUS AND BEYOND

On campus, Western is accelerating existing measures and taking new steps to reduce greenhouse gases by at least 45 per cent by 2030, relative to 2005 levels, and towards achieving net-zero emissions from campus operations by 2050.

Part of its plans to reduce greenhouse gas include an 'energy loop' across campus, which includes several components. An upgraded chilled water network will provide year-round

operations and allow for the sharing of excess energy between buildings. New buildings and retrofits through the deep energy retrofit program will be designed to integrate with the energy loop, resulting in approximately 60 to 80 per cent reduction in greenhouse gases.

Recognizing that environmental stewardship requires both innovation and collaboration, Western joined the University Climate Change Coalition (UC3), made up of North American research universities working to accelerate local and global solutions to climate change through teaching, research and building community resilience.

Member colleges and universities commit to mobilizing their resources and expertise, scaling campus initiatives into the broader community, and working with other global leaders towards mutual climate solutions. They also agree to host regional climate forums, develop best practices and establish and nurture new collaborations.

MORE SQUARE FOOTAGE, LESS FOOTPRINT

As sustainability at Western takes place from the ground up – as with the ground-sourced heating and cooling of the Ronald D. Schmeichel building – it also takes place from the pipes out.

The university's power plant is at the heart of new and planned industry-leading innovations, which include systems that capture flue gases, and redirects that energy to supplement the work of chillers that provide conditioned air to buildings and laboratories as needed. There's also a

plan to install electric boilers to reduce the carbon footprint even further.

Western has invested heavily in deep energy retrofits for several buildings – including the Western Student Recreation Centre, where reclaimed "waste" energy will help heat the pool – to improve their function, efficiency and consumption.

Hyde noted the number of buildings at Western has increased significantly since 2005, with new residences, labs and classrooms. But Western's greenhouse-gas emissions have dropped by about 35 per cent in that same time period.

"Even though we've added square footage, we're decreasing our carbon footprint. "That's got to be the model going forward. While we have growth plans, we need to grow in a sustainable way."

She noted Western's Open Space Strategy prioritizes pedestrians, cycling and public transit over car traffic.

Facilities Management is planning to buy electric vehicles for its fleet as existing gas-powered trucks and cars reach the end of their lifespans.

Western is also planning additional electric-vehicle charging stations on campus.

"Someone who hasn't been to campus in a while won't necessarily see improvements to our power plant or our greener investment portfolio, for example. But they won't have to look hard to see some obvious changes in our priorities and how we interact with the environment and the land," Hyde said. 🌱

*We travel to learn:
about the world,
about other cultures
and about ourselves.*

Gradually, the world reopens,
and we cautiously return to the
things we have missed.

Discover the world 2023

Photo taken in Patagonia by Western
travellers Brian & Helen Luckman.

 **Western
Alumni**

alumni.westernu.ca/travel

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and minds**

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Western 

Favour Okpali
Engineering student
and award recipient

Joshua Pearce, John M. Thompson Chair in Information Technology and Innovation at the Thompson Centre for Engineering Leadership & Innovation, Ivey Business School

Science of solutions

PAVING A PATH TO NET ZERO

By Debora Van Brenk, BA'86, MA'87

Let's face it: the world is going to heat in a handbasket. We bear witness every day to "unseasonable" seasons that generate hotter, stormier, weirder weather than humans have recorded before. Climate change is costing lives, endangering plant and animal species and creating an unhealthy stew of undrinkable water, unbreathable air and inhospitable land.

U.S. President Joe Biden has termed the climate crisis "a clear and present danger" – a phrase more often associated with the threat of war than with the rise of the oceans.

The World Health Organization calls climate change the planet's biggest threat to human health in the 21st century.

But there are solutions.

More than 100 Western researchers are working to help people and the planet mitigate or adapt to climate change realities. Their efforts are turning algae-green water into a healthier

hue, mitigating risk in flood zones, assessing ecosystem resilience, designing hurricane-hardy homes, converting biomass to clean energy, engineering super-efficient rechargeable batteries, and teaching sustainable business practices.

They are sharing blueprints for solar-powered futures, developing courses with climate action embedded in the curriculum, and redesigning heat-sink cities.

And while experts acknowledge there is no easy path to de-escalating the climate crisis – their insights honed by years spent studying science and human nature – they say it can be done.

"There's a saying that's attributed to Nelson Mandela: 'Everything is impossible, until it is done,'" said Bipasha Baruah, Canada Research Chair in Global Women's Issues and an expert in the intersection of economy, environment and equity. "Our portal to the future can be different."

HOW WE GOT HERE

The use of fossil fuels, cutting down trees and intensively farming livestock all add to the naturally occurring carbon dioxide in the Earth's atmosphere. That carbon dioxide traps the sun's heat like a greenhouse. More heat leads to climate change and threatens the already-precarious balance of all interconnected living things.

The push is on to limit warming to 1.5 degrees Celsius higher than pre-industrial times.

But time is ticking. Greenhouse gases need to be slashed in half by 2030 to contain warming within that target.

"Unfortunately, there are very few nations, organizations or corporations taking action on anywhere close to the scale that is required, and too often they are speaking in terms of 2050 targets for making more ambitious reductions," said Western geology professor Tony Weis, who is leading a new major in climate change and society that draws in the sciences, arts and humanities to address the multidimensional challenges of the crisis.

As dire as that forecast sounds, not all is lost, said Weis.

Students graduating with this new major will become next-generation leaders in environmental policy-making and law, land use planning, community development, conservation, sustainable social enterprises, business consulting, as well as in related fields in research and teaching capacities.

"On one hand, we need to convey the reasons why big and urgent changes are needed; on the other hand, there is a significant amount of research showing that too much focus on the fear and the scope of environmental problems tends to be debilitating for people," Weis said. "It is crucial to pair the sense of urgency with realizable actions, and the hopeful dimensions of efforts to build more sustainable societies."

He added a central part of the challenge is stressing that big and fast emission reductions are more than possible – and that pursuing them aggressively can be interwoven with many positive outcomes, such as good jobs, healthier and more equitable communities, serious commitments to decolonization, and enhanced biodiversity conservation.



Sara Mai Chitty

INDIGENOUS PERSPECTIVE

The Anishnaabe worldview *mino-bimaaduzwiwin* – to live a good life – includes the whole person and the whole planet, said Sara Mai Chitty, curriculum and pedagogy advisor in the Office of Indigenous Initiatives.

"Sometimes we lose sight of what the whole point of existing is: to live a good life. We need plant and animal species and without that we don't have anything.

The survival of the species is about all of us and everything."

She said Indigenous Peoples are in a unique position, as part of their special constitutional relationship with the Crown, to hold governments accountable.

That includes, for example, continuing to be strong voices in opposition to oil and gas pipelines that could bring harm to the land. "Those pipelines don't make environmental sense. From an economic standpoint in a capitalist sense, those pipelines also don't make sense."

Chitty is part of a team, with geography and environment curriculum specialist Beth Hundey and geography professor Katrina Moser, developing curriculum that will braid Indigenous and Euro-Western science to help students understand the issues and find solutions.

The course is designed so that anyone – whether from within the Western community or beyond it – will be able to enrol.

"It's not a matter of pitting the two world views against each other but it's recognizing whose leadership brought us here and how future generations of land, plants and animals can thrive," said Chitty.

"Many Indigenous communities are still very much in relationship with the land that they're on and they've been noticing change for years – who is missing and how things are not growing the same and how the water looks and tastes different. Indigenous Peoples have been noticing this long before people in the cities have."

Students in the course will be expected to make at least one personal change and one community change to benefit the planet. And when they do that, they'll become ambassadors whose actions will ripple through to their friends, communities and political activities.

SOCIAL EQUITY LENS

The big solutions require rethinking what's important, said Baruah, who was an invited speaker at a recent United Nations forum on UN Sustainable Development Goals.

She outlined some big-ticket items that can have a huge impact on not just the environment but also on social equity:

Stop subsidizing the fossil-fuel industry. Such subsidies amounted to US\$5.9 trillion in 2020, an amount equivalent to seven per cent of global GDP, Baruah said. "Getting rid of fossil fuel subsidies can enable us to use the money to focus on things that really matter, such as education, health care, equality, universal basic income and renewable energy sources."

Shut down coal-fired power plants and invest in more green energy sources. "People are no longer saying, 'Where will we find the resources to get that done?' We know where we can find the money for that."

Get comfortable with change. "What's happened during COVID has been that people have reflected on what it takes to have a good life, and it's definitely not the status quo. We can rethink and rebuild economic systems that privilege environmental good and social justice, instead of growth for growth's sake."

▶▶▶



Business and engineering professor Joshua Pearce is an advocate of open-source tech and teaching people how to build solar panel systems for local homes and communities.

CATCHING THE SUN

Moving from fossil fuels to renewable solar is now more accessible than many think, said Joshua Pearce, John M. Thompson Chair in Information Technology and Innovation at the Thompson Centre for Engineering Leadership & Innovation, Ivey Business School.

He has co-authored a free downloadable how-to book, *To Catch the Sun*, that shows how to design and build a photovoltaic system for small homes, communities and for emergency use.

The book has been downloaded more than 10,000 times, is widely shared on Reddit, and has been translated to Spanish and French for a wider reach.

“Solar is the heavy artillery if not the magic bullet. Today, converting solar energy directly to electricity with photovoltaics is already economic. Solar works everywhere people live and at every scale.”

“When solar electricity is used to drive a heat pump – we have just shown it is finally economic in both Canada and the U.S. – we can start slashing natural gas use for heating the same way we did with cutting coal use for electrical generation,” Pearce said.

He said policy-makers should encourage the construction of more solar-ready homes for all new projects and provide training to the army of solar panel installers we would need to end the fossil fuel era.

“Then, when we actually start using all the surface area we waste (rooftops, building facades, sound barriers, and canopies over parking lots) to hold up solar, we can power our buildings and our electric vehicles, so even oil can be eliminated. Solar technology potential is here and ready and, frankly, we just need to invest in it for the long term, and we can have our green planet and even make some money.”

COOLING HEAT ISLANDS

Climate change has caused heat waves to grow in intensity, duration and geography, and they often last weeks and months, not just days.

They are particularly hard on people living in cities, where the air can be far more stagnant and a degree or two warmer than surrounding areas, said geography professor James Voogt.

Urban areas are an engine for higher temperatures because of more traffic, industry, energy used in heating and cooling buildings, and paved-over areas. And their design can also trap warmer, dirtier air in a sort of heat dome, a unique street-level climate that makes a city less liveable.

“You’re super-imposing this heat on areas that already generate a lot of heat,” Voogt said.



James Voogt

His research proposes that urban planners create a climate map of a city, a document that shows where the hotspots are and where the opportunities are for cleaner, cooler air.

And then, he said, they need to make climate impact a key measure of good design – flipping historic principles that assume a city is an aggregate of commercial, industrial and residential needs.

That means more trees and more water features. Converting impervious surfaces such as parking lots and hard roofs to greenery. “We need to use the power of vegetation for effective cooling shade.”



Incorporating ‘green roofs’ into urban areas will help create cooling shade.

(PHOTO: UNSPLASH)



(PHOTO BY DEB VAN BRENN)

Fighting climate change requires big, bold action, but it also starts at the personal level. Individual acts can collectively lead to significant climate change solutions.

It also means designing for air flow, with a mix of taller and shorter buildings. Some urban areas of China are designed as “breathable cities,” where ventilation corridors between buildings in high-density areas ensure fresh, cooler air can circulate and warm air can escape.

Parts of Germany and Japan, for example, map their cities based on the natural resources that can be incorporated into them.

Finally, it entails less fossil-fuel consumption: a mindset and policies that prioritize walking, cycling and public transit.

Even apart from the general discomfort they create, heat islands are also an issue of health and economic equity, Voogt noted. People living in the paved enclaves of lower-income neighbourhoods are more likely to suffer from higher temperatures and lower air quality than those in leafy suburbia, and the more vulnerable group has less ability to adapt to or escape from their inhospitable environment.

“Climate design in cities is not done a lot, so any effort to design for climate is a good thing,” he said. “You’re not going

to solve (the climate crisis) because of it – there are so many elements that have to work together to make that happen – but as we battle climate change we also need to mitigate its effects.”

While climate change is an ecological crisis, it is also a behavioural problem.

“In the global scheme of things, Canada is a small player contributing to climate change – even though, per capita, we’re terrible – and this requires a global, international response as well as a local one.”

PERSONAL ACTION

Weis said every individual has a role to play to influence climate action, by changing their lifestyles and their consumption.

