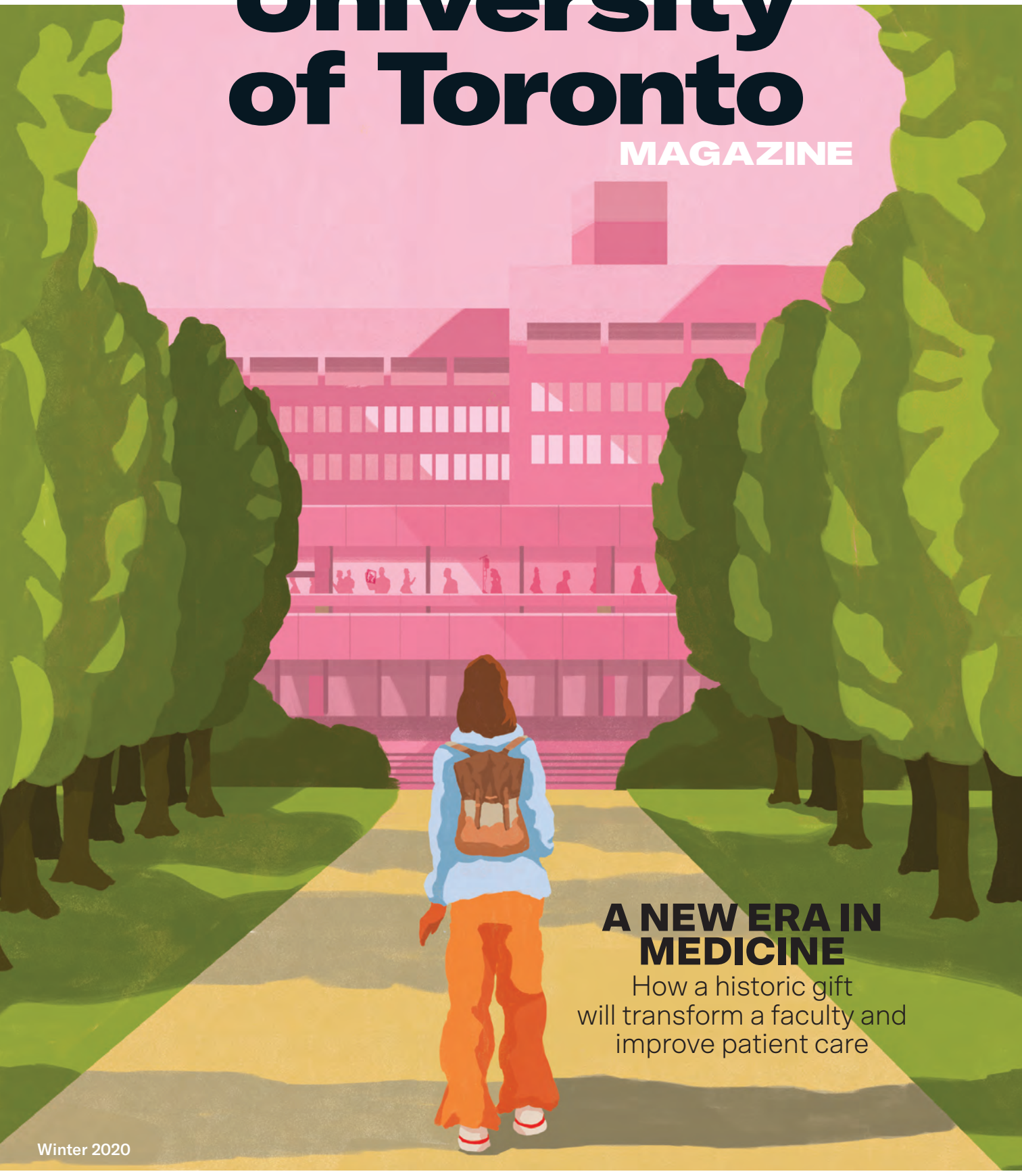
MISSISSAUGA / ST.GEORGE / SCARBOROUGH

University of Toronto MAGAZINE



A NEW ERA IN MEDICINE

How a historic gift will transform a faculty and improve patient care

Winter 2020

PLUS: COMBATTING ANTI-BLACK RACISM — U OF T SCIENTISTS JOIN THE QUEST FOR A VACCINE — A FALL TERM LIKE NO OTHER — RETHINKING POLICE TRAINING — THE ZEBRAFISH MIND

ROOFTOP REVIVAL

DATE: SEPTEMBER 24
TIME: 5:31 AM
CAMPUS: ST. GEORGE

Convocation Hall, the historic centrepiece of U of T's St. George campus, is being fitted with a new glass skylight – a once-in-a-century renewal that will help ensure the longevity and grandeur of the 114-year-old building.

A crane towering over King's College Circle carefully hoisted the skylight's superstructure into place on Con Hall's domed roof. Glass panels were to be installed next, with completion early in 2021.

No detail was overlooked to ensure the replacement skylight is virtually indistinguishable from its predecessor, says Scott Mabury, U of T's vice-president, operations and real estate partnerships. "How the glass fits together, the kind of glass and how it appears is very loyal to the original structure," he says.

The installation of the new skylight, or oculus, is part of a broader refurbishment of the heritage building, which serves as the university's biggest classroom and the site of its annual convocation ceremonies.

–Rahul Kalvapalle

PHOTOGRAPH BY NICK IWANYSHYN

SCANNING THE PAST

DATE: OCTOBER 8
TIME: 11:39 A.M.
CAMPUS: MISSISSAUGA

Armed with 3D scanners, U of T Mississauga anthropologists are preparing hundreds of fossils for virtual labs. Specimens consisting mostly of casts of hominin skulls and other bones are being scanned in meticulous detail and converted into 3D digital models.

These models imitate the casts students would normally work with during an in-person lab. Students can interact with the virtual models, turning them, zooming in on points of interest and noting surface details. The models are also annotated, drawing attention to certain features students will need to recognize.

The shift to virtual labs during the pandemic has spurred this project, but the newly digitized teaching collection will help augment hands-on learning when labs resume normal operations.

–Patricia Lonergan

PHOTOGRPH BY JOHNNY GUATTO


#260E
#260F
#279A

VALLEY VIEWS

DATE: OCTOBER 7
TIME: 3:16 P.M.
CAMPUS: SCARBOROUGH

The new, winding nature trail behind U of T Scarborough's Andrews Building is a powerful statement for inclusive design. Once a steep, uneven 20-metre slope into the Highland Creek Valley, the new Valley Land Trail is now accessible to anyone with mobility challenges.

With a wide path, charging station for motorized accessibility devices and more than 300 LED lights built into a continuous handrail, the trail meets the highest accessibility standards.

Multiple raised lookout points and an outdoor amphitheatre built into the hillside next to the iconic Andrews Building offer stunning views of the valley. The trail is maintained through all four seasons, which means everyone in the community can enjoy it year-round.

–Don Campbell

PHOTOGRAPH BY NICK IWANYSHYN

UNIVERSITY OF TORONTO

THE LANDMARK PROJECT

LEAVE YOUR MARK AND HELP REVITALIZE U OF T'S HISTORIC CORE

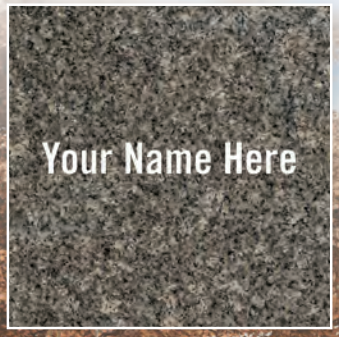
Construction on the Landmark Project is officially underway, thanks to the nearly 3,000 alumni and friends around the world who are supporting commemorative gardens, trees, benches and pavers.

The initiative is one of the most significant open space projects to take place on the St. George campus in the past 200 years. The renovations will introduce vibrant new plazas, safe and accessible pedestrian pathways, and glorious green spaces. This initiative will also move surface parking underground and install the largest urban geothermal field in Canada beneath King's College Circle.

Excitement for the Landmark Project continues to grow in Toronto and across the globe. With the majority of pavers already spoken for, don't miss your chance to be part of U of T history. With a gift of $1,000, your name—or that of a loved one—will be engraved on an elegant 12" x 12" granite paver placed on front campus.

Take advantage of this unique opportunity to leave your mark in the historic heart of the University of Toronto and help create a special place for generations of students, alumni and visitors to gather and enjoy.

Learn more and support the Landmark Project at **uoft.me/landmarkfaq** or by contacting **annual.fund@utoronto.ca.**



Actual Size 12" x 12"

PLANNED TRANSFORMATION OF CONVOCATION PLAZA

CONTENTS

VOLUME 48, NO. 01

"As a Black person living in Canada, I sometimes feel overwhelmed by the evidence of how institutions of all kinds discriminate against us" – p. 26

PHOTOGRAPH BY JORIAN CHARLTON

18

A New Era In Medicine

The Temerty family's $250-million gift to U of T will change medical education – and patient care

By Cynthia Macdonald

26

Out of Action, Comes Hope

U of T steps up efforts against anti-Black racism and toward greater inclusion

By Raquel A. Russell

32

Pulling Together

How U of T handled a semester like no other

By Megan Easton

36

The Search for a Vaccine

U of T scientists are pursuing a made-in-Canada solution to end the pandemic

By Kurt Kleiner

PLUS A note about the new *University of Toronto Magazine*, p. 11

CONTENTS WINTER 2020

10 **Your Comments**
12 **Contributors**
13 **Since We Last Spoke**
14 **President's Message**

41 **An Investigation**
U of T Mississauga professor Judith Andersen's training techniques improve police performance in tense situations. The challenge: getting police to use them
By Lois Tuffin

43 **A Personal History**
Born visually impaired, professor Daniel Zingaro connects with students by sharing his own struggles at university
By Megan Easton

44 **A Closer Look**
How a popular aquarium fish is helping scientists investigate disorders of the human brain
By Dan Falk

Caring teachers helped a teenage Jerry Flores succeed at school. Now a sociology professor at U of T Mississauga, he studies how the educational system often fails low-income youth, p. 46

46 **An Encounter**
When he was a teen, a "turning point" led U of T Mississauga professor Jerry Flores to a better life. Now, he wants to help create the same opportunity for others
By Cynthia Macdonald

49 **An Origin**
How a simple sticker helped members of the LGBTQ community feel more welcome at U of T
By Wendy Helfenbaum

50 **A Place**
A new gathering spot at U of T Scarborough will be a hub for local Indigenous culture
By Don Campbell

52 **A Conversation**
U of T Scarborough grad Satish Kanwar is helping small businesses thrive in a market that's gone virtual
By Cynthia Macdonald

A winter wigwam served as a model for UTSC's planned Indigenous House, p. 50

ON THE COVER

Barcelona-based illustrator Gastón Mendieta envisions a student embarking on a path toward a new era in medicine, thanks to the transformative impact of the Temerty family's historic gift to U of T.

RENDERINGS COURTESY OF FORMLINE ARCHITECTURE AND LGA ARCHITECTURAL PARTNERS; PHOTOGRAPH BY CHRISTOPHER KATSAROV LUNA

RAPID VIRUS TESTING.
A DONOR LEGACY FOR OUR TIMES.

Bequests make the miraculous possible. As pharmaceutical science students in Prof. Keith Pardee's lab, Seray Çiçek and Livia Yuxiu Guo built a portable device for Zika virus testing and founded LSK Technologies. When the pandemic hit, their startup pivoted to speedy, low-cost, lab-in-a-box testing for COVID-19. It's a potential game-changer for coronavirus response in remote areas of the world, and an example of the innovation your legacy gift can empower. Including an undesignated bequest in your will gives U of T the flexibility to help student entrepreneurs pursue what matters, when it matters most.

Find out more at michelle.osborne@utoronto.ca, 416-978-3811 or uoft.me/giftplanning

UNIVERSITY OF TORONTO

Photo from 2018: Seray Çiçek (BASc 2017, MSc 2020) and Livia Yuxiu Guo (BSc 2017, MSc 2020) of LSK Technologies, founded with Keith Pardee (PhD 2010) of the Leslie Dan Faculty of Pharmacy

Every story had an impact on me. It is heartening that good, caring people with passion and compassion are sharing their voices and leadership.

DENISE BACON
BA 1981 UTSC, SCARBOROUGH, ONTARIO

Can We Ever Know the "Truth"?

In the Spring 2020 issue, we explored the theme of truth – through personal stories, as well as features on fake news and how U of T's Dictionary of Canadian Biography *strives for historical accuracy.*

I support the view that we must hold social media platforms accountable for misinformation they publish. This would add a cost of doing business, so they will continue to resist it. Significant pressure from government will be required. Government regulation and enforcement have been out of fashion for a generation, with negative consequences in many areas – most notably now in long-term care homes.

Regulation isn't a punishment. It is a necessary aspect of having a healthy society and healthy businesses. The lesson for social media regulation is to get on with it before serious outcomes arise.

GREGORY KEILTY BA 1970
ST. MICHAEL'S, FOXBORO, ONTARIO

It is important to speak up for the truth, but it is equally important not to create and spread falsehoods or fake news. We must understand the benefits and harms of social media.

FRED KAN BASc 1964, JD 1967,
HONG KONG

Thank you for sticking with your decision to publish a theme issue on "speaking the truth" – despite the changes in the world in the last several months. This issue brought an authentic and dynamic sense of the breadth and depth of teaching and scholarly activities at the University of Toronto.

GWYNNETH EVANS BA 1961 TRINITY,
OTTAWA

I appreciate the diversity of voices, cultures and issues represented in your Spring 2020 edition. It reminds me that as a social worker providing culturally sensitive psychotherapy, I am not just providing a safe space for people to share their story but a vehicle where personal truths can be discovered, reconciled and honoured.

SHARON BARRETT MSW 2011,
TORONTO

COVID-19 Heroes

In his column, U of T President Meric Gertler commented on the many efforts by members of the university community to improve lives during the pandemic.

President Gertler's inspirational words, always expressed so eloquently, provided this reader with much-needed comfort.

MICHELE LEVAR
BEd 1998, MEd 2016, TORONTO

Heartfelt Appreciation

Readers thanked Prof. Brenda Wastasecoot for writing about her siblings' experiences at residential schools and the devastating impact they had on her family.

From an old *moonias*, thank you for sharing your story. It will help us all heal. *Ekosi*.

BARBARA ANN CARPIO
MScN 1981, DUNDAS, ONTARIO

The History of Dentistry

In the spring issue, we included images of objects from the Faculty of Dentistry's museum, with descriptions from curator Dr. Anne Dale.

