

ANNUAL REPORT 2019-20



Research & Innovation

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TRADITIONAL LAND ACKNOWLEDGEMENT

We wish to acknowledge this land on which the University of Toronto operates. For thousands of years it has been the traditional land of the Huron-Wendat, the Seneca and, most recently, the Mississaugas of the Credit River. Today, this meeting place is still the home to many Indigenous people from across Turtle Island and we are grateful to have the opportunity to work on this land.

Message from VPRI

Interdisciplinary Research and Inclusive Excellence are the Focus

at the University of Toronto Scarborough

The year 2020 presented significant challenges and uncertainty for our community. I want to acknowledge the hard work, perseverance and resilience of our faculty, students and staff. All of us had to pivot and adjust to the quickly changing realities of a rapidly evolving environment. Our ability to respond to the impacts of COVID-19 required concerted efforts from the entire university and all our partners. The University of Toronto Scarborough community responded to calls in response to the pandemic, shifted their research online, adjusted timelines and continued moving forward during this extremely challenging time. This is a truly remarkable achievement and as we forge ahead you can rest assured that we are here to support you.

The University of Toronto continues to be Canada's leading research university. This significant achievement is due to our impressive world-class faculty, who are champions in their fields and lead innovative and important research. The work of University of Toronto Scarborough faculty is integral to that achievement. As a research-intensive campus, our commitment to inclusive excellence, collaboration and partnership has garnered local, national and international recognition.



The University of Toronto Scarborough's new strategic plan, *Inspiring Inclusive Excellence*, brings into focus the collective desire of our campus to establish scholarly prominence in existing and emerging areas of expertise. To aid in the realization of this, the OVPRI established the Clusters of Scholarly Prominence Program (CSPP) under the direction of our new Interim Associate Vice-Principal Research-Strategic Initiatives, Professor Grace Skogstad. The CSPP was created to ensure that the unique existing and emerging research strengths at the University of Toronto Scarborough are leveraged to fully realize the potential and aspirations of our internationally renowned research and innovation community.

The diverse excellence of our students is critically linked to our research and ability to bring innovation to life. We have prioritized the provision of hands-on research experience and sparked the seeds of entrepreneurship through both The Hub, which has helped establish more than 50 companies, and The BRIDGE, which provides hands-on learning experience for students interested in management disciplines and their real-world applications.

This report represents a broad yet limited account of our many noteworthy achievements during 2019-2020. These accomplishments should be celebrated. As we continue to navigate through these uncertain times, it is important to pause, reflect and be inspired by our individual and collective accomplishments. We will continue to support innovative, interdisciplinary research and build knowledge from diverse perspectives, leading to greater social impact.

H. Bernie Kraatz, PhD, FRSC
Professor and Vice-Principal Research & Innovation

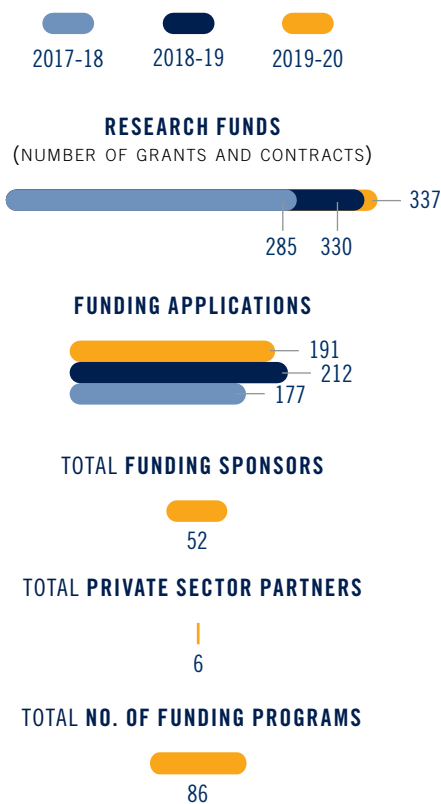


I want to acknowledge the hard work, perseverance and resilience of our faculty, students and staff.”

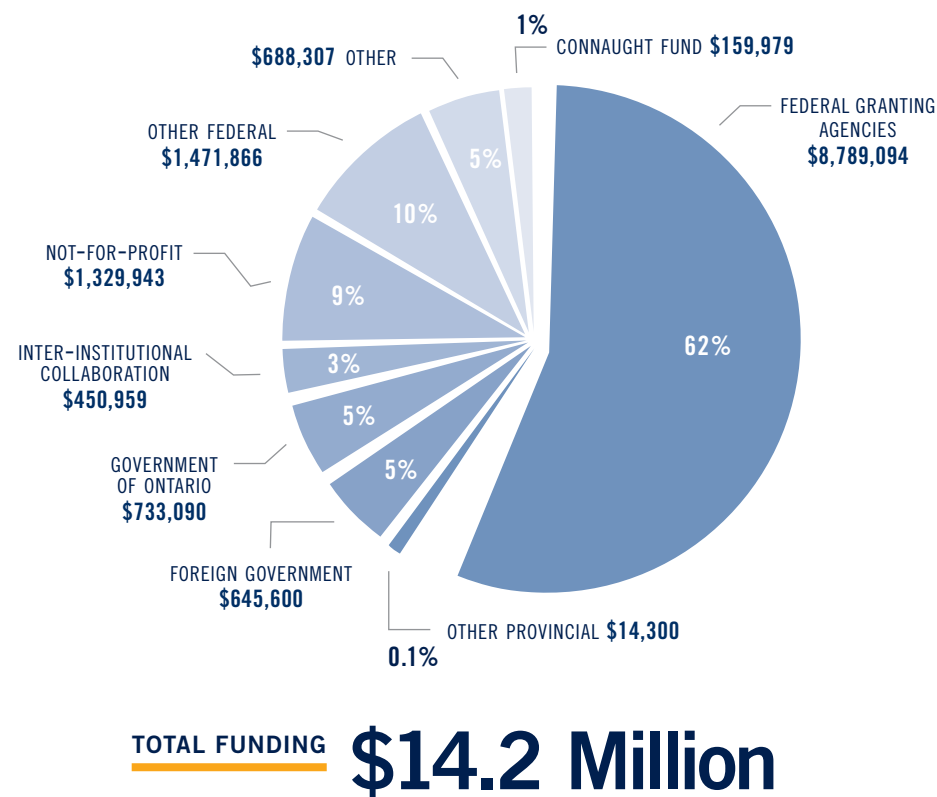


Impact by the Numbers

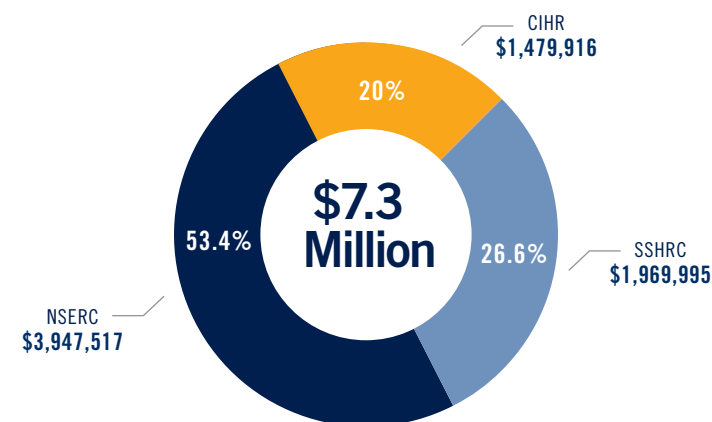
General Statistics (BY YEAR)



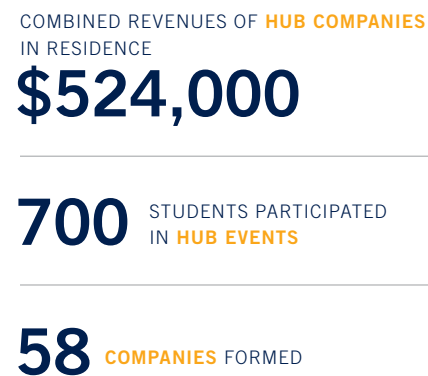
Total Research Funding by Source



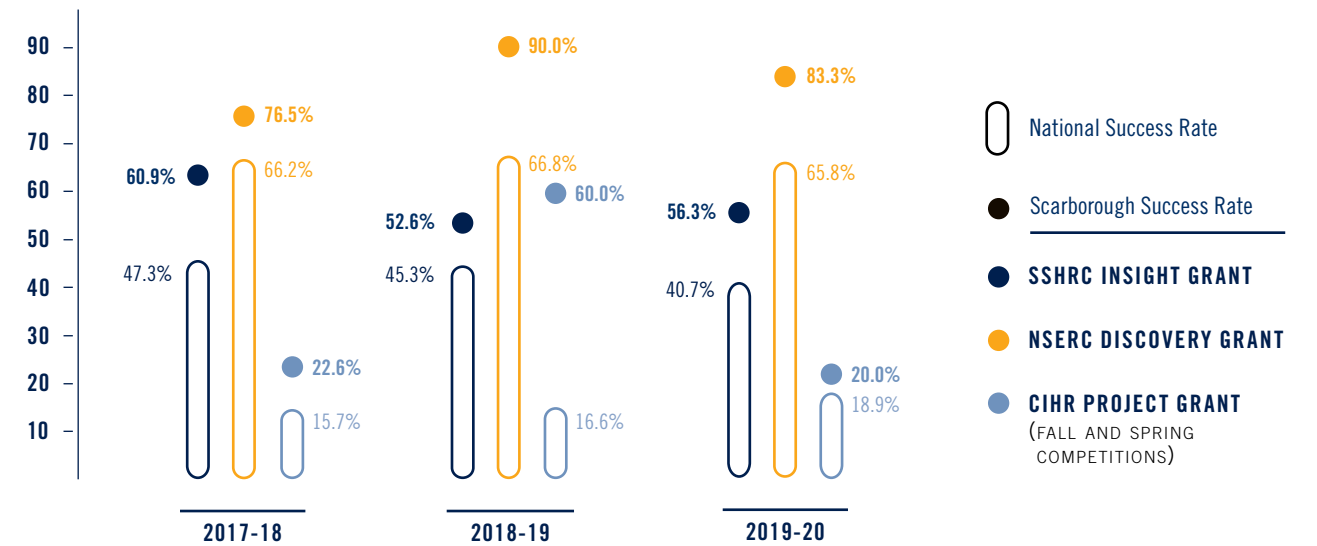
2019-20 Tri-Agency Funding



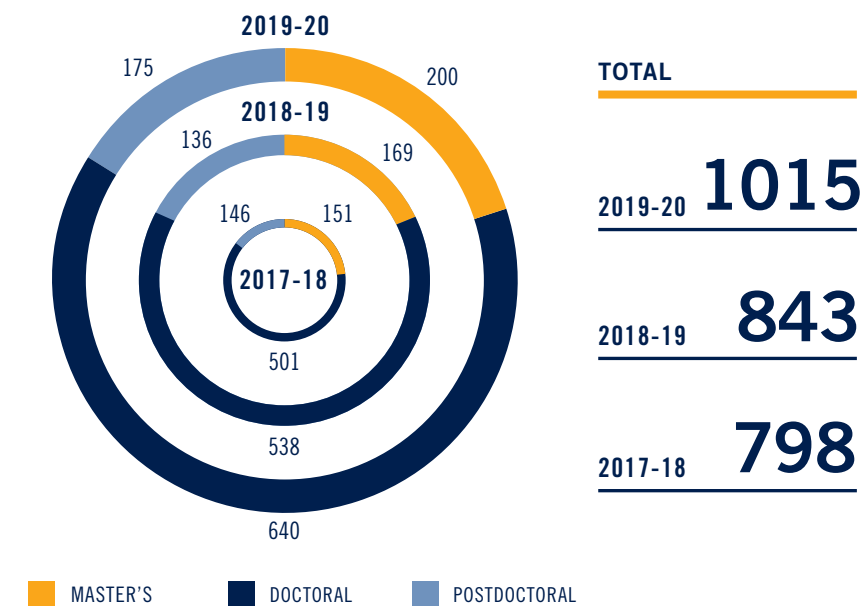
Entrepreneurship – The Hub (2019-20)



Grant Success



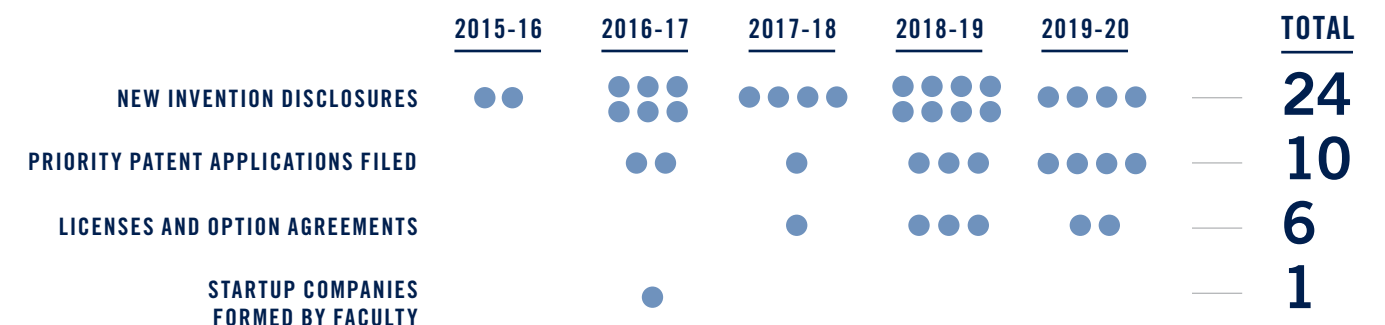
Supervisions by U of T Scarborough Faculty



2019-20 Statistics



Commercialization



Message from AVPR-SI

Message from the Interim Associate Vice-Principal Research–Strategic Initiatives

at the University of Toronto Scarborough

In 2019–2020, the University of Toronto Scarborough’s Office of the Vice-Principal Research & Innovation launched the Clusters of Scholarly Prominence Program (CSPP), the most ambitious and exciting research initiative to date in the history of the campus. The CSPP offers a unique opportunity for University of Toronto Scarborough faculty to lead and participate in innovative clusters that address compelling research questions, the answers to which require transcending traditional departmental and institutional boundaries.

As envisioned in the *Inspiring Inclusive Excellence* strategic plan, CSPP-supported clusters are expected to create and disseminate new knowledge and innovations that are groundbreaking, will benefit Canadians and the international community, and foster strategic global research alliances.



While the clusters of scholarship funded by the CSPP are based at University of Toronto Scarborough, the CSPP has been purposefully designed to work in conjunction with U of T’s Institutional Strategic Initiatives (ISI) portfolio, the purpose of which is to seed, launch and sustain large-scale multidisciplinary strategic research networks. Combined, the two programs provide a superb framework for enabling University of Toronto Scarborough researchers to develop self-sustaining, collaborative clusters of scholarship in areas of established and emerging strength. In so doing, the two programs will further enhance U of T’s status as a global leader in pioneering research, creative activity and exceptional learning.

The inaugural CSPP competition awarded a total of \$2.4 million for the development of distinct clusters, which include examining the role of community-engaged arts in social wellness, suburban mobility challenges, the evaluation of psychological treatments for mental health, and the effect of anthropogenic stressors on our ecosystems. These research clusters promise to be a model of transformative multidisciplinary research at University of Toronto Scarborough that is competitive at the highest global standards.

I look forward to continuing to work with University of Toronto Scarborough faculty members to ensure that the CSPP serves the evolving needs and expectations of our vibrant and robust research community.

Grace Skogstad, PhD
Professor of Political Science
Interim Associate Vice-Principal Research–Strategic Initiatives (AVPR–SI)



The CSPP is the most ambitious research initiative to date in the history of the campus.”



Clusters of Scholarly Prominence Program (CSPP)

The Clusters of Scholarly Prominence Program (CSPP) is U of T Scarborough's flagship program for supporting the pursuit of strategic initiatives. The CSPP serves to promote self-sustaining, interdisciplinary, inter-departmental, collaborative clusters of scholarship in areas of established and emerging strength at U of T Scarborough that have a demonstrable capacity to augment U of T's global standing through prominence in research, creative activity and exceptional learning.