“I think people need to be convinced that significantly reducing their own atmospheric footprints is important, at the same time recognizing action cannot stop here: they also need to get engaged in struggles to transform societies at many levels,” said Weis.

“It can be a fine balance to convey to people that personal decisions matter right now, when the only way they can really matter is if many changes far beyond them happen fast – to our electricity grid, to our agriculture and food system, in retrofitting buildings, massively expanding public transportation, and much more.”

The complexity of the problem and the comprehensiveness of the solutions can either lead to paralysis or action, said Hundey.

“Part of what’s overwhelming about it is that we have to fix everything. But one thing to understand is that whatever we can do and however we can start, this is what we need to do.

“I don’t think people realize how much influence they can have on climate change solutions. Anything that has ever changed for the better needs momentum, and it’s these things that build momentum.”

Farmlands were flooded in Abbotsford, B.C., after a storm in November 2021.

(PHOTO: EBB3_16/ISTOCK)

UNDER WATER

AS THE CLIMATE CRISIS LOOMS, A UNIQUE FLOOD-MAPPING TOOL IS HELPING INFORM CANADA'S POLICY-MAKERS AND IMPROVE RESILIENCE

By **Debora Van Brenk BA'86, MA'87**

Environmental engineering professor Slobodan Simonovic had hoped his unique Canadian flood-mapping project would draw interest beyond the academic world.

But he had not predicted its impact would unfold in real time when, only days after its release, parts of British Columbia experienced their worst flooding on record.

The interactive site at floodmapviewer.com is the first Canada-wide database that shows how floodplains may become inundated in the next 80 years under various climate change scenarios.

About four million Canadians live in flood-sensitive areas – and they and others will be at increased risk decades from now, the mapping data shows.

“Here in Canada, until now, we haven’t had a nation-wide, standardized way of understanding the vulnerabilities of our own landscapes,” Simonovic noted when the site launched in early November 2021.

His words would quickly prove prophetic as successive days of record rainfall hit the Pacific Northwest, causing damage estimated to be as much as \$7.5 billion.

Scores of media outlets drew on Simonovic for expert commentary.



Slobodan Simonovic

who is also director of engineering studies for the Institute for Catastrophic Loss Reduction.

Simonovic is recognized as one of the world’s most influential climate change scientists, based in part on his high volume of published research, citations by other researchers and policy influence.

And in the next few weeks, the floodmap’s homepage saw 11 million visits from users in a dozen countries, with 25,000 people taking a deeper dive into the maps.

Simonovic doesn’t view that as a personal victory, but as a clarion call for more good science to make its way into public discourse.

“The extent of interest is just one more indicator that Canada is already experiencing the impacts of changing climate,” said Simonovic,

He has received awards for excellence in teaching, research and outreach, and has published more than 600 professional papers and three textbooks. In 2020, he was named a Fellow of the Royal Society of Canada, and was inducted into the Canadian Academy of Engineering in 2013.

MAPPING OUT DATA

Nothing like the map tool existed before Simonovic made it his personal commitment to build one to help decision-makers mitigate and adapt to the impact of climate change.

The database and website are a visual distillation of vast amounts of data – including current and historical rainfall and snow-melt run-off data, topographic analyses, hydrodynamic modelling, urbanization and deforestation factors that impede effective drainage, plus a range of climate projections.

Using this data, Simonovic has superimposed on web-based maps current and future flood frequency, flood depths, flood inundation and flow velocity.

Users can search by postal code and zero in on neighbourhoods, or explore specific watersheds to compare current 100-year flood zones to those predicted under worst-, moderate- or best-case climate-change scenarios, decades from now.

“The message is very clear: Up to 30 per cent more of Canada may be under water by 2100. And flood depth may increase by up to 60 per cent,” Simonovic said.

“What we used to call 100-year floods in London, Ontario, for example, are taking place now once every 30 years,” he said.

“The extent of interest is just one more indicator that Canada is already experiencing the impacts of changing climate.”

– *Slobodan Simonovic*

“Floods are killing people around the world, and in countries you wouldn’t expect, such as Germany, the U.S. and Japan. A year’s worth of rainfall fell in October 2021, in just three days, in central China.”

In short, what were once unusual events – heavy deluges and unseasonal thaws that overwhelm streets, homes, sewers and dams – will occur more regularly, and several times in a generation.

The maps identify the most vulnerable areas in one-square-kilometre segments, highlighting where rivers are more likely to overflow and by how much.

Even areas that have carefully planned for flooding are vulnerable. Winnipeg, located at the confluence of the Assiniboine and Red rivers, benefits from one of the best floodwater-diversion systems in Canada. Yet, the data forecasts water levels could rise to 4.4 metres above regular flow – 2.5 metres higher than historical peak maximums – unless climate change is slowed or reversed. Such an event would place a severe strain on Winnipeg’s flood-management infrastructure and inundate surrounding areas.

The list of other worrisome areas is long: Vancouver and the Fraser Valley; streams in Northern Ontario and Quebec; much of the island of Montreal; and the Mackenzie and Lower Mackenzie Rivers of Northwest Territories and northern British Columbia.

Continued on page 21

The Founder's Journey

An Entrepreneurial Process

Dominic Lim, PhD'09
Module 7: Growth & Scaling-Up



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Future Launch



BETTER PLANNING

Simonovic noted the consequences of extreme floods go beyond an increased risk of soaked basements and insurance claims, although they too represent significant cost and impact.

Such flooding directly jeopardizes human lives and kills livestock, he said.

It can crumble bridges, wash away roads and railroads, overwhelm drinking-water and wastewater treatment facilities, destroy sensitive habitat and disrupt ecosystems for generations to come.

Understanding the location and extent of the risk can help insurers, engineers, homebuilders, conservation authorities, and municipal, provincial and federal governments plan better policies and improve Canada's resilience to flooding, he said.

It's one reason the Canadian government has committed \$63 million over the next three years, through Natural Resources Canada (NRCan) and Environment and Climate Change Canada, to create more detailed flood maps for high-risk areas.

Simonovic is part of that effort. Since the database went live, he has been working with NRCan to transfer his methodology to that department.

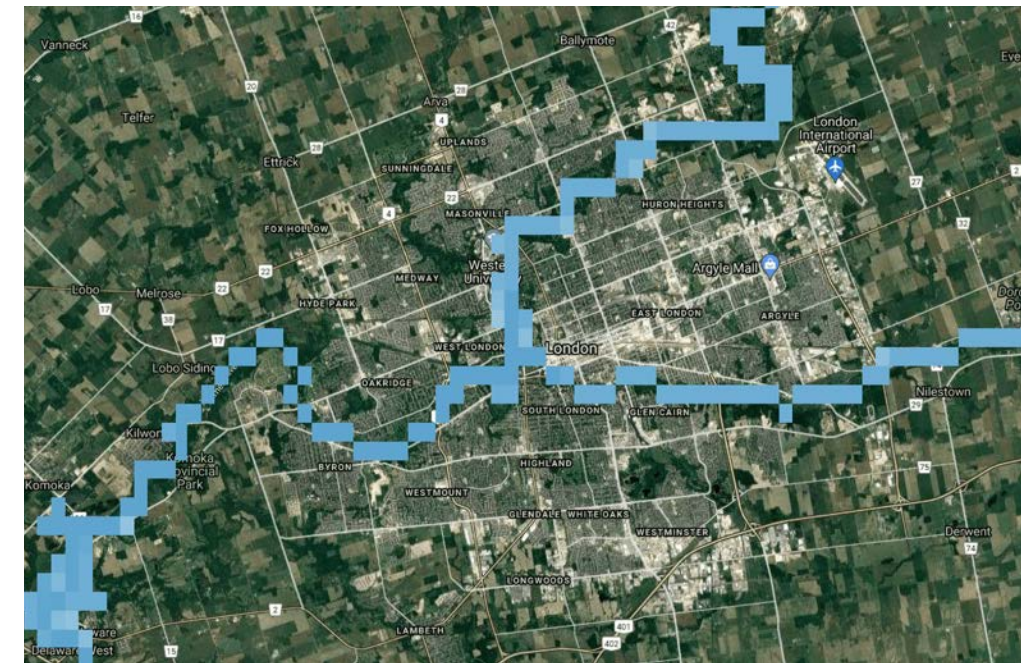
He has also been asked by insurance companies to help them use local data and knowledge to develop similar tools for their needs and public use.

WHAT COMES NEXT

An August 2021 report from the United Nations International Panel on Climate Change, for the first time, emphasized a much stronger connection between climate change and extreme weather than ever before, Simonovic noted.

His mapping work was funded through a collaborative grant from the Natural Sciences and Engineering Research Council of Canada and Chaucer Syndicate, a group representing insurers of insurance companies across Canada.

Simonovic said the next steps in this project are to expand the mapping to include coastal flooding and fine-tune projections to even smaller grids with greater neighbourhood detail so municipal planning can grow even more precise. 📍



Map showing Thames River in London, Ont., under historical/current 100-year flood levels. (SOURCE: FLOODMAPVIEWER.COM)



Thames River flood projection in the year 2100, which shows greater water flows in the river's core and south branches. (SOURCE: FLOODMAPVIEWER.COM)

Blazing trails in space and on Earth



(PHOTO COURTESY OF ROBERTA BONDAR FOUNDATION)

As Canada's first female astronaut, Dr. Roberta Bondar's life-changing space journey led her to become one of the country's strongest advocates for our natural world.

By Keri Ferguson

On Jan. 22, 1992, Dr. Roberta Bondar, MSc'71, DSc'95, made history. Aboard NASA's Space Shuttle Discovery, she became the world's first neurologist and Canada's first female astronaut in space.

Her historic voyage inspired her current mission: engaging people of all ages to protect planet Earth by exploring the natural wonders of the world.

Thirty years after her groundbreaking journey, Bondar talks about that pivotal moment of awe and a whole new perspective. She recalls flying west to east over Canada, looking out the window as the orbit moved closer to her hometown of Sault Ste. Marie, Ont.

"It was a 'wow moment'" Bondar said. "I was listening to recordings of *O Canada* on my headset that featured my aunt playing it on the organ, along with Lyndon Slewidge, who used to sing the national anthem at the Soo Greyhound and Ottawa Senators games, singing in his deep voice. That really captured the emotion of the moment."

"To see the Great Lakes and the place on the planet where my grandparents lived and where my parents were born made me wonder what the view would have been like a thousand years before," Bondar said. "What would this view from space be like in the Ice Age? Thinking historically about the Earth as a planet continuing to evolve reinforced for me that life on our planet is fragile."

After returning home, Bondar led an international research team to study the effects of spaceflight on the human body, while also becoming an honours student in professional nature photography. Her photographs reflect her passion to protect the planet, capturing Canada's National Parks and other ecologically significant environments.

She later co-founded The Roberta Bondar Foundation to engage people in conservation by appealing to their curiosity and creativity – two traits key to her achievements as an astronaut, environmentalist, photographer, medical doctor, scientist and role model.

'WATERSHED' MOMENT

Bondar said she never doubted she would one day go to space. As a child, she built model rockets, pretended to be Flash Gordon, and read books about stars. She credits her parents for supporting her dream and cultivating her interests and those of her sister Barbara.

"There was a great respect for learning and sharing of information in our household and a great fusion of science and art," Bondar said. Her mother, a teacher, encouraged her to ask questions and learn from others. Her father built her a science lab in the basement. Bondar sat by his side in the summer of 1969 watching Apollo 11 land on the moon.

That fall, she came to Western to pursue her master's in pathology. It was a path unforeseen when she first visited the campus to meet pioneering biologist and Western professor Helen Battle.

"Dr. Battle was a wonderful energetic woman," Bondar said. "When I told her I really liked microscope work, and was interested in medicine, she said, 'Oh no, you don't want to do your master's with me then.' I was crestfallen, but before I could even respond, she had called Cam Wallace, the head of the pathology department, and suddenly I went from working with pickled specimens in zoology to tissue specimens in jars."

Seeing a brain specimen for the first time was "a watershed moment" for Bondar.

"I had seen brains in jars watching science fiction growing up, but its complexity challenged my whole way of thinking and turned my life around, in terms of my research." As a result, Bondar altered her path and pursued her PhD in neurology after medical school.

By the time NASA selected her in 1984 to join a team of six Canadian astronauts, she was more qualified academically than any other candidate selected for the program.

"The moral of the story is, if you start down one path – and providing an institution is generous of spirit, education and opportunity – you can diversify."

DIVERSITY IN SPACE

Three decades later, are there more opportunities for women in aerospace and space exploration?

"Yes, thanks to changes in technology," Bondar said. "There are now more opportunities for men and women."