Dr. Anne Dale taught me histology in the early 1960s in dental school. She soon became the heart and soul – indeed, the embodiment of curatorial decisions made at the Faculty of Dentistry museum. Her historical knowledge of the profession is unsurpassed. The profession owes her a great debt of gratitude.

DR. FAREL H. ANDERSON
DDS 1966, COLLINGWOOD, ONTARIO

U of T Dentistry has led the way in many dental innovations and discoveries. I'm so glad Dr. Dale is preserving the faculty's rich past.

STELLA WADDINGTON
BA 1993 WOODSWORTH, TORONTO

Call for Nominations for U of T Chancellor

The College of Electors invites nominations for the position of chancellor of the University of Toronto for a three-year term commencing July 1, 2021. The present chancellor, Rose Patten, is eligible to stand for another term. Nominations open at noon on Jan. 7. The deadline for receipt of nominations is Feb. 4 at 4 p.m.

Nominations must be written and signed by two U of T alumni, and should be sent via email in confidence to Patrick F. McNeill, Secretary, College of Electors, at patrick.mcneill@utoronto.ca.

For further information on the role of the chancellor and the election process, please visit: governingcouncil.utoronto.ca.

A Note About the New Issue

Welcome to your new *University of Toronto Magazine*. We are proud to announce some important changes. First, we have expanded coverage of the Scarborough and Mississauga campuses to better reflect the tri-campus nature of U of T. This shared identity is declared right on the cover, where the names of the three campuses now appear above a bolder, more youthful looking masthead.

Inside the issue, you will see more feature stories that incorporate ideas and voices from alumni, students, faculty and researchers representing all three campuses. You will also see more stories that focus exclusively on Scarborough and Mississauga, representing their unique character and strengths. These diverse communities offer a global perspective and contribute to the rich fabric of the U of T experience.

Second, an expanded editorial team now includes Don Campbell and Patricia Lonergan as campus editors for Scarborough and Mississauga respectively. I will continue as editor-in-chief, and will represent the St. George campus. We'll miss our long-time deputy editor Stacey Gibson who has taken a new position at UTSC.

We hope you enjoy your new magazine, and would particularly like to welcome former readers of *UTSC Commons* and *M Magazine*. If you have any comments, questions or concerns, please don't hesitate to contact me.

SCOTT ANDERSON
EDITOR-IN-CHIEF

Write to us

University of Toronto Magazine welcomes comments at uoft.magazine@utoronto.ca. All comments may be edited for clarity, civility and length.

@uoftmagazine

University of Toronto MAGAZINE

WINTER 2020 Volume 48 No.1

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Publications Mail sales agreement No. 43500088

Non-profit postage paid Buffalo, NY

Permit No. 3415. U.S. Postmaster send address corrections to P.O. Box 29, Lewiston, NY 14092
Printed in Canada by TC Transcontinental Printing Inc. ISSN 1499-0040

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UNIVERSITY OF TORONTO

A QUIET PLACE

On most days in a regular school year, U of T's three campuses are bustling. But as photographer Galit Rodan discovered during a recent visit to U of T Mississauga, there's now a sense of "quiet absence," as public health restrictions keep most members of the university community at home. "I thought how strange it must be for first-year students who don't know what campus life is normally like," says Rodan, who spent an afternoon with biology student Shirley Liu. Two of Rodan's pictures appear in this issue; see more at our website.

Read more about university life during the pandemic, page 32

↑ One of the perks of virtual classes, says student Shirley Liu: more time for other things

RAQUEL A. RUSSELL (BA 2017 UTSC) draws on her personal experience as a student and staff member to write about how racism has affected her, and about U of T's efforts to combat anti-Black racism (p. 26). Russell, who studied journalism and now works as a communications assistant at U of T Scarborough Library, says she was surprised to learn that the term "anti-Black racism" was likely coined by a Black Canadian professor. "It serves as an important reminder of the organizers and educators who have been doing anti-racism work in Canada," she says.

In researching the Temerty family's recent $250-million gift to U of T (p. 18), writer **CYNTHIA MACDONALD** (BA 1986 St. Michael's) says she appreciated the "bird's eye view" it gave her of the Faculty of Medicine's many activities. She notes that medicine is more interdisciplinary than ever before, with powerful links to artificial intelligence, business and social justice. "With its core belief in collaboration," she says, "you can see that Temerty Medicine is redefining what health care means."

JESSICA LEE (BA 2013 UTSC) is a photographer based in Toronto. In this issue, she shot our back-page portrait of Satish Kanwar (BBA 2008 UTSC), a vice-president at Shopify (p. 52). Lee, who is a former photo editor of U of T Scarborough's student newspaper, says she was thrilled to see her fellow Scarborough grad doing so well. "It was really inspiring to see how successful he has become in the tech world." Lee is interested in social justice issues; last August, *Maclean's* published her photo essay about racism against Chinese-Canadians during the pandemic.

Want to contribute? Send your ideas to scott.anderson@utoronto.ca.

PHOTOGRAPHS BY (LIU) GALIT RODAN, (RUSSELL) JORIAN CHARLTON (LEE) ALIX FORGEOT; ILLUSTRATION BY STUDIO WYSE

U OF T MISSISSAUGA

ALEXANDRA GILLESPIE NAMED NEW VICE-PRESIDENT AND PRINCIPAL

The University of Toronto Mississauga has appointed its first female vice-president and principal in its 53-year history.

Professor Alexandra Gillespie, an internationally renowned humanities researcher and award-winning teacher, began her five-year term July 1.

A scholar of writer Geoffrey Chaucer, Gillespie joined U of T Mississauga as an assistant professor in 2004. She has since won UTM's Award for Undergraduate Teaching Excellence, served as chair and undergraduate director of English, and acted as a vice-presidential special adviser in research.

Gillespie says she is honoured, thrilled and ready to lead UTM: "Our outstanding students, staff, researchers, teachers and librarians are poised to transform Canada and the world."

U OF T SCARBOROUGH

CONSTRUCTION BEGINS ON A NEW STUDENT RESIDENCE

A new 750-bed residence at U of T Scarborough is scheduled to open in fall 2023.

Located on Ellesmere Road just east of Military Trail, the building will double the campus's residence capacity. The building's residential floors will include a mix of single and double occupancy bedrooms, study spaces, common areas as well as kitchen and dining spaces. It will also have a rooftop garden and terrace.

Reflecting U of T Scarborough's commitment to sustainability, the residence will be one of the largest passive house projects in North America. Passive house is a low-energy design concept that includes highly efficient window insulation, heating and ventilation.

ST. GEORGE

U OF T WELCOMES 20,000-PLUS NEW GRADS IN FIRST-EVER VIRTUAL CONVOCATIONS

This year, U of T students experienced convocation ceremonies unlike any other in the university's 193-year history. From the safety of their homes, members of the graduating class and their loved ones tuned in to virtual events – made necessary by the pandemic.

Following the online ceremonies, graduates received their diplomas and keepsake booklets by courier.

"One of my great pleasures is being able to congratulate each new graduate personally as they walk across the stage in Convocation Hall," said U of T President Meric Gertler. "While that's not possible this year, I want all of our graduates to know the university is immensely proud of your achievements."

HOPE IN A DIFFICULT TIME

I expect we will all be glad to see the end of the year 2020. But I would like to draw your attention to three very hopeful developments that have emerged in this uniquely difficult time, all centered on the University of Toronto.

First, members of the U of T community are in the vanguard of the fight against COVID-19 locally, nationally and globally.

Turn on the evening news or check your phone at any time – you'll see experts from across the university helping to inform the public and to shape public policy. Look to the front lines, and you'll witness U of T faculty, staff, students and alumni doing life-saving work, 24-7.

And step into so many of the labs and departments across our three campuses, where you'll observe world-leading research and innovation on every aspect of the pandemic (please see p. 36). According to a paper in the journal *Scientometrics*, in the first six months of the year, U of T and its partner hospitals comprised the world's ninth-largest source of scientific literature on COVID-19.

At the same time, the world has been reminded of another seemingly intractable plague – that of systemic racism, and especially anti-Black racism, in our society and institutions.

The National Dialogues and Action for Inclusive Higher Education and Communities is an initiative co-ordinated by Professor Wisdom Tettey, vice-president of U of T and principal of U of T Scarborough, and Karima Hashmani, executive director of U of T's office of equity, diversity and inclusion (please see p. 26). More than 60 colleges and universities across Canada have joined the partnership, and some 3,000 leaders took part in discussions this fall. The outcome will be a sector-wide approach, to be articulated in the forthcoming *Scarborough National Charter on Anti-Black Racism and Black Inclusion in Canadian Higher Education: Principles, Actions and Accountabilities*.

The charter aims to go beyond articulating principles to inspire concrete actions. And real progress does seem to be within our grasp as a result of this first-of-its-kind initiative, which began at U of T.

Finally, I would like to highlight the landmark gift of $250 million from James and Louise Temerty – the largest donation U of T has ever received, and the single greatest act of philanthropy in the history of our country (please see p. 18).

It confirms and strengthens the Temerty Faculty of Medicine as a global leader in human health and health care for generations to come. It too is a tremendously powerful source of hope, at a time when we need it more than ever.

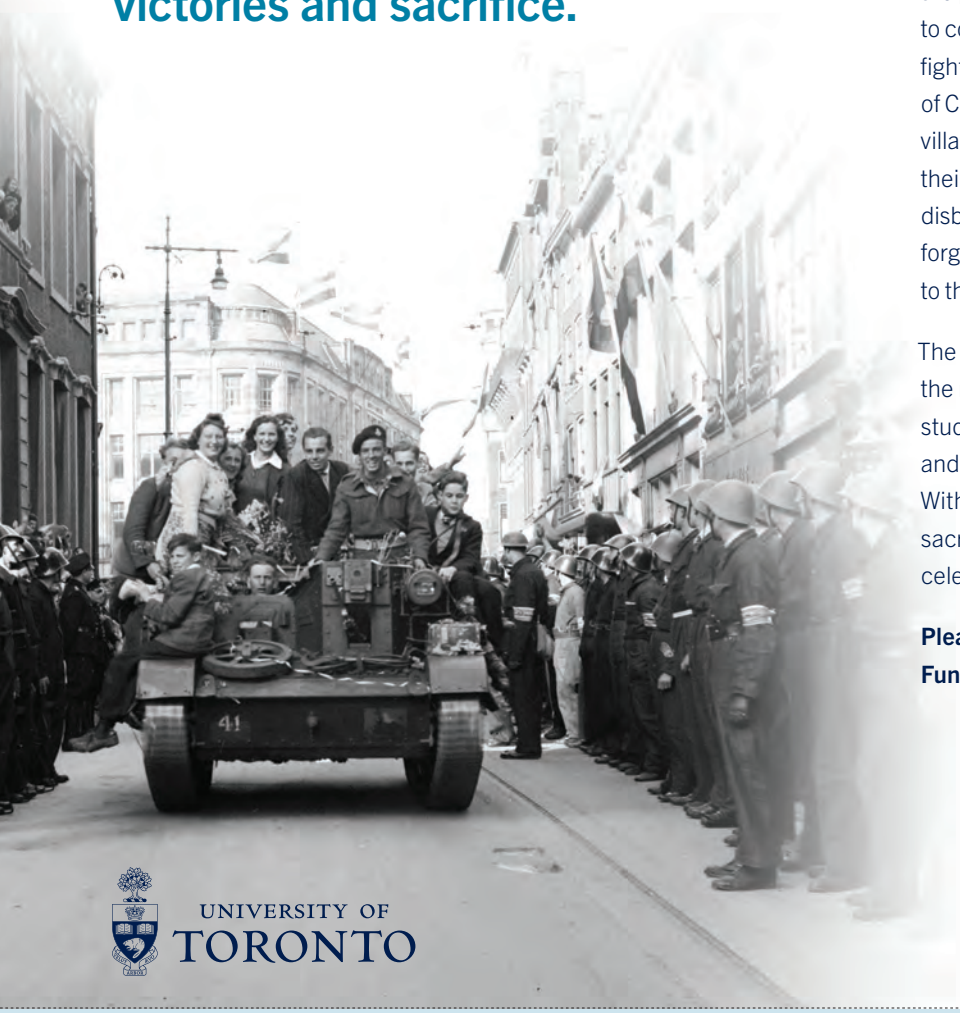
The U of T community has responded with incredible resilience, creativity and leadership in facing the unprecedented challenges of the past year. Whatever 2021 holds, one thing is clear: our mission has never been more deeply relevant to the well-being of individuals and the success of our society.

MERIC GERTLER

PHOTOGRAPH BY LISA SAKULENSKY

They liberated a nation from tyranny.

We remember their victories and sacrifice.



UNIVERSITY OF TORONTO

Few events in Canadian military history are as poignant, or as well-known, as the Liberation of the Netherlands in the Second World War.

For five years, the Nazis brutalized and starved the people of Holland, transported Dutch Jews to concentration camps and executed Resistance fighters until the last days of the war. At the sight of Canadian troops rolling through their towns and villages, Dutch men, women and children greeted their liberators with a mixture of jubilation and disbelief—at long last they were free. The bond forged between our two nations remains indelible to this day.

The beautifully restored Soldiers' Tower honours the memory of the thousands of U of T alumni, students and faculty members who served overseas and at home to keep Canada and our allies safe. With your help, we will ensure the victories and sacrifice of these brave men and women are celebrated and honoured for generations to come.

Please make your gift to the Soldiers' Tower Fund today.