The inaugural competition was held in 2019-20, with a total of \$2.4 million of funding awarded. Development of the following four clusters began in Fall 2020:



THE CLINICAL RESEARCH AND EVALUATION CLUSTER (CREC)

Cluster Leads: Michael Best (Department of Psychology) and Zindel Segal (Department of Psychology)



CREC seeks to improve recovery from mental health conditions through the integrated multi-method evaluation of psychological treatments for mental health. Integrating expertise in mental health treatment with neuroscience, epidemiology, health economics, health humanities and biostatistics, CREC will be the first interdisciplinary unit for conducting large-scale evaluations of clinical treatments.



THE CENTRE FOR ENVIRONMENTAL RESEARCH IN THE ANTHROPOCENE (CERA)

Cluster Leads: Marc Cadotte (Department of Biological Sciences) and Myrna Simpson (Department of Physical & Environmental Sciences)



CERA will create a cutting-edge collaborative research program that will address key questions about how anthropogenic stressors influence the ecosystems in which we live. CERA will pursue a multipronged set of programs that will enhance collaboration, partnership, research and training at U of T Scarborough.



FLOURISH: THE ARTS AND SOCIAL WELLNESS CLUSTER

Cluster Lead: Andrea Charise (Department of Health & Society)

Flourish: The Arts and Social Wellness Cluster will advance creative arts engagement as an impactful intervention for enhancing social connection and wellness across the life-course. Team expertise includes arts-based (health) research methods, fine and performing arts, community-engaged practice, assessment/education science and knowledge translation/implementation. Using an arts-led, community-engaged leadership approach, our aim is to establish a University of Toronto Scarborough Centre for Arts and Wellness – to advance research, scale initiatives, generate policy and enable high-quality, intergenerational personnel.



SUBURBAN MOBILITIES CLUSTER

Cluster Lead: Steven Farber (Department of Human Geography)

The Suburban Mobilities Cluster is a multidisciplinary research program that draws on expertise across nine disciplines to tackle four suburban mobility challenges: rising suburban inequalities, improving transportation design and technology, climate change, and resilience to shocks. Towards addressing each challenge, the initiative will advance new research approaches, develop partnerships and engagement, and create student support and embedded training opportunities.

Our Stories



Researcher wins grant for project on fear memory generalization

A U of T Scarborough researcher has received a prestigious grant for her project on fear memory generalization. **Maithe Arruda-Carvalho**, an Assistant Professor in the Department of Psychology, will receive US\$350,000 over three years as a winner of the Young Investigator Grant from the Human Frontier Science Program. The grant program funds research projects by scientists collaborating across borders.

The project is an international collaboration with two other researchers: Benjamin Grewe of Switzerland and American Mazen Kheirbeck. The trio are studying generalization in fear memories across scales, from synapses in the brain all the way to behaviour.

“This is an incredible opportunity to start this collaboration with a fantastic international team, allowing us to ask questions about how fear memories generalize,” Arruda-Carvalho says.

In uncovering how fear memories generalize, this research has critical implications for psychological disorders, such as post-traumatic stress disorder (PTSD).

“By joining forces, our three labs will examine fear generalization from the neural network, cellular and synaptic levels at the same time.”



Thousands of medical supplies gathered for donation

U of T Scarborough collected tens of thousands of critical medical supplies from labs and departments across campus to help Ontario hospitals fight COVID-19. The supplies, part of a larger U of T effort to consolidate resources across the three campuses, included masks, gloves, gowns and paper towels.

“It’s encouraging to see our community coming together during these extraordinary times to show that we care for and support our essential medical community, who are in the front line fighting against COVID-19,” says **Holly Yuen**, U of T Scarborough’s Environmental Health and Safety Manager.

Meanwhile, Professor **Bernie Kraatz**, Vice-Principal Research and Innovation, thanked U of T Scarborough researchers who have already pitched in. **Jeffrey Miller**, Director of Facilities Management, also thanked his team for their role in collecting and donating supplies.

All of the supplies were allocated to hospital partners in the Toronto Academic Health Science Network. The supplies were distributed according to an ethical framework developed by U of T’s Joint Centre for Bioethics, prioritizing health-care providers who faced the highest risk of exposure.



Psychology prof creates free online course to manage mental health during COVID-19

Mind Control: Managing Your Mental Health During Covid-19, a free online course created by **Steve Joordens**, U of T Scarborough Psychology Professor and Director of the Advanced Learning Technologies Lab, aims to help people manage their mental health during COVID-19.

“This course is designed to help people learn to avoid much of the anxiety they’re facing, and find ways to better control it,” says Joordens.

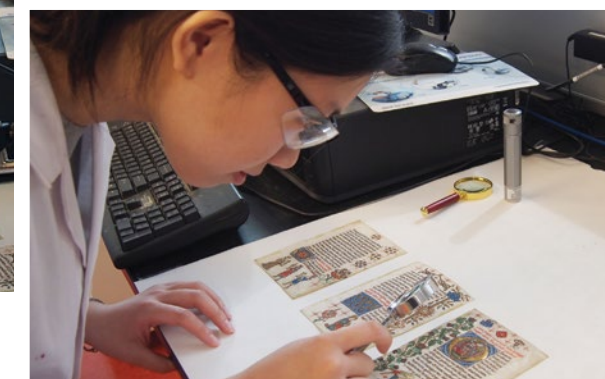
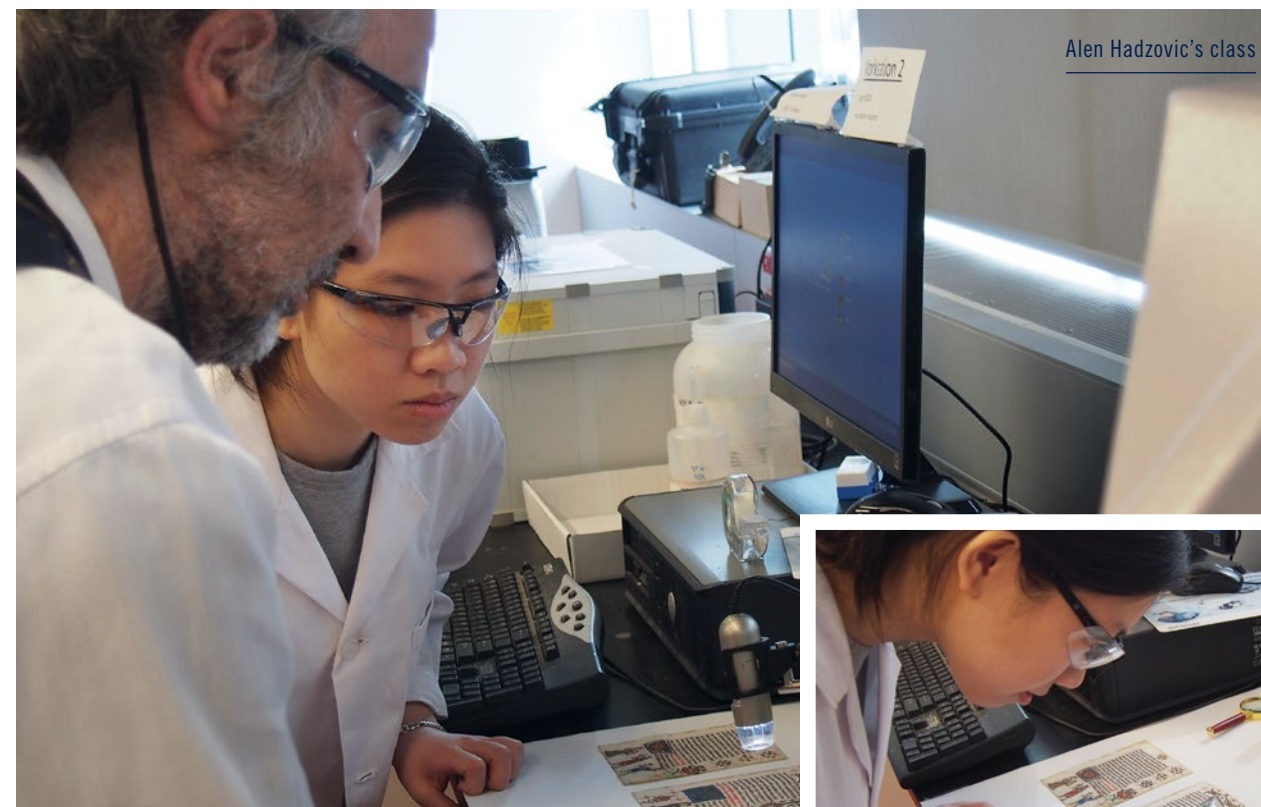
“Research has shown that constant stress and anxiety can wear down our immune systems, and that’s

probably the last thing we need at the moment.”

The course has flexible deadlines, so anyone can pick it up at their convenience, and can complete it in about 10 hours.

“You also get to join an online community of learners, sharing a common interest. It can be a replacement for some of the social interactions we’re losing.”

One takeaway when it comes to managing mental health is to achieve a sense of accomplishment, like learning a new skill, honing an existing one or upgrading credentials.



Students team up to solve mysteries behind celebrated museum collection

U of T students from two very different disciplines have teamed up to uncover secrets behind selected pieces from The Malcove Collection, a permanent display of art at U of T’s Art Museum that spans from prehistory to the mid-20th century. Not much was known about the history behind many of the museum’s artifacts so, in a true merger of the arts and sciences, two projects from the Jackman Scholars-in-Residence program (SiR) worked to help trace the history of the collection.

“When basic information is missing, it means researchers and teachers don’t use it because they want to be able to tell their class about its history,” says **Erin Webster**, Associate Professor of Art History at U of T Scarborough. “Having that concrete, factual identification is going to make it easier to use the collection in the future.”

Alen Hadzovic, Associate Professor of Chemistry at U of T Scarborough, and his group of science, studio and art history students were able to lend their expertise in technology and chemistry to identify materials that had

been used in a few of the collection’s pieces.

“We really wanted to showcase the knowledge that could be developed out of students working across disciplines to help push questions and knowledge in way of sharing expertise at the undergrad level,” Webster says.

“Holding an object that is centuries-years-old amazes me,” says **Rashana Youtzy**, an Art History student. “I found it really enticing that I could contribute to the field and not only mark a checkpoint in my academic career, but also in the lives of the artworks.”

Hadzovic says there’s potential for an interdisciplinary approach beyond the program itself. “I want to constantly show students the possibilities and the different challenges they may meet as they navigate the space of chemistry.”

Hadzovic and Webster offered a joint seminar last winter that grew out of the SiR project with the hope that it will bring art history and chemistry students together for further study of Malcove objects.



Heinz-Bernhard Kraatz

New Fellow of the Royal Society of Canada

Heinz-Bernhard Kraatz, Professor and Vice-Principal Research and Innovation at U of T Scarborough, has been named a Fellow of the Royal Society of Canada – considered a major achievement for scholars.

The Royal Society of Canada recognizes scholars and their work in order to help them build a better future in Canada and internationally.

Kraatz wants to prevent diseases by creating tools that can help spot their underlying causes. He is currently focused on creating new sensor materials to detect biomolecules that play a role in everything from cell division to cancer and viral infections.

Finding ways to translate such research into real-world solutions can take decades – which is why Kraatz is grateful for his lab

colleagues and students who have helped push ideas forward.

“You can have this crazy idea and a non-optimal model system to work it out,” he says. “But taking that next step to go to a model system that actually does allow you to answer that question in a definitive way – it’s really important.”

Kraatz also works to promote outstanding research and scholarship in all disciplines while also advancing collaborations and enhancing the research environment for students.

“Ultimately, [the fellowship] enhances visibility and you have an obligation to contribute to the Royal Society, but also to university life by mentoring young faculty and students,” says Kraatz.



Richard Cao (left)



How can I work with the city to introduce these e-scooters in a safe way?"

Alum's startup looks to bring safe e-scooters to Canada

A U of T Scarborough alumnus' startup is racing towards its goal: introduce electric scooters (e-scooters) in a way that is safe, legal and tailored to Canada.

"E-scooters are a popular and effective form of shared mobility – and provide a green solution to a common, urban transportation problem," says **Richard Cao**, CEO of Roll Technologies Inc. (Roll), who graduated with a Bachelor of Business Administration.

Roll reached a deal with Kelowna, B.C., the first city in Canada to welcome e-scooters. Users find, unlock and rent the scooters via Roll's app.

Roll's e-scooters are custom designed to combat some of the major safety issues seen in the U.S. Since e-scooters first appeared in that country in September 2017, injuries, deaths and public backlash have been rampant.

Cao got the idea for his startup from his father, who has been making e-bikes and e-scooters for American companies.

While still a student, Cao went to The Hub, U of T Scarborough's entrepreneurial incubator, and began working with its director, **Gray Graffam**.

"What I'm trying to do is differentiate him straight up from what the other companies are doing," Graffam says. "I'm introducing him to various politicians and governing agencies to say, 'How can I work with the city to introduce these e-scooters in a safe way?'"

The platform of Roll's e-scooter is wider and heavier than other e-scooters, to make it more stable. Its wheels are larger, to help stop them from getting caught in curbs or uneven street surfaces. Cao made wearing a helmet mandatory for all users, and is launching a free helmet program. As well, Roll's app will identify first-time users and lock their e-scooters into a lowered speed.

"We want to do it differently," says Cao. "We actually care about safety."

Online shoppers swayed by customer reviews of physical products – not experiences

We live in a world of online reviews – but not all customer reviews are created equal. In fact, we put more trust in reviews about material items than we do about experiences.

That's according to a U of T Scarborough study published in the *Journal of Consumer Research* that looked at the effectiveness of online reviews in influencing buyers about material items and experiential items like trips and events.

"Our experiential purchases are more central to our self-identity than our material purchases," says study co-author **Cindy Chan**, an Assistant Professor of Marketing in the Department of Management at U of T Scarborough and an expert on consumer relationships.

The reason we trust experiential reviews less comes down to perceptions about objective quality, says Chan, who is cross-appointed to U of T's Rotman School of Management. "People feel that reviews of material items contain more information about objective quality, and find that helpful and informative."

For marketers wanting to increase the persuasiveness of reviews, Chan suggests building in objective measures when asking customers for a review, including specific details about how they would rate the quality of a particular purchase.



Cindy Chan



Andrea Charise

It's time to think differently about aging

Students participating in a unique project at U of T Scarborough are challenging notions of what it means to grow older.

For the past month, Professor **Andrea Charise** has led a team of students to curate a digital presentation on aging. "My own research has recently been around digital storytelling and how that media form casts new light on what it means to grow old," says Charise, Assistant Professor of English and in Health and Society.

The Resemblance Project: A Digital Intergenerational Storytelling Initiative is an online platform curated by six students under Charise's guidance. The project features students' interpretations of growing older through the lens of their own experiences and evaluations.

It is one of 20 projects curated through the Jackman Scholars-in-Residence program – a four-week residency between U of T's three campuses that hosts upper-year undergraduates in the humanities, fine arts and social sciences. A total of 13 digital stories from the project are now available as an online resource for readers and educators to access.

Charise explains that the word "resemblance" in the project's title is a combination of the terms resemblance, assemblage and age. Part of the foundation of the title is the question of how age studies can better resemble the experiences of its learners.

"If we are going to convincingly make age studies a field of a broader social concern, we have to look at all the ways in which aging must resemble, or be made relevant to, the vast range of people that are aging, in Toronto, in Scarborough, and Canada more broadly," Charise says.



Small businesses must “be nice” or go bust

A U of T Scarborough researcher has found that small businesses are expected to be more friendly, honest and helpful than larger businesses.

“It feels very wrong when a small business mistreats us, because we expect them to be warmer and friendlier,” says co-author **Pankaj Aggarwal**, a Marketing Professor at U of T Scarborough. “On the other hand, we don’t expect larger companies to be particularly warm or friendly, so when they fail to be nice, it doesn’t come as a big surprise.”

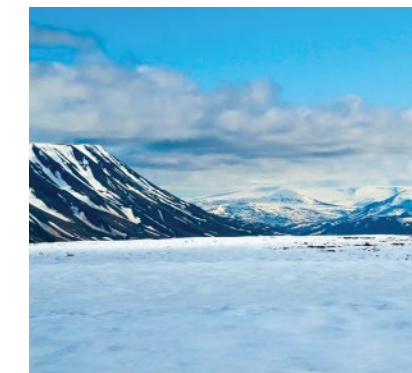
The research, published in the *Journal of Consumer Research*, looked at how company size not only affects customer expectations, but also reactions to bad behaviour by small and large companies.

The research found that perceptions of size affected consumer expectations for communal behaviours (i.e., being friendly, caring, honest and helpful). By contrast, perceived size did not affect whether customers expect a company to be efficient, effective or organized.