"When I went up, I was one woman in a crew of six men," Bondar said. "Julie (Payette) was one in four, Jenni (Sidney-Gibbons) is one in four. Jenni, at least, was trained for a spacewalk, whereas it was unheard of in those days for Julie and me. The men could fly and trained to spacewalk. But not women."

"Being first, there are a lot of things I reflect on. Given the wisdom I have today, the climate and the way people approach space, I'd tell myself not to tolerate the things I put up with."

And with more opportunities for Canadians to fly, Bondar hopes it brings a diversity that better reflects the population.

Bondar made history Jan. 22, 1992, when she boarded NASA's Space Shuttle Discovery to become the world's first neurologist and Canada's first female astronaut in space.

"I believe there are people out there who are qualified, who are not military, or not just white males or white females, and we would benefit from other cultures."

Bondar knows the value first-hand, working on a flight that was the precursor to the international space station. She worked with scientists around the world years before the flight to perform 140 experiments in space on behalf of researchers from 13 countries.

"(NASA) travelled me all over to train on these experiments. I was working with scientists at all hours in their labs, eating with them, talking with them, learning everything, from life sciences to material sciences. It's not just learning about how people think in different countries, it's seeing how cultures embrace certain forms of science and art, and learning from it to develop new pathways. That was the gift for me: being on an international flight and then flying over."

PLIGHT OF FLIGHT

Bondar is still conducting scientific research today, with a focus on endangered and threatened birds. She designed and is executing the Protecting Space for Birds project, partnering with NASA as a principal investigator, studying how natural and human-inspired changes impact the safe passage of migratory birds.

"When I look at small birds, especially songbirds, they're so fragile, and yet they do things better than I can," Bondar said. "I need an airplane to fly. We don't know much about (birds') flight patterns, but there's so much to learn from studying the natural environment. That makes me excited, and I'm glad to be part of it."

The project will offer a unique perspective on the lives of birds through images captured on land, by air and from space, according to the project's website. The public will get a chance to view these images through a travelling photo exhibit that will be part of the Protecting Space for Birds project initiative.

Last June, Bondar became the inaugural recipient of the Dr. Stephen Blizzard Trailblazer Award from the Schulich School of Medicine & Dentistry, recognizing alumni who are breaking new ground in their field and exemplify excellence in education, advocacy and humanitarian initiatives. 🇨🇦



(PHOTO COURTESY OF NASA/Flickr)



Cover story

Storm troopers

On the heels of Canada's most severe storms, the Northern Tornadoes Project is chasing the data to uncover critical climate insights

By Jeff Renaud

(PHOTO BY TYLER GRAY)

When your lab is located smack dab in the eye of the storm, it's easy to spot change. But when asked if climate change is causing more severe weather events, researchers leading Western's Northern Tornadoes Project (NTP) looked at each other, laughed, and answered: "It's complicated."

A partnership between Western and social impact fund ImpactWX, NTP was launched in 2017 and has since become the *de facto* Canadian leader for all things tornadoes north of the border, with the number of recorded and investigated severe weather events skyrocketing over the last several years.

The higher volume of tornadoes identified year over year is partially attributed to the advanced techniques and technol-

ogies NTP is using to better detect occurrence and improve severe weather prediction in Canada. But something else is happening, too. And the researchers just aren't ready to call it climate change.

"We must be careful when answering questions regarding climate change and extreme storms," said Gregory Kopp, the ImpactWX Chair in Severe Storms Engineering and NTP lead researcher.

There is evidence, according to Kopp, that suggests storm patterns are shifting in North America, but when it comes to weather and climate change, it's just too early to tell.

"The number of storm days are dropping, but in the U.S., the number of tornadoes is staying about the same, which means

Designing tornado-resilient homes is part of the real-world insight and application resulting from the NTP's work. In photo (L-R): Gregory Kopp, lead researcher; David Sills, executive director; Joanne Kunkel, research meteorologist; Daniel Butt, research intern; and Ibrahim Ibrahim, ground survey team member

they're getting more outbreaks. There are things happening, but it remains very complicated," said Kopp.

It would be worthwhile to look at long-term tornado patterns, as well, according to David Sills, NTP executive director.

"As far as climate change goes, there are certain meteorological variables that are much easier to see over the long term versus the short term," said Sills, who joined Western in 2019 after working more than 20 years as a severe weather scientist with Environment Canada, where his research largely focused on tornadoes.

"We've got long-term temperature records and long-term sea level records, so we're able to identify changes in patterns

with these things. But when you look at tornadoes, yes, they happen every year, but they're still considered rare events, so we just don't have the long-term records to pinpoint true pattern changes. We're working on addressing this data gap."

Unlike temperature records, which are available for Canada for every hour of every day dating back hundreds of years, comparative records for tornadoes are basically non-existent. That's a big part of what NTP is trying to do – backfill those records.

"That's part of the reason we're collecting all this data on current tornadoes and generating new climatologies because they just don't exist," said Sills. "We're looking towards the future with our investigations, but we're also trying to better understand our past."

Sills led the last official Canadian tornado climatology (the average spatial and temporal characteristics) covering the period from 1980 to 2009, when he was still working with Environment Canada. Using existing data, case study reports, news articles, and social media reports, Sills is currently leading NTP research to develop a new climatology for the next 30-year period, 1991 to 2020.

"Comparing the 30-year climatology from 10 years ago to the new one, which we're completing now, you can see changes," said Sills. "You can see that the Prairies went down in tornado activity and Ontario and Quebec went up over those 10 years. Whether that holds in the long term, we don't know. When we have those numbers for the next 10 years, I think then we may begin to understand more about the effects of climate change on severe weather events like tornadoes."

BUILDING RESILIENCY

The work of the NTP is not only making a huge impact on the investigation of tornadoes, but also plays a consequential role on disaster preparedness.

Just hours after a tornado struck Barrie, Ont., in July 2021, the NTP team was on site to investigate the storm. The tornado travelled 12.5 km on the ground, leaving 10 people injured and causing tens of millions of dollars in damage to hundreds of homes, including more than 20 roofs ripped right off the rafters.

Following that investigation, NTP was able to assign an EF-2 rating on the tornado by using advanced drone footage, satellite imagery and ground surveys, ultimately calculating the tornado's maximum wind speed at 210 kilometres per hour.

While a tornado reaching such speeds would undoubtedly cause some level of damage, there are important steps in construction, often missed, which could have mitigated the effects.

For the past 20 years, Kopp has dedicated most of his research to understanding wind loads and building aerodynamics to increase resiliency of homes and other buildings against severe weather.

Marking the one-year anniversary of the Barrie tornado, Kopp and Sills revisited the city on July 15, 2022, along with student intern Areez Habib. After seeing the damage and

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disrepair in Barrie 12 months later, Kopp said more work still needs to be done to mitigate against severe weather disasters.

“When you have severe wind events, like tornadoes, there is uplift, and you have to hold the roof down,” said Kopp. “The building code in Ontario doesn’t currently or comprehensively address severe wind and that’s unfortunate because there are simple solutions.”

One solution involves using longer nails (two-and-a-half inches versus two-inch nails) for roof sheathing. Another recommendation involves using a special screw connecting roof framing to the walls, as opposed to hurricane straps, which are the current industry standard. Implementing both solutions are faster for builders to do, less labour-intensive, and cost relatively the same price.

“**The building code in Ontario doesn’t currently or comprehensively address severe wind and that’s unfortunate because there are simple solutions.”**

– Gregory Kopp

Although the policy pace may not be keeping up with the speed at which these strong tornadoes are devastating communities, Kopp said change is coming. His building resiliency recommendations are now starting to make their way into new constructions.

Right now, an award-winning builder in St. Thomas, Ont., is developing homes using Kopp’s recommendations, while Durham region, just east of Toronto, pays its builders to use them. Kopp has also partnered with the City of Barrie to urge the province to change the Ontario Building Code.

With estimated insurance claims surpassing more than \$100 million following the Barrie tornado alone, Kopp said he expects insurance rates and claims will continue to climb in Canada until real change is made in housing construction. Regardless of any connection to climate change, severe weather events aren’t going away.

“Yes, insurance numbers are going to go up and up but it’s not all due to severe weather and we can’t say yet that more localized thunderstorms and tornadoes are even being caused by climate change. Again, it’s a complicated question to answer, because there are so many parts to it, but just looking at tornadoes, there is no evidence, so far, that the number of tornadoes is increasing due to climate change,” said Kopp.

“There is some evidence that regionally, patterns are shifting in terms of location and timing and there may be more clustering, but we’re still investigating. We just don’t have solid answers yet.”

But NTP has answered at least one question: Are strong and violent tornadoes occurring later in the year in southern Ontario, as some meteorologists have suspected? And the surprising answer is, yes – the first real, long-term trend



(PHOTO BY TYLER GRAY)

Research by NTP is helping guide policy-makers and builders to construct more resilient buildings able to withstand powerful tornadoes and strong winds.

found in the Canadian tornado data.

And it may have a climate change connection.

In a recent NTP study led by Sills, data showed the number of tornadoes, year-over-year, isn’t increasing. But the same data set also showed that EF2 and higher tornadoes are happening later in the season, in August and even September. That’s in Ontario. But the same changes aren’t occurring in neighbouring U.S. states Michigan and New York.

“**We’re looking towards the future with our investigations, but we’re also trying to better understand our past.”**

– David Sills

Why would that be? Sills said this particular twist may be due to climate change.

“We know the Great Lakes are warming due to climate change, and with southern Ontario being surrounded by

the Great Lakes and with this trend towards later tornadoes, you start connecting the dots and climate change could be the answer,” said Sills. “The effects of climate change are likely going to be regional in nature over the short term, and very difficult to see on a year-by-year basis. We need the long-term data and then we can start pulling out some conclusions across all of Canada.”

TORNADO TECH TOOLS

Another extreme oddity is the derecho – a widespread, straight-lined, fast-moving thunderstorm – that hit Ontario and Quebec on May 21, 2022. Several tornadoes and strong downbursts were detected by NTP, and the team is still investigating its overall impact months later – and will be for years.

Believed to be one of the most impactful severe weather events in Canadian history, the derecho caused extensive damage right along the Windsor-Quebec City corridor (Canada’s most densely populated region) with winds reaching as high as 190 kilometres per hour.

“Derechos are heat-related, and they usually form just along the edges of heat domes (a region of high pressure that

traps heat over an area). And if we’re going to have more heat domes, caused by climate change, the logical progression is that we’re likely going to have more derechos pushing further and further north into Canada. But they’re still rare, so it’s hard to say for certain,” said Sills. “We don’t even have an official list of derechos that have occurred in Canada. We’re working on it, but we need to build these from scratch.”

And to do that, NTP needs to stay on the cutting edge – of both the science and the technology.

Armed with an arsenal of drones, and expert staff and skilled students to pilot them, NTP introduced a state-of-the-art Wingtra to its fleet last year. The industry-defining drone allows field teams, led by research engineer Connell Miller, to capture some of the highest quality images and video footage, and easily take off vertically before zooming off for its flight. This allows the drone to fly in previously inaccessible areas and to obtain more accurate damage surveys.

This year, NTP also acquired a Google Street View-style panoramic, 360-degree camera and strapped it to the top of a Ford Explorer. The new tool makes data collection easier

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The largest recorded hailstone was recovered in Markerville, Alta., on Aug. 1, 2022, weighing 292.71 grams and measuring 122 mm in diameter.

On the record

By Jeff Renaud

A Canadian record-breaking hailstone was recovered by Western's Northern Hail Project (NHP), following a severe weather storm on Aug. 1, 2022, in Markerville, Alta.

The hailstone weighs 292.2 grams, eclipsing the previous title holder, which weighed 290 grams collected nearly 50 years ago in Cedoux, Sask., on July 31, 1973.

With a diameter of 123 millimetres, the hailstone has a slightly larger distance across than a standard compact disk (120mm).

Currently in its first year of a five-year project, NHP is a research spinoff of the Northern Tornadoes Project and is based in Red Deer, Alta.

Julian Brimelow, NHP executive director, and some of his severe weather colleagues from around the world maintain a database of record hailstones. Currently, only 22 hailstones, including the Markerville one, have weighed more than 290 grams.

"Finding large hailstones like this is like hitting the jackpot so this Markerville one joins an elite club of giant hailstones," said Brimelow. "It will also help us formulate an estimate of just how large it is possible for hail to grow."

Because giant hailstones are so rare, the international research community does not have a good understanding yet on which conditions are required for hailstorms to produce them.