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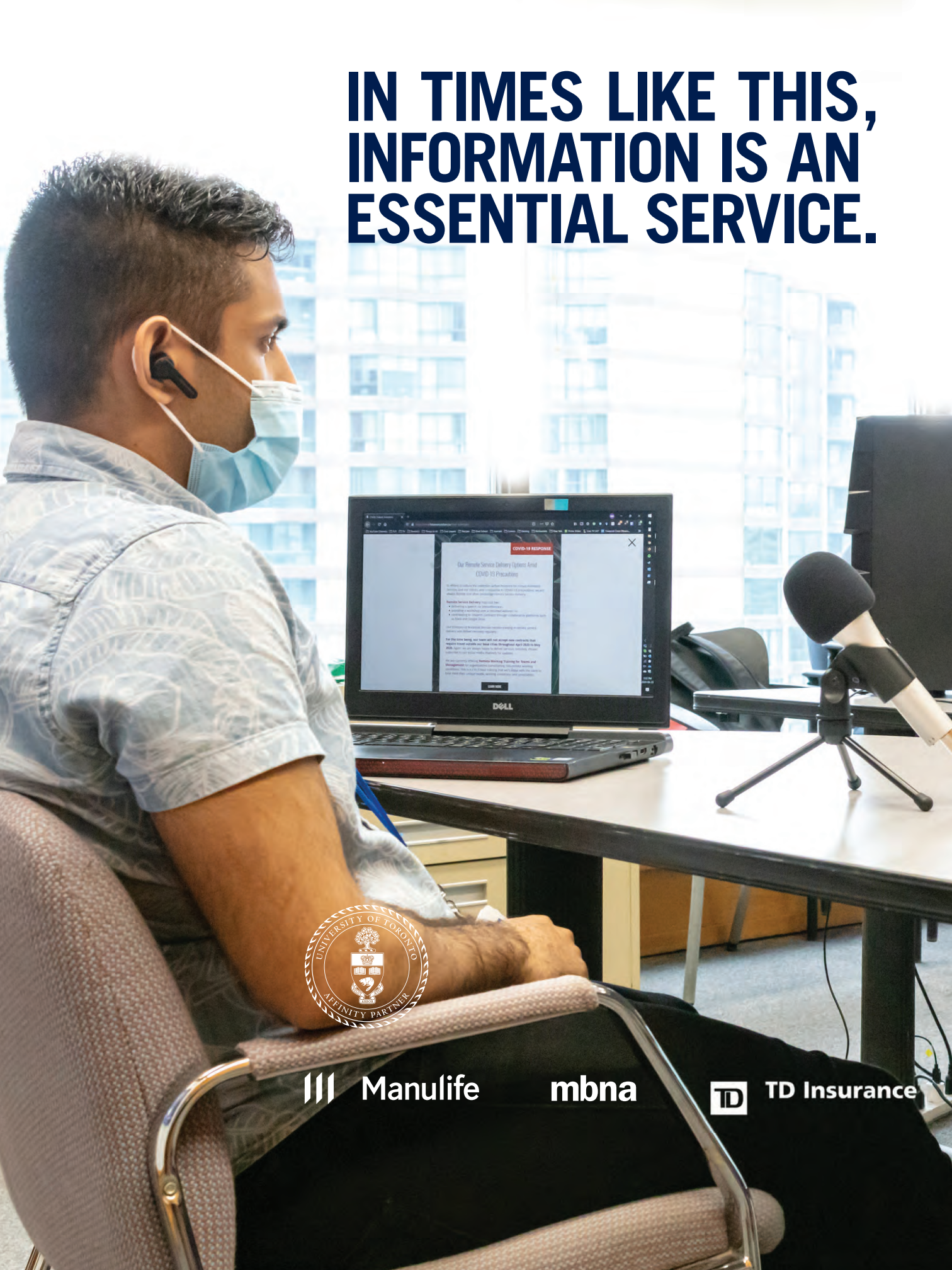
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Learn more about the benefits of U of T affinity products:

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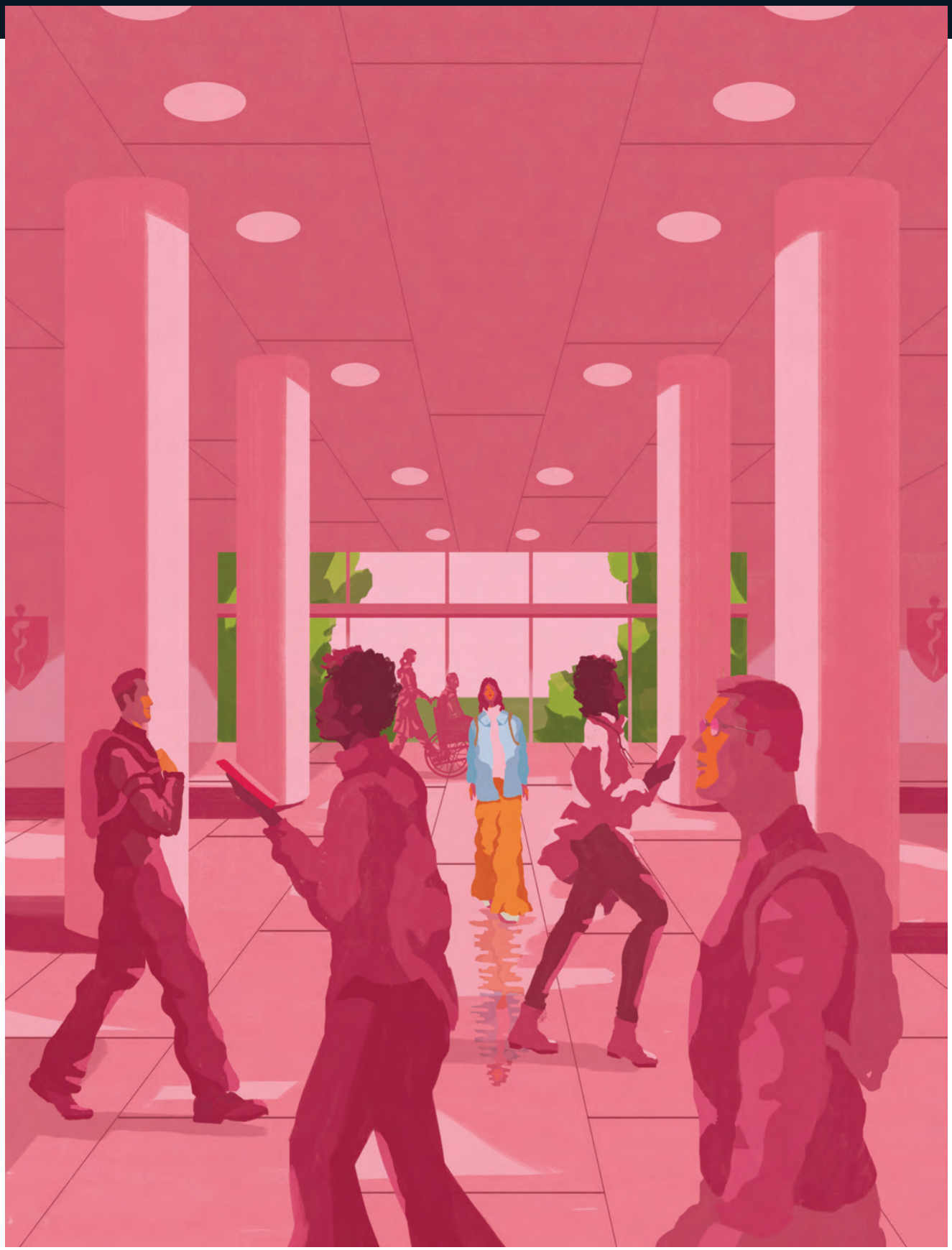


A New Era In Medicine

How a historic $250-million gift to U of T will transform medical education—and improve patient care

by Cynthia Macdonald

Illustrations by Gastón Mendieta

AT THE ANNOUNCEMENT of his family foundation's landmark gift to the Faculty of Medicine, James Temerty summed up what motivates him: "I attribute my business success in large part to my drive to innovate, to lead the way, to do things differently and to never be satisfied with the status quo."

Within the newly named Temerty Faculty of Medicine, Temerty has certainly found thousands of equally passionate innovators. The next generation of health-care providers and researchers will be set to realize their very best ideas with the help of the single largest philanthropic gift ever made in Canada.

Over the years, Temerty, who is the founder of energy company Northland Power, and his wife, Louise, have supported a large variety of health-care initiatives in Canada. Their family foundation also includes their daughter, Leah Temerty-Lord, who serves as managing director, as well as their son-in-law, Mike Lord.

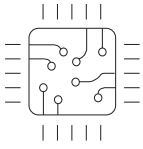
The Temertys' gift will help open the door to a new era in medicine at U of T, in which advanced technology (such as artificial intelligence), collaboration, equity in education and entrepreneurship take centre stage. And thanks to $10 million earmarked specifically for COVID-19 research and support, they have already helped fight the pandemic we now face.

"Arriving amidst a global health crisis, the Temerty family's generosity is truly a gift of hope," says U of T President Meric Gertler. "Hope for what we can achieve together, long after the present crisis has passed."

At the announcement, Leah Temerty-Lord described how the pandemic underlined the need for broad investment in medical initiatives. "We've learned important lessons over the course of the pandemic. But to me, the importance of coming together to solve the big problems is what really stands out. This is the ideal time to invest in medicine. And there is no better institution than the University of Toronto to trust with our donation."

Trevor Young, U of T's dean of medicine, says the impact will be immense – allowing the faculty to take the bold steps they'd dreamed about, but had previously been unable to take. The Temerty gift "will extend every aspect of our programs, transforming education, research and clinical care for decades," he says. "It is truly exciting to think of the collaborative discoveries, game-changing innovations and generations of healthcare leaders this gift will help to support in years to come."

Here are just some of the ways in which Temerty Medicine – already recognized as one of the world's finest faculties of medicine – will change 21st-century health care in Canada for clinicians, students and trainees, researchers and patients.



Algorithms are already being used to detect and predict disease. In future, they will reduce hospital wait times, point the way to precision treatments, and give patients more control over their own health.

INNOVATION

Advanced tools for physicians and medical scientists

IN RECENT YEARS, artificial intelligence and machine learning have transformed the way we shop, travel and manage our finances. With huge advances in computational power and data sharing, health care is finally following suit.

Thanks to the Temertys' investment, the Temerty Centre for AI Research and Education in Medicine will soon open up greater opportunities for disease detection and prediction, as well as more efficient, streamlined health care.

It can seem like the stuff of science fiction – but as Muhammad Mamdani points out, it's a world that is already very much with us. Mamdani is the Temerty Centre's inaugural director. He knows the popular imagination is excited by the idea of algorithms that can outperform humans in tumour detection with over 90 per cent accuracy. But he says that there is so much more to AI – and to see it, "we only have to look to our own backyard."

"We have researchers who have developed an algorithm that can warn you of a pediatric heart attack in advance," he says. "And another that can detect a bleed in the brain within minutes, when ordinarily it can take over three hours to get a diagnosis." There are algorithms to detect cancer, to predict how a patient will respond to treatment and to estimate the near-exact number of patients who will arrive in the emergency department on a given day.

Mamdani looks forward to the "high-risk, high-reward" research that will be made possible by the Temertys' investment, leading to even more AI breakthroughs. "You don't get transformation by thinking conservatively," he says. "If an idea fails, it's OK. We'll learn. But if it succeeds, it could change everything."

WORKING TOGETHER

Collaborating on complex medical challenges

COLLABORATION at Temerty Medicine is probably best symbolized by the Toronto Academic Health Science Network – a unique association between the University of Toronto and 12 affiliated hospitals. "This incredible partnership has been the secret to our success," says dean Trevor Young.

The network allows students to receive training at different hospitals, fosters joint research and the sharing of ideas, and makes needed information easily accessible. It also embodies a philosophy that has been present at the faculty from its very beginning. U of T's medical faculty has never restricted its activities to the campus alone, but has always engaged meaningfully with health-care institutions across the city. "Students, professors and doctors all spend part of the time on campus, and part in the hospitals," says Young, "most of which are less than a kilometre away."

Countless projects attest to the university's collaborative power. As home to Toronto's only medical school, Temerty Medicine acts as a nucleus within a giant, high-functioning cell.

One particularly successful example is the Toronto Dementia Research Alliance, a network of professionals engaged in researching and treating neurodegenerative diseases. Formed in 2012, the group shares research and clinical findings among numerous partner agencies and hospitals across the region. Tarek Rajji, the executive director of the alliance, says that such sharing optimizes care for patients.

One of the alliance's projects is the Dementia Clinical Research Database. Using a standard assessment tool developed by the network, researchers continually collect information from many patients across the disease spectrum. Having this wealth of data helps them understand the differences among forms of dementia, and points the way to more tailored treatments. Other research trials created by the alliance are investigating whether changes in the eye can detect dementia earlier, and whether drugs already in use might also work to stem neurodegenerative decline.

Rajji, who is also chief of the adult neurodevelopment and geriatric psychiatry division at the Centre for Addiction and Mental Health, says competition without collaboration locks knowledge within silos. He's excited about the new bridges the Temerty funding will create. By sharing information more readily, he says, networks such as this arrive at solutions much faster than they otherwise would.

Today, medical advances often require contributions from scientists, business and technology experts, physicians and all types of health-care providers. The Temerty gift will launch a fund to support collaborations across the Toronto Academic Health Science Network.

RESEARCH

Sowing the seeds for important discoveries

BY NOW, EVERYONE knows the image: an eerie floating ball, studded with spikes. It's a picture of the coronavirus, and it comes to us thanks to techniques such as cryo-electron microscopy, or cryo-EM.

Cryo-EM allows scientists to visualize the building blocks of all living cells. By flash-freezing proteins in thin films of ice and bombarding them with electrons, researchers can then construct a 3D model whose most nuanced

properties can be probed. Most recently, cryo-EM has allowed us to rapidly visualize, for example, that monoclonal antibodies could bind to the coronavirus and stop it from infecting cells.

With the Temertys' investment, U of T will enhance its suite of imaging tools with its own high-end cryo-electron microscope. "We've been pushing for it for five years," says Trevor Moraes, an associate professor of biochemistry. "There are only a handful of them in the country right now, and having one will push a lot of research forward by leaps and bounds."

The cryo-EM will be instrumental for addressing the biggest medical challenges of our time – including COVID-19. "The understanding we gain through cryo-EM facilitates the development of better and more enhanced tools such as vaccines," says Moraes.

Other initiatives enabled by the Temertys' investment include the expansion of a Level 3 containment lab, needed to study dangerous pathogens such as Ebola and COVID-19. This lab facility was upgraded months ago, before the gift was officially announced, because the Temertys wished to help meet urgent needs arising from the pandemic. As a result, a team of scientists from U of T, Sunnybrook Health Sciences Centre and McMaster University were among the first in the world, this past March, to rapidly isolate the virus. Viral stock they cultured is now being studied by scientists across the country.

"Excellent resources are a must to recruit the best people in science and medicine," says Young. "We want to expand our resources on campus to ensure our research has the greatest possible impact, and to enhance our collaboration with our hospital partners."

Academic lab research is critical to the development of new therapies. Temerty Medicine will be a vital resource for scientists as they seek to bring new medical products and services to market.