“We often romanticize small businesses,” says Aggarwal, whose past research looked at brand anthropomorphism, the idea that we often give human traits to companies and products.

Aggarwal notes that it is the perception of size, and not absolute size, that really drives customer expectations. “Companies may have more control over customer expectations than previously thought,” he adds.

Can life exist on a snowball planet? Research says yes



A U of T Scarborough study is challenging our definition of what makes a planet hospitable, finding that “snowball planets” may harbour the conditions for life to exist.

“When we think of a habitable planet, we tend to imagine a relatively warm place like Earth,” says **Adiv Paradise**, a PhD candidate and lead author of the study.

“Our research suggests that snowball planets – those with oceans that are completely covered in sea ice – shouldn’t be excluded as being inhospitable to life.”

Paradise and colleagues, including supervisor **Kristen Menou**, Associate Professor in the Department of Physical & Environmental Sciences and the Centre for Planetary Sciences, ran three-dimensional computer simulations of planets with Earth-like climates.

They found that if there are areas of dark, bare ground that receive enough sunlight, those regions can be warm enough for liquid water and life, without causing the ice to retreat.

“These planets may get a similar amount of light as Earth and the temperature will be above freezing, but unlike Earth, they are trapped in a snowball state where the rest of the planet remains frozen,” says Paradise.

“Some of the habitable planets we discover are going to be quite different from ours in terms of weather and climate, so we should reconcile ourselves to that fact.”

The study, which is published in the *Journal of Geophysical Research: Planets*, received funding from the Natural Sciences and Engineering Research Council of Canada (NSERC).

There’s no way to know what percentage of exoplanets (those outside our solar system) are in a snowball state. As Paradise points out, the only way to find out would be to physically observe them, but telescopes aren’t powerful enough for that yet.



Investigative journalism movies told as heroic fables

The movie *All the President’s Men* (1976) established elements that came to characterize investigative journalism movies, according to a study by **Sandford Borins**, Professor in the Department of Management at U of T Scarborough.

“The average person doesn’t know much about journalism at work – they only see the outputs,” Borins says. “Movies

about investigative journalism are the primary way that the public learns about what investigative journalists do.”

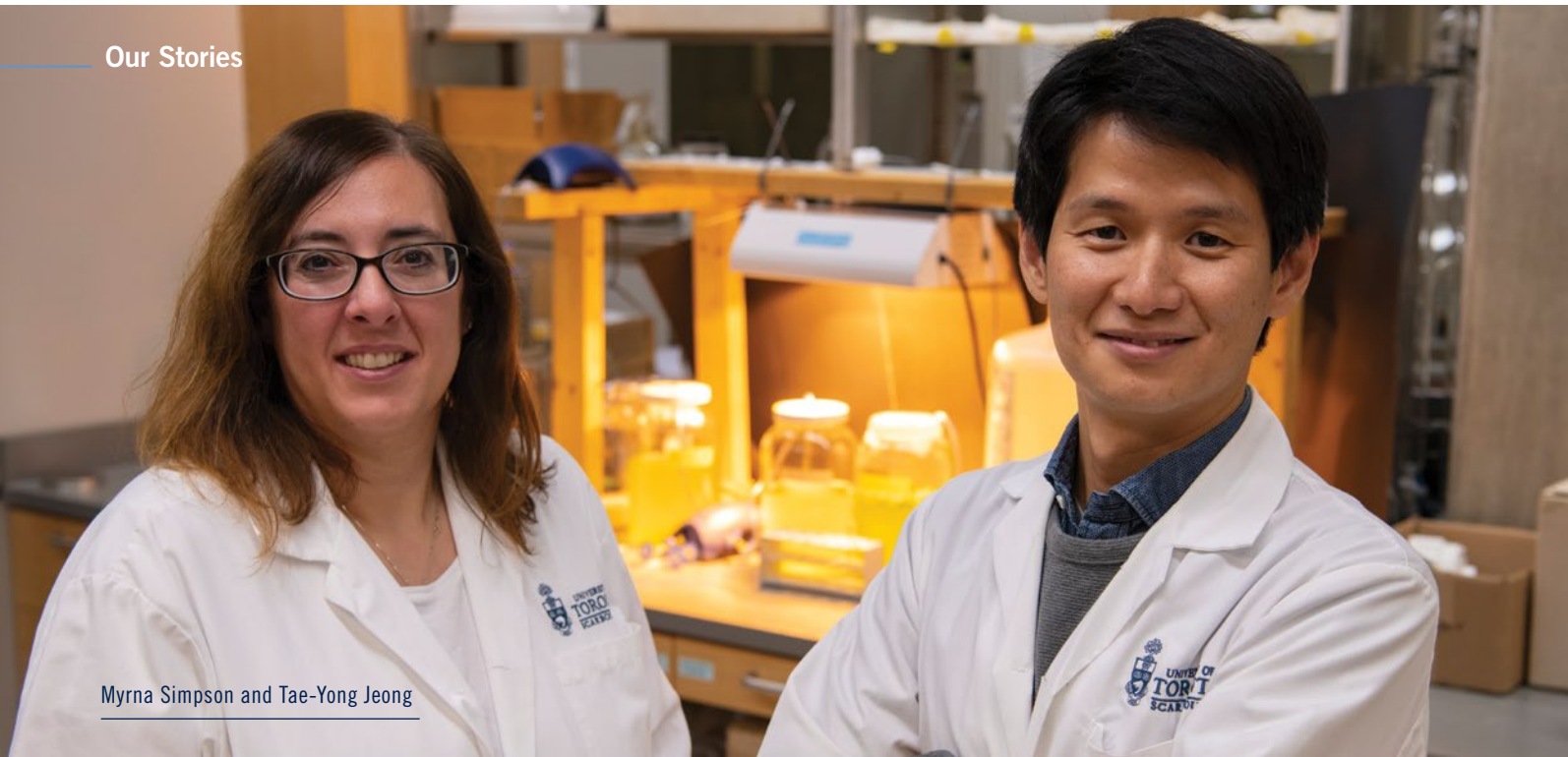
Funded by SSHRC, Borins analyzed movies about investigative journalism, to study what fables exist in that subgenre.

Borins used a unique methodology, in which he identified 14 core elements, calling it the “heroic investigative journalism fable.” Journalists research, and gather support from their editor to pursue a story. They interview sources, sifting through documents, piecing together the paper trail. Despite all opposition, the story is published, eventually leading to social change.

Borins says these movies can create unrealistic expectations and that “audiences might come to the erroneous conclusion that investigative journalism is typical.”

Understanding investigative journalism is increasingly important, and Borins is hopeful. “The fact that you [had] an administration [in the U.S.] led by someone for whom lying is like breathing, and enablers who try to cover this up, has stimulated investigative journalism at the national level in the U.S.”





Myrna Simpson and Tae-Yong Jeong



If *Daphnia* aren't happy because they're affected by pollution, you will see it cascade throughout the food web."



Early warning system for water pollution uses water fleas

Researchers at U of T Scarborough are developing an early warning system for water quality and pollution that combines tiny water fleas (*Daphnia*) and an instrument so sensitive it's able to almost instantly detect biochemical changes at the molecular level. Professor **Myrna Simpson** and postdoctoral fellow **Tae-Yong Jeong** are using metabolomics to detect biochemical changes inside *Daphnia* when exposed to different water conditions. Until now, there hasn't been a quick and easy method to routinely monitor these environments.

The technique can be incorporated into the Biological Early Warning System (BEWS), which looks at organisms' responses to changes in water quality. The organisms usually have a fast response to pollutants and changes in nutrients, which is useful for the continuous monitoring of water quality.

"Current monitoring techniques are long and labour intensive," says Simpson, whose research looks at the impact of

environmental change in soil and water at the molecular level.

Time and sensitivity are crucial when it comes to monitoring water quality, notes Jeong. "If *Daphnia* aren't happy because they're affected by pollution, you will see it cascade throughout the food web."

Metabolomics has been developed in the past for monitoring human and environmental health, but this is the first time it's been tested for use in BEWS.

The research, which received funding from the Krembil Foundation and the Ministry of the Environment, Conservation and Parks, is published in the journal *Water Research*.

An important next step for the researchers is to study metabolic changes in an organism caused by pollution compared to more extreme, unrecoverable, variations.

"We need to define what is a small change in metabolism versus a really big change that we know is going to manifest itself in something much worse," says Simpson.

Ostrich eggshell beads offer proof of early social networking

U of T Scarborough research offers the first physical evidence that ancient hunter-gatherers were exchanging ostrich eggshell beads in order to form large-scale social networks.

The exchange of ostrich eggshell beads is thought to be the earliest example of social networking among humans. While it's been theorized for decades this was the case, this study offers the first hard evidence supporting the claim.

"The exchange of ostrich eggshell beads, some dating back to the late Middle Stone Age, offers proof that humans were using cultural tools to develop large networks to reduce the risk of living in harsher environments," says **Genevieve Dewar**, Associate Professor in the Department of Anthropology and one of the research authors.

Published in the Proceedings of the *National Academy of Science (PNAS)*, the research looked at archaeological evidence of ostrich eggshell beads in two sites in southern Africa. Through isotopic analyses, Dewar and colleagues at the University of Michigan found that the practice stretched back at least 33,000 years ago, the age of the oldest beads found at the archaeological sites.

The exchange of ostrich beads, which persists even today among hunter-gatherers in southern Africa's



Kalahari Desert, is part of a system of delayed reciprocity designed to solidify relationships among groups, so if one group suffers a lack of resources through drought or lack of food, they can rely on other groups living in areas of relative plenty.

"It's a form of reciprocity that strengthens social bonds," explains Dewar, an expert on the origins of modern human behaviour.

The researchers also found that beads originated from at least 350 kilometres, showing that this social networking was taking place on a large scale. Since hunter-gatherers will forage up to 10 kilometres per day looking for food, Dewar says committing so much time and resources to creating a tool with no immediate purpose shows the importance of beads to forging social bonds.

Dewar says it offers some clues into how *Homo sapiens* were able to leave Africa and essentially colonize the planet rapidly.

"Previous species, like *Homo erectus*, were able to leave Africa, but they didn't adapt as successfully to very diverse environments as humans, so there are important innovations that allowed us to do this."

She adds that anthropologists are trying to unpack these specific social innovations that humans used in order to move into areas of the world lacking in abundant resources.

"If you have a lifeline back to a place that you know is predictable and plentiful, then you are probably more willing to push on into the unknown."



Genevieve Dewar



Nick Mandrak

Exotic pet trade is worsening the problem of invasive species

The exotic pet trade is contributing to the introduction of invasive species all over the globe – and unless something is done soon, more native species and their habitats will pay the price. This is the conclusion of a study by a group of researchers in Canada and the United States who studied

how the booming exotic pet trade in vertebrates plays a role in introducing invasive animal species to environments where they out-compete native animals for food and threaten their homes.

“It’s becoming a big problem,” says **Nick Mandrak**, an Associate Professor in U of T Scarborough’s biology department and a co-author of the study.

The numbers are unsettling. Of the 140 non-native reptiles and amphibians that have established populations in Florida, for example, close to 85 per cent arrived from the pet trade. Closer to home, Mandrak says 30 invasive fish species are established in the Great Lakes, of which five likely came as the result of pet releases.

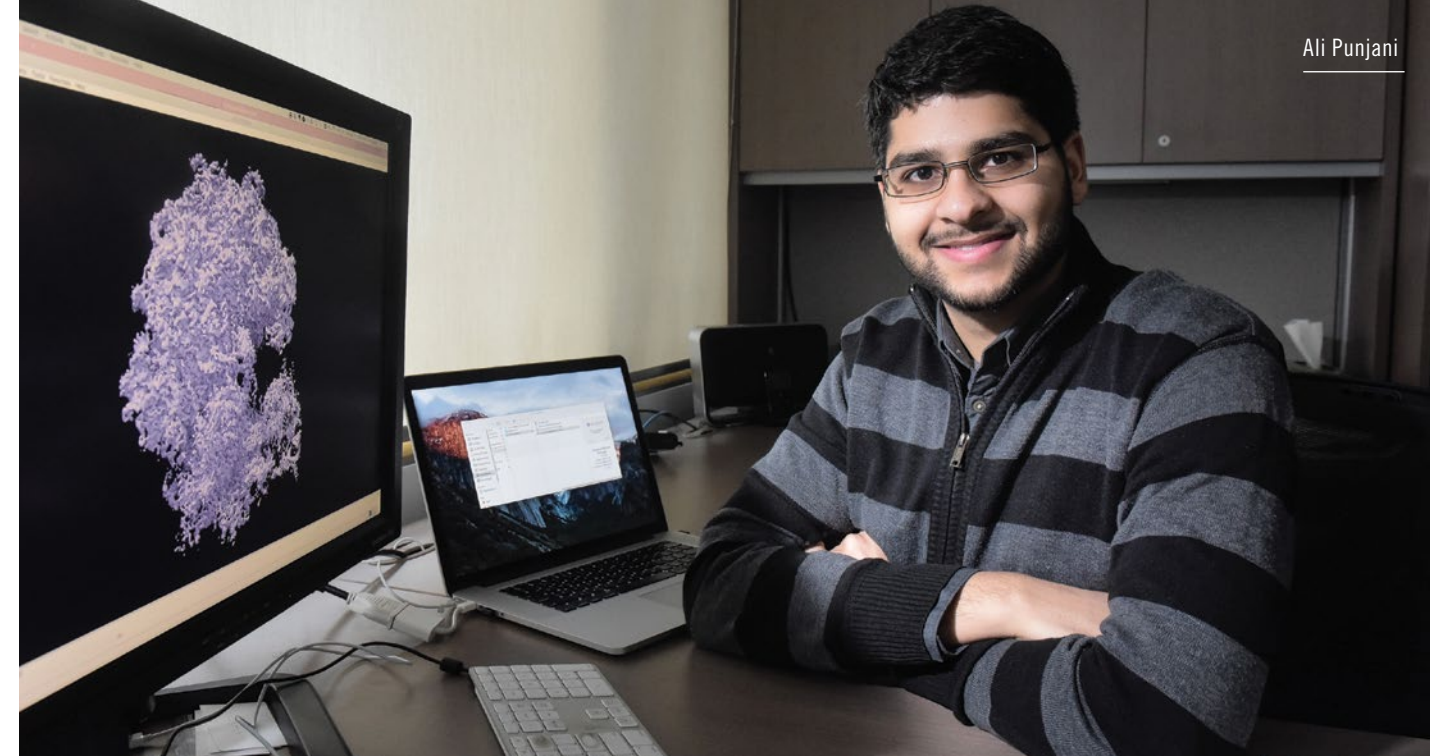
It’s easy to see how this happens, says Mandrak. In the United States, there are about 58 million pet fish, he explains. Surveys show that between two and 10 per cent of households deliberately release their pet fish into the wild, meaning at least 1.16 million fish are released each year in the U.S. alone.

“That’s a lot of fish. And that doesn’t account for birds, insects, snakes, reptiles – the list goes on,” he says.

There isn’t much research on what motivates owners to release their pets. Mandrak says it’s likely a combination of owners being unable to care for aging and/or aggressive pets once they grow too large, or simply having no incentive to hold onto an inexpensive pet, like goldfish.

Mandrak and his colleagues hope to bridge some significant research gaps: for one, understanding the economics behind what is driving the massive growth in the exotic pet trade worldwide and what motivates owners to release their pets into the wild. There is also very little known about the illegal trade that exists for exotic pets.

His message is pretty clear: “Don’t release your pet.”



Startup aids ‘critical breakthrough’ in coronavirus research



Part of the reason we got into this is because we are looking to make a difference.”



Software cryoSPARC, which grew out of a U of T Scarborough research project, facilitated what’s being described as a “critical breakthrough” in the search for a vaccine for the novel coronavirus.

It was spun out of **Ali Punjani**’s PhD research in computer science at U of T Scarborough and designed by alumnus **Suhail Dawood** – and used by American researchers who created the first real-time, 3D, atomic scale map of the part of the virus that attaches to and infects human cells (known as the spike protein).

Punjani’s startup, Structura Biotechnology, bills cryoSPARC as a way for academic researchers and pharmaceutical companies to rapidly recover 3D protein structures, taking some of the guesswork out of drug discovery. It combines computer vision and machine learning to help scientists piece together two-dimensional images into a 3D model revealing its shape and structure – information that helps scientists understand how a protein works at the molecular level.