"Every new data point helps inform us on what conditions are required," said Brimelow. "Once we have measured and 3D-scanned the Markerville hailstone, we can then make thin sections. The growth layers evident in those will reveal information on the hailstone's growth history in the storm."

3D scans of the stone are used to make silicon moulds or 3D prints that the NHP team – led in the field by experienced storm chaser Francis Lavigne-Theriault – can use to make ice replicas for conducting experiments to study fall behaviour and aerodynamics of these giant hailstones.

and, more importantly for the researchers, more robust.

"Damage surveys take a lot of time. And one of the things we've discovered, especially in an urban setting, is there's a lot of chaos," said Kopp. "We try to get there right away (after a tornado), and go to the worst-damaged areas, but people, rightfully so, want to start cleaning up right away. With the new camera, we can start capturing data as soon as we arrive on site, so nothing is lost. We want to collect as much visual information as possible before the area is cleared and rebuilt. Data is key to our success."

The next item on the NTP wish list is a portable lidar system, which scans at 300,000 image samples per second. Simply put, lidar, which stands for light detection and ranging, uses laser light to measure distances.

"We want a unit that we can put on a backpack or a car so we can walk or drive through a damaged area and create a 3D image," said Kopp.

The advantage of all these technologies is they can be integrated into a system to pump out even more advanced analysis by using automated intelligence and other digital strategies.

"Once we have the data, we can start using computer vision, machine learning and different tools to identify the damage. We don't have to do it as much by eye. And then when we see structures that are really interesting, we can really dig in," said Kopp.

"There are always three or four houses in an urban setting that have something unique about them. Then we can spend our time trying to understand those houses while we've captured the data for the whole event."

NTP wants to capture as much data as they can. It may be an overwhelming amount of information for now but in three years, five years, or even 10 years, the technology will exist that will allow researchers to better understand and analyze these big data.

"It is so important that we have all this data captured so we can better understand what happens in tornadoes, what breaks in tornadoes, and what happens with the debris," said Sills.

He said one of his goals is to partner with geo-tech giant Planet on an ultra-high resolution satellite system that would reduce the need for drones.

"In the future, we will be able to analyze data that we can't even imagine analyzing right now. But as the knowledge and technology improves, those datasets will be gold." 🍀

On the trail

On May 21, 2022, a derecho passed through Southwestern Ontario through to Quebec. NTP tracked the movement of the storm that left behind a trail of destruction and devastation.

May 20, 8 p.m. ET

A few showers develop near the Kansas/Missouri border along a stalled frontal system.

May 21, 2 a.m. ET

Storms develop along the stalled front, but the soon-to-be derecho is organizing over central Missouri.

May 21, 5 a.m. ET

Storm begins to take on the distinctive bow shape of a Mesoscale Convective System (MCS) as it crosses Illinois, but it is not yet producing damaging winds at the surface.

May 21, 8 a.m. ET

Storm is now an entity on its own, separate from other MCSs to the southwest, and is straddling the Indiana/Michigan border.

May 21, 10 a.m. ET

Storm has now crossed the Canadian border after producing a few damaging wind gusts in Ohio and Michigan. The storm looks like a classic MCS now with a bowed leading edge and a growing stratiform precipitation region behind.

May 21, 10:25 a.m. ET

Environment Canada issues the first of many severe thunderstorm warnings, for the Sarnia and Chatham areas. A severe thunderstorm watch is also issued for a larger downstream swath of Southwestern Ontario.

May 21, 12 p.m. ET

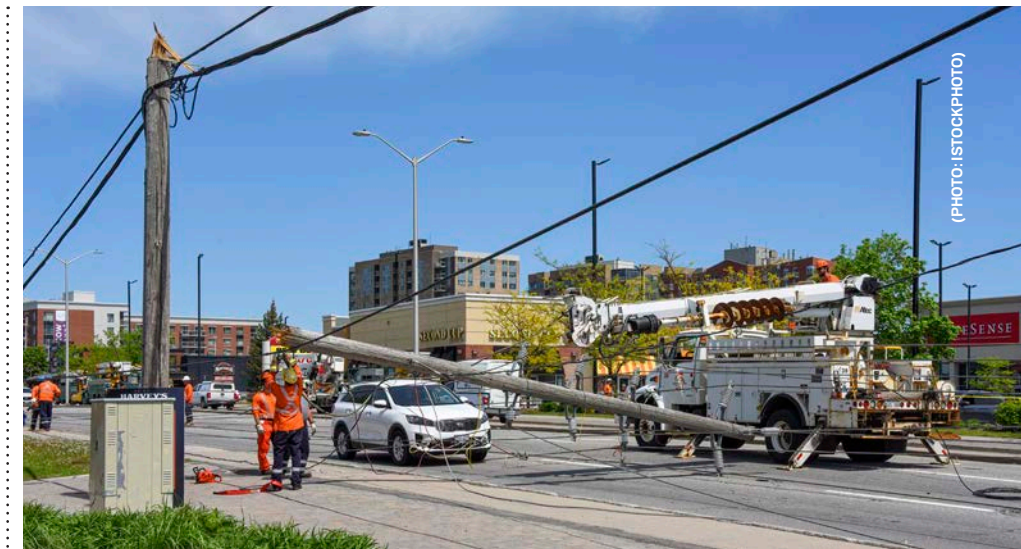
Storm intensifies, causing damage in London and surrounding areas. A wind gust of 132 km/h is recorded at the Kitchener-Waterloo Airport. This storm is suddenly very dangerous. The first instance of falling trees causing injuries and a fatality.

May 21, 12:30 p.m. ET

Environment Canada issues its first-ever 'extreme' thunderstorm warning for Hamilton and the western Greater Toronto Area, citing wind gusts to 130 km/h, up to toonie-size hail and possible tornadoes. This warning is later extended to Toronto and areas east. Warnings are sent directly to cell phones via AlertReady.

May 21, 2 p.m. ET

The storm is now well on its way to meeting the thresholds that define a 'derecho'. It has just caused significant damage in Uxbridge, Ont., and points east.



Downed power line in Ottawa after a derecho hit the city on May 21.

May 21, 3 p.m. ET

Thunderstorms that had been the main concern for the day begin to develop over eastern Ontario and southern Quebec, while the derecho accelerates eastward. Environment Canada issues a second 'extreme' thunderstorm warning, this time for Ottawa and the surrounding area. Warnings are sent directly to cell phones via AlertReady.

Following the derecho devastation on May 21, more than a dozen fatalities were documented, insured losses reached more than \$800 million, and total losses likely exceeded \$1 billion.

May 21, 4 p.m. ET

The derecho is now at its most intense, generating significant damage in southern Ottawa and points east.

May 21, 6 p.m. ET

The derecho moves into Quebec, and the influence of cold Lake Ontario creates a gap along its leading edge, resulting in Montreal being spared much of the storm's wrath.

May 21, 8 p.m. ET

The derecho moves past Quebec City, still causing wind damage as it begins to cross the Canadian border once again, moving into the U.S. state of Maine and causing tree damage there.

May 21, 10 p.m. ET

Finally, more than 24 hours and 2,000 km after the first signs of its development, the derecho begins to dissipate before entering New Brunswick.

May 22

NTP ground survey teams investigate Ontario locations with significant damage in Uxbridge, Ottawa and London.

May 24

NTP confirms an EF2 tornado caused the significant damage in Uxbridge.

May 25

NTP confirms an EF2 downburst caused the significant damage in Ottawa.

May 27

NTP confirms two EF1 tornadoes caused the significant damage in London.

May 30

An NTP survey team returns to the field to document more of the widespread damage in Ontario, returning after four days of surveying.

May 31

Ottawa Hydro struggles to return power to customers a full 10 days after the derecho. Some Hydro One customers in remote areas of eastern Ontario will wait much longer for power to return.

Jun 28

NTP completes a preliminary damage intensity map covering the entire derecho path from Ohio to Ontario to Quebec to New England. It is the first derecho damage map NTP has produced, and the first of its kind in Canada.

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Gender equity in the new economy

Ensuring social justice, equality in the global race to reduce emissions

By Keri Ferguson and Mari-Len De Guzman

Bipasha Baruah

(PHOTO BY FRANK NEUFELD)

Bipasha Baruah is working to understand how to ensure a global, low-carbon economy will be more gender-equitable and socially just than its fossil-fuel-based predecessor.

“There is much more attention being paid in research and policy circles to the technical and financial instruments that will enable us to transition out of fossil fuels than on social equity issues that must also be considered for a just transition to low-carbon economies” said Baruah, who joined Western in 2012 as Canada Research Chair in Global Women’s Issues.

Earlier this year, Baruah was named the new Western Research Chair for Strategic Focus, recognizing her innovative, interdisciplinary research at the intersections of gender, economy, environment and development; gender and work; and social, political and economic inequality.

Addressing the fact that women are already severely under-represented in both fossil fuel and renewable energy employment, Baruah’s work stands out for focusing on employment and social policy to reduce gender inequality in the transition to sustainable energy.

“How can we build economic systems that recognize and work within the biophysical limits of our finite planet, while simultaneously reducing poverty and inequality?”

“If we don’t have appropriately targeted training, education, employment placement, financial tools, and supportive social policies and protections, the green economy may exacerbate existing social inequities and hinder global human development and poverty-alleviation goals.”

EQUITABLE ENERGY SECTOR

Over the past 10 years, Baruah’s work on women’s employment in renewable energy and resource efficiency has influenced policy within governments, financial institutions and non-governmental organizations. In 2015, she was elected a member of the Royal Society of Canada’s College of New Scholars, Artists and Scientists.

In 2019, Baruah co-authored a report for Abu Dhabi-based International Renewable Energy Agency (IRENA), which explored opportunities for inclusion and equity in the ongoing transformation in the energy sector driven by renewable sources.

IRENA has estimated the number of jobs in the energy sector could increase from 10.3 million in 2017 to nearly 29 million by 2050, as the transition towards a “renewable, distributed, decarbonized energy system” leads to significant economic and social benefits.

According to the 2019 report, women represent 32 per cent of the renewable energy workforce. This is a higher proportion compared to the oil and gas industry, where women only make up 22 per cent of the workforce. Still, despite the higher percentage, women’s participation in the renewable energy sector is mostly focused on administrative jobs (45 per cent). Only 28 per cent of women working in the renewable energy sector are in STEM (science, technology, engineering, mathematics) jobs.

At the cusp of this global transition to renewable energy, embedding social justice and equality in policy planning and

▶▶▶

development is critical to ensuring economic security for the world, Baruah said.

"I look at it as a trilemma – instead of a dilemma – because you really are looking at environmental protection, but we also need economic security for the world's people, and we also need to pay attention to gender equality and, more broadly, social justice."

As the world faces this climate crisis, the decisions made over the next 10 years will have a significant effect on how people will live their lives for the next 200 years, Baruah explained. Her research has been focused on the sectors with the most potential to significantly impact the world's carbon emissions. A big part of her work had been in the energy sector, not just looking at the different technologies driving the transition to renewable energy but also, and more importantly, their implications for gender equality and social justice.

"Are these technologies accessible to people? Are they affordable? And I also look at what kind of employment opportunities these technologies are providing. Because traditionally, the fossil fuel sector, the energy sector, was very male-dominated... so there's a potential to change that. We can do things differently," Baruah said.

But believing that things will change just because the technology has changed is not enough. "Equity and justice have to be planned much more proactively; it's not going to happen by itself."

WOMEN IN STEM

Baruah has collaborated with global organizations to help shed light on existing inequalities and guide policy development as the movement toward a low-carbon economy continues to gain traction. Her reports highlight the areas where progress is being made and where the gaps remain.

And one such ray of light is in Sub-Saharan African countries, where a recent study found there were more women on the boards of renewable energy companies in Africa (27 per cent) than there were in G20 countries (20 per cent).

"Having done this work for a long time, it doesn't surprise me," said Baruah, who was a collaborator on the study, *Women's participation in the renewable energy workforce in Sub-Saharan Africa*, commissioned under the Energy2Equal Program, in partnership with the Government of Canada and the International Finance Corporation, a sister organization of the World Bank.

"In a lot of the most well-paid jobs (in renewable energy companies), you need to be trained in STEM fields," Baruah explained. "Contrary to what people assume, STEM education is often far better established in Asian countries and in non-Western countries. So the levels of STEM education for women is very counterintuitive."

Canada, for example, produces less than 20 per cent of women engineers every year, while in countries like Mexico, India and China, up to 50 per cent of engineering graduates are now women, according to Baruah.

The novelty of the renewable energy sector is also a factor for increased participation of female workers and professionals in this sector than in older industries like oil and gas.