INVESTMENT

Taking discoveries from lab to market

IN THE PURSUIT of discoveries, academic scientists are called to spend long hours in laboratories. But as Leah Cowen says, the work can't stop there. "At a certain point, if you want your work to have a clinical impact you need to bring it to a different setting – a company, or clinical-based lab. Drugs, vaccines, new technologies and devices all require commercialization strategies."

This is why part of the Temerty gift will focus on entrepreneurship, so that the finest innovations arising from U of T can be properly developed and distributed. Training researchers in presentation techniques, for example, is an important foundation for getting investors interested in an idea, says Cowen, who is chair of the university's department of molecular genetics.

Cowen is herself both researcher and entrepreneur. Her lab specializes in finding treatments for fungal infections, which currently ravage the food supply, kill some 1.5 million people a year, and are mostly impervious to current treatments. Three years ago, Cowen co-founded a company called Bright Angel Therapeutics, which pursues novel drug treatments for fungal diseases. Along with co-founder Luke Whitesell, she secured funding from five industry partners outside the university.

Providing students with opportunities to mix entrepreneurship with medicine is especially exciting to Reinhart Reithmeier, the faculty's interim vice-dean of research and innovation. While established scientists have many funding opportunities, "we need to grow the next generation of scholars too, and this gift recognizes that," he says.

ACCESS

Diversity in medicine is good for everyone

HIRA RAHEEL ISN'T just the first among her family members in Canada to attend medical school – she's the first in Canada to go to university at all.

At the Temerty gift announcement, the third-year student recounted the obstacles that dogged her path toward obtaining a medical education. Inspired to apply to medical school by her own sister's struggle with a rare genetic condition, Raheel faced barriers both financial and cultural: she simply didn't know anyone who could advise her on how best to prepare an application to medical school, where acceptance rates are as low as 10 per cent. She didn't get in the first time she applied.

Mentorship at U of T provided the key. While completing her master's degree, she says, "I was lucky enough to find a wonderful leader at the Faculty of Medicine, who encouraged me to reapply. She told me that medicine needed more people like me – more people from diverse backgrounds, with diverse perspectives."

In the 21st century, "we need to train physicians and health-care providers to provide excellent care for a diverse population," says Lisa Robinson, a SickKids nephrologist and an associate dean in Temerty Medicine's Office of Inclusion and Diversity. This imperative isn't just about ensuring access to care for all, "but about improved health-care outcomes as well. There are many reasons why they're improved; one of them is increased trust – a sense of common understanding between community members and their health-care providers."

Data also show that non-white physicians are more likely to practice in underserved communities, which is increasingly important in a world where demographics are constantly shifting. For all students, says Robinson, "diverse classes set up an environment where cultural stereotypes and assumptions can be openly challenged."

The goal is achieving true equity in health care for all Canadians. Diversity improves health outcomes by fostering understanding between patients and providers, extending patient outreach, enriching research data and challenging outdated assumptions.

The Temertys' investment will ensure expanded funding for several initiatives, such as the Black Student Application Program and Indigenous Student Application Program, which are steadily increasing the number of medical students from historically marginalized communities. "Now," says Robinson, "we hope to provide mentorship and guidance for all kinds of students who have been under-represented in medicine – economically disempowered students, those with disabilities and many more."

Two other additions will be the establishment of an Elder-in-Residence, who will bring Indigenous knowledge, history and experience to the faculty, and an Indigenous Elders' Circle. Comprising representatives from multiple Indigenous nations, the Circle will provide guidance to faculty leadership starting in 2021. They will also participate in a governance circle that will oversee initiatives related to Indigenous health.

Students from all backgrounds who need guidance will be able to speak with the elders, says Lisa Richardson, a physician at University Health Network and Women's College Hospital and the faculty's strategic adviser on Indigenous health. Importantly, the Elders can provide knowledge and understanding of Indigenous medicine and well-being – "of the emotional and spiritual dimensions of health, which are integral to many First Nations and Métis," she says. "And an idea that healing goes well beyond what can be provided in the medical system."

James Temerty speaks at the gift announcement

INFRASTRUCTURE

A new multi-purpose building

A CLASSIC EXAMPLE of brutalist architecture, the faculty's venerable Medical Sciences Building opened in 1969. Now, what's commonly known as its "west wing" – close to Convocation Hall, on King's College Circle – will be rebuilt in coming years as a modern, architecturally inviting edifice designed to meet the needs of a new era.

Named the James and Louise Temerty Building, the new development will have multiple purposes, providing space for education of all levels and research of all kinds. Community and professional education will also be offered there, and space will be developed for signature events. It is anticipated that, among other things, the building will house the new Temerty Centre for AI Research and Medicine.

JAMES AND LOUISE TEMERTY share many guiding principles with the Faculty of Medicine under Trevor Young's leadership: to collaborate, to think boldly, to strive for excellence. And yet one of these principles stands out above all others. "The single most important talent that a good CEO has to have is the ability to recognize talent," Temerty said in a *Globe and Mail* interview several years ago. With this transformational gift, the Temertys have shown their unerring instinct for doing just that. ■

IN PURSUIT OF EXCELLENCE

Two years ago, the Temerty family marked the opening of their charitable foundation's new office by writing a constitution outlining the values and principles that would guide their actions.

"Among those," said James Temerty as he announced his foundation's extraordinary $250-million gift to U of T, "were things like generosity, leadership, the pursuit of excellence and intellectual curiosity. As I reflect on this gift, it gives me pleasure to know that what we are doing today resonates so well with our values."

Since 1997, the many causes the family has supported have included health-care institutions, cultural organizations and human rights initiatives. "Over the last 20 years, the Temertys have quietly become one of the country's most generous donor families," says David Palmer, U of T's vice-president of advancement.

Born in Ukraine during the Second World War, James Temerty moved with his family to Canada in 1950. Possessed of an entrepreneurial spirit, Temerty rose from franchisee of a single ComputerLand location to owner of the largest privately held chain of such stores in the world. In 1987, he struck off in a new direction as the founder of Northland Power, Canada's first independent power producer.

At the time, "green energy" was a little-known concept. Soon, however, Northland was leading the way in developing new, environmentally friendly energy sources, such as biomass, wind and solar. Northland currently operates renewable energy projects primarily in Canada and Europe.

Since establishing their foundation 23 years ago, James and his wife Louise have brought on the talents of their daughter, Leah Temerty-Lord, and her husband, Mike Lord.

Palmer first approached the Temertys with the idea of a gift to the Faculty of Medicine in May 2019. The family was deeply impressed with the clarity, ambition and consultative nature of the faculty's strategic plan, which provided a blueprint for how their gift could be implemented and achieve the impact they desired.

As the foundation's managing director, Temerty-Lord led the discussions with Trevor Young, dean of the Faculty of Medicine, and Palmer and their teams.

"From the first conversation with Jim and Leah, it was clear that the Temertys' values, their bold entrepreneurial spirit, and their commitment to health care and health science research, closely aligned with the faculty's excellence, its vision for the future of medicine, its collaborative culture and the potential to advance its leadership globally," says Palmer.

Discussions about the gift were far advanced by last March. Recognizing that many of the initiatives they already planned to fund – such as vaccine research, technological innovation and collaboration – would be immediately valuable in the battle against the pandemic, the family elected to advance part of the gift immediately, designating it to the Dean's COVID-19 Priority Fund.

On Sept. 24, Canadians learned the full extent of the Temerty family's generosity. "With their remarkable gift, they have sent an emphatic signal that generosity and selflessness, and hope and optimism matter more than ever in the world – particularly at a time of such great economic uncertainty and social stress," says Palmer. "It is an inspiring moment for philanthropy in our country's history and a model for our times."

—Cynthia Macdonald

PHOTOGRAPH BY JOHNNY GUATTO

ANOTHER FIRST WE'LL DO TOGETHER.

SAVE THE DATE FOR VIRTUAL ALUMNI REUNION.

For so many alumni, U of T was a time of beginnings and firsts. 2021 brings one more—the fun of Alumni Reunion with the safety of current precautions. Whether we go virtual, in-person or a mix of both, reunion is your chance to learn new stuff, reconnect with friends and meet new people. You'll have lots of events to choose from, including activities through your college or faculty, plus special events for 2021's honoured alumni and those we had hoped to honour in 2020. That's anyone who graduated in a year ending in 0, 1, 5 or 6. But all U of T grads are invited to create more beginnings at Alumni Reunion 2021.

Alumni Reunion 2021
May 26–30

Find out more:
alumnireunion.utoronto.ca

Contact us:
alumni.reunion@utoronto.ca
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416-978-5881

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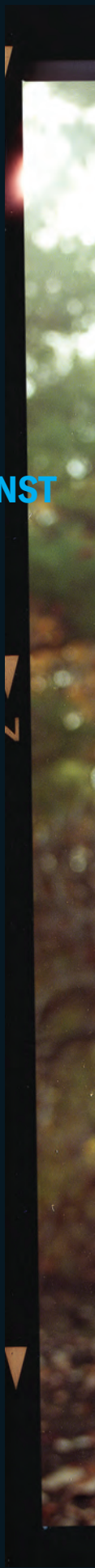
UNIVERSITY OF TORONTO

OUT OF ACTION, COMES HOPE

U OF T IS STEPPING UP EFFORTS AGAINST

BY
Raquel A. Russell

Photographs by
Jorian Charlton



ANTI-BLACK RACISM AND MOVING TOWARD GREATER INCLUSION

"I AM ENCOURAGED BY THE UNIVERSITY'S COMMITMENT TO CHANGE"

—Raquel A. Russell

I WAS AWAKE WHEN THE VIDEO BEGAN TO CIRCULATE ON TWITTER.

I saw the outcry of Black voices online and knew another one of us had been taken.

On May 25, George Floyd, a 46-year-old Black American man, was killed by a white police officer. Other officers joined in pinning his unconscious body to the ground.

As I often do when I see this kind of news in my feed, I thought of my brother. I thought of my dad, my cousins and my uncles. I got through only a few heart-stopping moments of the footage before shutting down my computer and crawling under my covers.

Earlier that day, I had received news that an old family friend, like a grandmother to me, had passed away. She had contracted COVID-19 in her nursing home a few weeks earlier. In May, we didn't know what we know now, which is that, in North America, Black and racialized communities are disproportionately affected by the pandemic.

As a Black person living in Canada, I sometimes feel overwhelmed by the evidence of how institutions of all kinds – from education to health care to law enforcement – discriminate against us, cast us as stereotypes or reinforce existing prejudices.

The effects can be deadly. George Floyd and Breonna Taylor are just two of the Black individuals who, in widely reported incidents, lost their lives to violence. There are countless others. I say their names to myself: Abdirahman Abdi, Regis Korchinski-Paquet, D'Andre Campbell. Not a week has gone by when I haven't thought of Oluwatoyin "Toyin" Ruth Salau, a 19-year-old Nigerian-American Black Lives Matter activist killed after being brutally assaulted.

These stories, these losses weigh on our minds. They're inescapable. Many of us wake up, rearrange our faces for Zoom meetings and compartmentalize our feelings, entering environments that may not accept us for all that we are.

U of T Scarborough Principal and U of T Vice-President Wisdom Tettey

So I take heart at the sight of protesters in this country, and around the world, who call for justice and the dismantling of systems that are working against racialized communities. These protesters are taking action. They call on Canadians to recognize that anti-Black racism isn't only an American problem.

The responses to the protests give me hope. Many companies and organizations, including the university, have restated their commitment to fight anti-Black racism. As a U of T Scarborough alum and a full-time staff member, I feel privileged to have seen some of this anti-racism work up close. I am encouraged by the university's commitment to change.

I graduated in 2017. Not one of the professors who taught me in my degree program was Black, although I remain forever grateful to the Black educators in adjacent courses and Black guest speakers who let me know I wasn't alone.

I have felt the pressure to assimilate in order to succeed. Would I go further if my hair was straight and loose? Am I too dark-skinned to be considered for an on-camera assignment? Do people perceive a threat when I, a larger, dark-skinned Black woman with locs, walk into a room? With so few faces like mine in my program, I often asked myself this question. Many times, I felt complicit by not speaking up about racist microaggressions from instructors.

Recently, I spoke with Osaretin Obano, a fifth-year Black student at U of T Scarborough, who, like me, was never taught by a Black professor in his program. I think Obano raises the concerns of many when he says he would like to see many more Black faculty, staff and students at U of T. He also wants meaningful change in the university application process to consider a wider range of non-academic experiences. "The methodology doesn't reflect equal opportunity," he says.

I **HAD MANY OF THESE** thoughts in mind in early October as I attended the National Dialogues – a first-of-its-kind discussion led by U of T that brought together leaders, faculty and staff from universities and colleges across the country to discuss how to combat anti-Black racism and promote Black inclusion. Subsequent events in the National Dialogues series – which aims to address inclusion (or the lack of it), at higher education communities in Canada – will cover topics such as Indigeneity, mental health, disability and gender.

Co-ordinated by Wisdom Tettey, the principal of U of T Scarborough and a U of T vice-president, and Karima Hashmani, the university's executive director of equity, diversity and inclusion, the initial two-day forum featured sessions that considered the diverse experiences of identities within the Black community. Many people in attendance spoke up with ideas for eradicating anti-Black racism and for what lasting Black inclusion within universities and colleges would look like.

Breaking down barriers and including others has always been important to Tettey, who was born in Ghana and is the first Black principal at U of T Scarborough and the university's first Black vice-president. Tettey says we must be purposeful in enabling Black inclusion while at the same time trying to dismantle the pillars of anti-Black racism. "They are not necessarily the same," he says. "We have to look at it in tandem and we have to be making progress on both fronts."

Earlier this year, U of T Scarborough released its strategic plan, with inclusive excellence as its central theme. The document calls for a number of measures to boost equity and diversity. These include hiring more Black faculty and staff, and creating more opportunities for their advancement into leadership roles; recruiting more Black students; and changing the curriculum. "It's not enough to say we don't see manifestations of anti-Black racism," explains Tettey. "Does the curriculum reflect our community? Does it tell the story of Black achievement, contributions, excellence and history?"

Such ideas will be reflected in the *Scarborough National Charter on Anti-Black Racism and Black Inclusion in Canadian Higher Education*. The document, to be released early in 2021, will draw from discussions held at the National Dialogues, and will serve, Tettey says, as a "compass to whether or not we are addressing this issue to the extent that is necessary."

"My hope is that all of us will drive change in a way that is more concrete," he says.