“The work by UT Austin and the NIH demonstrates the power of structural biology,” Punjani says. “We can actually look at a new disease that was discovered just a couple of months ago and see how it works at the molecular level. It’s very exciting.”

Punjani co-founded the company while still a PhD student in an effort to bring cryoSPARC to market. His supervisor, **David Fleet**, Professor in U of T Scarborough’s Department of Mathematical and Computer Sciences, initiated the research behind it and joined the startup as an expert advisor.

Punjani says the company’s technology is now used by 400 institutions worldwide, including the University of California, Berkeley; the Hospital for Sick Children; and other large structural biology labs.

“This is a really exciting field to be working in,” says Saara Virani, Chief Operating Officer of Structura and Punjani’s sister. “Part of the reason we got into it is, at the end of the day, because we are looking to make a difference. Things like this really help us see that it’s true.”



Agincourt a renowned Asian food hub despite past racial tensions

Agincourt is renowned as one of Toronto’s Asian culinary hotspots. But its history – including opposition to a wave of immigrants in the early 1980s – is less well known.

Part of its evolution came in 1984, when brothers Henry and Daniel Hung bought a former roller-skating rink in an existing strip mall and converted it into a shopping centre called the Dragon Centre. “The role the Dragon Centre played was instrumental,” says Howard Tam, a U of T alumnus and urban planner, who grew up in Agincourt and also runs food tours throughout Scarborough.

“Many have this idealized version of food in Scarborough

being a triumph of multiculturalism,” says **Camille Bégin**, a food historian and lecturer at U of T Scarborough’s Culinaria Research Centre. “We don’t have the memory, or we’ve collectively forgotten, about the racial tensions that existed around the strip malls where these businesses are located.”

Along with Associate Professor **Jayeeta Sharma**, Bégin co-authored a study exploring the history of Scarborough as an ethnic food hub. For her postdoctoral research, Bégin worked on a pilot project called “Mapping Scarborough Chinatown,” which digitally documents the neighbourhood’s transformation into a culinary hub. Her research has been rolled into Tasting the Global City, a larger digital project by the Culinaria Research Centre that traces Toronto’s food history.

Food plays a critical role in all of this, Bégin says. Food businesses are relatively easy to set up since immigrants don’t have to re-train or get their credentials re-certified, and they offer something a community craves: a taste of home.

The Dragon Centre’s popularity led to tensions. Tam remembers the racist hate literature that circulated in the neighbourhood and at community meetings where local, mostly white residents raged against the changes. The mayor even convened a task force on multicultural and race relations in response.

“A lot of the development resistance pushed these projects to move north of Steeles into Markham, which is one reason you see larger malls there,” Tam says. While there is a proliferation of ethnic food hubs, Agincourt remains a culinary hotspot today. “It’s important to document this social history before it fades away.”



We don’t have the memory, or we’ve collectively forgotten, about the racial tensions that existed around the strip malls where these businesses are located.”



Zindel Segal



Online therapy for lingering depression symptoms offers greater access to those in need

An online version of a pioneering therapy aimed at reducing the lingering symptoms of depression offers additional benefits for patients receiving care, according to a U of T Scarborough study.

When added to regular care, the online version of Mindfulness-Based Cognitive Therapy (MBCT) can help treat depression symptoms and help prevent its return, says Professor **Zindel Segal**, a clinical psychologist and the study’s lead author.

“Treatments work well for many suffering from depression, but a considerable group continues to struggle with lingering symptoms such as sleep, energy or worry,” notes Segal. Clinical data shows that in the absence of treatment, these patients face a significantly higher risk of becoming fully depressed again, he adds.

The digital version of MBCT, called Mindful Mood Balance (MMB), is an online adaptation of the effective treatment developed by Segal and his colleagues. It combines the practice of mindfulness meditation with the tools of cognitive therapy to teach patients adaptive ways of regulating their emotions. The practice of mindfulness meditation helps patients observe rather than act automatically to any thought, feeling or sensation that comes to mind, setting them up for being able to choose how best to respond, explains Segal.

“Our goal has always been for people to develop skills that they could continue to rely on once treatment had ended.”

While research indicates that MBCT is as effective as antidepressant medication in preventing relapse, access remains limited and nearly impossible for those living outside large cities.

“What drove us to develop MMB is to improve access to this treatment. The online version uses the same content as the in-person sessions, while avoiding the barriers of cost, travel or wait times, and patients can get the care they need efficiently and conveniently,” Segal says.

Segal and colleagues received a \$2 million grant in 2015 from the National Institutes for Health in the U.S. to develop MMB. The results of the study, published in *JAMA Psychiatry*, found that adding MMB to depression care led to greater reductions in depressive and anxious symptoms, higher rates of remission and higher levels of quality of life compared to patients receiving conventional depression care alone.

“An online version, when added with usual care, could be a real game changer because it can be offered to a wider group of patients for little cost,” says Segal.

Even with the positive results, Segal says, there is work to be done. A common trade-off with online programs is that dropout rates tend to be higher than in-person treatment. An important next step is looking at ways to reduce this. “We will be looking at our user metrics and outcomes for ways to make MMB more engaging and durable.”



Filling the gaps in Black history in Canada

When it comes to information about Black history in Canada, there are significant gaps on Wikipedia, a familiar entry point for many doing research on the topic.

A group of University of Toronto information professionals and co-hosts of U of T's first Black History Wikipedia Edit-A-Thon have helped to change that. The edit-a-thon, held at U of T Scarborough Library, invited participants to edit and improve entries on Black Canadian history.

"The point of an edit-a-thon is to fill in gaps, and the gaps are often in areas of marginalized or underrepresented groups and histories," says **Whitney Kemble**, U of T Scarborough History Librarian. "We want to supplement and improve their representation and the content, and facilitate more learning about these topics."

One of the new Wikipedia articles to come out of the night was for First Baptist Church, the oldest Black institution in Toronto, formed in 1826 by fugitive slaves. Until the edit-a-thon, the page had been non-existent. Other changes include a new page for The Congress of Black Women in Canada, a group that was led by Kathleen Livingstone, a Black social activist, actor and broadcaster; and the Provincial Freeman, co-founded by the first Black woman newspaper editor, Mary Ann Shadd.



We want to supplement and improve their representation and the content, and facilitate more learning about these topics."



U of T researchers turn McDonald's deep fryer oil into high-end 3D printing resin

Researchers at U of T Scarborough have, for the first time, turned waste cooking oil – from the deep fryers of a local McDonald's – into a high-resolution, biodegradable 3D printing resin.

Using waste cooking oil for 3D printing has significant potential. Not only is it cheaper to make, the plastics made from it break down naturally, unlike conventional 3D printing resins.

"Nature hasn't evolved to handle human-made chemicals," says **Andre Simpson**, a Professor in the Department of Physical & Environmental Sciences, who developed the resin. "Because we're using what is essentially a natural product – in this case fats from cooking oil – nature can deal with it much better."

Simpson, who is also Director of the Environmental NMR Centre at U of T Scarborough, first became interested in the idea after noting that molecules used in commercial resins were similar to fats found in cooking oils. He wondered whether waste cooking oil could be reused, and contacted several major national fast food chains searching for cooking oil from their deep fryers. McDonald's was the only one that responded, so his research used oils from one of the hamburger chain's Scarborough restaurants.

Simpson and his team used a chemical process in the lab to transform the used cooking oil to resin, which was then used to print a plastic butterfly that showed features down to 100 micrometres and was structurally and thermally stable, meaning it wouldn't crumble or

melt above room temperature.

Used cooking oil is a major global environmental problem, with commercial and household waste causing serious environmental issues, including clogged sewage lines caused by the build-up of fats.

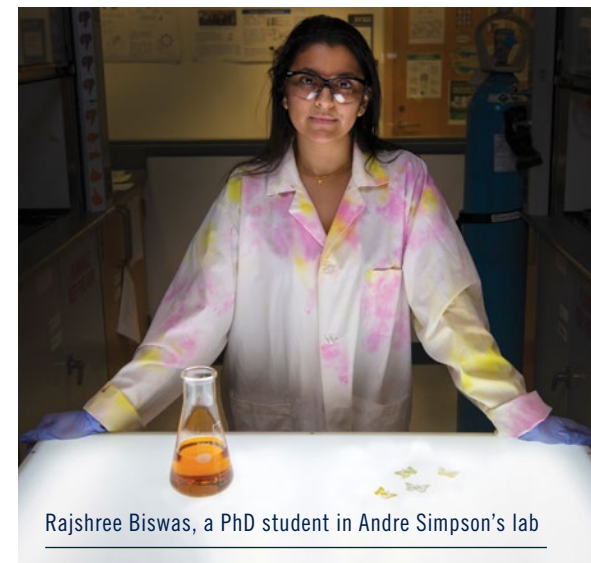
While there are commercial uses for waste cooking oil, Simpson says there's a lack of ways to recycle it into a high-value commodity such as a 3D printing resin. Creating a high-value commodity could remove some of the financial barriers with recycling waste cooking oil, he says, since many restaurants have to pay to dispose it.

Conventional high-resolution resins can cost upwards of US\$525 per litre. All but one of the chemicals used to make the resin in Simpson's lab can be recycled, meaning it could be made for as little as US\$300 per tonne, which is cheaper than most plastics.

Another key advantage is biodegradability. The researchers found that a 3D-printed object made with their resin, when buried in soil, lost 20 per cent of its weight in about two weeks. "Microbes will start to break it down because essentially it's just fat," Simpson says.

"It's something that microbes actually like to eat and they do a good job at breaking it down."

The results of the research are published in the journal *ACS Sustainable Chemistry & Engineering*. Simpson received funding from the Natural Sciences and Engineering Research Council of Canada, the Canada Foundation for Innovation, the Government of Ontario and the Krembil Foundation.



Rajshree Biswas, a PhD student in Andre Simpson's lab



Faculty Awards

INTERNAL



U of T Scarborough Principal's Research Award

KEN HOWARD

Physical & Environmental Sciences



U of T Scarborough Research Excellence Faculty Scholars Award

MARC CADOTTE

Biological Sciences



U of T Scarborough Research Recognition Award

NICOLE KLENK

Physical & Environmental Sciences



U of T Scarborough Pre-Tenure Faculty Research Award, Humanities

DAVID NIEBORG

Arts, Culture and Media



U of T Scarborough Pre-Tenure Faculty Research Award, Social Sciences

EMINE FIDAN ELCOĞLU

Sociology



U of T Scarborough Pre-Tenure Faculty Research Award, Sciences

HILARY BROWN

Health & Society

EXTERNAL



Royal Society of Canada Fellow 2019

BERNIE KRAATZ

Physical & Environmental Sciences

Members of the Royal Society of Canada

JOHN FRIEDLANDER

Computer & Mathematical Sciences, Fellow

LISA JEFFREY

Computer & Mathematical Sciences, Fellow

MICHAEL LAMBKE

Anthropology, Fellow

JUDITH TEICHMAN

Political Science, Fellow

FRANK WANIA

Physical & Environmental Sciences, Fellow

KATHERINE LARSON

English, Member of College of New Scholars, Artists and Scientists

NATALIE ROTHMAN

Historical and Cultural Studies, Member of College of New Scholars, Artists and Scientists

CIFAR AI Chairs 2020



DAVID FLEET

Computer and Mathematical Sciences



JAKOB FOERSTER

Computer and Mathematical Sciences



GENNADY PEKHIMENKO

Computer and Mathematical Sciences



DANIEL ROY

Computer and Mathematical Sciences

CURRENT CANADA RESEARCH CHAIRS AT U OF T SCARBOROUGH



DANIEL BENDER

Historical and Cultural Studies, CRC in Global Culture, 2014-2021



KAGAN KERMAN

Physical & Environmental Sciences, CRC in Bioelectrochemistry of Proteins, 2016-2021



HILARY BROWN

Health and Society, CRC in Disability and Reproductive Health, 2019-2026



MICHAEL LAMBKE

Anthropology, CRC in the Anthropology of Ethical Life, 2006-2020



BRIAN CONNELLY

Management, CRC in Integrative Perspectives on Personality, 2016-2021



BIANCA SCHROEDER

Computer and Mathematical Sciences, CRC in Data Centre Technologies, 2014-2024



CENDRI HUTCHERSON

Psychology, CRC in Decision Neuroscience, 2018-2023



MYRNA SIMPSON

Physical & Environmental Sciences, CRC in Molecular Biogeochemistry, 2019-2026



MARNEY ISAAC

Physical & Environmental Sciences / Centre for Critical Development Studies, CRC in Agroecosystems and Development, 2013-2024



BEBHINN TREANOR

Biological Sciences, CRC in Spatially Resolved Biochemistry, 2016-2021

Student Awards



U OF T SCARBOROUGH UNDERGRADUATE RESEARCH POSTER FORUM 2019-20

(Co-sponsored by the Library and the Office of the Vice-Principal Research & Innovation)

1ST PLACE

NAYAAB PUNJANI
Biological Sciences and Neuroscience

Bioengineered SMaRT Human Neural Stem Cells for Scar Degradation and Functional Recovery in a Chronic Spinal Cord Injury Model

2ND PLACE

SRISUDHAKAR NOWDURI
Department of Physical & Environmental Sciences

Bacteria are Picky Homeowners

3RD PLACE

ALI JAVEED
Psychology

The Virtuous Side of the Escalator: Political Orientation and the Moralization of Public Social Norms



ALI JAVEED
Psychology



ANGELA ZAVALETA BERNUY
Computer and Mathematical Sciences



SYLVIE STOJANOVSKI
Arts, Culture and Media



NATASHYA FALCONE
Department of Physical & Environmental Sciences
Doctoral Level



YI-TING JEFF CHEN
Department of Cell and Systems Biology
Master's Level

U OF T SCARBOROUGH UNDERGRADUATE RESEARCH PRIZE 2019-20

(Co-sponsored by the Library and the Office of the Vice-Principal Research & Innovation)

GRADUATE STUDENT RESEARCH AWARD 2019-20

Research Events

Celebration of RESEARCH EXCELLENCE Lecture Series

Bringing the community together to advance the intellectual life of the campus is the goal of U of T Scarborough's **Celebration of Research Excellence Lecture Series**.

This series features award-winning U of T Scarborough faculty presenting cutting-edge research, sharing innovations and discoveries that are advancing new knowledge and improving lives in Canada and around the world.

The 2019-20 series was comprised of eight lectures, featuring leading U of T Scarborough scholars, reflecting the diversity of faculty accomplishments in the humanities, social sciences and physical sciences:

MARLENE GOLDMAN
English

CENDRI HUTCHERSON
Psychology

BEBHINN TREANOR
Biological Sciences

JASON WEIR
Biological Sciences

RUTSUKO ITO
Psychology

DANIEL BENDER
Historical & Cultural Studies

NEW FRONTIERS SEMINAR SERIES

The **New Frontiers Seminar Series** is U of T Scarborough's flagship seminar series, showcasing the newest research being conducted at U of T Scarborough, highlighting and promoting cutting-edge research, focusing on innovation and collaboration.

The seminars are designed to reach a broad audience, and are presented by the U of T Scarborough Graduate Students' Association, with support from the Office of the Vice-Principal Academic & Dean.