"When you look at fossil fuels, or other industries, sometimes their institutions, the histories, the cultures are very entrenched. When you have something that's a new sector, those institutions, those structures have not quite hardened yet," Baruah explained.

“
Equity and justice have to be planned much more proactively; it's not going to happen by itself.”

– Bipasha Baruah

with caring for elderly parents and caregiving responsibilities in different ways. I think that piece hasn't changed to the extent that it needs to change," Baruah said.

The idea that women should have access to jobs at par with men is well-established, she said. "But the idea that caregiving should be as much everybody's responsibility in society has not permeated. So that's when we start seeing challenges at the mid-career level for women."

CHANGING NATURE OF WORK

During her renewable five-year term as Western Research Chair, Baruah will continue studying other defining questions of our time, including the changing nature of work and the effects of degrowth (a scenario in which economies contract rather than grow over time) on gender equality. Related topics of interest include the effects of remote work, job-sharing, flexible schedules, and policies that alter the expectations of work.

"Ironically, COVID presented a real-life lab to look at these issues more closely," Baruah said. "As a researcher studying diversity and inclusion, obviously I have to look beyond just the energy sector to how work itself is changing in the future."

Baruah is also examining the future of work as it relates to disruptive technologies.

"Navigating disruptive technologies, such as automation, artificial intelligence and robotics, is a major challenge facing workers today," she said. "I'm trying to understand how these disruptions will promote or obstruct gender equality. People of all genders will face challenges in navigating automation." 🍷

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(PHOTO: ISTOCKPHOTO)



(Photo: istockphoto)

WESTERN EXPERTS WEIGH IN ON HOW TO PREPARE FOR THE NEXT BIG PUBLIC HEALTH CRISIS

By Sharon Oosthoek

The world has entered its third year of the pandemic and we are all beyond weary. What will it take to end it? Western public health experts say the answer has been obvious since the beginning and we've wasted opportunities to break COVID-19's back.

We need to get this right – and soon – they said, because it won't be our last public health crisis.

"It's frustrating," said virologist and Schulich Medicine & Dentistry professor Eric Arts. "I was on CBC talking about this at the very beginning. It's not like I'm clairvoyant – ev-



Eric Arts

erybody in my area knew this pandemic could have ended pretty quickly if we'd had global distribution of vaccines."

Instead of prioritizing vulnerable populations around the world, wealthy countries prioritized vulnerable populations within their own borders. This not only gave the virus a ready reservoir of people in developing countries to ensure its continued spread, it allowed the virus to mutate and continue to infect, and re-infect, vaccinated people in places like Canada.

Arts, who leads Western's state-of-the-art Imaging Pathogens for Knowledge Translation (ImPaKT) facility, which tests COVID vaccines, treatments and provides virus surveillance, pointed to the public health system's approach to Ebola vaccines to show how a virus can be properly contained using what health experts call 'ring vaccination.' This means localized outbreaks are stemmed by vaccinating people in places where transmission is actively occurring.

"It can be done. It just takes willpower and money, but nowhere near the same amount of money

that we've already spent on SARS-CoV-2," said Arts.

He said we had a second crack at ending the pandemic when the more transmissible but less deadly Omicron variant began to circulate. It would have been relatively easy to tweak the current mRNA vaccines to target Omicron, said Arts, but the world's focus remained on third and fourth booster shots.

BEYOND DELIVERING DOSES

While distributing vaccines globally to people who need it most matters, equity involves so much more, said health studies professor and bioethicist Maxwell Smith. Delivery timing, intellectual property rights and technology transfer all come into play.

As Smith pointed out, developing countries have had to make do with no doses, minimal doses and then so many doses that they are unable to use them before they expire.

"If we stop at making sure Zimbabwe has X number of doses and forget they might need support in terms of infrastructure in delivering vaccines, then we're not truly addressing the vaccine equity question," he said.

Pharmaceutical companies' intellectual property rights are just as problematic. The World Trade Organization's Agreement on Trade-Related Investment Measures limits generic drug makers' ability to make less expensive vaccines. Some countries are advocating for a COVID-19 vaccine waiver to this agreement; and while Canada has said it will participate in discussions, it hasn't actually committed to supporting the waiver.

"If we think vaccines are a global public good that will get us out of this pandemic, we need to say intellectual property rights can't matter at this point if it means saving lives," said Smith.

Technology transfer is also necessary for true vaccine equity. Even if a developing country has the ability to make vaccines, it may not be able to do it at scale without the necessary technology.

"We can't just give them the recipe and waive intellectual property rights," said Smith. "It becomes a superficial commitment if we don't address structural, logistical considerations."

LIFE AFTER COVID-19

Now that no part of the world remains untouched by the pandemic, we also need to think about what global health equity looks like for those suffering from the lingering effects that can come with long-COVID, said Western epidemiologist Greta Bauer.

Early on, the conversation around equity was about who was at greatest risk of infection due to underlying conditions or their ability to isolate. But as we've learned more about the illness, Bauer said we should think about what health equity looks like long term.

"We're not thinking enough about the cumulative effects of COVID – people who have had it three or four times – or the fact even those with mild COVID can have long-term physiological effects," she said. "Which groups will be most disadvantaged by that? Pregnant women? People disadvantaged due to social conditions?"



Greta Bauer

Understanding the long-term effects of COVID-19 and potential causes of lingering symptoms – brain fog, breathlessness, fatigue – are key to developing targeted treatment. Recently, Western made a breakthrough on this front.

Using functional MRI, a research team led by Schulich School of Medicine & Dentistry professor Grace Parraga was one of the first to show these debilitating symptoms are related to microscopic abnormalities that affect how oxygen is exchanged from the lungs to the red blood cells.

abnormalities that affect how oxygen is exchanged from the lungs to the red blood cells.

THE NEXT PANDEMIC

While COVID-19 is not over, Western experts are already turning their attention to the next pandemic. "My biggest concern now is the next zoonotic jump from our increased contact with wildlife and our increased mobility," said Arts.

A recent study published in *Nature* estimates in the next 50 years, at least 4,000 cross-species viral transmissions will occur as animals move to higher elevations, biodiversity hotspots, and areas of high human population density in Asia and Africa. Some of these will spill over and infect humans.

Pediatric critical-care physician and researcher Dr. Douglas Fraser echoed Arts' concern. During the worst of the pandemic, Fraser worked on developing biomarkers to predict which patients with COVID-19 would become most seriously ill. He also helped profile the body's immune response to the virus.



Dr. Douglas Fraser

His current focus is on helping the country manage the next pandemic. Fraser is part of a team advising Ottawa on how to help research and community health teams mobilize quickly.

"Canada did some OK things to deal with the pandemic, but for where we are in the Western world, we didn't produce anything that went to an international level," he

said. "We didn't act quickly and decisively."

What we need now is to set the stage to rapidly respond in two areas – health research and innovation, and public health-care infrastructure. That means drafting agreements among various research bodies and government departments that deliver public health, establishing in advance who is responsible for what.

Most of the required resources already exist, said Fraser. "We have something like 20 different departments at the federal, provincial and municipal levels that have responsibility for public health crises," he said. "But they're not communicating with each other. You want to have the fire department ready before your house is on fire."

Continued on page 37



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“If we think vaccines are a global public good that will get us out of this pandemic, we need to say intellectual property rights can’t matter at this point if it means saving lives.”

– Maxwell Smith

ADDRESSING INEQUITY

There are other, less obvious, but just as important ways to prepare for the next public health crisis. Better education and communication around how vaccines work and their benefits, would be a good start. Despite anti-vaccine protests, most people in Canada have in fact agreed to be vaccinated. That’s not the case in various African countries where uptake can be less than 50 per cent.

“We are now beyond the point where we can get vaccines into arms in those parts of the world because we’ve let misinformation spread so badly. People have a distrust,” said



Maxwell Smith

Arts, pointing to social media’s role in spreading lies and half-truths. “You can’t just bring something produced by the Western world and drop it on the African continent or any type of marginalized low-income populations. There’s been some history of bad outcomes.”

If we want to take equity during a pandemic seriously, we also need to address root causes of health inequity, said Smith. That means being serious about alleviating poverty and providing housing and education. It also means preparing for, and reacting to, how climate change affects the spread of disease and the increased opportunities for zoonotic diseases that come with habitat destruction.

That, say Western experts, requires a global body that can enforce and coordinate. The World Health Organization could be that body, but it can’t do it on an operating budget roughly the size of a big Canadian city’s hospital networks. “It’s a pittance when we think about the task of global health guidance,” said Smith.

Arts agrees a strong, over-arching global public health body could make an important difference the next time around: “Pharmaceutical companies are not inherently evil, but they need control so rich governments concerned about themselves don’t let pharma do what it wants,” he said. ♥

A Canadian perspective

In an editorial published in the *International Journal of Public Health*, Western’s public health and infectious diseases experts called on the Canadian government to adopt legislation and policies to improve global vaccine equity, and ultimately end the COVID-19 pandemic.

Co-authored by Schulich Medicine & Dentistry professors Michael Clarke, Shehzad Ali, Dr. Saverio Stranges and Dr. Michael Silverman, the piece outlines some formal mechanisms to suspend patent protection for medicines in the event of a national or global emergency, which would then allow generic pharmaceutical manufacturers to produce patented vaccines at a lower cost.

“There is overwhelming evidence on widening inequalities in the health and economic burden from the current pandemic, as low-resources settings and marginalized population subgroups have paid the highest toll,” the editorial stated.

The Canada Access to Medicines Regime (CAMR) made Canada the first country to issue a compulsory licence to a pharmaceutical company to manufacture and distribute an anti-HIV drug in response to a request from Rwanda in 2006. The medicines were eventually delivered to Rwanda in 2008 and 2009, but the CAMR has never been implemented since.

A subsequent legislation, Bill C-398, was then introduced in 2012 to streamline CAMR processing, but was defeated by the then majority Conservative government.

The editorial proposed the reintroduction of the legislation as “the appropriate long-term mechanism” to find solutions that work for all.

“Compulsory licenses and IP (intellectual property) waivers are not a panacea for addressing equity; however, at this point in the COVID-19 pandemic, it is a necessary step,” the authors said. “The legal and legislative processes are in place for Canada to do the right thing.”



Shehzad Ali



Michael Clarke



Dr. Michael Silverman



Dr. Saverio Stranges





Connecting the possibilities

Bell-Western 5G partnership exploring digital solutions to real-world challenges

By Debora Van Brenk, BA'86, MA'87

Imagine a rush-hour intersection where a cellular network analyzes vehicles' motion, speed and direction and, in real time, helps drivers avoid collisions.

Or, picture yourself beaming into an online lecture, with a 360-degree interactive view of the classroom and lab that's so real you almost forget it's virtual.

These scenarios are near realities for eight new Western-funded projects, whose researchers are examining ways the university's unique Bell-Western 5G network can transform lives for the better.

"It's all about connectivity: connecting people to people, people to places, people to things," said kinesiology professor Kevin Shoemaker, associate vice-president (research), whose work also includes developing an app that uses ultra-fast 5G to help students improve mental health and activity.

The partnership and newly activated network provides a living lab where researchers are testing the technological properties of 5G and gaining insights into its applications as a communications multi-tool: remote, robot-assisted surgeries with real-time, lag-free responses; app development with game-changing speed and resolution; big-data number-crunching; enhanced security for drones.

"We want our electronic, digital existence to be seamlessly similar to our in-person existence: fast, and capable of doing

many complex things at one time," said biology professor and associate vice-president (research) Bryan Neff.

"There's just a whole lot of things we can do now that just weren't possible before this," Shoemaker added.

FIRST AND ONLY OF ITS KIND

The 5G technology offers exponentially faster connection, ultra-low latency (minimal lag-time between sending/receiving signals), higher upload/download speeds, improved security, and greater reliability than previous-generation cellular networks.

"Western is the only university in Canada that has a fully functional 5G network up and running," said Peter White, Western's executive director of government relations and strategic partnerships.

Five 5G cell towers provide complete coverage to campus, including the Western Research Park, White said.

"It's fully integrated into the Bell commercial network so that researchers are able to test their research in a live, real-world environment," he added.

Western has committed \$1 million towards research projects that test the network's technology and application.

As telecommunications companies build and provide access to 5G networks in coming months and years, Western's research provides a valuable head-start in understanding and developing its potential.

CALMING TRAFFIC CHAOS

Take, for example, the conundrum of traffic collisions and how technology can prevent humans from making costly and life-threatening mistakes.

"We are using the underlying assumption that everything is connected using 5G technology: all the cars on the road, and cyclists and pedestrians," said Western computer science professor Anwar Haque, an expert in next-gen telecommunications networks and cyber-security.