As the National Dialogues brought together participants from universities and colleges across Canada, U of T had already begun to elevate the issue of anti-Black racism across its own three campuses. This past September, the university established the Institutional Anti-Black Racism Task Force to capture the experiences of – and address the barriers faced by – members of its Black community.

When the task force was announced, Kelly Hannah-Moffat, U of T's vice-president, human resources and equity, emphasized that responsibility for ending racism rested on *all* members of the university community. "Racism is not an issue for Black and racialized communities to address," she said. "It is our collective responsibility to take steps to eliminate barriers and create inclusive spaces for Black students, staff, faculty and librarians."

DEXTER **VOISIN, U OF T'S** first Black dean of the Factor-Inwentash Faculty of Social Work, is a co-chair of the task force. He says the group is charged with addressing how anti-Black racism occurs at the institutional level and laying out ways to promote Black achievement and excellence. "Very often, we think of anti-Black racism being dependent on someone saying something or acting in particular ways, but I see it as a structural issue in how it manifests."

Some of those manifestations dovetail with what U of T Scarborough identified in its strategic plan. These include the lack of representation in curricula, and, as Voisin describes, the presentation of Black lives and Black bodies from a "deficit,

"DOES THE CURRICULUM REFLECT OUR COMMUNITY? DOES IT TELL THE STORY OF BLACK ACHIEVEMENT, CONTRIBUTIONS, EXCELLENCE AND HISTORY?"

Dexter Voisin, dean of the Factor-Inwentash Faculty of Social Work and co-chair of the university's Anti-Black Racism Task Force

pathologic or patronizing" perspective. "When you think about the lack of Black leadership in places and positions of power across the university," Voisin says, "that signals to Black people, to Brown people, to Asian folks, that expertise shows up in white bodies. Individuals cannot become what they cannot see."

During the current academic year, U of T community members across the three campuses are being invited to share their ideas with the task force, which will present its recommendations for action in March.

For faculty and staff who have *been* doing the work – engaged in equity, diversity and inclusion at U of T – this year's conversations have sparked hope and a renewed focus at the university. Hashmani says the societal discussion around racial injustice has given her office the chance to connect with U of T communities differently. "There is demand for this work, and we are engaged with academic divisions across the three campuses," she says. "Our colleagues want to ensure this is prioritized."

"INDIVIDUALS CANNOT BECOME WHAT THEY CANNOT SEE."

The university has also hosted specific events in response to the ongoing incidents of racial violence and injustice this year. In June, the U of T Anti-Racism and Cultural Diversity Office hosted a series of virtual sessions – including a space for Black community members only – to gather, heal and experience restoration. They drew more more than 2,000 participants.

Those sessions were followed soon after by two online events focusing on allyship and solidarity, with conversations on what it means to operate within a culture of whiteness and Eurocentrism. "What makes me hopeful is that we are pushing in the direction of meaningful discussion and change," says Hashmani.

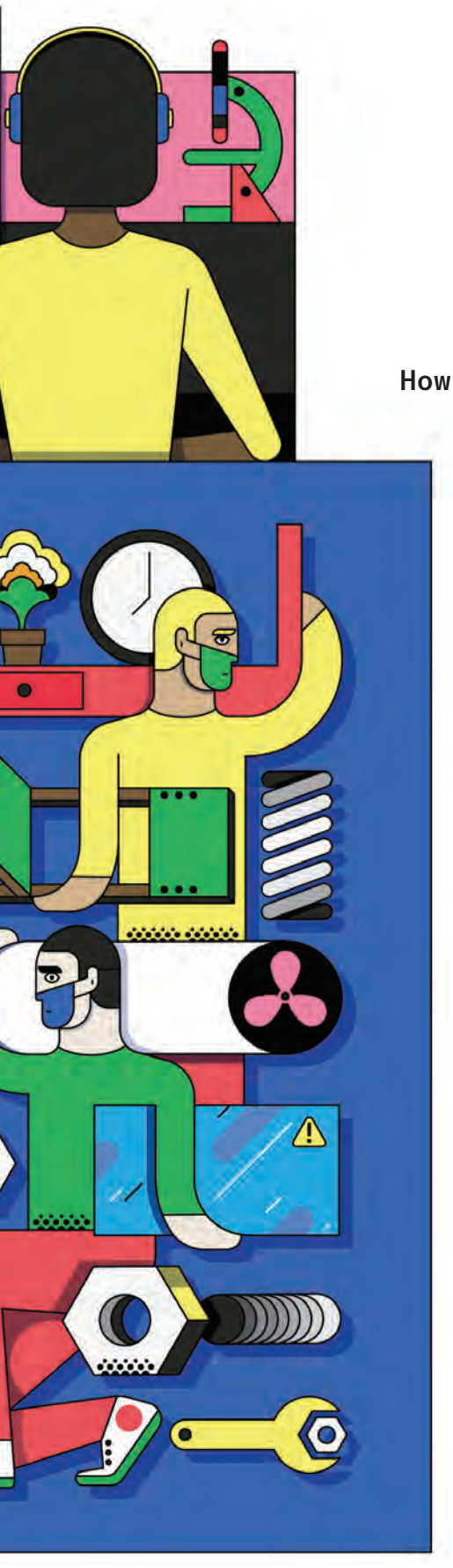
To address the ongoing need to provide a sense of community and support, early in 2020 U of T Mississauga launched Black Table Talks, which connects students with Black faculty and staff. (During the pandemic, the series has continued online.) The initiative has now been opened up to all three campuses. "At the end of the first meeting, students talked about leaving with their heads held higher, and about feeling empowered and feeling seen," says Rhonda McEwen, an associate professor of new media, and the special adviser on anti-racism and equity at U of T Mississauga.

AS **THE UNIVERSITY TACKLES** issues of racism and equity, it is crucial that Black voices be heard. We must be able to share our experiences of exclusion, of microaggressions, and of pain and violence. Our white colleagues need to listen, and as Hashmani reminds me, everyone must help dismantle barriers. "The onus doesn't only lie with the Black community," she says. "All of us create this system; we all need to take responsibility for it."

A statement someone made at the National Dialogues sticks with me. I think about it as I watch and engage with my non-Black colleagues in the work of allyship and dismantling harmful policies and systems. It stays with me as I engage in sessions hosted by leaders in equity, diversity and inclusion. It stays with me as I navigate religious spaces and family dynamics where unlearning internalized systems of oppression continues. It stays with me as some organizations remain silent – which in itself is harmful.

The statement is simple: "Action inspires hope."

Action is happening at U of T. There could be some who don't like the changes, but as Voisin says, "The eggs can't be unscrambled. There is no going back." ■



PULLING TOGETHER

How U of T handled a semester like no other

BY MEGAN EASTON

Illustration by Jamie Cullen

SHIRLEY LIU got her lab work done in half the time this fall compared with last year. The second-year biology student at U of T Mississauga had no travel time and minimal prep because she worked from her residence room, moving an avatar around a virtual laboratory.

"You log in and get started – clicking on the pipettes, transferring solutions to beakers, and so on," says Liu. "It's really efficient." Shifting from in-person labs to simulations was just one of the many pandemic-driven changes she experienced since starting classes in September. And she's not alone: 90 per cent of undergraduate students took all of their courses online this past fall.

When the lockdown forced teaching to go digital in March, U of T had about 150 fully online courses. "Within a few days, that number went to more than 6,000," says Susan McCahan, the vice-provost of academic programs and of innovations in undergraduate education. She jokes that when she started in her innovations role back in 2015 she never imagined having to help transform undergraduate education for 70,000 students across three campuses almost overnight. It was a massive undertaking, made even more challenging by the fact that there was so little time to prepare. For many professors, those spring weeks were their first forays into fully virtual teaching.

"Everyone did their best, but we knew we wanted to do better in the fall," says McCahan. Led by the dual priorities of maintaining academic excellence and ensuring the health and safety of its community members – wherever they are – the university used the summer to get faculty members up to speed on online teaching. This included investing in new

On a study break, U of T Mississauga student Shirley Liu grabs a snack and walks through the Davis Building

technology, such as an institution-wide license for Zoom, hiring more educational technologists – there are now more than 100 – and offering workshops and one-on-one consultations for instructors on designing and teaching virtual courses. "We set up a global calendar of all the online teaching resources available across the university and revised it daily," says McCahan.

"Zoom by the Lake," a sort of summer boot camp for online course design run through U of T Mississauga's Teaching and Learning Collaboration, was just one of those resources. Fiona Rawle, the associate dean of undergraduate education at U of T Mississauga who helped lead the camp, says she was also learning alongside the attendees. "I was doing a lot of reading on online teaching, as were many of my colleagues. We all shared information and provided feedback on each other's course plans." Mairi Cowan, an associate professor, teaching stream, in the department of historical studies at U of T Mississauga, was one of the "campers." She says the program gave faculty a good sense of what it's like to take an online course. "I came out with a deeper level of compassion for students, who are also brand new to all this," she says.

The small fraction of undergraduate teaching that had an in-person component this past fall was mostly in courses that required hands-on learning, says McCahan. To ensure the physical infrastructure on the three campuses met or exceeded public health and safety guidelines, 800 U of T staff deemed essential workers spent the summer upgrading ventilation, installing Plexiglas barriers, adding signage and removing furniture to allow for physical distancing in all learning spaces. "Regulations were constantly changing and there was no blueprint for us to follow," says Ron Saporta, chief operating officer for property services and sustainability at St. George. "We just tackled one building at a time across the 211 we have."

In residences, an additional safety measure was making every room a single. Hamza Bin Waheed, a second-year commerce student from Pakistan and the president of the U of T Mississauga Residence Council, says he wanted to return to residence even though all his classes were virtual. "I was hoping to get as much out of the student experience as I could." For all international students who, like Waheed, had to quarantine upon arrival in Canada, the university provided a private room with a washroom at a hotel or U of T Mississauga residence, as well as meal delivery and daily check-ins for health and well-being. By October, nearly 900 international students had completed their quarantine. "We did everything we could to make their transition as safe and comfortable as possible," says Sandy Welsh, vice-provost for students.

With the vast majority of students staying at home or in residence and relying on technology to connect to their professors and classmates, there were inevitable challenges, but also some perks. "I'm saving so much time not having to go out to class and am finding it easier to access virtual office hours," says Liu. "Of course, sometimes my profs have technical difficulties, like blurry screens or bad audio, but they fix them quickly. The downside is trying not to zone out when I'm staring at a screen for hours."

Waheed says he also struggles with Zoom fatigue. "It sucks the energy out of me, especially combined with the information overload coming at students these days. Every single communication is virtual." But he also sees some advantages. "It's great when professors pre-record their lectures because I can watch when it's convenient and take notes at my own pace." He empathizes with his fellow international students who stayed in their home countries and are dealing with poor internet service and different time zones. "I mentor a student from Kazakhstan who has extremely slow internet and is 10 hours ahead," he says. "Imagine how frustrating that would be."

"It's great when professors pre-record their lectures because I can watch when it's convenient and take notes at my own pace"

These access and equity issues add a layer of complexity for professors, says McCahan. Many try to hold live lectures in the morning to avoid middle-of-the-night viewing for the students in time zones that are up to

PHOTOGRAPHS BY GALIT RODAN

12 hours ahead. There is also the fact that YouTube and Google are banned in China, so students can't view course videos on these platforms. To solve this problem and offer students some consistency, U of T recommends that instructors use one of three platforms: Zoom, Microsoft Teams and Quercus, U of T's online teaching and learning system. For local students who lack adequate technology, internet service or a quiet environment, libraries and study spaces with Wi-Fi are open across all three campuses.

"We're struggling through, and there isn't always a perfect solution," says McCahan. "There hasn't been a mass market to drive the development of educational technology until now, and it's not where we'd like it to be for 2020. The result is that it can feel a bit like you're trying to stitch together pieces of technology to create what should be a seamless environment for your students, and it doesn't always come across this way. Our move to online education is a work in progress. We're constantly refining our approach based on student and faculty input."

Rawle, who taught first-year biology to almost 900 students this fall, is always looking for ways to use the available technology to simplify the experience for her students. She used captions during her lectures, for example, and has a streamlined course home page with only nine icons linking to readings, a weekly to-do list and other essentials. "Students are inundated with information," she says, "so I make things as straightforward as possible."

Like many professors, Mairi Cowan has opted for a balance of live and recorded teaching in her large first-year history course. "I pre-record my weekly lecture as four or five short parts interspersed with activities, such as watching a video or exploring a related website," she says. "Then we get together online later in the week so students can ask questions and discuss the material, as we would in person." For her small, upper-year seminar class, she tries to reproduce the in-class experience. "It's hard to replicate the alchemy of being together," she says. "I realized there's an art to looking around at students and gauging when they have something to say. I can't do that online, so I've created different ways for them to contribute, such as chatting with me privately, taking part in polls, sharing written comments, or using video or audio."

Rawle says feeling engaged and part of a community helps students learn better in any discipline. "This is something we're all wrestling with right now: how do we build relationships when everyone's on their screens? How do we humanize online education?" To start the fall term on the right foot, she sent a letter to her students before classes began expressing her concern for their health and well-being and acknowledging the stress of the current environment. Then, on the first day, she asked them what their top worries were and shared the most common responses anonymously with the whole class.

"I'm using a mix of inclusive and trauma-aware teaching practices, or more broadly a pedagogy of kindness," she says. "I try to create an honest dialogue online. A lot of students message me privately, too, even if it's just to ask for photos of my dog, Argus, who they can often hear in the background!" There's no shortage of lighthearted moments in her class, whether that's warming up for the lecture with a group colouring page, polling students on their "secret superpowers" or ending every class with music by request.

Liu and Waheed say they see the effort their professors are putting into creating community, but that there are limits to what they can do at a distance. "My professors are good about keeping up with discussion posts and being open to talking about things beyond the coursework at office hours," says Liu. Waheed agrees but says there is no substitute for spontaneous after-class discussions with fellow students. He especially misses the camaraderie of informal study groups, which, he says, virtual discussions lack.

Looking ahead, McCahan says the university will continue to adapt as required, but the first steps have been promising. "We've discovered that our faculty members can innovate and adapt their teaching in the digital world, and that's not going to evaporate post-pandemic. I think there will be a reimagining of undergraduate education. In-person teaching will still be critical, but we'll closely examine where it has the most benefits, and where online teaching might enrich student learning, such as with global classrooms, where students and faculty collaborate with peers from other universities."