Speakers in the New Frontier Seminar Series 2019-20 were:

DR. AYESHA KHAN AND DR. HEATHER POOLE
Stressing In The Fall: What Are The Implications Of A Reading Week For Student Mental Health & Learning

DR. ROBYNE HANLEY-DAFOE
Resiliency and Workplace Wellness

DR. RACHEL CHANG
Atmospheric Sciences

DR. NADINE CHANGFOOT
Political Studies

DR. NICHOLAS RIVERS
Climate and Energy Policy

DR. CHAO-JUN LI
Green Chemistry

DR. ERNESTO GUZMAN
Honey Bee Research Centre

Research Funding

BY Research Faculty

Data source: University of Toronto Research & Innovation Dashboards Year **April 1, 2019 – March 31, 2020**. Report generated on December 9, 2020. **This is not a comprehensive list.**

FACULTY	DEPARTMENT	SPONSOR	PROGRAM	PROJECT TITLE	AWARDED	
Aggarwal, Pankaj	Management	SSHRC	Insight Grant	Tradeoffs and Product Flaws: Applying Social Norms to Anthropomorphized Products	\$24,026	
Ahmad, Aisha	Political Science	SSHRC	Connection Grant	Future Security Challenges Facing Canada: Vital Insights from Women in International Security	\$24,950	
			Insight Development Grant	The Long Jihad: Explaining the Durability of Jihadist Insurgencies	\$28,249	
			Dept. of National Defence Res. Initiative (DNDRI)	The Long Jihad: Explaining the Durability of Jihadist Insurgencies	\$10,000	
			University of Waterloo	Department of National Defence Subgrant	Subgrant with University of Waterloo MINDS grant	\$7,850
Ambuehl, Sandro	Management	Alfred P. Sloan Foundation	Research Operating Grant	Using Behavioral Welfare Economics to Improve Financial Decision Making	\$6,498	
Anderson, Ashton Chandler Justin	Computer & Mathematical Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Behavioural Computation: Analysis, Models, and Algorithms for Supporting Human Improvement on the Web	\$33,000	
		Microsoft	Operating Grant	Bridging the Gap Between Real and Artificial Intelligence: Designing Human-Like AI Systems as Safe and Understandable Decision-Making Aids	\$52,808	
Andrade, Maydianne	Biological Sciences	Universität Greifswald	Marie Skłodowska-Curie Fellowship	Immature Mating as a Novel Tactic of an Invasive Widow Spider	\$15,998	
		NSERC	Discovery Grants (Individual, Team & Project)	Examining Links Between Behaviour, Plasticity and Diversification Under Environmental Heterogeneity Using Broadly Distributed Spiders	\$33,000	
Aretakis, Stefanos	Computer & Mathematical Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Mathematical Problems in General Relativity	\$30,000	
Archontitsis, Georgios	Physical & Environmental Sciences	Environment Canada	Great Lakes University Research Fund	Using the Soil Water Assessment Tool (SWAT) to Determine Best Management Practices in Wilton Creek and Hay Bay Watersheds (Bay of Quinte AOC)	\$35,999	
				Modelling Nutrient Exports and Dynamics Including Internal Nutrient Loading in Lake Erie	\$50,000	
				Eutrophication Risk Assessment and Adaptive Management Implementation in the Hamilton Harbour AOC: Elucidating the Role of Internal Nutrient Recycling	\$68,000	
			Research Contract	Models to Support the Adaptive Management Strategies for the Domestic Action Plan for Lake Erie	\$49,450	
			NSERC	Discovery Grants (Individual, Team & Project)	A Bayesian Framework to Study the Effects of Hydrological Extremes under Present and Future Climate Conditions	\$58,000

FACULTY	DEPARTMENT	SPONSOR	PROGRAM	PROJECT TITLE	AWARDED	
Archontitsis, Georgios	Physical & Environmental Sciences	MITACS	MITACS-Elevate (PDF)	Towards the Development of a Prognostic Tool for Harmful Algal Blooms	\$60,000	
Armstrong, Blair	Psychology	NSERC	Discovery Grants (Individual, Team & Project)	Toward a Universal Theory and Model of Word Comprehension	\$26,000	
			University of Toronto Excellence Award – NSE	Cross-model Noise Compensation in Audivisual Words: Impact of Native Language	\$4,875	
Arruda Carvalho, Maithe	Psychology	Hospital for Sick Children	New Investigator	Social Brain Development from Infancy to Adulthood: Implications for Autism	\$100,000	
		CIHR	Project Scheme	Investigating the Maturation of Sensitive Circuits Underlying Early Life Stress	\$272,532	
		NSERC	Discovery Grants (Individual, Team & Project)	NSERC DG – Maturation of Circuits Underlying Learning and Memory	\$33,000	
		Human Frontier Science Program Org	Grant, Career Development	Investigating the Circuit Basis of Adolescent Impulsivity	\$129,967	
			Young Investigators Grants	From Synapses to Networks. Understanding Mechanisms of Fear Generalization Across Brain Scales	\$150,051	
Brain & Behavior Research	NARSAD Young Investigator award	Circuit Maturation and Susceptibility to Depression	\$43,546			
Atkins, Chloe	Political Science	SSHRC	Dept of National Defence Res. Initiative (DNDRI)	A Phenomenological Investigation of Why Disabled adults are Under-represented in the Workforces of Canada, the US, England, France and Belgium	\$148,476	
Averbakh, Igor	Management	NSERC	Discovery Grants (Individual, Team & Project)	Nonclassical Discrete Optimization Problems	\$31,000	
Bailey, Sarah	Physical & Environmental Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Examining Risk of, and Management Strategies for, Ship Biofouling as a Vector of Aquatic Non-native Species to Canada	\$27,500	
Bisaillon, Laura	Political Science	Canadian Bar Association	Law for the Future Fund (operating)	The Making (and Unmaking) of Medical Inadmissibility: Illness and Disability in Canadian Immigration Law	\$20,000	
Boonstra, Rudy	Biological Sciences	Aboriginal Affairs & Northern Development Canada	Northern Scientific Training Program (Operating)	Maternal Programming by Chronic Predator-induced Stress in Snowshoe Hares: Epigenetic Effects on Gene Expression Changes	\$4,000	
			NSERC	Discovery Grant – Northern Research Supplement	The Role of Stress in Natural Populations	\$15,000
			Discovery Grants (Individual, Team & Project)	The Role of Stress in Natural Populations	\$51,000	
Borins, Sanford	Management	SSHRC	Insight Grant	Extending the Reach of a Methodology for Studying Narratives about Politics and Government	\$7,884	
Bowen, William	Arts, Culture & Media	SSHRC	Aid to Scholarly Journals	Renaissance and Reformation / Renaissance et Reforme	\$33,500	
Brown, Hilary Kathryn	Health & Society	CIHR	Request for Applications (RFA) Operating	Infants Born to Women with Disabilities: Health and Health Care	\$8,333	

Research Funding

FACULTY	DEPARTMENT	SPONSOR	PROGRAM	PROJECT TITLE	AWARDED
Brown, Hilary Kathryn	Health & Society	CIHR	Fellowships	Lesley Tarasoff – Understanding the Preconception Health of Women with Disabilities in Ontario: Service User and Provider Perspectives	\$45,000
			Travel Award	Lesley Tarasoff – Preconception Health Characteristics of Women with Physical, Sensory, and Intellectual and Developmental Disabilities in Ontario	\$1,000
		National Institutes of Health (US)	Operating Grant-R01	Pregnancy in Women with Disabilities: Using Novel Methods to Characterize Risk	\$193,552
Brown, Ian	Biological Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Heat Shock Proteins in the Nervous System	\$45,000
Bunce, Susannah	Human Geography	University of British Columbia	SSHRC PG subgrant	CMHC-SSHRC Balanced Supply of Housing Node	\$9,989
Burchell, Kenzie	Arts, Culture & Media	SSHRC	SIG: Dissemination activities (excl PI/ student travel)	Toronto-Manchester Digital Humanities Planning Workshop School on Nov 14-15, 2019 at UTSC	\$1,142
Cadotte, Marc	Biological Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Biodiversity and the Delivery of Ecosystem Services in Novel Landscapes	\$37,000
Campbell, Mark	Arts, Culture & Media	SSHRC	Insight Grant	Doing, Creating & Producing Knowledge: Hip Hop Archives' Poetics & Potentials	\$4,990
Cant, Jonathan	Psychology	NSERC	Discovery Grants (Individual, Team & Project)	The Neural Substrates of Object Ensemble Processing in the Human Brain	\$29,000
Chair, Anthropology	Anthropology	NSERC	Undergraduate Student Research Award	Large-Scale Habitat Use in a Lowland Population of Rwenzori Angolan Colobus	\$4,500
Chair, Biological Sciences	Biological Sciences	NSERC	Undergraduate Student Research Award	NSERC Undergraduate Student Research Awards	\$27,000
Chair, Computer & Math Sciences	Computer & Mathematical Sciences	NSERC	Undergraduate Student Research Award	NSERC Undergraduate Student Research Awards	\$18,000
Chair, Physical & Environmental Sciences	Physical & Environmental Sciences	NSERC	Undergraduate Student Research Award	NSERC Undergraduate Student Research Awards	\$27,000
Chair, Psychology	Psychology	NSERC	Undergraduate Student Research Award	NSERC Undergraduate Student Research Awards	\$9,000
Chandra, Ambarish	Management	SSHRC	Insight Grant	A Comprehensive Account of Price Discrimination: New Evidence from the Airline Industry	\$13,550
Charise, Andrea	Health & Society	SSHRC	Insight Development Grant	Novel Remedies: Literature, Health, and the Creative Recovery of the Humanities	\$21,259
Childress, Christopher Clayton	Sociology	SSHRC	Insight Development Grant	Drafting Change: The Visions and Revisions of Nelson Mandela	\$42,846
Chun, Jennifer	Sociology	SSHRC	Insight Grant	Protesting Publics in South Korea	\$29,601
Cire, Andre Augusto	Management	NSERC	Discovery Grants (Individual, Team & Project)	Optimization with Decision Diagrams: Theory and Applications	\$24,000

FACULTY	DEPARTMENT	SPONSOR	PROGRAM	PROJECT TITLE	AWARDED
Cirelli, Laura	Psychology	SSHRC	Insight Grant	Parent-Infant Bonding Through Musical Interaction	\$20,138
			SIG: Student compensation – primary use of funds	Infant engagement with live and recorded musical performances	\$800
		NSERC	DGECR Discovery Launch Supplement	Auditory-motor Integration in Infancy and Early Childhood	\$12,500
			Discovery Grants (Individual, Team & Project)	Auditory-motor Integration in Infancy and Early Childhood	\$28,033
	Connaught Fund	New Researcher Award	Infant Musical Engagement in the Home and Community	\$20,000	
Cochrane, Christopher Brian	Political Science	SSHRC	Insight Grant	Ideology, Institutions, and the Evolution of Canadian Parliamentary Behaviour, 1867-2016	\$54,357
Connelly, Brian Samuel	Management	Ontario Ministry of Research and Innovation	Early Research Award	Broadening the Horizons of Personality: The Scarborough Multi-Rater Personality Project (SMuRPP)	\$79,800
Cowan, Theresa (T.L.)	Arts, Culture & Media	SSHRC	Insight Grant	Networked Intimate Publics: Trans-Feminist and Queer Practices of Scale, Safety and Access	\$42,343
			SIG: Student compensation – primary use of funds	Research Assistant on a Special Journal on the Topic of Metaphors in Digital TechnoCulture	\$1,143
Cupchik, Gerald Chaim	Psychology	SSHRC	SIG: Direct costs of research	Discerning Real from Fake News	\$1,311
Daswani, Girish	Anthropology	SSHRC	Insight Grant	Act Now: Responses to Corruption in Contemporary Ghana	\$41,550
Dewar, Genevieve	Anthropology	SSHRC	Insight Grant	Human Landscape Use during MIS 3 and MIS 2 in Southern Africa	\$7,305
Dhuey, Elizabeth Ann	Management	MITACS (Mathematics of Info Tech & Complex Systems)	Accelerate Ontario	Closing Skill Gaps in Under- and Unemployed Youth	\$20,000
			SSHRC	Insight Grant	Future Skills: Is There a Role for Online Learning?
			Partnership Development Grant	Future Skills: Adapting Education and Training to Respond to the Changing World of Work due to Disruptive Technologies ("Industry 4.0")	\$99,750
		Ryerson University	Subgrant (Future Skills Centre – ESDC)	Knowledge Mobilization and Academic/ Policy Partnership Development in support of Research Initiative Education + Skills (RIS)	\$23,236
		Ontario Council on Articulation and Transfer	Research Grant	Recycling Higher Education: The Labour Market Returns to Multicredentialism	\$115,953
Dittrich, Maria	Physical & Environmental Sciences	Qatar National Research Fund	National Priorities Research Program (NPRP)	Understanding Carbon Mineralization in Sabkhas: Microbial Mats, Minerals and Carbon Sequestration	\$71,075
		MITACS	Globalink	Molecular Insights into the Phosphorus Cycling in Lakes	\$6,000

Research Funding

FACULTY	DEPARTMENT	SPONSOR	PROGRAM	PROJECT TITLE	AWARDED
Dittrich, Maria	Physical & Environmental Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Organo-mineralization in Microbial Mats: Linking Field, Laboratory and Metagenomic Studies	\$22,000
		Environment Canada	Great Lakes University Research Fund	Phosphorus Loading from Napanee River, Wilton Creek and Their Catchments	\$45,000
				Internal Nutrient Loading in Lake of the Woods and Contribution to Harmful Algal Blooms and Cyanobacteria	\$29,996
Donaldson, James	Physical & Environmental Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Atmospheric and Interfacial Reaction Dynamics	\$48,000
Drouin, Sebastien	Language Studies	SSHRC	Insight Grant	Correspondances de journalistes II: Circulation du livre et de l'information littéraire dans l'Europe des premières Lumières	\$42,500
Ekers, Mike	Human Geography	SSHRC	Insight Grant	Financiers in the Forests: On Fixes, Colonial Property Regimes and Resistance	\$28,139
Elcioglu, Emine Fidan	Sociology	SSHRC	SIG: Direct costs of research	Book Manuscript: Ambiguous Border Class Race and the Politics of Immigration in the US	\$1,343
		Connaught Fund	New Researcher Award	The Political Effects of Taking in Strangers: An Interview-Based Study of the Motivations, Experiences, and Worldviews of Private Refugee Sponsors in Canada	\$19,979
Enright, Wayne	Computer & Mathematical Sciences	NSERC	Discovery Grants (Individual, Team & Project)	The Development of Reliable Numerical Software for the Investigation of Systems of Differential Equations	\$26,000
Erb, Suzanne	Psychology	NSERC	Discovery Grants (Individual, Team & Project)	Impact of Early Developmental Experience on Cocaine-stress Interactions in Adulthood: An Exploration of Behavioural, Physiological, and Neural Mechanisms	\$31,000
Evans, Michael	Computer & Mathematical Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Bayesian Inference and Relative Belief, Theory and Applications	\$60,000
Eyles, Nicholas	Physical & Environmental Sciences	NSERC	Discovery Grants (Individual, Team & Project)	The Geology of Glaciated Sedimentary Basins	\$33,000
Farber, Steven	Human Geography	SSHRC	Connection Grant	Mobilizing Justice: Bridging Social Equity and Emerging Mobility Technologies	\$24,989
Fleet, David James	Computer & Mathematical Sciences	MITACS	Accelerate Ontario	Machine Learning Theory	\$24,615
				Machine Learning for Cancer Treatment Plan Benchmarking	\$30,000
				Colonoscopy Video Analysis Framework	\$15,000
		NSERC	Discovery Grants (Individual, Team & Project)	Looking at People and Large-Scale Vision	\$73,000
Ford, Brett Quaid	Psychology	SSHRC	Insight Grant	When is Emotion Regulation Adaptive Versus Maladaptive? A Multi-method Examination	\$34,238
Fosse, Ethan	Sociology	Connaught Fund	New Researcher Award	The Consequences of Downward Social Mobility in the United States and Canada	\$20,000

FACULTY	DEPARTMENT	SPONSOR	PROGRAM	PROJECT TITLE	AWARDED
Fournier, Marc	Psychology	SSHRC	SIG: Direct costs of research	The Signs and Significance of Personality Coherence	\$1,311
		MITACS	Accelerate Ontario	Understanding Wisdom and Teaching It at Scale	\$18,333
Friedlander, John	Computer & Mathematical Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Research in Number Theory	\$32,000
Fu, Diana Xuan	Political Science	SSHRC	Insight Development Grant	Thought Control and Gender Politics in Authoritarian China	\$19,282
Fulthorpe, Roberta	Physical & Environmental Sciences	MITACS	Accelerate Ontario	Altering Plant Microbiomes for Flavour and Nutrition	\$15,000
		NSERC	Discovery Grants (Individual, Team & Project)	Catabolic Capabilities of Endophytic Bacteria	\$34,000
		Loblaw Companies Ltd.	Seeding Food Innovation Grant	Adjusting Plant Microbiomes for Flavour and Fragrance	\$132,100
Gaston, Kara Susan	English	SSHRC	Insight Development Grant	Writing the Stars: Literature and Astronomy from Classical Antiquity to the Middle Ages	\$15,816
			SIG: Student compensation – primary use of funds	Imagining the Stars in Medieval Poetry and Astronomy (research project)	\$828
Gazzarrini, Sonia	Biological Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Environmental and Hormonal Control of Seed Development and Germination	\$40,000
Gervers, Michael	Historical & Cultural Studies	Arcadia Foundation	Research Grant	Contemporary Rock-hewn Church Excavation in Ethiopia	\$51,720
		SSHRC	Insight Grant	Text as Image, Image as Text: Charter Integrity and Topic Modelling	\$85,000
Goffe, Rachel	Human Geography	SSHRC	SIG: Direct costs of research	Legalize It: Geographies of Cannabis Legalization from Jamaica to Canada	\$1,245
Goghari, Vina	Psychology	SSHRC	Insight Development Grant	Psychosocial Factors Associated with Engagement In and Outcomes of Brain Training	\$27,036
		NSERC	Discovery Grants (Individual, Team & Project)	Dissociating Proactive and Reactive Control Processes	\$29,000
Goldstein, Michael	Computer & Mathematical Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Integrable Systems Of PDE With Quasi-Periodic Initial Data	\$20,000
Gonzales-Vigil, Eliana	Biological Sciences	Connaught Fund	New Researcher Award	Uncovering a Silent Player: The Role of the Microbiome in Plant-insect Interactions	\$20,000
		NSERC	DGECR Discovery Launch Supplement	Peeling Off the Secrets of Populus Trichocarpa Defences	\$12,500
		NSERC	Discovery Grants (Individual, Team & Project)	Peeling Off the Secrets of Populus Trichocarpa Defences	\$33,000
Gough, William	Physical & Environmental Sciences	MITACS	Accelerate Ontario	Durham Region Climate Change Modeling (DRCCM)	\$30,000
		NSERC	Discovery Grants (Individual, Team & Project)	Climate Change in the Eastern Arctic	\$32,400