In his project, all the connected devices communicate with a server that receives information and with intelligent algorithms that analyze the proximity of people and objects to each other and to an intersection.

Once the algorithm detects a high probability of a collision, the server can then send an alert to users' cellphones or car infotainment systems to warn them to evade a crash.

The technology's hyper-precise positioning capabilities – a matter of locating users within centimetres instead of metres, a significant improvement from those of conventional technologies – could make it a lifesaver for vulnerable road users, including blind people or cyclists in a driver's blindspot.

Haque expects to test a prototype of the research, using 5G-phone-equipped vehicles and pedestrians, within a few months.

"This has to be real-time use because a lot of information needs to be collected and analyzed and communicated super-fast. If it's going to work, it also needs to have excellent signal quality and reliability – you don't want a signal dropping unexpectedly when the stakes are so high," he said. "All those technical requirements are possible with the Bell 5G research network we're able to use."

In another Western-funded project, Haque is also testing a proprietary technology that would help drivers locate available parking spaces in a parking lot, without endlessly circling to find an open spot.

"Unlike other systems, it requires no sensors, cameras or other equipment in the parking lot, only a cellphone, and it isn't weather-dependent."

NEXT-LEVEL VIRTUAL CLASSROOMS

Paul Frewen, a professor of psychiatry at the Schulich School of Medicine & Dentistry who is also cross-appointed to the psychology department, is working to test real-time, 360-degree virtual teaching – allowing students to virtually attend classes or labs.

The technology offers potential for a much greater sense of physical presence – and engagement – for students, Frewen said. That, in turn, benefits learning.

"Especially with the pandemic and the move to online learning, there was a loss of physical presence between instructor and students," he said.

There was also a loss of social connection, both among students and between students and their instructors.

"Virtual reality is known for evoking a sense of being present in the virtual environment," he said. "We thought, if we're going to be limited to only physical distancing, could we use this (360-degree online learning) to mitigate the impact of social distancing?"



(PHOTO BY FRANK NEUFELD)

Computer science professor Anwar Haque is exploring the use of 5G connectivity to detect potential collisions and alert users.

In 360-degree teaching, front and back lenses of the cameras record simultaneously.

"The instructor can show something in a very hands-on way. For the viewer, it's like being beamed into the physical environment where the teaching is taking place."

Frewen has used 360 teaching successfully in asynchronous (recorded) lectures that students play back through VR headsets on their computers. Students feel more connected to learning than in conventionally recorded, one-way lectures, his early studies show.

But taking it a step further, to a live, ultra-fast system, would be a game-changer.

A 10-minute, recorded 360-degree video in 4G, for example, would use up to 2 GB of users' data; whereas 5G can stream large files quickly and bring students' presence into the classroom.

"5G is going to give us some new capabilities for seamless, lag-free, livestreamed synchronous learning.

"Our hope is that it can help students feel more connected to learning – and, by reducing social distancing, improve their mental health."

TECH FOR MENTAL HEALTH

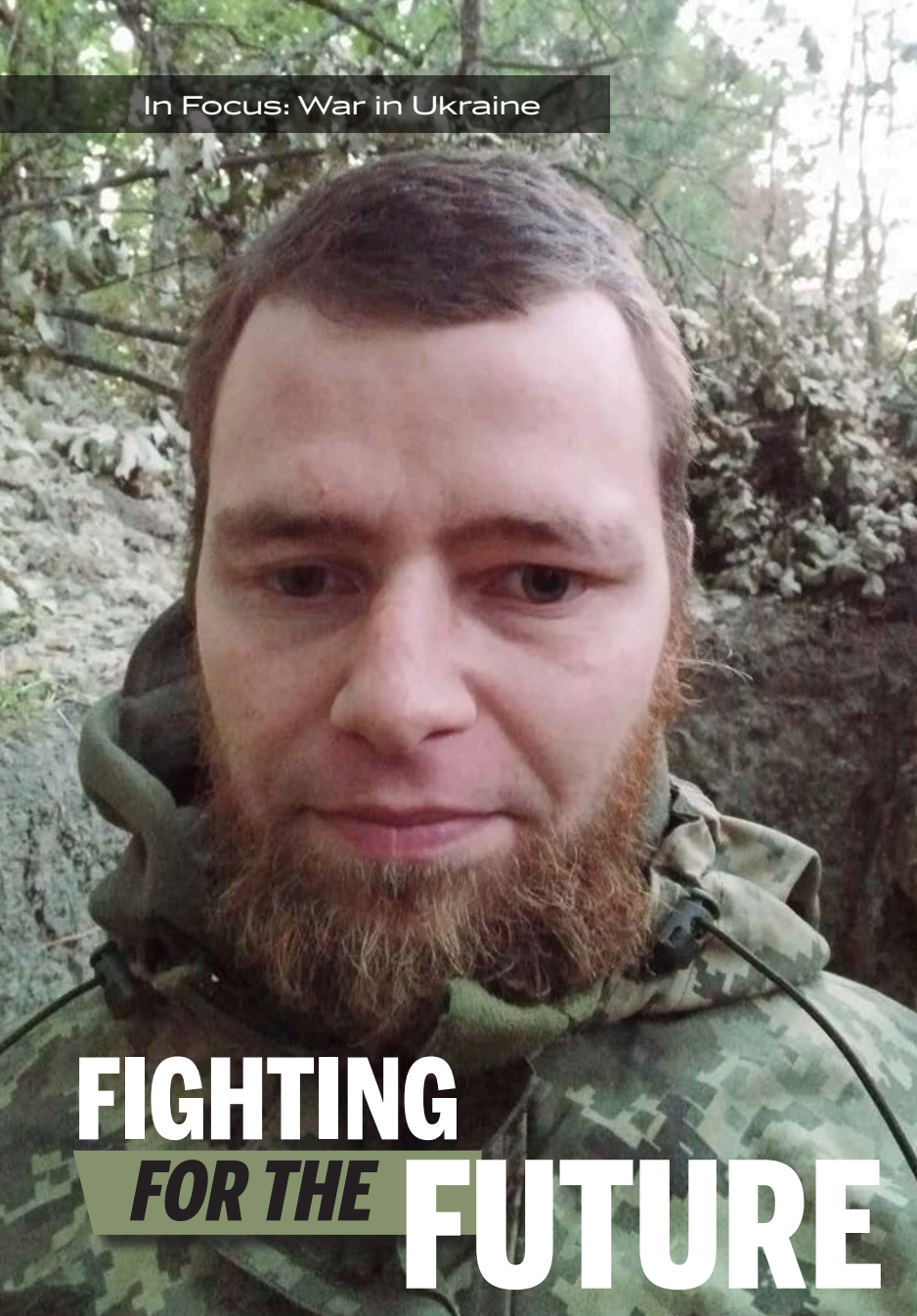
Shoemaker is testing a technology that addresses students' mental health through biofeedback devices that work with a 5G-enabled phone.

Funded in part by Western's Parr Centre for Thriving, the project aims to help students reduce their negative stress. Biofeedback devices detect an elevated heart rate, sweatiness, temperature or blood pressure as signals of increased stress.

An augmented-reality program then enables the student to mitigate their anger or anxiety by introducing visualized mindfulness or breathing activities that encourage thriving.

To develop this approach, the plan is to bring the research to at least 50 student volunteers living in residence.

All the projects are expected to be live-tested this year. 🇨🇦



FIGHTING FOR THE FUTURE

Former activist and academic Maksym Sviezhentsev has long advocated for the democratic rights of Ukraine. Now he's fighting for them, as a soldier and a father.

By Keri Ferguson

Two years ago, Maksym Sviezhentsev was defending his thesis at Western. Today, he's defending his country in Russia's war on Ukraine. It's a sacrifice that separates him from his wife and two-year-old son. A high price to pay, but for Sviezhentsev, his only choice – and less costly than passing the war on to the next generation.

Sviezhentsev, PhD'20, was born in Sevastopol, Crimea, just months before the fall of the Soviet Union, joining the first era of children raised in a sovereign Ukraine.

"We finally got our own state 30 years ago," he said. "It was a poorly structured, underdeveloped, corrupt post-Soviet state. But it was ours."

Sviezhentsev volunteered for the Territorial Defence Forces of Ukraine on Feb. 24, 2022, two days before Russia launched its full-scale invasion. Yet, he's been fighting for his country's freedom most of his adult life.

"Pro-democratic activism is part of the lifestyle here," he said. "We want to change this society, this country. Fighting for democracy always had a lot to do with opposing pro-Russian authoritarian politicians. It also usually meant fighting for decolonization, Ukrainian culture, language and identity."

FROM ACTIVIST TO ACADEMIC

Sviezhentsev became a political activist in 2012, attending protests and demonstrations as he completed his bachelor's degree in history at the National University of Kyiv-Mohyla Academy. A year later, while earning his master's degree, he was part of a student group active in Euromaidan, a revolution opposing then Russian-supported president Viktor Yanukovich's decision not to sign a political association and free trade agreement with the European Union.

The movement forced Yanukovich to resign and flee the country. In the immediate aftermath, as the pro-Western interim government struggled to address the country's dire economic situation, armed pro-Russian separatists seized government buildings in Crimea, declaring independence from the central government in Kiev. Russia annexed the Crimean Peninsula, in a move broadly criticized in the West as a gross violation of international law. Russia's occupation and increasing militarization came with a campaign of repression against Crimean Tatars, the peninsula's Indigenous inhabitants, as well as ethnic Ukrainians and members of other minority and religious groups in Crimea.

"Our nation has been fighting for its independence for a long time," Sviezhentsev said. "It all started in Crimea, and as they say, it will finish in Crimea."

Crimea was also the focus of his PhD, which brought him to Western in 2015.

"When I saw the territory annexed in 2014, I realized that neither the Ukrainian community nor the international community understood what happened. In theory, everybody knew Russia's annexation of Crimea was unlawful, but in practice they believed Russia had historical rights based on Russian imperial myths."

Sviezhentsev's dissertation, *Phantom Limb: Russian Settler Colonialism in the Post-Soviet Crimea (1991-1997)*, argued that since the late

18th century, Crimea has been a settler colony of the Russian Empire, Soviet Union and now, the Russian Federation. "In other words," he wrote, "the history of Crimea is similar to the history of other settler colonies of Western European empires."

Marta Dyczok, professor of history and political science in the faculty of social science, was Sviezhentsev's supervisor.

"Maksym was one of the best graduate students I have supervised in over 20 years of teaching," Dyczok said. "He completed all his work with flying colours, outperforming his fellow students while working in his fourth language as an international student, without financial support from his parents and unable to travel to his native Crimea since it was annexed by Russia."

Sviezhentsev earned the highest marks in his year on his comprehensive exams. He completed his dissertation in record time, successfully defending it before an external examiner from Harvard.

He worked as a teaching assistant throughout his time at Western until returning to his homeland in 2021. There, he worked for Crimea SOS, a non-government organization supporting peacebuilding efforts to improve the cultural and socio-economic conditions of Ukraine. He was also a journalist and continued to publish and present at academic conferences.

NO TIME TO BE SCARED

But his work – and his life – were put on hold when he signed to serve his country. Now he's keeping watch, digging trenches and sleeping in cellars underground.

Like most of his compatriots in his battalion, Sviezhentsev came to this new role with no military experience, and no time to train.

"Yes, it was scary," he said. "But we didn't feel like we had much choice. The Russian army was already fighting within the city (Kyiv) where our families were, and we had to first figure out how to evacuate our families."

And time was of the essence. Within hours of sending his wife and son safely off to western Ukraine, a missile landed in front of Sviezhentsev's apartment building. His current location "is by far not the hottest area, in terms of fighting," he said, but in an area regularly shelled by artillery.

"A few days ago, when I wasn't in the trench, a mortar mine hit the ground not too far away from me," he said. "I heard pieces of the mine flying. I probably should have been scared, but I didn't have time. When you hear things like that, you move on, using your instincts. I understand I'm in the most dangerous place I've ever been in my life, but I will probably have to reflect on it later, after the war."

His hardest adjustment remains being away from his son. "I love him so much. He was very attached to me, and it was quite hard for him to experience me leaving. It is still very hard for me, too."

As the war rages on and casualties continue, a fierce optimism for the future keeps him going.

"I love my country and believe in my people. I have experienced living abroad in the United States, Poland, Canada, even Russia for a bit, and I am certain Ukraine can do better. I know we can build a strong democracy with a developed economy that would not be any worse than any other Western democracy. I believe in a modern, democratic Ukraine, where people are not discriminated against for their nationality, gender, colour of skin, sexual orientation or any other characteristic. I truly believe we will win. It is just a question of time and price."