About a year before the pandemic began, McCahan had a friendly debate with a colleague about the merits of virtual classrooms. "I argued that learning how to learn online was going to be a key skill in the future, and we needed to prepare our students," she said. "I just didn't realize the future was going to be 2020." ■

Pandemic prep, by the numbers

800+
essential workers across the three campuses prepared the physical infrastructure for students' gradual and safe return in September

30,000+
COVID-19 signs and decals installed

13.4 million
wipes and 20,685 litres of hand sanitizer ordered

Twice daily
disinfection of high-touch points

100
electrostatic sprayers deployed for superior and faster disinfection

250,000
non-medical, reusable face masks procured for distribution – two for every student, staff and faculty member, and librarian

Biology student Shirley Liu views a recorded lecture from her residence room

Robert Kozak, a clinical microbiologist at U of T and Sunnybrook Health Sciences Centre is one of several U of T scientists working on a COVID-19 vaccine

All researchers pictured are wearing the appropriate level of safety gear for this lab

THE SEARCH FOR A VACCINE

U of T scientists are pursuing a made-in-Canada solution to end the pandemic

Photographs by
KEVIN VAN PAASSEN / SUNNYBROOK

BY KURT KLEINER

AS CANADA comes up on the one-year anniversary of its first reported case of COVID-19, two of the many vaccines under development around the world are on the verge of being approved for widespread use. But there are questions about how well these initial vaccines will work, how quickly they'll become available, and who will get them.

That's why a number of U of T scientists are working to develop their own vaccine candidates. They expect we will need more than one to bring the pandemic under control. And they believe that increasing the chances of a made-in-Canada vaccine will help to ensure that all Canadians can get protection.

"I think it would be great to have a vaccine developed by Canadians, made by Canadians and owned by Canadians," says Robert Kozak, a clinical microbiologist at U of T and the Sunnybrook Health Sciences Centre, who is working on a vaccine. "That makes it easier to distribute, and to make sure it's spread equitably – in Canada, and all over the world."

About a dozen of the roughly 200 vaccines in development globally are in Phase 3 clinical trials, meaning some could be ready for manufacture early in 2021. Canada has already agreed to spend more than $1 billion reserving vaccines being developed by seven pharmaceutical companies. Only one of them, Medicago, is located in Canada.

Because there are so many ways to design a vaccine, it is difficult to tell from the beginning which ones will provide the most protection. It's even possible that some vaccines will work better than others for certain populations – such as older people or children. The vaccines being developed at U of T aren't likely to get out first, but they could easily find a place in the mix.

U of T scientists are pursuing several different approaches to creating a vaccine. These include using custom-designed DNA or RNA (ribonucleic acid); injecting antigen-producing genetic material into a cell; and even modifying a century-old tuberculosis vaccine so that it will fight COVID-19.

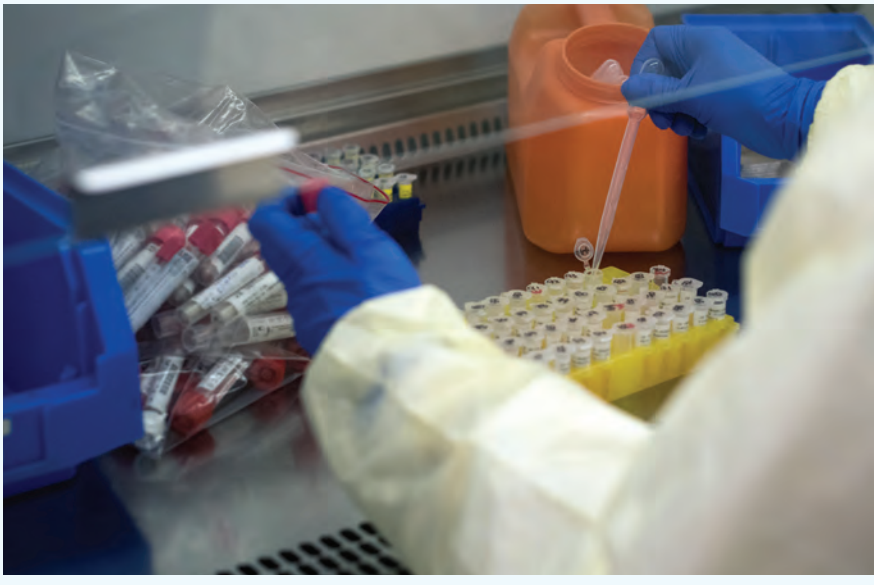
When the body is invaded by a new pathogen, such as the virus responsible for COVID-19, the immune system learns to recognize it by the molecular patterns on its surface. The next time that this pathogen shows up, the immune system is prepared to jump into action.

Vaccines teach our immune system to recognize the patterns on a pathogen ahead of time. Some use dead or weakened pathogens to do the job. Others use just a part of the virus – possibly a piece of one protein – to train the immune system.

A DNA Vaccine

Kozak is working with Gary Kobinger at Laval University on a DNA "ring" that carries the code for the SARS-CoV-2 spike antigen – a small piece of the virus responsible for COVID-19.

One of the normal jobs of our cells is to take instructions from DNA to produce proteins. Kozak and Kobinger designed a loop of DNA that they deliver into the body. When our cells' protein-making machinery encounters this DNA, it carries out the instructions on it and makes the viral protein. However, once the viral protein is produced, the immune system still recognizes it as foreign and develops an immune response to it. "Our method will train the immune system so that when the immune system sees the real thing it's going to be ready to fight it off," says Kozak.



Kozak's vaccine would use a DNA "ring" to deliver a small piece of the virus's genetic code into the body

DNA vaccines are a newer technology, so no existing vaccines use it yet. Kozak says it is an attractive approach because the DNA loops are cheap and easy to make, they show promise in creating a good immune response and they are safe because no live virus is used.

The protein Kozak and Kobinger are using is called the spike protein. It's part of the protrusion on the outside of the coronavirus. The spike protein is an attractive target because the virus needs it to attach to human cells and begin the infection process. Antibodies that target it will smother the spike protein and prevent it from infecting cells. In the meantime, the immune system ramps up to destroy the virus.

So far, Kozak and Kopinger have shown that their vaccine creates an immune response in animals. Now they

are testing it to see if animals given the vaccine actually gain protection against illness. Although they are still analyzing results, Kozak says he's cautiously optimistic the data will show that vaccinated animals get sick less than unvaccinated animals.

Using Messenger RNA

Mario Ostrowski is a U of T professor of immunology and an infectious disease clinician at St. Michael's Hospital in Toronto. He is collaborating with a Toronto biotech company called Providence Therapeutics to create something similar to a DNA vaccine, except by using messenger RNA.

Messenger RNA is a single-stranded molecule that helps translate the information coded in DNA into a protein. Providence was using it to develop a cancer treatment before the pandemic, and Ostrowski was interested in adapting it for HIV. But when COVID-19 hit, Ostrowski and Providence pivoted. "The advantage of messenger RNA vaccines is you can produce these vaccines quite rapidly and really tailor and design them according to the proteins you want," Ostrowski says.

In this case, the scientists are also getting the body's cells to use the virus genetic code to manufacture a piece of the virus spike protein. The researchers have already shown that the vaccine provokes an immune response in animals, and they are moving ahead with studies to see if vaccinated animals show a resistance to infection with the virus.

Ostrowksi says they are also studying people who have already had COVID-19 to see what molecular patterns on the virus their immune systems learned to recognize. Those patterns could also be promising targets for a vaccine.

Tuberculosis and a Hollowed-out Virus

Jun Liu, a professor of molecular genetics, is working on a vaccine with two other U of T researchers – James Rini, a professor of molecular genetics, and Jim Hu, a professor of laboratory medicine and pathobiology, and a senior scientist at the Hospital for Sick Children. The team is also using the spike protein as an antigen. But they are developing two different vaccines, each with its own way of introducing the antigen into the body.

The first uses something called a helper-dependent adenovirus, or HDAd. These are viruses that have been "hollowed out." All of their original genetic material has been deleted, allowing researchers to insert the genetic material they want. The HDAd still attaches to cells and injects the genetic material. But because its own genetic material has been deleted, it can't make new viruses.

Although HDAds have been used in research and in gene therapy, they have not been used in any clinical applications before – including approved vaccines. Hu says they have the potential to create a potent and safe vaccine with few side effects.

The U of T researchers all received government funding, but they'll need additional resources to move vaccines past animal testing

The other approach the three researchers are pursuing begins with a very old vaccine called bacille Calmette-Guérin, which has been used against tuberculosis since 1921. Many researchers are interested in it because it seems to have a general immune-boosting effect that all by itself might offer some protection against COVID-19.

Liu's team is modifying the bacterium used in bacille Calmette-Guérin so that it will create a protein that contains two different antigens – the original tuberculosis antigen, combined with the antigen of the spike protein in the virus responsible for COVID-19. The intention is that this protein will create the same general immune-boosting effect along with a specific immunity to COVID-19. "It's difficult to predict which platform will be successful. We want to increase our chances," Liu says.

The team received a $415,000 grant from the Canadian Institutes of Health Research to pursue the vaccines, and, like U of T's other vaccine candidates, has already had some success with animal testing. But vaccine approval requires large clinical studies with humans – first to show that the vaccine is safe, and then to prove that it is effective. The cost can run into the tens of millions of dollars. "We need a lot of support to get it going," says Hu.

All of the teams have received some government funding for their research, but they will need to attract additional funding, corporate sponsors, investors or some combination of these to develop the vaccines past the animal testing stage. With other countries making the investment already, and some vaccines close to coming to market, it can be hard to convince funders, the scientists say. But they think it is important for Canada to have its own vaccine efforts. "Many of the vaccines going through Phase 3 trials are being done in the U.S.," Ostrowski says. "We don't know when we're going to have access to any of these vaccines."

Ultimately, many vaccines will need to be approved before the pandemic is brought under control. The U.S. Food and Drug Administration has said it expects any COVID-19 vaccine it licenses will need to protect at least 50 per cent of people who take it. That would be a good start, but would still leave room for improvement. "If you want to achieve long-term protection, you might have to do a mix and match," Kozak says. My opinion is you'll see a lot of these different vaccines going forward." ■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Eliminating Excessive Force

U of T Mississauga professor Judith Andersen's training techniques improve police performance in tense situations. The challenge: getting police to use them

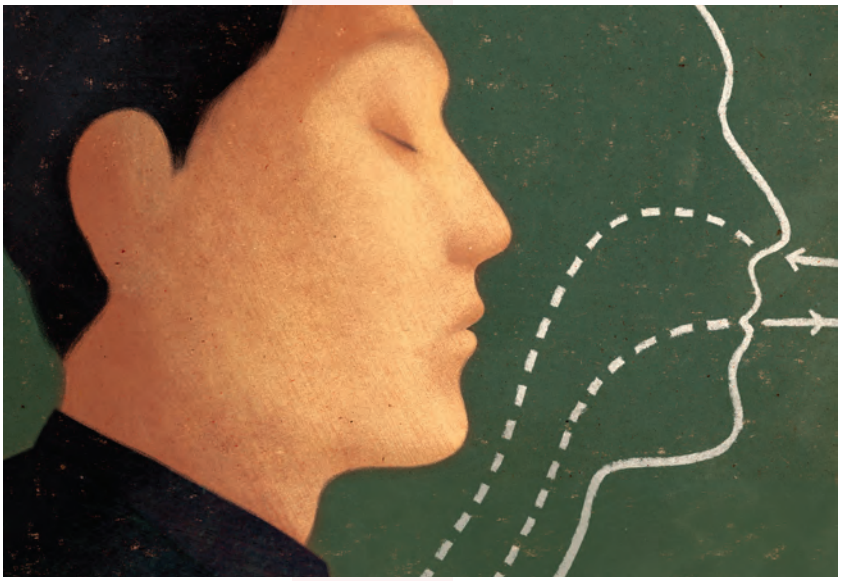
ILLUSTRATION BY OWEN GENT/COLAGENE

SWAT team officers prowled the school's hallways, looking for the shooter who had left several dead. Highly alert, these officers bristled at every sound and movement around them.

The training exercise was going by the book until a child who should have been evacuated with her classmates suddenly appeared in the hallway. Instantly, the guns trained on her terrified face.

That distraction led to one mistake. In a real-world scenario, it easily could have been fatal.

Research has found that the stress police officers feel during these unpredictable, challenging and high-pressure situations can lead to cognitive difficulties, panic and lapses in judgment, raising the risk that an innocent bystander or a suspect will be hurt. To reduce lethal force errors, U of T Mississauga's Judith Andersen has developed science-based use-of-force and de-escalation training that includes techniques to help officers control how they react to stress and improve their split-second decisions when in the field.



"The reason people can't de-escalate appropriately or be as effective on the job is highly related to stress response and the ability to modulate that response," Andersen says. "It's normal to react to stress. You need to learn how to tap into that."

Even the most seasoned officers are not immune to their bodies' biological signals, the psychology professor has learned in years of study in the field.

To conduct her work, Andersen fits heart-rate monitors to police officers who are run through what she describes as "highly realistic" simulations and real-world encounters. After each session, the trainees are asked to report their level of stress. In some cases, the trainees gape in disbelief when they watch videos of their reactions – yelling they did not hear and aggressive pointing gestures they did not realize they were making.

Andersen's method teaches officers how to modulate – or control – those actions by building self-awareness and resiliency, and by incorporating multiple techniques such as changed body position, breathing and refocusing. For Andersen, it's not about doing yoga-like breathing and becoming too relaxed to perform effectively. Some stress activation is necessary – those chemicals are what help athletes perform well, for example. It's when the body's stress response keeps escalating that behaviour deteriorates, she says. By learning to modify their stress response, officers can develop ways to maintain an optimal level of arousal and cognitive control that meet the demands of the situation.

Andersen's methods are already part of standard police training in Finland. She says she would like to see that training replicated elsewhere, including Ontario.

Changing the focus of police training in Ontario is long overdue, agrees Peter Shipley (BPHE 1987), who is chief instructor for the Strategic Research unit and the Leadership and Design unit at the Ontario Provincial Police Academy.

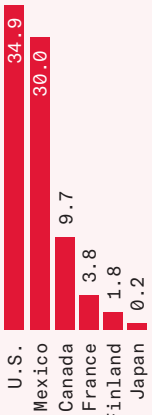
The Ontario Provincial Police were in the midst of responding to a scathing 2012 Ontario Ombudsman report about stress injuries and suicides in its ranks, when Shipley crossed paths with Andersen. "This (type of training) will really move police training forward," he says, adding police leadership needs to be open to research-based relationships where research guides policy and training curriculum.