Research Funding

FACULTY	DEPARTMENT	SPONSOR	PROGRAM	PROJECT TITLE	AWARDED
Gough, William	Physical & Environmental Sciences	Aboriginal Affairs & Northern Development Canada	Northern Scientific Training Program (Operating)	Inuit Knowledge of the Cumulative Impacts of Environmental Change in Eastern Hudson Bay	\$3,500
Guzzo, Christina	Biological Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Novel Mechanisms of Cytokine Storage and Secretion	\$37,000
			DGECR Discovery Launch Supplement	Novel Mechanisms of Cytokine Storage and Secretion	\$12,500
		Canada Foundation for Innovation	IOF	A Viral Pathogenesis Laboratory for the Study of HIV-1 Disease and Host Immunity	\$30,000
Hachimi, Atiqa	Historical & Cultural Studies	SSHRC	Insight Development Grant	Communicating Transnational Desires: The Significance of Language in Morocco's Sex Tourism Industry	\$21,893
Hansen, Samantha	Management	SSHRC	Insight Grant	The Critical Role of Time on Perceived Employee and Employer Obligations: A New Direction in the Study of Psychological Contracts	\$49,455
			Dept of National Defence Res. Initiative (DNDRI)	The Critical Role of Time on Perceived Employee and Employer Obligations: A New Direction in the Study of Psychological Contracts	\$20,000
Harrison, Rene	Biological Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Microtubule Organizing Centres in Osteoclasts	\$56,288
		CIHR	Project Scheme	Mechanisms of Particle Destruction and Cytokine Induction During Phagocytosis in Macrophages	\$126,863
Haslhofer, Robert	Computer & Mathematical Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Mean Curvature Flow and Ricci Flow	\$27,000
Hellie, Benjamin	Philosophy	SSHRC	SIG: Int'l conference/workshop	Workshop Co-keynote, Visiting Fellow, University of Madrid, Jan-Mar 2020, 'Endorsement Logic and the New Deflationism' & Give Talk at Higher School of Economics, Moscow, 7 Mar 2020, 'Dissolving the Mind-Body Problem by Repairing Logic'	\$1,023
Helms-Park, Rena	Language Studies	SSHRC	SIG: Student compensation – primary use of funds	Testing the Cognate Facilitation Hypothesis Based on the Degree of Phonological vs. Orthographic Overlap Between Portuguese-English Cognates	\$1,153
			Insight Grant	Trilingualism in French Immersion: Predictors of Reading Success and Reading Difficulty in a Third Language	\$7,410
			SIG: Dissemination activities (excl PI/student travel)	Invited Talks and Discussions on Indigenous Languages and Ethnographic Data Collection	\$1,000
			University of Toronto Excellence Award – SSH	Designing and Validating Tests of French Visual Word Recognition and French-English Cognates for Trilingual Children in French Immersion	\$6,000
Hermer, Joseph	Sociology	SSHRC	SIG: Direct costs of research	Violence against Homeless People: a Hate Crime (post book project)	\$900
Higgins, Christopher	Human Geography	SSHRC	SIG: Student compensation – primary use of funds	Classifying LIDAR Point Clouds for Building Detection and Morphological Analysis in Toronto	\$1,245

FACULTY	DEPARTMENT	SPONSOR	PROGRAM	PROJECT TITLE	AWARDED	
Hirst, Graeme	Computer & Mathematical Sciences	MITACS	Accelerate Ontario	Question-to-question Semantic Similarity for Question Answering System	\$30,000	
				Extending Artificial Intelligence in the Operating Room	\$30,000	
		NSERC	Discovery Grants (Individual, Team & Project)	Sentiment Analysis in Dialogue Systems	\$30,000	
Hoffmann, Matthew	Political Science	MITACS	Globalink	Varieties of Climate Governance: Germany Case Study	\$6,000	
		University of Ottawa	Smart Prosperity sub (was Sustainable Prosperity)	The Interaction of Public Green Economy Policies and Non-State Green Economy Initiatives: A Case Study of Green Economy Canada	\$8,614	
Hsiung, Ping-Chun	Sociology	SSHRC	Insight Grant	The Politics of Investigative Research during China's Great Leap Forward (1958-62)	\$35,832	
Hubner, Karolina	Philosophy	SSHRC	Insight Grant	Spinoza on Being	\$24,003	
Hunter, Mark	Human Geography	SSHRC	Insight Grant	'Parasites': A Social Geography of Heroin, Estrangement, and Gendered Sociality in South Africa	\$22,860	
Hussain, Waheed	Philosophy	SSHRC	Insight Grant	Embracing the Invisible Hand: Corporations, Market Governance and Human Freedom	\$15,471	
Hutcherson, Cendri Anne Claire	Psychology	NSERC	Discovery Grants (Individual, Team & Project)	Testing the Implications of a Dynamic, Neurally-informed Computational Model of Valuation, Decision Making, and Self-control	\$28,000	
			University of Toronto Excellence Award – NSE	Constructing a Dynamic, Neurally-informed Computational Model of Self-control	\$4,875	
		California Institute of Technology	Subgrant, NIH	Social Inference and Prosocial Decisions	\$78,544	
Inbar, Yoel	Psychology	SSHRC	Insight Grant	Moralized Attitudes Towards Genetically Engineered Food	\$16,300	
			SIG: Int'l conference/workshop	Moral Language Use, SPSP Annual Meeting, New Orleans, LA, USA, Feb 27, 2020	\$600	
Inzlicht, Michael	Psychology	NSERC	Discovery Grants (Individual, Team & Project)	The Effort Paradox: Exploring Effort's Costs and Benefits	\$21,994	
			CIHR	CIHR Banting Postdoctoral Fellowship	Kaitlyn Werner – A Motivational Approach to Increasing Healthy Eating Habits	\$70,000
		SSHRC	Insight Grant	Self-control Failure as By-product of Boredom Regulation: Testing a Motivational Model of Self-control		\$76,412
Isaac, Marney Elizabeth	Physical & Environmental Sciences	University of Guelph	Subgrant (primary sponsor not known)	Riparian Buffer Plantings: An Agroforestry Land-use for Greenhouse Gas Mitigation Including Multiple Benefits to Canadian Agricultural Systems	\$27,000	
		NSERC	Discovery Grants (Individual, Team & Project)	Biophysical Interactions in Agricultural Environments Across Edaphic Gradients	\$22,000	

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FACULTY	DEPARTMENT	SPONSOR	PROGRAM	PROJECT TITLE	AWARDED
Isakson, Ryan	Health & Society	SSHRC	SIG: Direct costs of research	The Promotion of Weather-based Financial Derivatives as a Type of Agricultural Insurance Interacts with the Vulnerability of Guatemalan Peasant Farmers to Economic and Environmental Stresses	\$500
	Human Geography	SSHRC	University of Toronto Excellence Award – SSH	Index-Based Agricultural Insurance and the Environmental Vulnerability of Small-Scale Farmers in Northern Guatemala	\$6,000
Ito Lee, Rutsuko	Psychology	CIHR	Project Scheme	Hippocampal Contributions to Approach-avoidance Conflict Decision-making: A Cross-species Investigation into the Underlying Cognitive Processes and Wider Neural Circuitry	\$148,410
		NSERC	Discovery Grants (Individual, Team & Project)	Delineating Cortico-limbic-striatal Circuits in Reward and Punishment: Segregation and Integration	\$31,000
Izmaylov, Artur	Physical & Environmental Sciences	NSERC	Collaborative R&D Grants (operating)	Quantum Computing for Molecular Electronic Structure	\$25,000
			Discovery Grants (Individual, Team & Project)	Quantum Dynamical Methods for Modelling Photoinduced Processes in Molecules	\$48,000
		OTI Lumionics Inc.	Research Contract	Quantum Computing for Molecular Electronic Structure	\$35,000
		Google Inc.	Grant, operating	Quantum Computing for Solving the Electronic Structure Problem	\$133,410
Jeffrey, Lisa	Computer & Mathematical Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Symplectic Geometry	\$27,000
Kahraman, Filiz	Political Science	University of British Columbia	SSHRC PDG subgrant	Activism in International Human Rights Courts	\$12,304
		SSHRC	SIG: Direct costs of research	Claiming Labor Rights as Human Rights: Legal Mobilization at the European Court of Human Rights	\$4,175
Kang, Yoon Jung	Language Studies	SSHRC	University of Toronto Excellence Award – SSH	The Phonology of Sound Symbolism in Cantonese First Names	\$6,000
			University of Toronto Excellence Award – SSH	Interaction Between Duration, Speech Rate, and Speaker Age, and Implications for Sound Change	\$6,000
Kerman, Kagan	Physical & Environmental Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Bioelectrochemistry of Surfaces and Interfaces	\$45,000
Khapko, Mariana	Management	SSHRC	Insight Development Grant	Speed and Market Structure in the Digital Age	\$25,468
Kilroy-Marac, Kathleen Patricia	Anthropology	SSHRC	SIG: Direct costs of research	Travel to Dakar, Senegal, Which Will Take Place in Either October 2019 or January 2020. The Purpose of the Trip Will be to Conduct Research on 'Impossible Inheritance', and Also to Disseminate Research That Has Already Been Completed	\$1,767
			SSHRC	Insight Development Grant	Dwelling in Possibility: Tiny Houses as Conduits for Material, Social, and Ethical Transformation
Kingston, Paul	Political Science	University of British Columbia	SSHRC PG subgrant	Participedia: A Global Partnership to Create and Mobilize Knowledge about Democratic Innovations	\$7,500

FACULTY	DEPARTMENT	SPONSOR	PROGRAM	PROJECT TITLE	AWARDED
Klenk, Nicole	Physical & Environmental Sciences	SSHRC	University of Toronto Excellence Award – SSH	The Science-policy Interface and the Role of Activism in Science	\$6,000
Koudas, Nick	Computer & Mathematical Sciences	MITACS	Accelerate Ontario	Automated Retail Area Cluster Detection	\$30,000
		NSERC	Discovery Grants (Individual, Team & Project)	Efficient Query Processing and Optimization for Big Data Workloads	\$60,000
Kraatz, Heinz-Bernhard	Physical & Environmental Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Exploring the Chemistry of Ferrocene Bioconjugates	\$75,000
Krashinsky, Harry	Management	SSHRC	SIG: Direct costs of research	Causal Effect of Educational Training on Various Outcomes	\$7,000
				Effect of Education on Elasticity of Substitution Between More- and Less-educated Workers	\$4,266
Kremer, Philip	Philosophy	SSHRC	Insight Grant	Logic and Topology	\$18,270
Lambek, Michael	Anthropology	University of Notre Dame	Subgrant, Templeton Religion Trust	Female Piety and Sacred Space	\$15,015
Landolt, Patricia	Sociology	SSHRC	SIG: Domestic conference/workshop	2020 ISA Meeting Porto Alegre Brazil Present and Organized A Panel: Transnational Migration as a Family Strategy and Global Trajectories of Precarious Legal Status	\$900
				Partnership Development Grant	Precarious Noncitizenship through the Life Course
			York University	SSHRC Insight Grant Subgrant	New and Old Fault Lines in the Canadian Labour Market: The Temporal and Institutional Dynamics of Citizenship, Legal Status and Work
Latulippe, Nicole Monique	Physical & Environmental Sciences	SSHRC	SIG: Domestic conference/workshop	'Indigenous Placemaking', International Indigenous Design Circle, Vancouver, Canada, November 29, 2019, Emily Carr University of Art & Design	\$761
Lee, Andy CH	Psychology	NSERC	Discovery Grants (Individual, Team & Project)	Exploring the Content of Human Medial Temporal Lobe Representations and Their Contributions to Cognition	\$40,000
		CIHR	Doctoral Research Awards	Sonja Chu – Investigating the Role of Approach-avoidance Conflict and the Hippocampus in Anxiety, Obsessive-compulsive Disorder, and Post-traumatic Stress Disorder	\$35,000
Li, Nan	Management	SSHRC	Insight Grant	Blockchain Technology, Initial Coin Offerings, and Voluntary Disclosure	\$31,900
Lovejoy, Nathan Richard	Biological Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Phylogenetics, Biogeography, and Evolution of Fishes	\$44,000
Lowman, Julian	Physical & Environmental Sciences	NSERC	Discovery Grants (Individual, Team & Project)	The Evolution of the Interior of the Earth and Solid Planets	\$30,000
Luka, Mary Elizabeth	Arts, Culture & Media	Connaught Fund	New Researcher Award	Understanding how Arts and Creative Networks Operate as Pivots for Social Innovation in Canada	\$20,000
MacIvor, James Scott	Biological Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Bee Diversity and Pollination Services in Dynamic Heterogeneous Landscapes	\$33,000

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FACULTY	DEPARTMENT	SPONSOR	PROGRAM	PROJECT TITLE	AWARDED
Mandrak, Nicholas	Biological Sciences	Fisheries & Oceans	Operating Grant	Implementation and Evaluation of Recovery Actions for Aquatic Species at Risk in the Lower Great Lakes Watershed	\$340,200
				Research in Support of Science Advice on Species at Risk, Asian Carp, and Aquatic Invasive Species Programs	\$172,500
				Canadian Freshwater Species at Risk Research Network	\$43,750
	MITACS	Accelerate Ontario	Development of Fisheries Production Metrics for Offsets in Great Lakes Wetlands	\$91,666	
	McGill University	NSERC Strategic Project Subgrant	Assessing Biological Invasion Risk Under Climate Change Scenarios in the Great Lakes Basin	\$74,822	
University of Windsor	Ontario Genomics/Genome Canada subgrant	Environmental DNA ("eDNA"), Meta-barcoding and Transcriptional Profiling to Improve Sustainability of Freshwater Fisheries and Fish Culture	\$14,000		
Mantie, Roger Allan	Arts, Culture & Media	York St. John University	Subgrant, Margaret A. Cargill Philanthropies	Ethno: Background and Conceptual Framework	\$16,589
Martineau, Charles	Management	Connaught Fund	New Researcher Award	Hacking Information Into Markets	\$20,000
Maurice, Alice	English	SSHRC	Insight Grant	Making Faces: Makeup, Identity, and the Changing Face of American Cinema	\$6,381
McElheran, Kristina	Management	SSHRC	Insight Grant	Data and Data-driven Decision Making in the Digital Age: Economic, Organizational, and Individual Implications	\$35,211
McGowan, Patrick	Biological Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Prenatal Predator Stress and Brain Function	\$47,000
Menou, Kristen	Physical & Environmental Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Atmospheres and Climates of Exoplanets	\$28,000
Mitchell, Carl	Physical & Environmental Sciences	Environment Canada	Pollution Program	Passive Mercury Sampler Development and Implementation	\$99,894
		NSERC	Strategic Grants (Individual & Group) (operating)	Identifying and Evaluating the Effectiveness of Best Management Practices to Mitigate Mercury Contamination in Managed Forests	\$212,315
			Discovery Grants (Individual, Team & Project)	Hydrobiogeochemistry of Contaminant Transformation and Transport	\$30,000
		MITACS	Accelerate Ontario	Enhancing Water Balance Criteria to Protect Wetlands from Urban Stormwater and Climate Change	\$15,000
Mollett, Sharlene	Human Geography	SSHRC	SIG: Direct costs of research	In Defense of Climate Change: Afro-Ecuadorian Territories and Feminist Political Ecologies of Mangrove Forests on the Pacific Coast of Ecuador	\$1,908
Molloy, Michael	Computer & Mathematical Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Probabilistic Graph Theory and Random Constraint Satisfaction Problems	\$41,000
Molnar, Peter Kalman	Biological Sciences	Wildlife Conservation Society	Fellowship	Determining the Spread and Impact of the Winter Tick on Focal Yukon Species	\$11,530