As of press time, the ongoing war in Ukraine has killed more than 5,400 civilians and injured more than 7,400, according to the Office of the UN High Commissioner for Human Rights. ♥

Western responds

Since Russia's unprovoked invasion of Ukraine, Western has mobilized to support those displaced or affected by the war in Ukraine.

Priority appointments – Mental health, support with immigration, financial questions, emergency needs.

Financial support – For current and incoming students fleeing global crises.

Temporary and full-time appointments – For displaced scholars coming to Western.

Ivey Ukrainian Scholarship Shelter Program – Opportunities for Ukrainian academics to come to Ivey Business School for a post-doctoral research position.

Special response fund for trainees – Special fund to initiate or maintain the employment or financial support of graduate students and post-doctoral researchers with current grants.

Six students from Ukraine arrived at Western in May as the first cohort to join Ivey Business School on an exchange program made possible through the Academic Shelter Program, extending support to students fleeing the conflict in Ukraine. Two more Ukrainian students arrived in June and, as of press time, three more from Lviv Business School are expected to join Ivey this fall.



First group of Ukrainian students – and one student's son – attending Ivey's MBA exchange program. (L-R) Anastasiia Nesterenko, Sofiia Shulga, Ulyana Kulchytska, Oksana Kosendiak, Yehor (Egor) Zavortniak, Maksym Savchyn and Alina Byshynska.

Class Notes

Welcome to your new Class Notes

We have been so inspired by Western alumni and all their remarkable achievements that we redesigned Class Notes to better highlight our graduates.

We hope you enjoy this new look, and we encourage your feedback. Let us know what you think by following the QR code below:

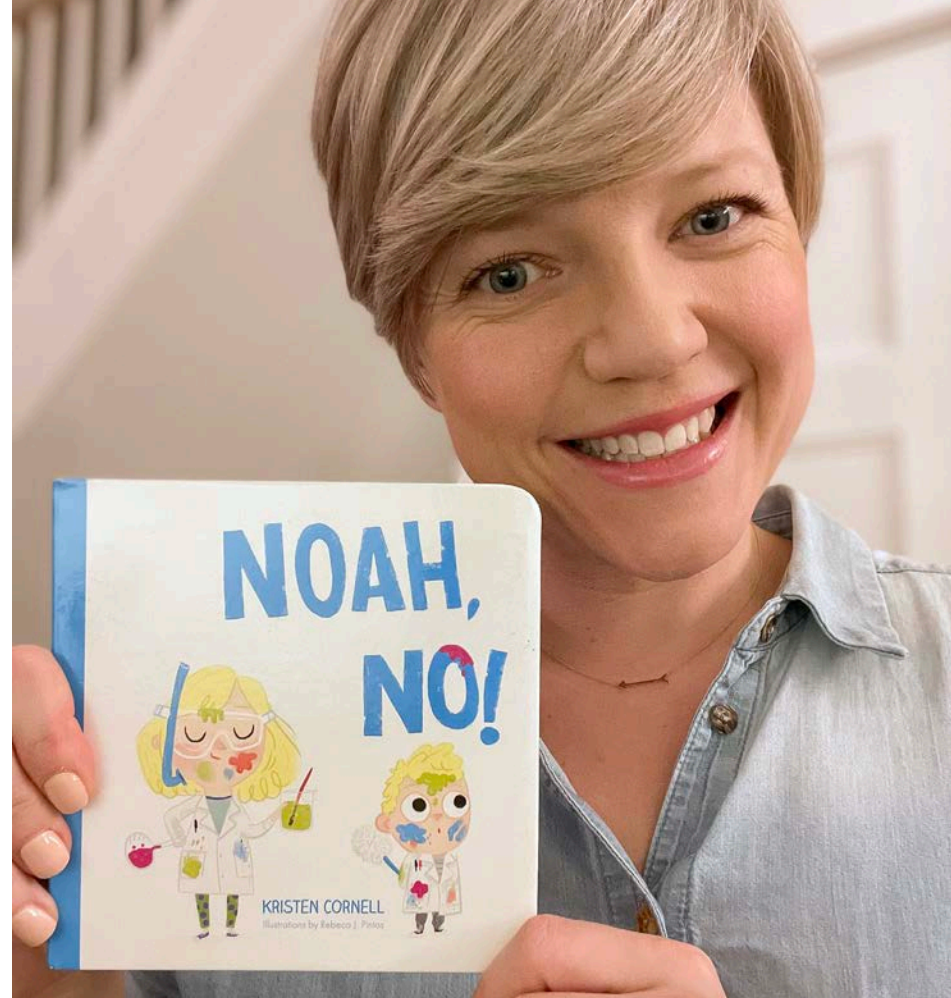


Thank you to everyone who has submitted an update.

Keep them coming! To tell us about your news please fill out the Class Notes form.

alumni.westernu.ca/classnotes

Please note: Class Notes, like all portions of the print magazine, appear in an online version of Alumni Gazette and the contents may turn up during a web search. Western respects your privacy. At any time, you can request your personal information no longer be used. For more information or to make a request about the types of communication you would like to receive, please contact Advancement Operations at 519-661-4176 or 1-800-420-7519.



Kristen Cornell, HBA'06, MBA'11, published a children's board book entitled, *Noah, No!*, a story of a mischievous boy and the ways he exhausts his family all while being loved and adored.

Literature

Thomas Milovac, MA'19, published *Covid-19 in Canada and Abroad: Essays on the Pandemic*.

The eco-fiction collection, *Chemical Valley*, by **David Huebert, PhD'19**, made the shortlist for two Atlantic Book Awards, and took home the Alistair MacLeod Prize for Short Fiction.

Sydney Warner Brooman, BA'18, penned *The Pump* while at Western. The series of short fiction stories features tales of a small town, heartsick humans and carnivorous beavers.

Jessica Kocur, BA'14, published *Reset*, a story about her experience with the aftermath of Acute Disseminated Encephalomyelitis.

Heather Marshall, BA'10, became a bestselling author after releasing her first novel, *Looking for Jane*, a historical fiction set in Toronto.

David Barrick, BA'06, published his first full-length poetry book, *Nightlight*.

David McPherson, BA'96, MA'98, honours iconic Toronto venue Massey Hall in his new book of the same title.

Jennifer Harris, BA'95, published her first picture book, *She Stitched the Stars: A Story of Ellen Harding Baker's Solar System Quilt*, in 2021. Her second book, *When You Were New*, will be released by HarperCollins in 2023.



Paul Ling, DDS'93, published the second volume of his graphic novel series, *The Demonhuntress*, entitled, *Who Knows When Death Arrives?*

Christine Emmons, MLS'85, published her first book of poems, pictures and reflections entitled, *Outside My House: A Journey Through Nature During COVID Lockdown*.

Susan E. Gibson, BA'83, penned a how-to book, *How to be an Amazing Volunteer Overseas: Stories from the Field, Rules of the Road*.

Diane Kirby, BA'80, launched her first book, *Demystifying Grief: What You Need to Know to Heal*.

Karla K. Gower, BA'79, LLB'82, published *Betsy Ann Plank: The Making of a Public Relations Icon*.

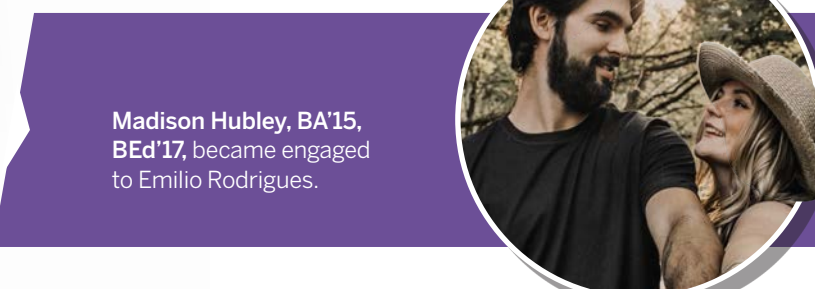
Colin McNairn, LLB'63, published, *Signs of Times through Reimagined Nursery Rhymes*, a humorous parody on contemporary life and culture.

Love and marriage

Andrea Wishart, BSc'10, MSc'14, became engaged to Steven Denis in Saskatoon, Sask.



Jamie Shcherbakov (nee Yager), BA'14, married Leo Shcherbakov on Aug. 22, 2021, in Lafayette, Col.



Madison Hubley, BA'15, BEd'17, became engaged to Emilio Rodrigues.

Professional accomplishments



Simu Liu, HBA'11, hosted the Junos and was named one of TIME magazine's 100 most influential people of 2022.

Jacqueline S. Dron, BSc'15, **Tyler Girard, MA'13**, and **Heather Stewart, PhD'21**, were bestowed the 2021 Governor General's Academic Medals in recognition of outstanding students across Canada.

Lisa Chen, MLIS'15, accepted an information management analyst position at the University of Toronto.

Madison Hubley, BA'15, BEd'17, received a full-time permanent role with the Waterloo Region District School Board.

Maryanne D'Silva, BHSc'14, cofounded Simcoe Naturopathic Clinic in Ontario – an affordable clinic offering virtual or in-person naturopathic health services.

Andrea Feldman-Kohlver, BA'13, became the retail operations manager for Cannabis Xpress.



Maddison Fysh, BA'16, received her diploma with ELLE Education in conjunction with the University of Madrid and MIT Sloan Business School of Management.

Nicole Dane, BA'20, completed the Not-for-Profit Management Diploma program at Western Continuing Studies, and was offered employment as development coordinator at charitable organization JAYU after her four-month practicum with them.

Carina Gabriele, BA'18, received a Governor General's Award in recognition of her work advancing gender equity.

David Simmonds, BA'07, community leader and champion for equity and inclusion, received the Harry Jerome Leadership Award.

Pat Whelan's, BMOS'16, startup Paddle HR was acquired by LinkedIn. **Saman Alavi, BA'12, MA'13**, was part of the management team, and **Alex Smith, BA'14**, and **Tyler Benning, BA'14**, both played significant roles in the company's history.

Darren Hamilton, MMus'16, is the first Black educator to win the prestigious MusiCounts Teacher of the Year Award.



Christine Cruz-Clarke, BA'98, has been appointed chief executive officer for Balzac's Coffee Roasters.

Ali Elliott, BA'12, has joined national law firm Quarles & Brady as an associate.

Dr. Andre Helt, BMSc'12, MD'16, accepted a job at Western as an assistant professor, and the London emergency medicine group as an attending physician.

Weronika Gruszczynska, BA'10, secured a full-time job recruiting health-care workers.

Lorin MacDonald, JD'09, was named recipient of the Law Society Medal for her work to make the profession more inclusive and accessible to people with disabilities. She was also named one of Canada's Most Powerful Women by WXN and one of the Top 25 Most Influential Lawyers 2021 by *Canadian Lawyer*.

Dave Woycheshin, PhD'08, retired from the Canadian Armed Forces with the rank of Commander after 39 years of service.

The *Globe and Mail* Report on Business 2022 Changemakers recognized **Shadi McIsaac, BA'08**, **Denis Nagasaki, BA'11**, and **Sarah Landstreet, MBA'13**, as emerging leaders finding solutions to the world's most challenging problems.

Dr. Sarah Mancuso, BMSc'07, DDS'11, became the first female president of the Ontario Academy of General Dentistry in 2019.

Rohini Bannerjee, PhD'06, was appointed associate vice-president, diversity excellence at Saint Mary's University.

Anthony Macaluso, BA'03, was named principal at St. Mary Catholic Secondary School in Hamilton, Ont.

David Kent, BSc'03, was awarded the 2022 Janet Rowley Award from the International Society for Experimental Hematology, recognizing early career scientists who have made outstanding contributions to the field.

Michael Prangle, BA'03, BHSc'06, MCISc'08, has been promoted to senior audiologist at Hearing Solutions in London, Ont, where he mentors new clinicians and students.

Lynn Wells, PhD'97, was named provost and vice-president academic at Brock University.

John Lewis, BMus'94, accepted a senior associate, information technology position at Norris Design in Denver, Col.

Professional accomplishments

Richard Barber, BSc'92, was appointed chief client officer of BridgePoint Financial, and has obtained the Institute of Corporate Directors designation.

Karen Wilford, LLB'85, executive director of the Legal Aid Commission of the Northwest Territories, was the 2022 recipient of the Legal Aid Leader Award for her long-term commitment to legal aid and to providing accessible and affordable legal services.

Dr. Janice Pasioka, MD'83, was presented with the Oliver Cope Meritorious Achievement Award from the American Association of Endocrine Surgeons.