He sees Andersen's work as offering tangible ways to keep officers healthy, protect the public and bring officers back to work sooner after a traumatic incident.

Typically, OPP officers take 12 weeks of courses at the Ontario Police College and eight more weeks of enhanced front-line operational training. Officers with the Toronto Police Service also take the 12-week course at the police college, and then receive an additional 12 weeks of orientation and training.

This stands in stark contrast to Finland, where, with Andersen's input, the nation's Police University College has developed a three-year university level program for its trainees. "We need more police training," Andersen says, adding it's shocking that it takes longer to receive a hairstylist's license in Ontario than it takes to become an officer.

FATAL POLICE SHOOTINGS BY COUNTRY
(per 10 million residents, most recent year available)



She points out that Canada and Finland have similar rates of crime and drug use. And, like Canadian officers, Finnish police carry guns. However, on average, Canada has five times as many police-related shootings – 9.7 per 10 million people compared to Finland's 1.8.

Just this fall, Ontario Ombudsman Paul Dubé blasted the province's police training model, which he says emphasizes weapons over de-escalation. It's an echo of the same criticism he levelled back in 2016 when he released his report, *A Matter of Life and Death*, which was critical of inadequate police training.

In Ontario, recruits are taught about weapons, tactics and the concept of de-escalation. They receive some scenario training and emotional coping techniques, but no one teaches them how to

ILLUSTRATIONS BY (TOP LEFT) OWEN GENT/COLAGENE; (CHART AND TOP RIGHT)DAVID SPARSHOTT; CHART SOURCE: WIKIPEDIA

control their internal response. Yet these internal body processes are what affect behaviour, actions and emotions and, ultimately, the safety of the people officers interact with.

Finland's approach demonstrates that developing self-awareness and modifying the body's response to stress can be learned. Andersen says with training and continued practice, the modified response becomes automatic, much like driving does with time and practice. The training, she continues, needs to be applied at the recruitment stage and throughout the entire career of a police officer.

Teaching trainees how to modulate their response and "control the cascade of stress chemicals" helps them shoot less often and more accurately, Andersen says. It also helps them cope with job-related stress at the end of their shifts. That ongoing tension wears on people and remains invisible to others unless the officer reports it.

Andersen took up this line of research during her graduate and post-doctoral studies when she built a program of research examining the effects of stress responses on mental health and occupational performance. At the time, few people were drawing evidence-based links between trauma and physical ailments.

"It's not just all in your head," she says. "It really is physical."

After moving to Canada, she chose to focus on resilience in the face of trauma. In 2013, she connected with police trainers in Finland where officers are among the most respected public servants.

At a time when the public conversation about police restructuring is gaining momentum, Andersen wants to see the public continue to push for changes in how police are trained, saying the resistance to change needs to be addressed. **–Lois Tuffin**

A PERSONAL STORY

His Message to Students? I Persevered, and So Can You

Born visually impaired, Prof. Daniel Zingaro connects with students by sharing his own trials at school — and his triumphs

Computer science professor Daniel Zingaro almost dropped out of computer science at university. Twice. He also nearly failed a course he now teaches.

While others might keep this less-than-pristine academic history to themselves, he makes a point of sharing it with his students. "I want them to know it's not an intellectual failing to struggle, and they're not alone if they're finding certain concepts really tough," says Zingaro, a faculty adviser and associate professor in the teaching stream at U of T Mississauga.

For him, falling in love with computing was the easy part. One of his earliest memories is sitting contentedly beside his programmer father as they created a math game together.

Born visually impaired, Zingaro couldn't see the screen but was mesmerized by the process. Once he began using accessible technology, he designed his own games.

As a computer science student, however, keeping pace was often an uphill battle. "I felt like I wasn't getting it like everyone else," he says. "I spent hours puzzling things out." At one point, he came close to switching to psychology.

Zingaro had barely started his master's when he decided he'd had enough. His supervisor convinced him to persevere, and while doing his PhD he found his niche exploring how to teach computer science.

Today he's the recipient of a U of T Early Career Teaching Award and an internationally recognized expert in an active-learning approach that's now widely used in computer science education. He no longer has time to design games, but he listens to video game music (it's a thing), enjoys indoor rock climbing and even tried skydiving. He shares his interests with his students to give them an opportunity to connect.

"My aim is for students to be comfortable telling me they don't understand," he says. "I assure them that we have a shared responsibility for their learning. And I try to show them that putting in the extra effort is worth it because of the great feeling you get in the end. It's all about not giving up."
—Megan Easton

How a tiny aquarium fish is helping scientists investigate disorders of the human brain

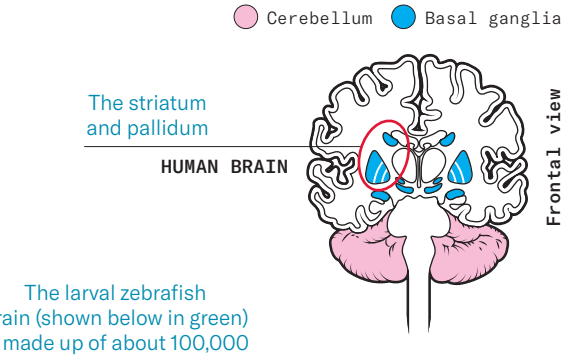
They're only an inch long, but the humble zebrafish – a freshwater fish native to south Asia – is allowing scientists to better understand disorders of the human brain and nervous system.

Despite its modest size, the zebrafish's brain has many similarities to our own, explains Tod Thiele, an assistant professor of biological sciences at U of T Scarborough. The zebrafish "is one of the main genetic animal model systems" he says. "You've got the mouse, the fruit fly and roundworms – the zebrafish is right up there with those other animals."

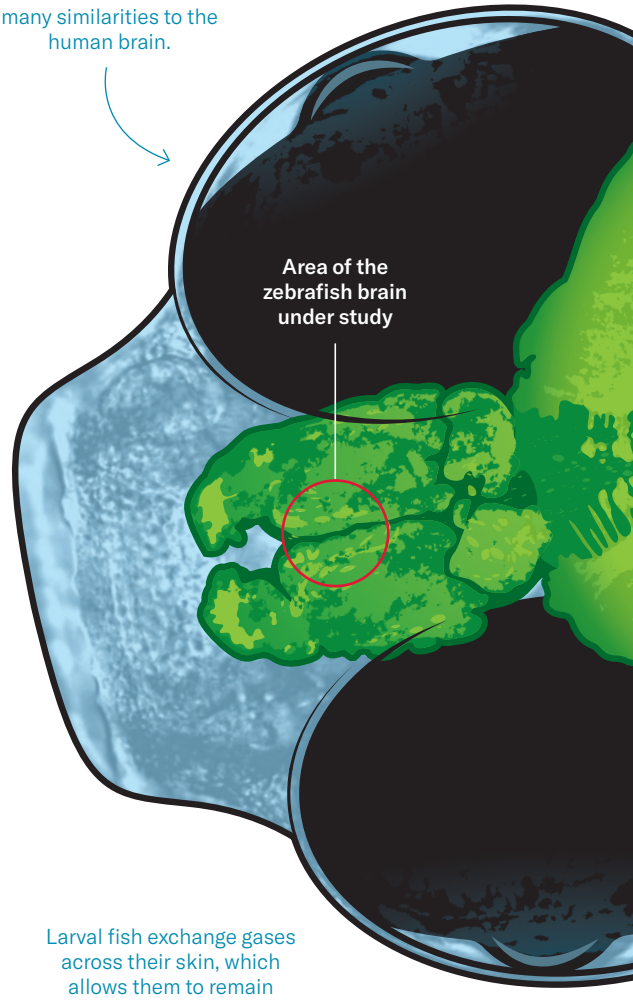
Crucially, the zebrafish is nearly transparent in its early stages, which means researchers can see what all the neurons in the animal's brain are doing while also monitoring its movements and behaviour. "You don't have to do a dissection," says Thiele. "You can just look through the fish."

Thiele and his colleagues at U of T Scarborough are investigating how the fish's brain processes sensory information and then uses that information to move about its environment. They are also looking at how those processes are impaired when key neural circuits are damaged. The research could ultimately shed light on movement disorders such as Parkinson's disease and dystonia, which is characterized by loss of muscle control and involuntary muscle contractions, and can affect people at any age. Parkinson's is believed to be primarily a disorder of the basal ganglia, while dystonia has been linked to dysfunction in the basal ganglia and the cerebellum – brain regions whose workings can be examined in minute detail in the zebrafish.

The fish is also being studied at Robert Gerlai's lab at U of T Mississauga and the labs of Ashley Bruce, Henry Krause and Vincent Tropepe at St. George. **—Dan Falk**



The larval zebrafish brain (shown below in green) is made up of about 100,000 neurons and contains many similarities to the human brain.

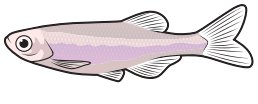


Larval fish exchange gases across their skin, which allows them to remain stationary while their brain activity is imaged.

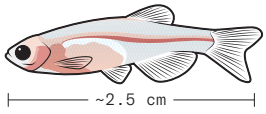
ZEBRAFISH PIGMENT VARIANTS

Albino fish and casper fish have been genetically modified to remove some or all of their skin pigmentation, giving researchers a clearer view of their brain

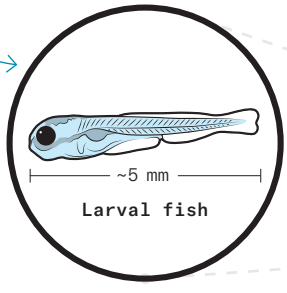
Wild fish
Has both dark and shimmery pigments



Albino fish
Lacks dark pigments



Casper fish
Lacks both dark and shimmery pigments



WHAT THE LAB IS DOING

Tod Thiele's lab studies the areas of the zebrafish brain that are evolutionary ancestors to the striatum and pallidum in humans. The lab runs behavioural and imaging experiments on both normal larval zebrafish and ones that have a genetic mutation linked to a hereditary form of dystonia, a movement disorder. By comparing the neuronal activity and movements of the two kinds of fish in minute detail, the scientists hope to gain insight into the brain abnormalities that underlie dystonia.

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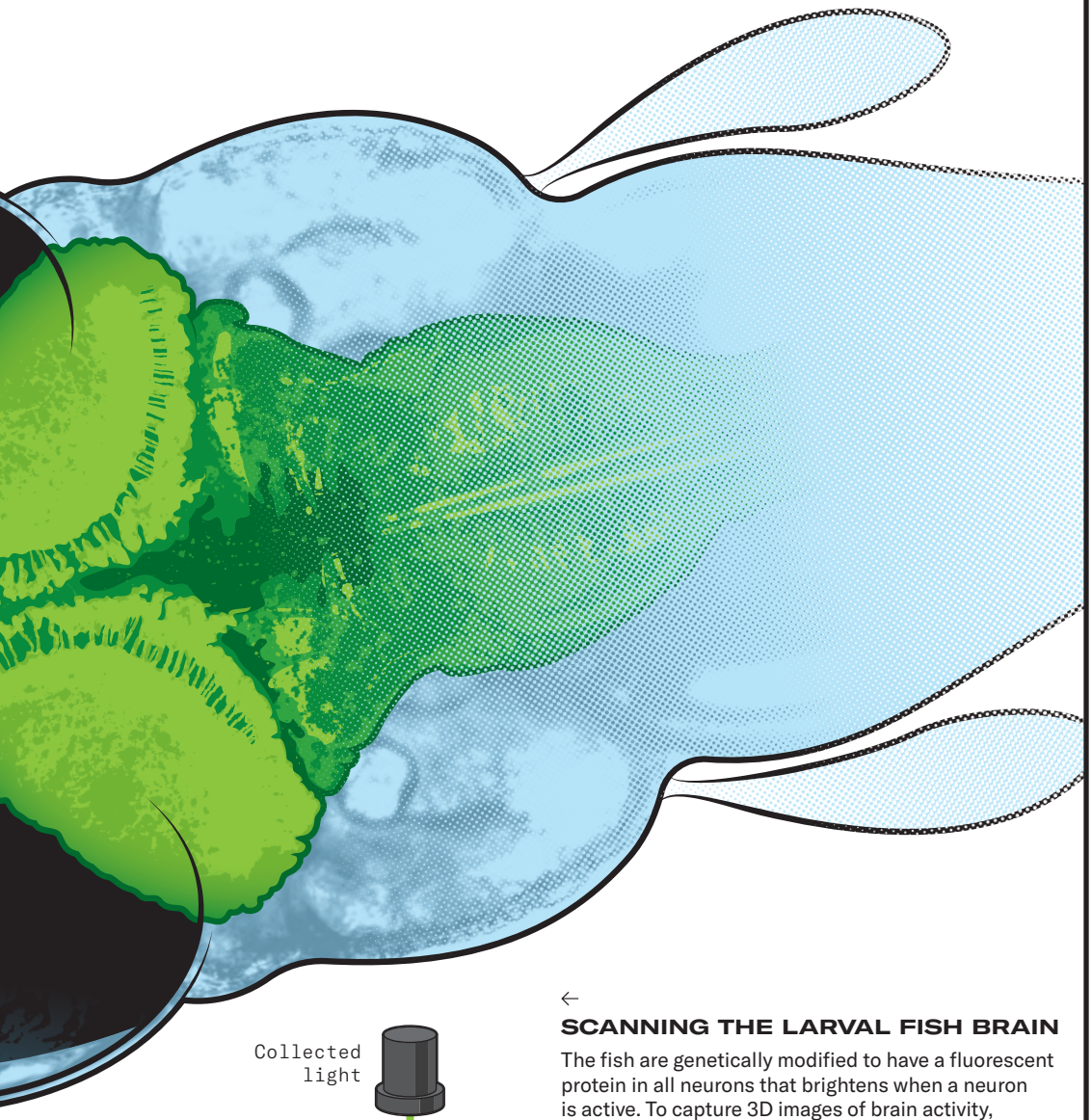

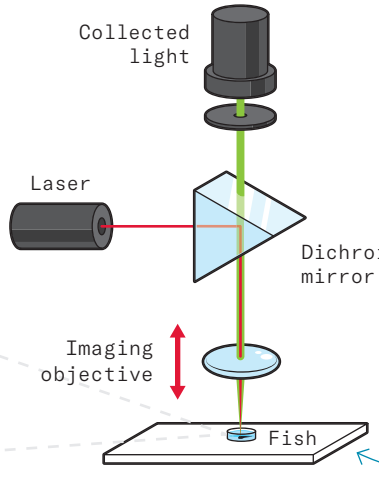

ILLUSTRATIONS BY CHRIS PHILPOT

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SCANNING THE LARVAL FISH BRAIN

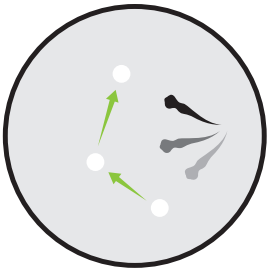
The fish are genetically modified to have a fluorescent protein in all neurons that brightens when a neuron is active. To capture 3D images of brain activity, a low-power infrared laser scans the fish's brain in a sawtooth pattern while the imaging objective (shown at left) moves rapidly up and down.