FACULTY	DEPARTMENT	SPONSOR	PROGRAM	PROJECT TITLE	AWARDED
Molnar, Peter Kalman	Biological Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Bioenergetic Approaches to Understanding and Forecasting Ecological and Epidemiological Impacts of Climate Change	\$33,000
		Government of Yukon	Yukon Geological Survey	Predicting the Effects of Climate Change on Winter Ticks (<i>Dermacentor Albipictus</i>) and Their Hosts in Yukon, Canada	\$14,300
		Connaught Fund	New Researcher Award	Land Use Change Impacts on Parasite Transmission Networks	\$20,000
Monahan, Philip Joseph	Language Studies	NSERC	Discovery Grants (Individual, Team & Project)	Predicting Speech: Cortical Oscillations and Perceptual Dynamics	\$23,000
Mott, Glenn Adam	Biological Sciences	NSERC	Discovery Grants (Individual, Team & Project)	The Individual and Network Functions of Cell Surface Receptors in Plant Stress Responses	\$28,000
			DGECR Discovery Launch Supplement	The Individual and Network Functions of Cell Surface Receptors in Plant Stress Responses	\$12,500
Mullen, Ann Louise	Sociology	SSHRC	SIG: Direct costs of research	Transcriptions on the Final 16 Art Collector SF Contemporary Arts Community	\$900
		Ontario Council on Articulation and Transfer	Research Grant	Non-conventional and Transfer Pathways in Postsecondary Education: Statistical Portrait and Evaluation of Labour Market Outcomes [Xavier St-Denis]	\$11,960
Narayanareddy, Rajyashree	Human Geography	SSHRC	Insight Grant	Fixing Unruly Flows: Infrastructures of Wastewater in Bangalore, India	\$32,194
Nestor, Adrian	Psychology	NSERC	Discovery Grants (Individual, Team & Project)	A Neurocomputational Investigation of Human Face Processing	\$31,000
Niemeier, Matthias	Psychology	NSERC	Discovery Grants (Individual, Team & Project)	Neural and Cognitive Mechanisms of Predictive Coding and Their Interactions for Perception and Action	\$28,000
Oswin, Natalie Karen	Human Geography	SSHRC	Insight Development Grant	Hanoi, the Next Singapore: Envisioning Urbanism Through the 'Singapore Model'	\$48,987
			Insight Grant	Scales of Equity: Building Queer Global Cities in Canada and South Africa	\$4,917
Paz, Alejandro	Anthropology	SSHRC	SIG: Direct costs of research	Research Trip of 7.5 Weeks to Israel, Summer 2019, for Project 'Mediating Israel'	\$1,103
Pekhimenko, Gennady	Computer & Mathematical Sciences	NSERC	Collaborative R&D Grants (operating)	Efficient Memory Footprint Reduction for Java Performance	\$68,000
			Discovery Accelerator Supplements	Exploiting Hardware Heterogeneity for Efficient Execution of Emerging Applications	\$40,000
			Discovery Grants (Individual, Team & Project)	Exploiting Hardware Heterogeneity for Efficient Execution of Emerging Applications	\$28,000
			Collaborative R&D Grants (operating)	Efficient Distributed DNN Training and Inference	\$93,989
		Huawei	Collaboration Agreement	Efficient Compiler-Driven Pointer Compression	\$60,000
				Efficient Distributed DNN Training	\$59,864
Compiler Infrastructure for Optimizing DNN	\$72,325				

Research Funding

FACULTY	DEPARTMENT	SPONSOR	PROGRAM	PROJECT TITLE	AWARDED
Pekhimenko, Gennady	Computer & Mathematical Sciences	Huawei	Collaboration Agreement	Efficient Data Compression/Deduplication for Persistent Memory and DRAM	\$142,800
		IBM	CAS Faculty/ Research Fellowship Award	Efficient Compiler-Driven Pointer Compression	\$30,000
				IBM-CAS: Efficient Memory Footprint Reduction for Java Performance	\$30,000
Pfeiffer, Christian Tobias Georg	Philosophy	SSHRC	SIG: Dissemination activities (excl PI/ student travel)	Organize the Annual Workshop in Ancient Philosophy: Plato's Metaphysics, 21-22 March 2020	\$1,500
Pilcher, Jeffrey	Historical & Cultural Studies	SSHRC	Insight Grant	Tasting the Global City: Multicultural Histories of Toronto's Cuisines	\$25,024
Rein, Hanno	Physical & Environmental Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Formation of Multi-Planetary Systems in the Kepler Era	\$24,000
Renckens, Stefan	Political Science	SSHRC	Insight Development Grant	Private Rule-Making and Interest Representation in Sustainability Politics	\$22,572
Richards, Blake	Biological Sciences	Ontario Ministry of Research and Innovation	Early Research Award	Deep Learning in the Brain	\$39,853
		NSERC	Discovery Grants (Individual, Team & Project)	Uncovering the Neurobiology of Combined Supervised and Unsupervised Learning	\$29,000
		Canadian Open Neuroscience Platform	Grant or Contract, studentship grad	A Variational Autoencoder Technique for Analyzing Calcium Imaging Data – Luke Prince	\$6,250
Riggs, Charles	Biological Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Structural and Functional Studies of Nuclear Organization, Chromatin and Chromosome Behaviour During Nuclear Division	\$30,000
Riskedahl, Diane Renae	Anthropology	SSHRC	SIG: Student compensation – primary use of funds	Newcomer Parenthood Interview Project, Transcribe and Code this Additional Interview Material that I Will Be Collecting	\$709
Roy, Daniel	Computer & Mathematical Sciences	NSERC	Discovery Grants (Individual, Team & Project)	NSERC Individual Discovery Grant	\$29,000
		Tri-Agency Institutional Program Secretariat	Exploration – Full Application	New Foundations for Bayesian Statistics Using Mathematical Logic and Nonstandard Analysis	\$125,000
Ruocco, Anthony Charles	Psychology	CIHR	Fellowships	Jenna Traynor – Magnetic Seizure Therapy for the Treatment of Suicidality in Borderline Personality Disorder	\$28,333
			Canada Graduate Scholarships – Doctoral	Dean Carcone – CIHR CGS Doctoral Award – Alterations in Neural Activity Underlying Memory Disturbance in Major Depression, Bipolar Disorder and Schizophrenia: A Transdiagnostic, Cross-Cutting Symptom Approach	\$35,000
Saljoughi, Sara	English	SSHRC	Insight Grant	Burning Visions: The Counter-Cinema of the Iranian New Wave	\$13,110
			SIG: Int'l conference/ workshop	Modern Language Association, January 2020, Seattle, Going Home: Maliglutit and the Aesthetics of Autonomy	\$1,539

FACULTY	DEPARTMENT	SPONSOR	PROGRAM	PROJECT TITLE	AWARDED
Saljoughi, Sara	English	SSHRC	University of Toronto Excellence Award – SSH	Stateless Cinemas: Aesthetics, Autonomy, and Mobility	\$6,000
Schertzer, Robert Stephen	Political Science	SSHRC	Insight Development Grant	Understanding the New Ethno-Nationalism	\$27,855
Schillaci, Michael	Anthropology	MITACS	Globalink	Student Project with University of Oregon on the Health and Resilience of Trans People	\$6,000
		SSHRC	Insight Grant	A Study of the Biological Affiliations of the Sopris and Apishapa Phase Cultures of the American Southwest	\$12,602
Schmuckler, Mark	Psychology	NSERC	Discovery Grants (Individual, Team & Project)	Multisensory Integration in the Development of Mobility / Pitch Organization in Music Cognition	\$33,000
Sedivy, Sonia	Philosophy	SSHRC	Insight Grant	Perception, Understanding and Aesthetics	\$12,657
Shanks, Torrey	Political Science	SSHRC	Insight Grant	Improperty	\$17,900
Sharma, Jayeeta	Historical & Cultural Studies	SSHRC	SIG: Int'l conference/ workshop	Present at Two Workshops 'Formalisation, Informalisation and the Labour Process', Univ of Gottingen, Nov 20-22, 2019; and 'Republic of Plants', Chennai, India, on Dec 10-14, 2019	\$2,896
Silcox, Mary Teresa	Anthropology	NSERC	Discovery Grants (Individual, Team & Project)	Understanding the Evolution of the Earliest Primates	\$28,000
Silver, Daniel	Sociology	SSHRC	Insight Grant	Canons, Classics, and Disciplinary Identity in Sociology: Evidence from Canada, France, and Germany	\$34,845
		McMaster University	CFI MSI Subgrant	Canadian Research Data Centre Network: Transforming Research and Advancing Social Innovation	\$70,748
Silver, Michelle	Sociology	SSHRC	Insight Development Grant	Aging, Embodiment, and Sports: Canadian Elite Athletes Navigating retirement	\$15,417
Simpson, Andre	Physical & Environmental Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Fundamental Development of In-vivo NMR Technology to Understand Environmental Stress	\$94,000
			Research Tools & Instruments – Category 1	Nanoscale NMR – Tackling the Next Frontiers in Environmental Research	\$149,998
Simpson, Myrna	Physical & Environmental Sciences	Nuclear Waste Management Organization	Contract Standard	Bioavailability and Molecular Structure of Organic Carbon in Bentonite	\$60,000
		NSERC	Discovery Grants (Individual, Team & Project)	Molecular Biogeochemistry of Soil Organic Matter with Environmental Change	\$50,000
			Collaborative R&D Grants (operating)	Bioavailability and Molecular Structure of Organic Carbon in Bentonite	\$73,250
			NCE: ArcticNet	Operating Grant	Ensuring Water Security in the High Arctic: Understanding the Impacts of Changing Permafrost and Hydrology on Water Quality and Aquatic Ecosystems
Ontario Ministry of Environment	Research Grants	Identification of Unknown Contaminants and Their Toxicity in Industrial Effluents	\$208,771		
Sorensen, Andre	Human Geography	SSHRC	Insight Grant	Urbanization, Planning and Developmental States in Comparative Historical Perspective	\$27,845

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FACULTY	DEPARTMENT	SPONSOR	PROGRAM	PROJECT TITLE	AWARDED
Stark, Andrew	Management	SSHRC	Insight Grant	Political Capital in America	\$14,636
Sullan, Ruby May	Physical & Environmental Sciences	MITACS	Globalink	Highly Tuned Polymer Surfaces and Modified Polysertonin Nanoparticle in inhibition of Bacterial Adhesion	\$6,000
		NSERC	Discovery Grants (Individual, Team & Project)	Molecular Forces in Microbial Biofilms	\$27,000
Sun, Qiang	Computer & Mathematical Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Modern Statistical Optimization, Robustification and Inference with Applications to Big Data Analytics	\$23,000
		MITACS	Accelerate Ontario	Applying Machine Learning to Predict Demand Transference	\$30,000
Teichroeb, Julie	Anthropology	MITACS	Globalink	Attenuation of Cortisol in Ring-tailed Lemurs (Lemur Catta) During the Breeding Season and Associated Cognitive Abilities	\$6,000
		Leakey Foundation	General grant	Kinship Patterns and Mechanisms of Male Tolerance in a Rwenzori Angolan Colobus Multi-Level Society	\$32,987
		NSERC	Discovery Grants (Individual, Team & Project)	Understanding the Drivers of Individual and Group-Level Movements in Gregarious Species	\$28,000
Terebiznik, Mauricio	Biological Sciences	NSERC	Discovery Accelerator Supplements	Phagocytosis Filamentous Targets	\$40,000
			Discovery Grants (Individual, Team & Project)	Phagocytosis Filamentous Targets	\$58,000
		MITACS	Accelerate Ontario	An In Vitro Platform of Antigen-Presenting Cells to Evaluate Critical Quality Attributes in Vaccine Formulations	\$71,666
				Development of a Tissue Culture Platform to Investigate Piscine Orthoreovirus Infection Cycle In Vitro	\$70,000
Thiele, Tod	Biological Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Dissecting the Structure and Function of Vertebrate Sensorimotor Neural Circuits Using Larval Zebrafish	\$36,000
		Human Frontier Science Program Org	Young Investigators Grants	Visual Circuit Adaptations to Natural Environments and Behaviors in Zebrafish and Cichlids	\$100,955
Tiozzo, Giulio	Computer & Mathematical Sciences	Ontario Ministry of Research and Innovation	Early Research Award	Entropy in Dynamics, Geometry and Probability	\$139,999
		NSERC	Discovery Grants (Individual, Team & Project)	Ergodic Theory of Low-dimensional Dynamical Systems	\$25,000
Treanor, Bebhinn Lucy	Biological Sciences	Hospital for Sick Children	Subgrant, CIHR	Antibody-functionalized Nanoparticles for HIV Prevention	\$50,000
		CIHR	Open Operating	Molecular Mechanisms Regulating B Cell Signalling and Activation	\$30,224
			Project Scheme	Glycan-galectin Interactions in the Regulation of B Cell Responses	\$121,126
		Hospital for Sick Children	Operating Grant	In Vivo Evaluation of the Multibody Platform for Cancer Immunotherapy	\$91,709

FACULTY	DEPARTMENT	SPONSOR	PROGRAM	PROJECT TITLE	AWARDED
Tsuji, Leonard	Physical & Environmental Sciences	CIHR	Project Scheme	Land-based Approaches to Health and Wellness in Isolated Indigenous Communities: Agroforestry Stewardship Practices and Traditional Pursuits	\$100,000
			Fellowships	Aleksandra Zuk – Potential Associations Between Inflammatory Markers and Vitamin D on Cardiometabolic Risk Factors Among Indigenous Populations	\$55,000
			Project Scheme	Do Land-Centered Mitigation Strategies Positively Impact Indigenous Health and Wellbeing in Subarctic Canada?	\$298,095
	Anthropology	SSHRC	Insight Grant	From Subarctic Ontario, Canada, to the Subtropics of New South Wales, Australia: The Potential Use of Strategic Environmental Assessment to Protect the Core Elements of Indigenous Culture	\$43,075
Uliaszek, Amanda Ann	Psychology	SSHRC	SIG: Domestic conference/workshop	An Examination of the Self and Interpersonal Tenets of DSM-5's Alternative Model of Personality Disorders: The Levels of Personality Functioning Scale, International Society for the Study of Personality Disorders, Oct 15, 2019, Vancouver	\$1,311
Valencia, Diana	Physical & Environmental Sciences	France-Canada Research Foundation	The New Scientific Collaboration Support Program	Compositional Diversity of Rocky Planets after Collisional Accretion??	\$14,510
		Ontario Ministry of Research and Innovation	Early Research Award	Habitability Of Super-Earths Planets Around M-Dwarfs	\$111,218
		NSERC	Discovery Grants (Individual, Team & Project)	Formation and Evolution of Super-Earths and Sub-Neptune Planets	\$19,000
		Connaught Fund	New Researcher Award	Understanding Planetary Habitability	\$20,000
Vanlerberghe, Greg	Biological Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Metabolic and Signaling Interactions Between Plant Mitochondria and Chloroplasts	\$47,000
Vernon, Karina Joan	English	SSHRC	Insight Grant	Black Canadian Art and the Aesthetics of Spatial Justice	\$14,689
Voznyy, Oleksandr	Physical & Environmental Sciences	MITACS	Globalink	High-throughput Design and Synthesis of Novel Nanomaterials for Li-ion Batteries	\$6,000
				Accelerating Density Functional Theory (DFT) with Machine Learning	\$6,000
		Canada Foundation for Innovation	John R. Evans Leaders Fund	High-throughput Facility for Design, Synthesis, and Characterization of Novel Materials for Large-scale Energy Storage	\$153,449
		NSERC	DGECR Discovery Launch Supplement	Nanomaterials for Large-scale and Low-cost Energy Storage	\$12,500
			Discovery Grants (Individual, Team & Project)	Nanomaterials for Large-scale and Low-cost Energy Storage	\$29,000
University of Victoria	NFRF – Exploration – Subgrant	Teaching a Machine to Synthesize New Semiconductors	\$18,750		