Tomson Highway, BMus'75, DMus'93, received the Governor General's Performing Arts Lifetime Artistic Achievement Award and penned a new memoir called *Permanent Astonishment*.



(PHOTO BY SEAN HOWARD)



Said Ismail, BESC'01, BA'01, received the Ontario Municipal Fire Prevention Officers Association's Jim Copeland Award.



Alex Leduc, HBA'13, is the founder of Perch, a Toronto-based real estate tech company.

Peter Brockmann, BESC'83, and Sourmyadeep Pan were granted a patent for *Systems and methods for selectively connecting to distributed units (DUs) in a wireless network based on rates of change of signal strengths of candidate DUs*.

Karen Lewis, BA'81, was appointed general manager, development & emergency services for the City of Thunder Bay.

Elizabeth Weir, LLB'76, was inducted into the Order of New Brunswick for her exceptional service and leadership dedicated to the promotion of equality and social justice.

Michael Pepe, BA'75, was named chief financial officer of Elysian Carbon Management.

W. Donaldson, BA'67, LLB'70, was re-appointed as alternate chairperson and legal member of the Ontario Review Board until June 2024.

Taylor Smith, BSC'15, earned his PhD from Queen's University and credits his approach to research and teaching to the faculty at Western.



Gloria Dickie, BA'12, joined Reuters in their London (U.K.) newsroom as the global climate and environment correspondent. "Western was an influential step in my path, from MIT to working as editor-in-chief of Volume 106 of *The Gazette*."



Erik Sun, MPEd'16, started his new career with Mortgage Outlet Inc. as a mortgage strategist.

Harry Jansen, BMus'81, celebrated his 25th anniversary as director of music ministry at Trinity Avenue Presbyterian Church, Durham, NC.



Personal achievements

Jordana Talsky, JD'09, released her latest record, an all-vocal-looping album of original music entitled ZAHAVA.



Shiyam Thavandiran, BSc'15, MSc'16, is pursuing his dream to become a chess grandmaster, a rank shared by only 1,500 chess players worldwide.

Maria Thomas, BA'05, is president of the Trinidad and Tobago Rugby Union.

Andrei Kravtchenko, BA'15, graduated from an advanced college program, was hired full-time to his first official position in cybersecurity, became engaged and bought his first home in Alberta with his fiancée.



Erika Casupanan, BA'11, won the 41st season of *Survivor*, a reality television series where competitors outplay, outwit and outlast each other.



Doug Firby, BA'76, second from left, completed a four-and-a-half-month cross Canada bicycle trip with ConnectTour. Doug documented the trip in an online blog and plans to write a book on the experience.

Celebrations

Patricia Kretz, BScN'72, and **Peter Kretz, MBA'72**, celebrated their 50th wedding anniversary on Aug. 28, 2021.

Valerie Conn, BA'77, is celebrating her full retirement after a 25-year career in accounts payable and almost eight years at Tim Hortons during her early retirement.

Congratulations to **Craig Paterson, LLB'70**, who turned 75.

Beth Barry (nee MacIntyre), BA'74, **Mary Smith (McKinnon), BA'75**, **Sue McCutcheon, BScN'75**, and **Lynne Cunningham (MacKichan), BA'75**, were brought together in 1971 in Delaware Hall and it turned into a lifetime of friendship. Fifty years later, the four reunited in person during Homecoming weekend in 2021.



Mini Mustangs



Tanya Moryoussef, HBA'12, MBA'18, and **Matt Boswick, HBA'12, MBA'18,** welcomed baby girl Billie in September 2021. Billie's favourite colour is purple.



Dr. Andrew, BMSc'12, MD'16, and **Dr. Helene Helt, MD'17,** were married in June 2019 and welcomed baby Demi Aurelia, born in May 2020.



Jay, BA'07, BEd'08, and Lacey Rhodes announced the arrival of their little miracle baby Leonardo. Heidi, Lacey's sister, was their surrogate.



(L-R) **Sarah Sklash, HBA'07,** and **April Brown, BMOS'06,** are featured on Netflix as *Motel Makeover* follows them on their hotel renovation journey.

(PHOTO BY KATHERINE HOLLAND)

Arts, culture and entertainment

Wendy Robertson, BA'80, held her first solo art exhibition called, "A Sheltered Place," at the Sivarulrasa Gallery in Almonte, Ont. Her art was inspired by the hiking trails near Agawa Bay.

Robin Crozier, MA'03, wrote a screenplay for a film called, *The Taste of Blood*.

Sharon Wei, BMus'00, co-founded *Ensemble Made in Canada* with faculty member Angela Park in 2006, and together they won a 2021 JUNO award for their *Mosaïque Album* in the Classical Album of the Year category. They performed *Mosaïque* throughout Canada and collected over 4,000 pieces of art from their audiences.

Tim Progosh, BA'80, leads a group to honour Canada's funniest performers.

Mary Donlan, MLS'79, BFA'89, held an art exhibition entitled, *Della Luce - works by Mary Donlan*, at St. Thomas-Elgin Public Art Centre.

Kate Brown, BA'74, launched her new website KateBrownPainting.com.



Sonia Labatt's Legacy

Education advocate and philanthropist Sonia Labatt passed away on March 14, 2022, at age 84.

Recognized as a specialist in environmental economics, she was also known for her giving spirit and love of knowledge.

For decades Labatt, along with her husband Arthur, gifted more than \$20 million to fund scholarships, student awards, academic positions, chairs and research at Western. A passionate supporter of the university and the Faculty of Health Sciences, she has impacted the lives of so many students and the future of Western.

In 2012 she received an honorary doctorate from Western. Addressing the graduating students she emphasized the importance of life-long learning. "Look at today as a stepping stone to further education. You can do it all – but you don't have to do it all at once."

"Sonia led an extraordinary life, one filled with opportunities to make a difference in the world," said Western president Alan Shepard. "She was an inspiration and leaves behind a legacy that will benefit all of us at Western for generations to come."



(PHOTO BY RACHEL LINCOLN)

In memory

Anastassia Khouri, MLS'72, passed away on June 14, 2018. After a long career as a librarian at McGill University, Anastassia took up painting in her retirement.

Catherine Sheldrick Ross, BA'67, MLS'84, passed away on Sept. 11, 2021 after a battle with cancer. As a professor at Western, Catherine played a pivotal role as a dean in the formation of the Faculty of Information & Media Studies.

Edward B. Kipp, HBSc'66, PhD'70, MLS'75, passed away on April 10, 2021, in Orleans, Ont. He enjoyed a 30-year career with the National Research Council and spent 17 years travelling.

Robert Russell Marley, BESC'63, passed away on Dec. 9, 2021.

Dr. Donald Allen, MD'56, passed away on March 23, 2022. He was remembered for his dedication to his patients, family and church.

Donald Porter, BA'51, passed away on Oct. 15, 2021, at 92. Donald was an avid hunter, fisherman and golfer. His main priority was his family and he loved nothing better than time spent at the cottage with them.

Zaida Rankin (nee Wheable), BA'48, passed away Nov. 29, 2021, in Sarnia, Ont. After majoring in psychology and raising her two daughters, she went back to work as a psychometrist where she spent 20 fulfilling years helping children, parents and their teachers.



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(PHOTO BY ARIANNE MENESES)

MASTER MOVER

By Keri Ferguson

WESTERN GRAD MARC KIMELMAN LEADS A LIFE OF KINDNESS, RESPECT AND A WHOLE LOT OF DANCING

Dancing and teaching are two of Broadway choreographer Marc Kimelman's favourite things.

Marc Kimelman has always loved to dance. But he didn't always see it as a viable vocation. In fact, he thought he'd become a child psychologist after majoring in psychology at Western.

That initial plan did not materialize, but his time at Western did help him connect with artists and audiences, leading him to become an award-winning choreographer.

"I always credit my BA in psychology for helping me work with people, understanding the human psyche and what motivates us," Kimelman, BA'02, said.

Music has moved Kimelman for as long as he can remember. As a five-year-old, he performed for his family, selling them tickets to his after-dinner shows. When he was nine, his parents enrolled him in dance. In high school, the Toronto native saw *Rent* at the Royal Alexandra Theatre – more than

15 times. The rock musical had a profound effect.

"It was the first time I saw queer performers in queer roles, not ashamed of who they are, out and proud on stage. That show came to me at a really pivotal time in my life. It showed me what's possible, not only on stage but as a person in the world, living without stigma."

Kimelman continued to dance while at Western, helping run and perform on the university's HEAT dance team. When he wasn't choreographing shows, he was teaching hip-hop classes, drawing up to 90 students per session.

"Seeing what dance could do for all those stressed-out students made me fall in love with teaching," said Kimelman, who's now on faculty at New York City dance school





After recovering from a life-threatening illness, Kimelman found himself saying 'yes' to every opportunity.

(PHOTO BY MALLORY FETTER)

Broadway Dance Center, Steps on Broadway and Toronto's Metro Movement. During the pandemic, he started, "Club Kimelman," offering online classes, and what one dancer hailed as "emotional cardio."

'KIMELMAN FORMULA'

Kimelman's big break came as a last-minute request to choreograph a Toronto production of *West Side Story*.

"I didn't know any of the original choreography, so I did my own thing without researching as much as I should have," Kimelman said. "But I threw myself into it, creating with abandon, trusting my instincts in a way only an early 20-something can."

His intuition was on point, resonating with audiences and celebrated Canadian choreographer, director, producer and actor David Connolly (now associate artistic director of Drayton Entertainment), whom Kimelman admired and invited to the show.

"I was smitten by Marc's attention to detail and passion for the craft," Connolly said. That night led to the first of many collaborations, with Connolly sending a steady stream of work Kimelman's way, noticing early what makes Kimelman stand out.

"There are countless talented people in the world, but only a handful who intentionally weave kindness into their process and product," he said. "That's what Marc has always done; it's his nature, his instinct, to show kindness to his dancers and his audience as a symptom of his respect for them and the craft. Combine that with humour, tenacity, flexibility and drive, and you'll unravel the 'Kimelman formula.'"

It's an approach that has allowed Kimelman to realize many dreams, including choreographing his beloved *Rent* at the Panasonic Theatre in Toronto. He's also achieved his lifetime goal

Kimelman's psychology background helped him connect with artists and audiences, leading to his success as an international choreographer.

of working at the Stratford Festival, and making the leap to New York City.

GETTING BETTER

In New York he found "a sense of community I perhaps longed for," he said. It's also where he found out he had Non-Hodgkin's Lymphoma in his stomach, shortly after arriving there in 2010. The diagnosis brought him back to Toronto for treatment, where he was grateful for access to health care and the support of his family.

"I remember my dad telling me my only job was 'to get better,'" he said. "That was really hard for me because the things that make me happy are usually tied to my creative endeavors. So, when I was forced 'not to work,' it was tough for me to put everything else aside and not feel that outlet that I needed."

It was also hard to hear stories from fellow cancer patients who couldn't afford to take time away from work to focus on their healing during treatments. He channeled that empathy into a creative project that allowed him to think artistically and help others.

From his hospital bed he curated, *I Move Forward*, a production rallying the dance, theatre and musical community together for one sold-out show that raised more than \$40,000 for artists touched by cancer.

Five months after his final treatment, Kimelman was in remission and back in New York, saying "yes" to every opportunity that came his way, including a chance to work as a movement coach for a *Vogue* cover shoot with photographer Annie Leibovitz and actor Charlize Theron. He's also worked with Katy Perry, Neil Young, Phish and Chaka Khan.

GOING GLOBAL

His work on Broadway includes roles as associate choreographer on *A Bronx Tale*, directed by Robert De Niro, and assistant choreographer in the 2012 Tony-nominated *Jesus Christ Superstar*. He recently worked as associate choreographer on *Jagged Little Pill*, based on the multi-platinum 1995 album by Alanis Morissette, alongside acclaimed choreographer Sidi Larbi Cherkaoui.

"I saw the show in Boston, at a pre-Broadway run," Kimelman recalled. "It blew me away in a similar way *Rent* moved me as a kid, in terms of seeing nothing like it before. I reached out to Larbi online, telling him I really admired his work and that I'd like to meet sometime." That sparked a series of exchanges, and two years later, the pair were working together on Broadway. Kimelman then headed to Australia to create the Australian version of the show. "And now I'm helping put the national tour up, which will play in Toronto next summer."

In the meantime, Kimelman continues to follow what moves him, trusting his instincts to move others.

"So much of my job is putting myself in other people's shoes. Having a psychology background really helps me to do that." 🍷



(PHOTO BY ARIANNE MENESES)

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