Researchers place the head of the larval fish in a gel that doesn't harm the fish. The tail is left free. Then, visual stimuli (as shown in the behavioural experiments at right) are projected at the fish, while its brain activity and tail movements are measured.

BEHAVIOURAL EXPERIMENTS USING LIGHT

The lab uses three experiments to learn how damage to neural circuits affects the movements of the fish.

EXPERIMENT #1
PREDATOR AVOIDANCE
A dark circle grows larger as it follows the fish, simulating a predator



EXPERIMENT #2
PREY CAPTURE
Small bright circles move around the zebrafish, simulating prey

EXPERIMENT #3
OPTIC FLOW
Projected black-and-white bars induce the fish to swim, change direction or swim faster

A Path Out of Poverty

U of T Mississauga professor Jerry Flores says caring teachers inspired him to seek better opportunities in life. Now, he wants to do the same for others

As a sociologist, Jerry Flores wonders incessantly about "turning points" – those moments, for example, when a marginalized young person manages to break free from systemic oppression and poverty.

Flores has known such moments himself. As a youth, he lived in a low-income Latino neighbourhood in suburban Los Angeles, where he did poorly in school. Now, he's an assistant professor of sociology at the University of Toronto Mississauga, teaching others how the criminal justice system regularly ensnares poor, racialized teenagers and adults in a cycle of crime, surveillance and punishment that many find impossible to escape.

"Growing up, I had the feeling I just wasn't wanted at school," he remembers. "I started skipping class, doing all kinds of other stuff I shouldn't have been doing. Eventually, I failed every single class in my first two years of high school."

And yet, education, and caring educators, would ultimately prove to be Flores's ticket out. The son of an autobody worker and hotel cleaner who had immigrated to escape Mexico's collapsing economy in 1982, Flores initially found himself stuck in a crowded, under-resourced, very segregated public school where almost every student was working class and Latino or Black. The neighbourhood was heavily patrolled by police who would pull him over at gunpoint, "often for not doing much of anything." He saw family members arrested and jailed. Unsurprisingly, he lost interest in school and dropped out.

Then came his first turning point. Flores registered in a supportive alternative school, the exact opposite of the one he had left. For the first time, teachers encouraged him to think about enrolling in university; within several years, he had graduated,

PHOTOGRAPHS BY CHRISTOPHER KATSAROV LUNA

U of T Mississauga
prof Jerry Flores
←

earned three degrees, and was writing his first book.

Initially, he wanted to write about juvenile detention. He found the perfect subject in "El Valle," a correctional institute for youth not far from Los Angeles, and focused his work on studying girls in the system. But while volunteering there as part of his research, he noticed that a large alternative school was connected to the prison.

It was far removed from the nurturing school that had changed his life. He says, "I had never seen a detention centre and a school that were so closely tied" – not only physically, but in other systemic ways as well.

A teacher explained that the "Legacy" Community School provided girls with "wraparound services," including educational and therapeutic supports, upon leaving the detention centre.

On the surface, this seemed like a good idea, but in practice it was altogether different. Flores observed that girls were obsessively monitored at the school, subject to at-will drug testing and the constant presence of police. Infractions of any type would propel them back into detention. He developed his own term for it: "wraparound incarceration."

The eventual book that arose from his research – entitled *Caught Up: Girls, Surveillance, and Wraparound Incarceration* – is a powerful indictment of a system in crisis.

Flores found that rule breaking at the school was almost inevitable, since many of the girls had run away from home to escape physically and sexually abusive environments. Runaways, writes Flores, "have to 'hustle' to take care of themselves…girls (and boys) may

Flores believes in repaying his research subjects in acts of kindness →

participate in survival sex, shoplift food and clothing, or work in other illicit trades to stay alive." The choice these teenagers often face is to break the law or die.

His research also revealed that "Legacy" was not alone, being one of 283 such schools for at-risk youth in California. His interviews with the girls reveal, in heartbreaking fashion, the extent to which they see education as just another form of jail.

"School is supposed to help you feel self-fulfilled and empowered," Flores says. "It's supposed to make you feel good about yourself. But these young people have wholeheartedly associated school with punishment and surveillance. And these supports that are intended to help them are actually making things worse."

Girls are not the only group trapped by this system, but Flores chose to focus on them because they had been understudied and experience unique difficulties, such as assault and exploitation.

He had taken women's studies as an added expertise in his PhD and become painfully conscious of how "toxic masculinity" had affected his own life and that of other boys and men. At U of T Mississauga, he is developing a course on the subject. Yet his research at "Legacy" – which was highly immersive, involving a long period of intense observation and study – proved challenging.

"Immediately, these young women started peppering me with questions like, 'Are you a probation officer? Are you police? What are you doing here?' I always did my best to answer their questions as truthfully as I could," he says. "I was aware that I looked like a lot of the men who had victimized them."

He also realized that traditional ethnographic research methods have often been unfair; he wanted to do things differently. "The mistake a lot of folks make when they do research with at-risk groups is they show up, take what they want and leave, which is a very colonial model," he says.

HE BECAME PAINFULLY CONSCIOUS OF HOW 'TOXIC MASCULINITY' HAD AFFECTED HIS OWN LIFE AND THAT OF OTHER BOYS

When observing the girls of "Legacy" or any other group, Flores believes in the principle of repaying his subjects in acts of kindness and compassion. In the Legacy case that meant spending a long time volunteering, playing sports, helping with homework – even organizing a field trip to the University of California, Santa Barbara, so the girls could envision themselves making the transition to higher education. "They got to eat at the dining hall for free," he remembers. "These poor kids were always hungry, and some of them told me it was the first time they felt full."

It was during this period of research that the young academic grew concerned about what he saw as a darkening tone in American politics. "As Donald Trump's campaign started picking up steam, there was an increase in hate crimes in Los Angeles and elsewhere. It was like bigots were starting to feel emboldened," he recalls. On election night in 2016, Flores was living in Tacoma, Washington with his wife and son.

Trump's election frightened him. "I said, 'Is this really happening right now?' I was in shock." Having received three job offers – one from Rutgers in New Jersey, one from the University of California, Riverside, and one from U of T Mississauga – Flores chose to move to Canada. "I knew that moving to Toronto was going to be the best choice for all of us; I felt we had to get out before we wouldn't be able to go," he says. "I sometimes have 'survivor's guilt'

because I have family who still live in the U.S. And every time I turn on the news, there it is; it's been so much worse than I expected. It cuts you to the core when you see children who look like you being torn away from their parents and put into cages." Asked before the 2020 election whether a Trump defeat would send him back home, Flores says no. "I feel that I fit in here, that my family is safe. Canada's not perfect, but it's perfect for me."

Flores has become interested in Canadian problems that, in many ways, mirror those he witnessed in the United States. One is that of missing and murdered Indigenous women

His next book will centre around this community, focusing on why Indigenous women leave their homes, and on their interactions with the criminal justice system. "Though with ethnography," he says, "one of the exciting parts is that you don't really know what the book is until you get there." True to form, he's partnered with local Indigenous organizations to immerse himself in the issues – taking time to volunteer variously as a driver, a runner of errands, a grant writer, and an assistant on a documentary film shoot. "I feel connected to the community, since my grandparents were Indigenous people from Mexico. I see a lot of parallels there."

Flores is optimistic about the power of academia to help marginalized youth experience the same turning points that he has. In addition to his other duties, this means regularly engaging with the media as a commentator and op-ed writer.

"The main reason I became an academic is to participate in social justice," he says. "Right now I have all this power and privilege, and I can't just sit idly by knowing that people are suffering. I have to try and do something." **—Cynthia Macdonald**

ILLUSTRATION BY DAVID SPARSHOTT

AN ORIGIN

It Got Better

How a simple sticker helped members of the LGBTQ community feel more welcome at U of T

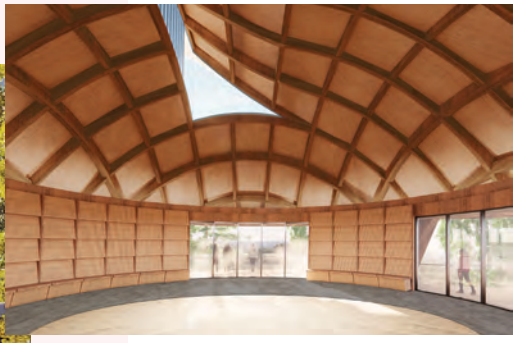
One evening in December 1995, David Rayside sat hunched over his dining room table, using a utility knife to cut out dozens of small triangles from a page of rainbow flag stickers. This draft logo — an inverted rainbow-striped triangle — had been selected by a committee led by Rayside, a professor of political science, and Rona Abramovitch, U of T's status of women officer at the time, as the symbol of the university's new "Positive Space" campaign. The initiative, which launched in 1996, allowed faculty, staff and students to identify places — their office, for example — that were welcoming to members of the LGBTQ community.

"We wanted something small that could easily be stuck onto doors, windows, computers or filing cabinets to spread the imagery around and get people talking. The idea was to signal to LGBTQ people on campus that there was a readiness to listen and support," says Rayside.

Positive Space stickers and flyers were distributed on the St. George campus. Similar initiatives soon sprung up at many other universities and institutions across Canada, including U of T's Mississauga and Scarborough campuses.

Occasionally, Rayside received concrete evidence of the campaign's impact.

"I always had a Positive Space sticker at the entrance to my office at University College," he recalls. "One day, a scribbled note was passed under my door — I am guessing by a student — saying that he was gay and that my sticker had been affirming when not everything else he saw or heard was. It was just one case, but it was good to hear. I still have that scrap of paper." **—Wendy Helfenbaum**



Inspired by a Wigwam, and Open to All

A new gathering spot at U of T Scarborough will be a hub for local Indigenous culture

A traditional winter wigwam is providing the inspiration for the design of a new Indigenous House at U of T Scarborough.

Once completed, the space will offer a place in the eastern Toronto region to gather and learn about Indigenous history, culture and ways of knowing.

Kelly Crawford, the assistant director, Indigenous initiatives, at U of T Scarborough, says the building is being conceived as a living entity – not just a physical structure with a roof, walls and rooms. "It's alive in the sense that it embodies Indigenous knowledge, and we are respectful of honouring this not only during its creation, but in the programs and activities that will take place there," she says.

Indigenous elders, knowledge keepers, and local Indigenous communities have suggested uses for the space, and have helped advise the architects on aspects of the building's design.

Alfred Waugh, principal architect at Formline Architecture, the firm designing the structure along with LGA Architectural Partners, says the space will be an homage to local Indigenous culture.

"Indigenous ways of knowing place nature at the centre of its value system, so this building will flow directly into the surrounding environment," says Waugh, a member of the Fond du Lac Denesuline Nation of Saskatchewan.

The building's design is inspired by a traditional winter wigwam. Fresh air will be drawn from outside the building and pass through a series of underground tubes to help cool the space in summer and warm it in winter. Inside, a large circular gathering room at one end will open onto an observation deck overlooking a garden of birch trees and native plants with cultural significance for local Indigenous communities. Heat sensors will replace smoke detectors to permit the practice of smudging – a cultural practice involving the burning of sweetgrass – throughout the structure.

The building, which will include a mix of academic and social spaces, will be located on a gradually sloping piece of land with a view of the surrounding Highland Creek ravine.

Importantly, it will also create a place for students, staff and faculty, as well as the local community, to gather. "Traditionally, spaces like this didn't exist within universities," says Crawford. "Indigenous House will help make U of T Scarborough more inclusive for everyone." **–Don Campbell**

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8015-0120

Surviving the 'Shopocalypse'

U of T Scarborough grad Satish Kanwar is helping small businesses thrive in a market that's gone virtual

The boarded-up storefronts say it all: the pandemic has been brutal for retailers. Yet by ramping up their focus on e-commerce, many owners have managed to both stay afloat and find new sources of revenue growth.

Satish Kanwar (BBA 2008 UTSC) is vice-president and general manager, channels, for Shopify, a Canadian software company that helps businesses sell their products online. Here, he explains why the current bleak economic period may yet prove to be a necessary turning point for entrepreneurs.

Despite dire predictions, you say the pandemic has actually been beneficial for many smaller businesses. How so?

In the past year, there has been an entire decade's worth of progress in e-commerce, which has really increased the competitiveness of many businesses and opened them up to new customers. If you're on Main Street and you don't have an online presence, you're only going to be visible to the people who know you're there, or are walking by. E-commerce is allowing many businesses to work with people in a way that they probably should have been doing beforehand.

As more and more stores go online, what can brick-and-mortar stores do to keep up?

The shopping environment is being re-adapted. Physical retail stores were originally designed with the expectation that someone walking into that space was interacting with the brand for the first time. This describes only a small percentage of shoppers today. Now, we're seeing stores become "customer support hubs" for people who have already bought products online and now need help or knowledge about something.

Say you're into camping. You don't need to window-shop for tents because you can do that online – but you might need information on tents, or training in how to set them up. So many stores are shifting toward this type of service-based shopping, rather than just providing consumers with products.

←

Zoom preference
I like to wear shoes. They get me in the zone.

Online shopping discovery
Buying beer and wine from Ontario producers (with free local delivery!)

Fave UTSC spot
Miller Lash House. I cherished every chance to spend time there.

Shopify was created by entrepreneurs for entrepreneurs. But many big-name brands use your platform too. Why?

We support over a million businesses all over the world; we wake up every day and we think about the small business owner. They're the ones we're trying to build and design solutions for, and they're the ones who need it the most. But it turns out that when you make things easy for small businesses, large businesses like those tools as well. **–Cynthia Macdonald**

PHOTOGRAPH BY JESSICA LEE

UNIVERSITY OF TORONTO SCARBOROUGH | CO-OP PROGRAMS

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