Research Funding

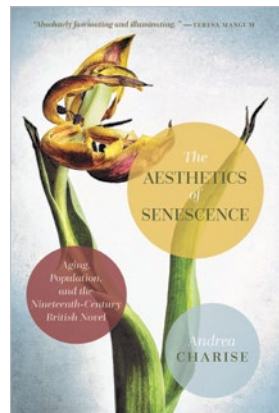
FACULTY	DEPARTMENT	SPONSOR	PROGRAM	PROJECT TITLE	AWARDED
Voznyy, Oleksandr	Physical & Environmental Sciences	Ontario Ministry of Research and Innovation	Small Infrastructure Fund	High-throughput Facility for Design, Synthesis, and Characterization of Novel Materials for Large-scale Energy Storage	\$153,449
Wang, Linbo	Computer & Mathematical Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Causal Inference from Massive and Complex Data Sets: High-dimensionality and Network Interference	\$30,000
			DGECR Discovery Launch Supplement	Causal Inference from Massive and Complex Data Sets: High-dimensionality and Network Interference	\$12,500
			Discovery Accelerator Supplements	Causal Inference from Massive and Complex Data Sets: High-dimensionality and Network Interference	\$40,000
Wania, Frank	Physical & Environmental Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Theoretical and Experimental Approaches to Describe the Chemodynamics of Hydrophobic Organics, Ionogenic Organics and Methyl Mercury in the Food Chain	\$89,000
		Environment Canada	Pollution Program	Multimedia Environmental Modelling for Contaminants Impacting Southern Resident Killer Whales and St. Lawrence Estuary Belugas	\$138,000
				Atmospheric Transport and Deposition of Non-Polar Organic Contaminants to Southern Resident Killer Whales and St. Lawrence Estuary Belugas	\$146,153
		Universite du Quebec a Montreal	DFO Subgrant	Occurrence and Health Impacts of Legacy and Novel Environmental Contaminants in the Endangered St. Lawrence Estuary Beluga	\$25,000
		MITACS	MITACS-Elevate (PDF)	A Mass Balance Modelling Framework for Chemicals and Their Primary Metabolites for Ecological and Human Health Assessment	\$60,000
Wei, Jason	Management	SSHRC	Insight Grant	Trading Behavior of Option Investors	\$15,754
Weir, Jason Tyler	Biological Sciences	NSERC	Discovery Grants (Individual, Team & Project)	The Biogeographic Drivers and Genomic Architecture of Speciation in Amazonian Birds	\$37,000
Welch Jr., Kenneth Collins	Biological Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Divergent Mechanisms, Convergent Phenotype: The Comparative Physiology of Glucose and Fructose Oxidation in Vertebrate Nectarivores	\$28,000
		Environment Canada	Pollution	Assessing Impacts of Neonicotinoid Insecticides in Agroecosystems to Migratory Bird Pollinators, Hummingbirds	\$49,975
Wells, Mathew	Physical & Environmental Sciences	NSERC	Engage Grants (EG) Program	Understanding the Impact of Aquatic Thermal Structure on the Performance of Fish Telemetry Technology	\$25,000
			Discovery Grants (Individual, Team & Project)	Transport and Mixing of Particles in Stratified Environmental Flows	\$48,000
Wilson, Jessica Marie	Philosophy	SSHRC	Insight Grant	How Metaphysical Dependence Works: A Case Study in Metaphysical Methodology	\$21,449
			SIG: Student compensation – primary use of funds	Fifth Annual Society for the Metaphysics of Science Conference at University of Toronto, Victoria College, Nov 7-9, 2019	\$1,500

FACULTY	DEPARTMENT	SPONSOR	PROGRAM	PROJECT TITLE	AWARDED
Wong, Ting Kam Leonard	Computer & Mathematical Sciences	NSERC	DGECR Discovery Launch Supplement	Portfolio Theory, Optimal Transport and Information Geometry	\$12,500
			Discovery Grants (Individual, Team & Project)	Portfolio Theory, Optimal Transport and Information Geometry	\$23,000
Zakzanis, Konstantine	Psychology	CIHR	Canada Graduate Scholarships - Doctoral	Kyrsten Grimes – CIHR CGS Doctoral Award – On the Relationship Between Neurocognition, Cognitive Biases, and Automatic Thoughts: The Development of Positive Symptoms in Schizophrenia	\$35,000
				Courtney Berezuk – CIHR CGS Doctoral award – Functional Reserve Hypothesis: A Novel Theoretical Construct with Implications for Identifying, Delaying, and Treating Functional Disability Associated with Neurodegeneration	\$35,000
				Sonya Dhillon – The Development and Validation of the (neuro)Cognitive Bias Scale for Depression (nCoBi)	\$35,000
Zhang, Xiaoran	Physical & Environmental Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Next Generation Molecular Probes for Magnetic Resonance Sensing and Imaging: Design, Synthesis, Evaluation and Application	\$30,000
Zhao, Rongmin	Biological Sciences	NSERC	Discovery Grants (Individual, Team & Project)	Protein Homeostasis in Plant Organelles: Chloroplasts and ER	\$33,000
Zweig, David	Management	NSERC	Insight Grant	Successful Psychopaths and Targets of Knowledge Theft	\$19,762



Select Publications by U of T Scarborough Research Faculty in 2019-20

Data obtained from Departmental Activity Reports for books published between **April 1, 2019 and March 31, 2020**. This list is **not comprehensive** and omissions were due to permissions for image rights not being secured. For a full listing of books, and full credit of covers, please see page 67.



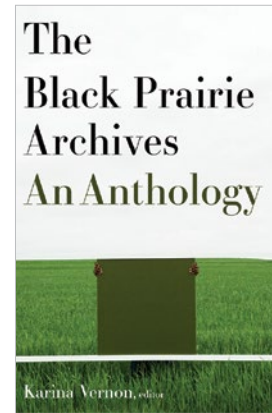
Andrea Charise

The Aesthetics of Senescence: Aging, Population, and the Nineteenth-Century British Novel



Joe Hermer

Policing Compassion: Begging, Law and Power in Public Spaces



Karina Vernon (Ed.)

The Black Prairie Archives: An Anthology



Leslie Chan & Pierre Mounier (Eds.)

Connecting the Knowledge Commons – From Projects to Sustainable Infrastructure



Paul Crawford, Brian Brown & Andrea Charise (Eds.)

The Routledge Companion to Health Humanities



List of Publications

- Inzlicht, M., & Friese, M. (2019). The past, present, and future of ego depletion. *Social Psychology, 50*(5–6), 370–378.
- Isaac, M. E., & Borden, K. A. (2019). Nutrient acquisition strategies in agroforestry systems. *Plant and Soil, 444*(1–2).
- Isaac, M. E., & Martin, A. R. (2019). Accumulating crop functional trait data with citizen science. *Scientific Reports, 9*(1).
- Izmaylov, A. F. (2019). On construction of projection operators. *Journal of Physical Chemistry A, 123*(15), 3429–3433.
- Izmaylov, A. F., Yen, T.-C., Lang, R. A., & Verteletskyi, V. (2020). Unitary partitioning approach to the measurement problem in the Variational Quantum Eigensolver method. *Journal of Chemical Theory and Computation, 16*(1), 190–195.
- Izmaylov, A. F., Yen, T.-C., & Ryabinkin, I. G. (2019). Revising the measurement process in the Variational Quantum Eigensolver: Is it possible to reduce the number of separately measured operators? *Chemical Science, 10*(13), 3746–3755.
- Jaffer, S., Maneas, S., Hwang, A., & Schroeder, B. (2020). The reliability of modern file systems in the face of SSD errors. *ACM Transactions on Storage, 16*(1).
- Jagannathan, K., Arnott, J. C., Wyborn, C., Klenk, N., Mach, K. J., Moss, R. H., & Sjöstrom, K. D. (2020). Great expectations? Reconciling the aspiration, outcome, and possibility of co-production. *Current Opinion in Environmental Sustainability, 42*, 22–29.
- Jebble, S., Gomes, M., Jha, P., Rudzicz, F., & Hirst, G. (2019). Automatically determining cause of death from verbal autopsy narratives. *BMC Medical Informatics and Decision Making, 19*(1).
- Jeffrey, L. C., & Ji, J. (2019). Intersection pairings in the N-fold reduced product of adjoint orbits. *Journal of Mathematical Physics, 60*(8).
- Jeong, T.-Y., & Simpson, M. J. (2019a). Daphnia magna metabolic profiling as a promising water quality parameter for the biological early warning system. *Water Research, 166*.
- Jeong, T.-Y., & Simpson, M. J. (2019b). Reproduction stage differentiates the time-course regulation of metabolites in Daphnia magna. *Environmental Science and Technology, 53*(21), 12764–12773.
- Jia, H., Howard, K., & Qian, H. (2020). Use of multiple isotopic and chemical tracers to identify sources of nitrate in shallow groundwaters along the northern slope of the Qinling Mountains, China. *Applied Geochemistry, 113*.
- Jia, J., Cao, Z., Liu, C., Zhang, Z., Lin, L., Wang, Y., ... Simpson, M. J., ... Feng, X. (2019). Climate warming alters subsoil but not topsoil carbon dynamics in alpine grassland. *Global Change Biology, 25*(12), 4383–4393.
- Johnston, A., Dinic, F., Todorović, P., Chen, B., Sagar, L. K., Saidaminov, M. I., ... Voznyy, O., & Sargent, E. H. (2020). Narrow emission from Rb3Sb2I9 nanoparticles. *Advanced Optical Materials, 8*(1).
- Jones, D. S., Walker, G. M., Johnson, N. W., Mitchell, C. P. J., Coleman Wasik, J. K., & Bailey, J. V. (2019). Molecular evidence for novel mercury methylating microorganisms in sulfate-impacted lakes. *ISME Journal, 13*(7), 1659–1675.
- Jungic, V., Creelman, D., Bigelow, A., Côté, E., Harris, S., Joordens, S., ... Yoon, J.-S. (2020). Experiencing failure in the classroom and across the university. *International Journal for Academic Development, 25*(1), 31–42.
- Kaluskar, S., Blukacz-Richards, E. A., Johnson, C. A., He, Y., Langlois, A., Kim, D.-K., & Arhonditsis, G. (2019). Development of a model ensemble to predict Peary caribou populations in the Canadian Arctic Archipelago. *Ecosphere, 10*(12).
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- Keefer, K. V., Taylor, G. J., Parker, J. D. A., & Bagby, R. M. (2019). Taxometric analysis of the Toronto structured interview for alexithymia: Further evidence that alexithymia is a dimensional construct. *Assessment, 26*(3), 364–374.
- Kelly, N. E., Javed, A., Shimoda, Y., Zastepa, A., Watson, S., Mugalingam, S., & Arhonditsis, G. B. (2019). A Bayesian risk assessment framework for microcystin violations of drinking water and recreational standards in the Bay of Quinte, Lake Ontario, Canada. *Water Research, 162*, 288–301.
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- Kortenaar, N. T. (2019). The half-lives of African fictive states. *Cambridge Journal of Postcolonial Literary Inquiry, 6*(2), 163–178.
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- Kovacevic, V., Simpson, A. J., & Simpson, M. J. (2019a). Metabolic profiling of Daphnia magna exposure to a mixture of hydrophobic organic contaminants in the presence of dissolved organic matter. *Science of the Total Environment, 688*, 1252–1262.
- Kovacevic, V., Simpson, A. J., & Simpson, M. J. (2019b). The concentration of dissolved organic matter impacts the metabolic response in Daphnia magna exposed to 17 α -ethynylestradiol and perfluorooctane sulfonate. *Ecotoxicology and Environmental Safety, 170*, 468–478.
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- Krupa, C. (2019). The politics of intellectual labor under contemporary capitalist restructuring: An introduction. *Focaal, 2019*(84), 109–110.
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- Le, A., Wall, F. B., Lin, G., Arunthavarajah, R., & Niemeier, M. (2019). Shared right-hemispheric representations of sensorimotor goals in dynamic task environments. *Experimental Brain Research, 237*(4), 977–987.
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- Levitsky, S., & Way, L. (2020). The new competitive authoritarianism. *Journal of Democracy, 31*(1), 51–65.
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- Li, L., Arnot, J. A., & Wania, F. (2019). How are humans exposed to organic chemicals released to indoor air? *Environmental Science and Technology, 53*(19), 11276–11284.
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- trolyte. *ACS Energy Letters, 4*(6), 1427–1431.
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List of Publications

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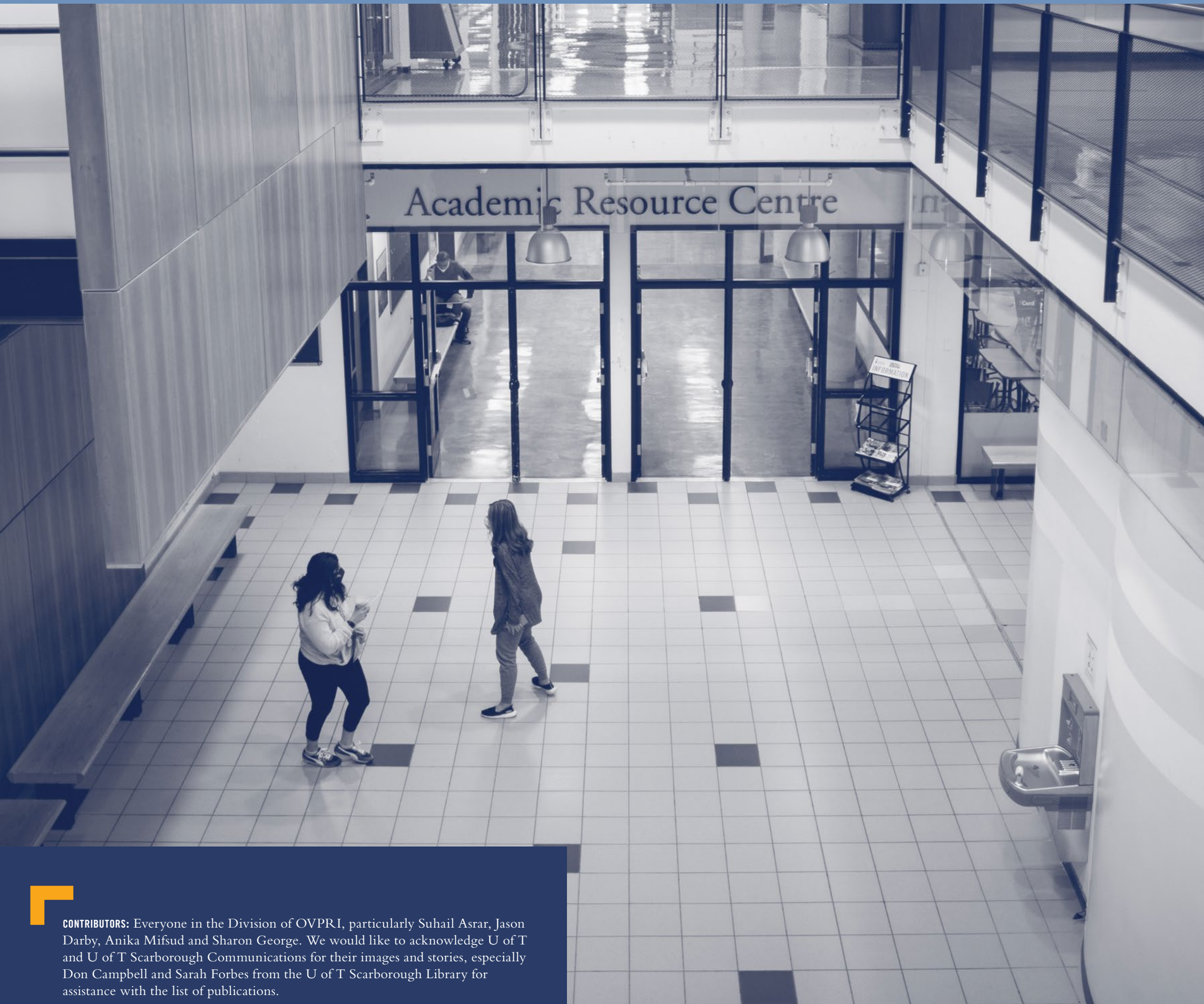
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The diverse excellence of our students is critically linked to our research and ability to bring innovation to life.

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